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Hydrogeological Investigation and Wetland Risk Evaluation

Proposed Development

14475 Highway 50

Bolton, Ontario

Prepared For:

Royal Pine Homes

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Executive Summary

DS Consultants Ltd. (DS) was retained to complete a hydrogeological investigation and wetland risk evaluation in support of the proposed residential development located at 14475 Highway 50 in Bolton, Ontario (the Site). This report summarizes available background information, the DS field investigation, groundwater conditions, site water balance results, wetland risk considerations, and preliminary dewatering/development considerations.

Based on the results of this assessment, the following conclusions and recommendations are presented:

1. The Site is located on the east side of Regional Road 50, north of Columbia Way, within the broader Bolton North Hill Secondary Plan lands and the Humber River watershed under Toronto and Region Conservation Authority jurisdiction.
2. The proposed development consists of a low-rise residential subdivision with internal roads, municipal servicing, stormwater management facilities, open space/NHS areas and an elementary school block. The Functional Servicing and Stormwater Management Report identifies a total subject land area of approximately 40.68 ha and stormwater management through SWM Ponds 6 and 7.
3. The assessment builds on background information from the Bolton North Hill Subwatershed Study and Crozier Hydrogeological Investigation. Crozier installed a broader monitoring well network across the Bolton North Hill lands and collected groundwater monitoring data between 2022 and 2024. Select existing Crozier monitoring locations were also incorporated into the DS 2026 monitoring program where accessible.
4. DS advanced twelve boreholes, identified as BH26-1 to BH26-12, between April 20 and 22, 2026. Monitoring wells were installed in selected boreholes and groundwater levels were measured during May, June and July 2026 monitoring events. Shallow piezometer nests and surface-water monitoring stations were installed in wetland and drainage-feature areas to support ongoing interpretation of groundwater/surface-water interaction.
5. Subsurface conditions generally consist of topsoil, fill and/or weathered/disturbed soil overlying predominantly fine-grained clayey silt to silty clay deposits. Localized silt, sandy silt, silty sand and sand seams are present within the fine-grained overburden sequence and represent the primary zones of relatively higher groundwater movement.
6. Hydraulic conductivity testing completed in BH26-1, BH26-4, BH26-7 and BH26-9 yielded values ranging from approximately 1.35×10^{-7} m/s to 3.46×10^{-6} m/s, with a geometric mean of approximately 9.1×10^{-7} m/s. The results indicate generally low-permeability conditions, with localized higher responses associated with more permeable seams and shallow groundwater conditions.
7. Groundwater levels measured in the DS and background monitoring network indicate spatially variable groundwater conditions across the Site. Groundwater is interpreted to occur within localized water-bearing seams or shallow saturated zones rather than as a uniform shallow unconfined groundwater table. Groundwater levels are expected to vary seasonally.
8. The interpreted shallow groundwater flow pattern generally follows the surface drainage framework, with groundwater movement toward lower-lying drainage features and wetland areas. Local variability is expected due to the fine-grained overburden and discontinuous silt, sandy silt and sand seams.
9. A site water balance was completed using site-specific spatial analysis and FSR drainage/imperviousness inputs. The calculated pre-development infiltration is approximately 38,178 m³/year. Post-development infiltration without mitigation is approximately 19,976 m³/year. With the FSR infiltration mitigation volume of approximately 23,300 m³/year applied, calculated post-development infiltration is approximately 43,276 m³/year.
10. A wetland risk evaluation was completed for Wetlands G, I, H, K, L and J. The overall risk rating for each wetland is High, reflecting the High ecological sensitivity assigned to these features in the background wetland sensitivity assessment and the hydrologic-change ratings calculated using catchment mapping prepared for this assessment.
11. Planning-level dewatering estimates were completed using the highest measured hydraulic conductivity (3.46×10^{-6} m/s), an effective saturated thickness limited to 3.0 m, and representative excavation geometries. For the residential

scenario, the excavation base was assumed to extend 1.0 m below the initial groundwater table and groundwater was then lowered an additional 1.0 m below the excavation base, corresponding to a total drawdown of 2.0 m. For the service trench scenario, the trench base was assumed to extend 2.0 m below the initial groundwater table and groundwater was lowered an additional 1.0 m below the trench base, corresponding to a total drawdown of 3.0 m. Applying a factor of safety of 2.0, estimated groundwater pumping rates are approximately 17.9 m³/day (17,867 L/day) for a representative residential excavation and 9.7 m³/day (9,721 L/day) for a representative active service trench. Pumping rates are expected to be highest during initial drawdown and decrease as localized, discontinuous water-bearing seams are dewatered.

12. Continued seasonal groundwater and surface-water monitoring is recommended to support later interpretation of wetland hydrology, groundwater/surface-water interaction, shallow seepage conditions and final dewatering/design considerations.

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1.0 Introduction

DS Consultants Ltd. (DS) was retained to complete a hydrogeological investigation and wetland evaluation in support of the proposed development at 14475 Highway 50 in Bolton, Ontario (the Site). The Site is located east of Highway 50, north of Columbia Way and west of Mount Hope Road, within the Humber River watershed and Toronto and Region Conservation Authority jurisdiction.

The purpose of this report is to summarize the hydrogeological setting of the Site, document the field investigation completed by DS, assess existing and proposed water balance conditions, evaluate potential hydrologic risk to selected wetland features associated with the Site and downstream drainage, and identify preliminary construction dewatering and development considerations. This assessment is intended to support the current development application and identify considerations for detailed design, agency review and future monitoring.

1.1 Scope of Work

The scope of work completed for this assessment included the following:

- review of available background hydrogeological, geotechnical, stormwater and wetland information relevant to the Site;
- review of MECP Water Well Records within the area surrounding the Site;
- review of surficial geology, regional hydrostratigraphy, topography and drainage setting;
- completion of borehole drilling and monitoring well installation by DS as part of the geotechnical/hydrogeological investigation program;
- manual groundwater level monitoring at selected DS monitoring wells and selected existing Crozier monitoring locations;
- single-well response testing and hydraulic conductivity analysis at selected monitoring wells;
- groundwater and surface-water quality sampling to provide baseline water quality information;
- installation of shallow piezometer nests and surface-water monitoring stations in wetland and drainage-feature areas;
- site water balance assessment using site-specific spatial analysis and FSR drainage/imperviousness inputs;
- wetland risk evaluation for Wetlands G, I, H, K, L and J using the drainage sequence and catchment mapping prepared for this assessment; and
- preliminary identification of construction dewatering, groundwater management, wetland hydrology and future monitoring considerations.

2.0 Site Description and Proposed Development

The Site is located on the east side of Regional Road 50, north of Columbia Way, in Bolton, Ontario. Existing conditions consist primarily of agricultural lands, with naturalized areas, wooded areas and drainage features located mainly along the eastern portion of the property. Surface drainage is influenced by the existing topography and a drainage divide which directs runoff toward receiving drainage systems on the west and east sides of the Site.

The proposed development consists of a low-rise residential subdivision with associated internal roads, municipal servicing, stormwater management facilities, open space/NHS areas and an elementary school block. The Functional Servicing and Stormwater Management Report (FSR) identifies a total subject land area of approximately 40.68 ha. The current development concept includes 192 single detached units and 375.5 townhouse units, for a total of 567.5 residential units, together with a 0.752 ha elementary school block. Stormwater runoff from the development will be directed to proposed SWM Ponds 6 and 7, with outlet routing to the receiving tributary systems identified in the FSR.

For hydrogeological reporting purposes, the Site and development plans are considered preliminary and subject to refinement during detailed design. Final grading, servicing depths, stormwater management pond elevations and outlet configurations should be confirmed prior to completing final dewatering, groundwater interaction and wetland hydrology interpretations.

3.0 Background Report Review

The following background reports and documents were reviewed as part of this assessment:

Table 1: Background Reports Reviewed

Background Source	Relevance to Current Assessment
Hydrogeological Investigation - Bolton North Hill Option 1 & Option 2 Lands, prepared by C.F. Crozier & Associates Inc.	Provides background characterization of hydrogeology, groundwater monitoring, hydrostratigraphy, source protection, water balance and development constraints for the broader Bolton North Hill lands.
Local Subwatershed Study - Bolton North Hill Secondary Plan, Preliminary (Stage 1) Submission, prepared by C.F. Crozier & Associates Inc.	Provides broader subwatershed context, including ecological features, water resources, drainage, natural hazards and staged study requirements.
Natural Heritage Study Report, Bolton North Hills Landowner Group, prepared by Dillon Consulting Limited.	Provides natural heritage context, including watercourses, waterbodies, headwater drainage features and wetland features within the broader Study Area.
Wetland Water Balance Risk Assessment, prepared by C.F. Crozier & Associates Inc.	Provides background wetland identifiers, ecological sensitivity/risk framework and pre-development drainage context for wetland features relevant to this assessment.
Functional Servicing and Stormwater Management Report, Oakbank Estates, prepared by Schaeffers Consulting Engineers.	Provides development statistics, servicing concept, stormwater management strategy, drainage areas, imperviousness values and proposed infiltration mitigation information used in the DS water balance assessment.
DS Geotechnical Investigation Report, Proposed Development, 14475 Highway 50, Bolton, Ontario.	Provides current borehole drilling, subsurface soil information and groundwater observations from the DS geotechnical/hydrogeological investigation program.

3.1 Bolton North Hill Subwatershed Study

The Bolton North Hill Subwatershed Study was prepared to support the Local Official Plan Amendment for the Bolton North Hill Secondary Plan lands. The study provides baseline characterization of ecological features, water resources, hydrogeology, natural hazards, and related development constraints and management considerations for the broader Bolton North Hill lands. The Subwatershed Study indicates that the Bolton North Hill lands are located within the Humber River watershed and drain through small tributaries toward either Cold Creek or the Main Humber River. A drainage divide is present within the Site, directing drainage either east or west depending on local topography.

The Subwatershed Study was prepared as part of a staged process. Stage 1 included characterization and preliminary impact assessment. Subsequent stages are understood to include additional monitoring, modelling, management strategies and implementation/monitoring recommendations. The findings of the Subwatershed Study were reviewed as background information for this assessment.

3.2 Previous Hydrogeological Investigation and Monitoring Program

The Crozier Hydrogeological Investigation was prepared for the broader Bolton North Hill Option 1 and Option 2 lands to characterize the local hydrogeological regime and identify hydrogeological constraints for future development. The study included review of source protection information, physiography, drainage, topography, regional geology, local geology, MECP Water Well Records, hydrostratigraphy, groundwater monitoring, and a site-wide water balance assessment.

The Crozier Hydrogeological Investigation included a field drilling program in November 2021, during which twenty monitoring wells were installed across the broader Bolton North Hill lands. The monitoring wells were constructed as shallow monitoring wells to an approximate depth of 6.1 m below ground surface, using 50 mm diameter Schedule 40 PVC pipe with #10 slot PVC screen. The screened intervals were selected to intersect water-bearing units. Groundwater monitoring began

following well installation and included manual groundwater level measurements and automatic water level recording devices installed in selected wells.

The Crozier monitoring program provides useful background information regarding the broader shallow groundwater regime, seasonal groundwater variability, groundwater interaction with surface-water and wetland features, and groundwater conditions within the Bolton North Hill Secondary Plan lands. The Crozier monitoring wells located on or adjacent to the Site were included in this assessment as background monitoring locations and are shown on Figure 2, where applicable.

3.3 Current and Background Monitoring Program

The current DS investigation builds on available background monitoring information for the broader Bolton North Hill lands. Background groundwater information includes the Crozier monitoring network established as part of the broader Bolton North Hill hydrogeological investigation and subwatershed study monitoring program.

The Crozier monitoring network provides longer-term seasonal groundwater context for the broader Bolton North Hill lands. Select existing Crozier monitoring wells were also incorporated into the DS 2026 monitoring program where accessible. This allows current groundwater level data to be collected from existing monitoring locations together with the previous Crozier groundwater level dataset.

The DS field program also included site-specific borehole drilling, monitoring well installation, groundwater level monitoring, hydraulic conductivity testing, groundwater/surface-water sampling, piezometer and surface-water monitoring station installation, and seepage observations for the 14475 Highway 50 lands.

Together, the background Crozier monitoring data, DS monitoring of select existing Crozier wells, and DS-installed monitoring wells and piezometers support interpretation of shallow groundwater conditions, groundwater flow direction, potential groundwater/surface-water interaction, preliminary construction dewatering considerations and wetland hydrology considerations.

Table 2: Current and Background Monitoring Program Summary

Monitoring Network	Monitoring Locations	Monitoring Period / Data Source	Purpose in Current Assessment
Crozier background monitoring wells	Existing Crozier monitoring wells located on or adjacent to the Site and broader Bolton North Hill lands, including MW11, MW12, MW13, MW14 and MW15.	Crozier background monitoring data collected between 2022 and 2024.	Provides longer-term seasonal groundwater context, groundwater elevation trends and background interpretation of shallow groundwater conditions.
Existing Crozier wells monitored by DS	Select existing Crozier monitoring wells/stations incorporated into the DS 2026 monitoring program where accessible.	DS 2026 manual groundwater monitoring events.	Provides current groundwater level data from existing monitoring locations and allows comparison with the historical Crozier monitoring dataset.
DS monitoring wells	BH26-1, BH26-3, BH26-4, BH26-7, BH26-9, BH26-10, BH26-11 and BH26-12.	May, June and July 2026 manual groundwater monitoring.	Provides current site-specific groundwater levels within the proposed development area.
DS piezometer nests	PZ-series shallow/deep piezometer nests.	2026 ongoing monitoring program.	Supports future interpretation of shallow groundwater, surface-water and wetland interaction.
Surface-water monitoring stations	Staff gauges and flow monitoring locations.	2026 ongoing monitoring program.	Supports future interpretation of wetland and drainage-feature water levels, surface-water flow conditions and groundwater/surface-water interaction.

4.0 Physical Setting

Available topographic mapping, published geological information, MECP Water Well Records, the Crozier Hydrogeological Investigation, the Bolton North Hill Subwatershed Study, the Natural Heritage Study Report, the FSR and the DS field investigation were reviewed to develop an understanding of the physical, geological and hydrogeological setting of the Site.

4.1 Physiography, Topography and Drainage

The Site is located within the South Slope physiographic region, south of the Oak Ridges Moraine, within the broader Humber River watershed. This physiographic setting is characterized by gently sloping to drumlinized terrain generally associated with low-permeability silt to clayey silt till deposits overlying shale bedrock, as described by Chapman and Putnam (1984). The background review indicates that the broader Study Area is generally underlain by red to brown silt to clayey silt till associated with the Halton Till sheet.

Existing site conditions consist primarily of agricultural land, with limited formal drainage infrastructure. Surface runoff is conveyed through a combination of sheet flow, shallow drainage swales, natural drainage channels, local depressions and intermittent drainage features. The broader Study Area is generally described as relatively flat agricultural land with gentle rolling slopes, with higher elevations in the northern portions and drainage influenced by local topography and surface-water features.

The Site is located within the Main Humber River Subwatershed, which forms part of the larger Humber River Watershed. The Natural Heritage Study Report prepared for the Bolton North Hills Landowner Group identifies watercourses, waterbodies, headwater drainage features and wetland features within the broader Study Area. The background Wetland Water Balance Risk Assessment prepared by Crozier identifies wetland communities using letter identifiers A through L. Wetlands relevant to this assessment include Wetlands G, H, I, J, K and L.

The Functional Servicing and Stormwater Management Report identifies two receiving drainage systems for the development: Tributary E, associated with Sub-basin 10 of the Humber River watershed, and Tributary D, associated with the Main Humber River. The FSR indicates that the southern and eastern portions of the Site drain toward Tributary E / Sub-basin 10, while the northern and central portions drain toward Tributary D / Main Humber River. Proposed stormwater management is directed to SWM Ponds 6 and 7, with discharge to these receiving tributary systems.

A surface drainage divide is present across the Site and generally separates drainage toward the western and eastern portions of the property. West of the divide, drainage is directed toward the western portion of the Site and ultimately toward the receiving system identified in the FSR as Tributary D / Main Humber River. East of the divide, drainage is directed toward the eastern drainage-feature corridor associated with Wetlands G, H, I, J, K and L and ultimately toward the receiving system identified in the FSR as Tributary E / Sub-basin 10.

4.2 Source Water Protection

The Site is located within the Toronto and Region Source Protection Area and the CTC Source Protection Region. Background source protection information reviewed for the broader Bolton North Hill lands indicates that provincial source protection mapping does not identify wellhead protection areas, intake protection zones or issue contributing areas within the study area. The broader lands are mapped within a Significant Groundwater Recharge Area and Highly Vulnerable Aquifer. Best management practices should be applied during construction and post-development operation to limit potential impacts associated with stormwater, wastewater infrastructure, road salt, snow storage, fuels, solvents, fertilizers and other potential contaminant sources.

4.3 Geology

4.3.1 Surficial Geology

Published Ontario Geological Survey mapping and the Bolton North Hill Subwatershed Study indicate that the regional surficial geology is characterized predominantly by Halton Till. The Halton Till is a clay- to silt-textured glacial till derived from glaciolacustrine deposits and is generally clay rich. Localized modern and historic alluvial deposits consisting of clay, silt, sand, gravel and minor organic material are associated with surface-water flow pathways. The mapped surficial geology is shown on Figure 3.

The DS borehole investigation encountered predominantly fine-grained clayey silt to silty clay deposits beneath topsoil, fill and/or weathered soils, with localized silt, sandy silt, silty sand and sand seams. These conditions are generally consistent with the mapped Halton Till and associated glaciolacustrine setting. Detailed site-specific subsurface conditions are described in Section 5.2.

4.3.2 Bedrock Geology

The Bolton North Hill Subwatershed Study indicates that bedrock in the broader area comprises the Georgian Bay and Queenston formations. The Georgian Bay Formation consists of interbedded shale, siltstone and limestone, while the Queenston Formation consists predominantly of red calcareous shale. Regional mapping shows the Site is underlain by the Georgian Bay Formation.

Bedrock was not encountered during the DS borehole program, which extended to depths of approximately 6.7 m to 8.2 m below ground surface. Background information indicates that the Quaternary overburden is relatively thick in the broader Bolton area; accordingly, bedrock is not interpreted to directly control the shallow groundwater conditions relevant to the proposed development.

4.4 Regional and Local Hydrostratigraphy

The regional hydrostratigraphic framework for the Humber River Watershed and Bolton North Hill area has been described in the background Crozier Hydrogeological Investigation and Bolton North Hill Subwatershed Study. Hydrostratigraphic units are differentiated based on their lithology and ability to store and transmit groundwater. Coarser-grained sand and gravel deposits generally form aquifer units, while fine-grained till, silt and clay deposits generally function as aquitards.

Table 3 summarizes the principal regional hydrostratigraphic units and their significance to the local Site hydrogeologic setting. The regional sequence is not necessarily present in full beneath the Site because several deeper units are interpreted to be limited or absent within portions of the Bolton North Hill area.

Table 3: Regional and Local Hydrostratigraphic Framework

Hydrostratigraphic Unit	General Description / Hydrogeologic Function	Local Significance
Recent / Surficial Deposits	Fine sand, silt and clay associated with recent, alluvial and glaciolacustrine deposits. Depending on texture and continuity, these materials may function locally as either shallow aquifer or aquitard materials.	Generally thin and discontinuous. Local alluvial deposits occur along surface-water pathways and may influence infiltration, runoff and very shallow groundwater conditions.
Halton Till	Predominantly sandy silt to clayey silt till with localized silt, clay, sand and gravel interbeds or seams. The fine-grained matrix generally functions as a regional aquitard.	The principal shallow hydrostratigraphic unit within the Bolton North Hill area. The background studies subdivide the shallow Halton Till sequence into the Upper Fractured Till, Middle Till Complex, Glaciolacustrine Deposits and Lower Till Complex. The DS boreholes encountered fine-grained soils with localized coarser seams consistent with this setting; these seams may provide preferential pathways for shallow lateral groundwater movement.
Oak Ridges Moraine Aquifer Complex / Mackinaw Interstadial Deposits	Predominantly fine sand and silt with discontinuous sand and gravel deposits. The coarser portions form an important regional aquifer and groundwater recharge system.	Represents an important deeper aquifer system in the broader Bolton North Hill area and is used locally for groundwater supply. The unit occurs below the depth of the DS investigation and was not encountered in the shallow Site boreholes.

Hydrostratigraphic Unit	General Description / Hydrogeologic Function	Local Significance
Newmarket Till	Dense silty sand till that generally functions as a regional aquitard and can separate the Oak Ridges Moraine aquifer system from deeper groundwater-bearing deposits.	The Subwatershed Study indicates that the Newmarket Till is limited to absent within the Bolton North Hill area. It is not considered a primary control on the shallow groundwater conditions encountered at the Site.
Thorncliffe Formation	Heterogeneous sand and silty sand with pebbly silt and locally finer-grained deposits. Permeable portions of the formation comprise a regionally significant aquifer.	Represents an important deeper groundwater supply unit in the broader area. It occurs substantially below the shallow DS investigation and is not expected to directly influence typical shallow development excavations.
Sunnybrook Drift	Predominantly dark grey clayey silt with scattered stones. The unit generally functions as a regional aquitard.	Interpreted by the Subwatershed Study to be limited to absent within the Bolton North Hill area. Reported occurrences are concentrated farther south along the regional bedrock valley toward the interpreted Laurentian Channel.
Scarborough Formation	Coarse deltaic sands, silts and muds. Sandier portions form a regionally significant deeper aquifer.	Also interpreted to be limited to absent within the Bolton North Hill area, with occurrences concentrated farther south along the regional bedrock valley. It is not considered significant to the shallow Site hydrogeologic setting.
Paleozoic Bedrock - Queenston and Georgian Bay Formations	Queenston Formation red calcareous shale and Georgian Bay Formation interbedded shale, siltstone and limestone. Groundwater movement occurs primarily through fractures and more permeable interbeds.	Some deeper groundwater supply wells in the broader area may obtain water from fractured bedrock. Bedrock is beneath a substantial overburden sequence and was not encountered during the DS investigation; it is therefore of limited relevance to shallow groundwater conditions at the Site.

The Bolton North Hill Subwatershed Study identifies the Shallow Overburden System, Oak Ridges Moraine Aquifer Complex, Thorncliffe Aquifer and Scarborough Aquifer as the principal aquifer systems within the broader Humber River Watershed. At the Site, the shallow groundwater regime is dominated by the Halton Till and associated glaciolacustrine deposits, with localized silt, sandy silt, silty sand and sand seams providing the primary zones of relatively higher groundwater movement.

The deeper Oak Ridges Moraine and Thorncliffe aquifer systems are regionally important but occur below the depths investigated by DS. The Newmarket Till, Sunnybrook Drift and Scarborough Formation are interpreted to be limited or absent within the Bolton North Hill area. Buried valleys and tunnel-channel deposits may locally modify the regional sequence and provide hydraulic connections between aquifer systems; however, these features are not interpreted to represent the principal shallow hydrostratigraphic condition at the Site.

4.5 MECP Water Well Record Review

A review of MECP Water Well Records was completed for the area surrounding the Site. A total of 29 well records were identified within the reviewed search area. The detailed MECP Water Well Record Summary is provided in Appendix B.

The records generally indicate variable groundwater conditions in the surrounding area, with reported well depths ranging from approximately 4.6 m to 57.9 m below ground surface and reported static water levels ranging from approximately 1.2 m to 31.5 m below ground surface, where available. The geologic descriptions generally indicate a fine-grained overburden sequence dominated by loam, clay, silty clay, clayey silt and clay with sand/gravel, with localized sand, silt, sand/gravel and water-bearing intervals. These records are generally consistent with the fine-grained subsurface conditions and localized permeable seams identified during the current investigation.

Based on the available MECP Water Well Record information, private groundwater supply wells may be present in the broader area surrounding the Site. Potential impacts to private wells should be considered if construction dewatering rates are materially higher than anticipated, if deeper excavations are proposed, or if agency review identifies a need for additional private well inventory work.

5.0 Field Investigation and Subsurface Conditions

The current field investigation was completed to characterize shallow subsurface and groundwater conditions across the Site and to provide site-specific information to supplement the broader hydrogeological characterization completed for the Bolton North Hill lands. The program included borehole drilling, monitoring well installation, groundwater level monitoring,

hydraulic conductivity testing, groundwater and surface-water sampling, installation of shallow piezometers and surface-water monitoring stations, and field observations of seepage and wet ground conditions.

Borehole, monitoring well, piezometer and surface-water monitoring station locations are shown on Figure 2. Detailed DS borehole and monitoring well logs are to be provided in Appendix A1, and selected monitoring well logs from the previous Crozier investigation are to be provided in Appendix A2.

5.1 DS Borehole and Monitoring Well Program

Twelve boreholes, identified as BH26-1 through BH26-12, were advanced at the Site between April 20 and 22, 2026 using solid-stem continuous-flight auger drilling equipment under the direction of DS personnel. The boreholes were advanced to depths ranging from approximately 6.7 m to 8.2 m below existing ground surface. Soil samples were retrieved at regular intervals using a 50 mm O.D. split-barrel sampler advanced in general accordance with the Standard Penetration Test method.

Monitoring wells were installed in BH26-1, BH26-3, BH26-4, BH26-7, BH26-9, BH26-10, BH26-11 and BH26-12 to support groundwater level monitoring and hydrogeological testing. Shallow piezometer nests and surface-water monitoring stations were also installed in wetland and drainage-feature areas to support assessment of shallow groundwater, surface-water and wetland interaction. Surveyed ground surface and measuring-point elevations were used to calculate groundwater elevations at the DS monitoring wells.

5.2 Subsurface Conditions

The DS boreholes encountered a predominantly fine-grained overburden sequence consisting of topsoil and/or fill or weathered/disturbed near-surface soils overlying native clayey silt to silty clay. Localized layers and seams of silt, sandy silt, silty sand and sand were encountered within the fine-grained sequence.

Topsoil, Fill and Weathered/Disturbed Soils

Topsoil was encountered at the majority of borehole locations and ranged from approximately 100 mm to 400 mm in thickness. Fill was encountered at BH26-1, BH26-10, BH26-11 and BH26-12 and generally consisted of clayey silt to silty clay containing variable rootlets, organics and/or topsoil inclusions. Fill extended to depths of approximately 0.8 m to 1.2 m below ground surface.

At BH26-2 through BH26-9, the near-surface clayey silt to silty clay was interpreted to be weathered or disturbed, in part due to historic agricultural and ploughing activity. These materials generally extended to approximately 0.8 m below ground surface.

Clayey Silt to Silty Clay

Native clayey silt to silty clay forms the dominant subsurface unit across the Site. These deposits were generally described as stiff to very stiff, with occasional hard zones. Silt interbeds and localized sand, sandy silt and silty sand layers were observed within the cohesive sequence, demonstrating vertical and lateral variability within the shallow overburden. A layer of clayey silt to silt was also noted at BH26-10 at a depth of approximately 2.3 m below ground surface.

Silt, Sandy Silt, Silty Sand and Sand

Cohesionless deposits were encountered at variable depths and thicknesses across the Site and generally occurred as discrete layers, seams or pockets within the predominantly fine-grained sequence. The encountered materials included silt, sandy silt to silt, sandy silt, silty sand to sandy silt and silty sand. At BH26-8, a silty sand interval extended to the termination depth of the borehole.

Several of these cohesionless intervals were described as wet during drilling. Shallow wet deposits were encountered at BH26-1, BH26-3, BH26-4 and BH26-5, while deeper wet silt, sandy silt or silty sand zones were encountered at BH26-2, BH26-5, BH26-6, BH26-7, BH26-8, BH26-9, BH26-11 and BH26-12.

5.3 Comparison with Previous Crozier Borehole Information

Previous borehole and monitoring well information from the Crozier investigation was reviewed to provide additional subsurface context for the Site and to assess the consistency of the current DS borehole findings with the earlier investigation completed across the broader Bolton North Hill lands. Particular emphasis was placed on Crozier monitoring wells MW11 through MW15 because they are located on or immediately adjacent to the Site and provide a useful basis for comparing shallow stratigraphy and the occurrence of localized coarse-grained seams and deposits.

As part of the December 2024 hydrogeological investigation for the broader Bolton North Hill lands, C.F. Crozier & Associates Inc. (Crozier) reported on a drilling and monitoring well installation program completed in November 2021, during which twenty monitoring wells were installed across the Bolton North Hill lands. MW11 and MW12 were advanced at 14475 Highway 50, while MW13 through MW15 were advanced on the adjacent lands at 14685 Highway 50. Selected Crozier monitoring well logs for MW11 through MW15 are included in Appendix A2.

Crozier grouped MW11 through MW15 with several other monitoring locations having a similar shallow stratigraphic sequence. The generalized sequence comprised topsoil overlying brown silty clay to approximately 1.8 mbgs, grey sandy silt between approximately 1.8 and 2.5 mbgs, grey silty clay between approximately 2.5 and 3.5 mbgs, grey silt extending to approximately 5.25 mbgs, and grey silty clay below approximately 5.35 mbgs to the investigated depth of about 6.0 m.

Crozier interpreted the first groundwater-bearing unit encountered during its 2021 drilling program as grey silty clay to clayey silt containing saturated silt to sandy silt seams, generally encountered at depths of approximately 2.0 to 3.5 mbgs. Groundwater levels in these wells were interpreted as potentiometric levels associated with confined to semi-confined water-bearing seams rather than a continuous shallow water table. Crozier also noted sand and gravel seams at MW15, together with greater seasonal groundwater-level fluctuation at that location.

The Crozier and DS investigations are generally consistent and collectively indicate a predominantly fine-grained clayey silt to silty clay sequence containing discontinuous, comparatively more permeable silt, sandy silt, silty sand and sand intervals. The DS investigation provides additional site-specific resolution and demonstrates that the depth and thickness of these intervals can vary substantially over relatively short distances. The combined information supports interpretation of a heterogeneous shallow glacial and glaciolacustrine sequence rather than a single laterally continuous sand aquifer.

5.4 Hydrogeological Interpretation of Subsurface Conditions

The clayey silt to silty clay deposits form the lower-permeability matrix of the shallow groundwater system and are expected to limit vertical groundwater movement. The localized silt, sandy silt, silty sand and sand intervals have comparatively greater permeability and represent the principal pathways for groundwater storage and lateral movement within the shallow overburden. This interpretation is consistent with the regional and local hydrostratigraphic framework described in Section 4.4.

The distribution of these water-bearing intervals is spatially variable. Relatively shallow wet cohesionless deposits were encountered at BH26-1, BH26-3, BH26-4 and BH26-5. At BH26-1, wet sandy silt to silt was encountered between approximately 0.8 and 1.6 mbgs, while BH26-4 encountered wet silty sand to sandy silt between approximately 1.1 and 3.3 mbgs. BH26-5 contained both a shallow wet sandy silt interval between approximately 0.8 and 1.3 mbgs and a deeper wet sandy silt to silt interval between approximately 4.6 and 6.0 mbgs. A localized wet sand seam was noted at approximately 1.1 mbgs at BH26-3; however, the subsequently installed monitoring well was dry during later monitoring, illustrating the discontinuous and locally perched nature of some shallow water-bearing seams.

Deeper wet cohesionless deposits were encountered at BH26-2, BH26-6, BH26-7, BH26-8, BH26-9, BH26-11 and BH26-12, generally at depths of approximately 3 m to more than 6 m below ground surface. The occurrence of these deposits at differing depths and elevations further indicates that the water-bearing zones are discontinuous and cannot be represented as a single laterally extensive groundwater-bearing layer.

Shallow groundwater is also expressed locally at or near ground surface. In the proposed SWM Pond 6 area, BH26-7 recorded groundwater approximately 0.1 m above ground surface during the May 15, 2026 monitoring event. A groundwater seep/seasonal seepage area was independently identified in the vicinity of PZ4S/PZ4D, where saturated ground, seepage and shallow ponding were observed. The observation of shallow groundwater, wet cohesionless soils and surface seepage indicates a localized groundwater discharge/seepage zone within this portion of the Site.

Overall, shallow groundwater at the Site is interpreted to occur within discontinuous saturated seams and localized shallow wet zones within the predominantly fine-grained overburden sequence. Consequently, groundwater conditions may vary substantially over relatively short distances. Excavations advanced primarily through clayey silt to silty clay are expected to have lower groundwater inflow than excavations that intersect saturated silt, sandy silt, silty sand or sand horizons, where localized seepage and groundwater inflow may be appreciably greater. These conditions are particularly relevant to basement excavations, deep servicing and the proposed SWM pond excavations.

6.0 Groundwater Conditions

Groundwater conditions were interpreted using the current DS monitoring well data, DS groundwater level measurements collected from select existing Crozier monitoring wells, and available background Crozier monitoring data. The Crozier monitoring network provides longer-term groundwater level information for the broader Bolton North Hill lands, including monitoring wells located on or adjacent to the Site. Select Crozier monitoring wells were incorporated into the DS 2026 monitoring program where accessible. The DS-installed monitoring wells provide current site-specific groundwater level data for the proposed development area.

6.1 Groundwater Measurements

Groundwater levels measured in the DS and Crozier monitoring wells indicate spatially variable groundwater conditions across the Site and surrounding lands. Groundwater was generally encountered within localized water-bearing seams or shallow saturated zones rather than as a uniform shallow unconfined groundwater table. Groundwater conditions are expected to vary seasonally, with higher levels during spring and following extended wet periods.

The background Crozier data indicate that groundwater levels within the broader Bolton North Hill monitoring network fluctuate seasonally and are influenced by the fine-grained overburden sequence and localized saturated sandy silt/silt seams. Selected historical groundwater level ranges from Crozier monitoring wells located on or adjacent to the Site are summarized in Table 4.

Table 4: Historical Groundwater Level Ranges in Selected Crozier Monitoring Wells

Monitoring Well	Groundwater Depth Range (mbgs)	Groundwater Elevation Range (masl)	Monitoring Period / Comment
MW11-21	2.51 to 3.33	265.57 to 266.39	2022-2024 monitoring data
MW12-21	1.93 to 3.02	267.15 to 268.24	2022-2024 monitoring data
MW13-21	1.41 to 1.57	266.01 to 266.17	2022-2024 monitoring data
MW14-21	1.02 to 1.53	269.36 to 269.87	2022-2023 available data; well noted as damaged in later monitoring table
MW15-21	0.26 to 3.86	268.94 to 272.54	2022-2024 monitoring data, including manual and/or datalogger summary values

Note: Historical ranges are based on background Crozier monitoring data reviewed for context. Current DS monitoring of select existing Crozier wells is being incorporated into the ongoing groundwater level dataset.

A summary of manual groundwater levels measured in selected DS monitoring wells is provided in Table 5. The full groundwater level dataset is provided in Appendix C.

Table 5: Summary of Manual Groundwater Levels in Selected DS Monitoring Wells

Monitoring Well	Surface Elev. (masl)	Stick-up (m)	MP Elev. (masl)	Total Depth (mTOC)	Bottom Elev. (masl)	May 15 WL (mbg/elev.)	June 15 WL (mbg/elev.)	July 29 WL (mbg/elev.)
BH26-1	264.85	0.76	265.61	6.50	259.11	0.41 / 264.44	0.52 / 264.33	0.65 / 264.20
BH26-3	266.26	0.70	266.96	8.09	258.87	7.96 / 259.00	Dry	Dry
BH26-4	264.98	0.81	265.79	6.02	259.77	1.57 / 263.41	1.89 / 263.09	2.38 / 262.60
BH26-7	263.90	0.67	264.57	3.90	260.67	-0.14 / 264.04	0.91 / 262.99	0.54 / 263.36
BH26-9	265.55	0.73	266.28	7.30	258.98	1.74 / 263.81	1.83 / 263.72	2.37 / 263.18
BH26-11	266.18	0.77	266.95	6.14	260.81	1.76 / 264.42	1.89 / 264.29	2.81 / 263.37
BH26-12	265.31	0.80	266.11	6.94	259.17	0.44 / 264.87	0.51 / 264.80	0.80 / 264.51

Notes: Elevations are reported in metres above sea level (masl). Depths to groundwater are reported in metres below ground surface (mbg). Measuring point elevation is calculated as ground surface elevation plus stick-up. Negative depth at BH26-7 indicates water above ground surface based on the recorded measuring point and ground surface elevation.

6.2 Hydraulic Conductivity Testing

Hydraulic conductivity testing was completed in monitoring wells BH26-1, BH26-4, BH26-7 and BH26-9 using rising-head single-well response tests. The tests were analyzed using the Hvorslev method. The analysis used a 51 mm casing/screen diameter and a 5-inch borehole diameter. The hydraulic conductivity test results are provided in Appendix D and summarized in Table 6.

Table 6: Summary of Hydraulic Conductivity Test Results

Monitoring Well	Hydraulic Conductivity (m/s)	Hydraulic Conductivity (m/day)	Equivalent Rate (mm/hr)	Comment
BH26-1	1.35×10^{-7}	0.012	0.49	Low-permeability response
BH26-4	1.19×10^{-6}	0.103	4.27	Localized water-bearing seams
BH26-7	3.46×10^{-6}	0.299	12.4	Higher response; shallow groundwater/seepage area
BH26-9	1.22×10^{-6}	0.105	4.38	Localized water-bearing seams
Geometric Mean	9.1×10^{-7}	0.079	3.3	Calculated from tested wells

The calculated hydraulic conductivity values range from approximately 1.35×10^{-7} m/s to 3.46×10^{-6} m/s, with a geometric mean of approximately 9.1×10^{-7} m/s. The results indicate generally low-permeability conditions, consistent with the predominance of fine-grained clayey silt/silty clay deposits across the Site. The higher result at BH26-7 likely reflects localized more permeable soil and relatively high groundwater conditions in that area.

6.3 Groundwater Quality

Groundwater quality samples were collected from BH26-4 and BH26-9 on May 12, 2026 and submitted for laboratory analysis. The samples were compared to applicable sanitary and storm sewer discharge criteria for screening purposes. The laboratory certificates are provided in Appendix E.

The analytical results indicate that the groundwater samples generally met the sanitary sewer criteria for the parameters analyzed. For storm sewer screening, total suspended solids in BH26-4 and manganese in BH26-9 were reported above the referenced storm sewer criteria. Petroleum hydrocarbons, BTEX, volatile organic compounds, semi-volatile organic compounds, PCBs and oil and grease were generally not detected in the samples analyzed.

If groundwater discharge is required during construction, discharge quality should be reviewed against the applicable receiving system criteria and municipal/regulatory approval requirements. Treatment or management for suspended solids and/or metals may be required depending on the discharge location and approval pathway.

6.4 Groundwater Flow Direction

Groundwater flow direction was interpreted using groundwater elevation data from the DS monitoring wells, DS monitoring of select existing Crozier wells, available background monitoring wells and piezometer monitoring locations. The interpreted groundwater elevations and flow directions are shown on Figure 4.

The Site is influenced by a surface drainage divide that generally separates drainage toward the west and east sides of the property. West of the divide, surface drainage is directed toward the western portion of the Site and ultimately toward the receiving drainage system associated with Tributary D and the Main Humber River. East of the divide, drainage is directed toward the wetland and drainage-feature corridor along the eastern portion of the Site and the receiving system associated with Tributary E / Sub-basin 10.

The interpreted groundwater flow pattern generally follows this drainage framework. Groundwater elevations are higher through the central and northwestern portions of the Site and decrease toward lower-lying drainage features and wetland areas. As a result, shallow groundwater flow is interpreted to have both westerly and easterly components, consistent with the mapped surface drainage divide. Local groundwater flow variability is expected due to the fine-grained overburden conditions and the presence of discontinuous sand, silt and sandy silt seams.

Groundwater elevations for the DS monitoring wells were calculated using the available elevation data. Piezometer and surface-water monitoring station elevations are preliminary and will be confirmed during the ongoing monitoring program before detailed groundwater/surface-water gradient interpretation is completed.

7.0 Surface-Water and Wetland Features

7.1 Wetland and Surface-Water Feature Setting

The Natural Heritage Study Report prepared for the Bolton North Hills Landowner Group identifies watercourses, waterbodies, headwater drainage features and wetland features within the broader Study Area. The background Wetland Water Balance Risk Assessment prepared by Crozier identifies wetland communities using letter identifiers A through L. Wetlands relevant to this assessment include Wetlands G, I, H, K, L and J. Wetlands G, H, J and K are identified as MAMM1 Graminoid Mineral Meadow Marsh communities, while Wetlands I and L are identified as OAO Open Aquatic communities.

The Functional Servicing and Stormwater Management Report identifies Tributary E as being associated with Sub-basin 10 of the Humber River watershed and indicates that the southern and eastern portions of the Site drain toward Tributary E / Sub-basin 10. The northern and central portions of the Site drain toward Tributary D / Main Humber River.

Wetland and surface-water features are present along the eastern/southeastern Tributary E drainage-feature corridor. The wetland features discussed in this report form a connected downstream drainage sequence extending generally from Wetland G through Wetlands I, H, K, L and J.

Monitoring stations were installed to support characterization of shallow groundwater and surface-water interaction in the vicinity of these wetlands and drainage features. The monitoring network includes shallow and deep piezometer nests, surface-water staff gauges and flow monitoring locations, as shown on Figure 2. The purpose of the monitoring network is to support future interpretation of seasonal groundwater levels, surface-water levels, groundwater/surface-water interaction, and the potential hydrologic relationship between the proposed development and the wetland drainage-feature corridor.

A groundwater seep / seasonal seepage area is present within the proposed SWM Pond 6 footprint in the vicinity of PZ4S/PZ4D. This area appears to support seasonal ponding and shallow groundwater discharge under wet-period conditions. As the seepage area is located within the proposed pond footprint, it is discussed separately from Wetlands G, I, H, K, L and J. The presence of shallow groundwater and seepage in this area should be considered during final pond grading, lining, dewatering and outlet design.

Visual seepage observations were completed along wetland margins and drainage-feature banks to identify qualitative indicators of shallow groundwater discharge, including saturated bank conditions, seepage expression along slope breaks, and areas of persistent wet ground or ponding. These observations support the interpretation that shallow groundwater interaction may contribute to the hydrology of wetland and drainage features along the eastern/southeastern drainage-feature corridor. The relative contribution of groundwater to each wetland feature has not been quantified as part of this report and will be further evaluated through the ongoing monitoring program.

7.2 Headwater Drainage Features, Intermittent Drainage Features and Seepage Areas

The Site contains and/or drains toward a series of natural drainage channels, intermittent drainage features, local depressions, seepage areas and wetland outlets that convey runoff toward the receiving systems identified as Tributary D and Tributary E. Previous background reporting for the broader Bolton North Hill lands noted that drainage features cross the lands in the form of creeks and streams, and that these features appear to be intermittently flowing and seasonally driven.

The current report does not constitute a formal Headwater Drainage Feature assessment or ecological/geomorphic classification. Final classification, management recommendations, realignment/removal requirements or compensation requirements for headwater drainage features should be confirmed by the project ecologist/fluvial geomorphologist and coordinated with the civil/SWM design. From a hydrogeological perspective, the key consideration is maintaining, where feasible, existing hydrologic contributions to retained wetlands and downstream drainage features, and avoiding untreated construction discharge to wetlands, drainage features or watercourses.

7.3 Wetland Risk Evaluation

A wetland risk evaluation was completed for Wetlands G, I, H, K, L and J. Background wetland sensitivity information was reviewed and carried forward where applicable. The hydrologic-change component was assessed using the catchment and land-use mapping prepared for this assessment.

Wetland catchment areas were delineated for Wetlands G, I, H, K, L and J based on the drainage mapping prepared for this assessment. Catchment areas were treated cumulatively in the downstream direction, following the drainage sequence G -> I -> H -> K -> L -> J. Areas identified as Proposed Development were assigned an imperviousness of 63%, based on the SWM Pond 6 imperviousness reported in the FSR. Existing retained impervious areas were included in the catchment area totals but were not included in the proposed-development impervious cover score.

Table 9: Wetland Risk Evaluation Summary

Wetland	Existing Catchment (ha)	Post-development Catchment (ha)	Catchment Change	Proposed Development Area (ha)	Impervious Cover Score	Hydrologic Change Rating / Overall Risk
G	45.46	28.32	-37.7%	0.00	0.0%	High / High
I	56.66	34.29	-39.5%	0.00	0.0%	High / High
H	58.86	36.49	-38.0%	0.00	0.0%	High / High
K	80.96	75.47	-6.8%	29.14	24.3%	Medium / High
L	86.49	81.01	-6.3%	29.14	22.7%	Medium / High
J	108.97	102.43	-6.0%	29.14	17.9%	Medium / High

Based on the catchment assessment, Wetlands G, I and H have a High hydrologic-change rating due to the mapped reduction in contributing catchment area. Wetlands K, L and J have a Medium hydrologic-change rating, primarily due to the calculated impervious cover score associated with the Proposed Development area within the SWM Pond 6 catchment. The overall risk rating for each wetland is High, reflecting the High ecological sensitivity assigned to these features in the background wetland sensitivity assessment.

An external/upgradient drainage area, identified as EXT8 on the pre-development drainage mapping referenced in the FSR, currently conveys drainage toward Wetland G at the northeast portion of the Site. The external drainage is understood to reach the northeast corner of the Site through an existing culvert. The future routing of this drainage should be confirmed

through civil/SWM design coordination because the lands north of the Site may alter existing drainage patterns as they develop. Continued conveyance of EXT8 drainage toward Wetland G may require specific design measures, such as a diversion pipe, drainage swale/channel, culvert, easement or other controlled conveyance feature.

Based on previous assessment information, Wetlands G, H, I, J, K and L are considered groundwater-fed or groundwater-influenced features. However, the relative contribution of groundwater to the wetland water balance has not been quantified as part of this report. Additional wetland monitoring data, including shallow groundwater levels, surface-water levels, seasonal observations and hydraulic gradient assessment, will be required to characterize the degree of groundwater dependence for each wetland feature.

8.0 Site Water Balance

A site water balance was completed to assess pre-development and post-development infiltration, runoff and evapotranspiration/evaporation conditions for the Site. Climate inputs were based on Environment and Climate Change Canada Canadian Climate Normals for Toronto Pearson Airport for the 1991-2020 period. An annual precipitation value of 806.8 mm/year was used in the calculation.

Pre-development land-cover areas were based on the site-specific spatial analysis prepared for this assessment. The mapped land-cover areas total approximately 40.70 ha, which is consistent with the reported Site area of 40.68 ha. The pre-development land cover is primarily cultivated agricultural land, with smaller areas of shrub/pasture, forest and existing impervious cover.

Under post-development conditions, the mapped land uses include Proposed Development, shrub/open space, landscaped area and forest. Areas outside of the development limit which were previously mapped as cultivated were assumed to become naturalized and given a shrub/open space designation. For water balance purposes, the Proposed Development area was divided between the SWM Pond 6 and SWM Pond 7 drainage areas based on the relative contributing areas from within the subject site reported in the FSR. The corresponding FSR imperviousness values of 63% for Pond 6 and 71% for Pond 7 were applied to the proportional development areas, resulting in a weighted imperviousness of approximately 67.7% for the mapped Proposed Development area.

Table 7: Post-Development Spatial Analysis and FSR Pond Split

Post-development Component	Area (ha)	Imperviousness	Impervious Area (ha)	Pervious Area (ha)
Proposed Development draining to Pond 6	11.59	63%	7.30	4.29
Proposed Development draining to Pond 7	16.56	71%	11.76	4.80
Total Proposed Development	28.15	67.7% weighted	19.06	9.09
Shrub / open space	9.57	0%	0.00	9.57
Landscaped	2.44	0%	0.00	2.44
Forest	0.55	0%	0.00	0.55
Total Site	40.70	46.8% overall	19.06	21.65

The water balance also includes a mitigation scenario based on the rear-yard exfiltration system identified in the FSR. The FSR indicates that the system is intended to provide approximately 23,300 m³/year of infiltration mitigation. For the DS water balance, the full FSR mitigation volume was included to evaluate the potential to maintain pre-development infiltration conditions.

Table 8: Site Water Balance Summary

Scenario	Infiltration (m3/year)	Runoff (m3/year)	Total ET / Evaporation (m ³ /year)	Comment
Pre-development	38,178	58,128	231,900	Site-specific existing land cover
Post-development, no mitigation	19,976	163,964	144,266	Spatial analysis with FSR pond split

Scenario	Infiltration (m ³ /year)	Runoff (m ³ /year)	Total ET / Evaporation (m ³ /year)	Comment
Post-development, with FSR mitigation	43,276	140,664	144,266	Includes 23,300 m ³ /year FSR mitigation

The calculated post-development infiltration without mitigation is approximately 19,976 m³/year, representing a reduction of approximately 18,202 m³/year relative to the calculated pre-development infiltration volume. With the full FSR mitigation volume applied, the calculated post-development infiltration increases to approximately 43,276 m³/year, which is approximately 5,098 m³/year above the calculated pre-development infiltration volume. Detailed water balance calculations are provided in Appendix F.

Proposed residential roof area was estimated from representative building envelopes provided on the site plan. Detached dwelling envelopes were treated as individual unit footprints, while townhouse envelopes were treated as block footprints and divided by the corresponding number of units in each block. The resulting representative unit roof areas were applied to the proposed unit counts to estimate total residential roof area for the water balance. The estimated residential roof area of approximately 7.44 ha is capable of generating approximately 51,000 m³/year of runoff after applying the 15% impervious evaporation/loss allowance used in the DS water balance. This exceeds the FSR infiltration mitigation volume of approximately 23,300 m³/year, indicating that sufficient roof runoff is available to support the proposed infiltration mitigation, subject to final roof-leader routing, lot grading and detailed design.

Runoff from paved areas, including roads and driveways, is not assumed to be directed to the rear-yard exfiltration system.

9.0 Preliminary Construction Dewatering and Development Considerations

The proposed development consists of low-rise residential lots, internal roads, municipal servicing, stormwater management facilities, open space/NHS areas and an elementary school block. Final grading, basement/footing elevations, municipal servicing depths, SWM pond bottom elevations and construction sequencing were not available at the time of this assessment. As such, the discussion below provides a preliminary assessment of potential construction dewatering requirements based on the available borehole information, groundwater monitoring results, hydraulic conductivity testing and current development concept.

The soils within the Site are predominantly fine grained and limit infiltration potential. However, groundwater levels are relatively shallow and may influence stormwater management design. The FSR indicates that, because of the high groundwater table, subsurface LID measures within the municipal right-of-way are not considered feasible. These observations are generally consistent with the DS field investigation, which identified shallow groundwater conditions, low-permeability fine-grained overburden, and localized water-bearing silt, sandy silt, silty sand and sand seams.

Temporary construction dewatering may be required where proposed excavations extend into saturated silt, sandy silt, silty sand or sand seams, or where excavations are advanced below seasonal groundwater levels. Wet fine-grained soils and cohesionless water-bearing seams may produce seepage, unstable excavation bases and flowing sidewalls if not managed appropriately.

9.1 Residential Building Excavations

The proposed residential development is understood to include low-rise dwellings consisting of single detached and townhouse units. Where basements are proposed, temporary groundwater control may be required if basement excavations, footing excavations, service connections or subgrade preparation extend below the groundwater table.

For preliminary dewatering-rate assessment, the residential basement/foundation excavation base was assumed to extend approximately 1.0 m below the initial groundwater table. Groundwater control was then assumed to lower the groundwater level a further 1.0 m below the excavation base to provide a safe and dry working excavation. The total drawdown used in the dewatering calculation is therefore 2.0 m from the initial groundwater table to the target dewatered level. The additional

1.0 m lowering below the excavation base provides a practical working allowance for footing construction, formwork, placement of granular base, waterproofing/drainage works and concrete placement.

Where groundwater is encountered within localized sand, silty sand, sandy silt or silt seams, seepage into basement excavations may be greater than in the surrounding clayey silt/silty clay matrix. In these areas, groundwater control may require localized sump pumping or other temporary measures selected by the contractor based on field conditions. Permanent groundwater lowering is not recommended to be assumed at this stage. Final foundation and basement design should consider seasonal high groundwater levels, finished floor elevations, footing elevations, foundation drainage requirements, waterproofing requirements and outlet availability.

9.2 Municipal Servicing and Utility Trenches

Temporary dewatering may also be required for installation of municipal services, including sanitary sewers, storm sewers, watermains, maintenance holes and service laterals, where trench bases extend below groundwater levels or intercept saturated cohesionless seams.

For preliminary dewatering-rate assessment, the municipal service trench base was assumed to extend approximately 2.0 m below the initial groundwater table. Groundwater control was then assumed to lower the groundwater level an additional 1.0 m below the trench base to maintain a safe and dry excavation. The total drawdown used in the dewatering calculation is therefore 3.0 m from the initial groundwater table to the target dewatered level. Maintaining groundwater below the trench base reduces the potential for flowing sand/silt conditions, loss of fines, softened trench bases, disturbance of pipe bedding and instability during placement and compaction of bedding and cover materials.

The actual dewatering method will depend on the final servicing depths, active trench length, trench width, soil conditions, groundwater level at the time of construction and contractor sequencing. Where trenches extend through predominantly clayey silt/silty clay above water-bearing seams, limited sump pumping is anticipated to be sufficient. Where trenches intercept saturated silty sand or sand layers, more active groundwater control may be required to maintain stable trench conditions.

9.3 Stormwater Management Pond Areas

The proposed SWM pond areas are of particular hydrogeological interest because shallow groundwater and seepage conditions were identified in portions of the Site. Monitoring well BH26-7 recorded groundwater above ground surface during the May 15, 2026 monitoring event, and a groundwater seep / seasonal seepage area was identified near PZ4S/PZ4D.

To improve the site-specific characterization of subsurface and groundwater conditions in the vicinity of proposed SWM Pond 6, DS is currently coordinating two additional boreholes with monitoring well installations within the Pond 6 area. The additional investigation is intended to better define the local soil stratigraphy, groundwater elevations and the occurrence and continuity of water-bearing seams, and will be used to refine the assessment of pond excavation, temporary dewatering and liner requirements once the additional information is available.

Final SWM pond bottom grades, excavation depths, liner requirements, outlet structures and groundwater separation should be reviewed once the detailed grading design is available. Where pond excavations extend below seasonal groundwater levels or intercept saturated cohesionless seams, temporary dewatering may be required during construction. Depending on final grades, liner design and operating water levels, groundwater uplift, seepage into pond excavations and long-term interaction between shallow groundwater and pond infrastructure may also require review.

9.4 Preliminary Dewatering Rate and Approval Considerations

Preliminary dewatering rates were estimated to provide a planning-level indication of potential groundwater-taking requirements for representative residential and municipal servicing excavations. The estimates are not intended to represent

final dewatering design rates because final excavation dimensions, construction sequencing and groundwater elevations have not yet been confirmed.

A Dupuit-based radial groundwater-flow approach was used for the screening assessment. The method relates groundwater inflow to the measured hydraulic conductivity, required drawdown, effective saturated thickness and excavation geometry. The Dupuit method assumes a laterally continuous and relatively homogeneous unconfined aquifer. Although the Site does not fully satisfy these assumptions, its use is considered conservative for planning purposes because the localized coarser-grained horizons are treated as a continuous groundwater-bearing unit and the highest measured hydraulic conductivity is applied throughout.

For the calculations, the highest measured hydraulic conductivity of 3.46×10^{-6} m/s at BH26-7 was adopted. The effective saturated thickness of the shallow groundwater-bearing unit was conservatively limited to 3.0 m. Representative excavation dimensions of 15 m by 15 m were assumed for an individual residential basement/foundation excavation, and an active excavation length of 20 m by 2 m width was assumed for a municipal service trench.

For the residential scenario, the excavation base was assumed to extend approximately 1.0 m below the initial groundwater table. Groundwater was then assumed to be lowered an additional 1.0 m below the excavation base to provide a safe and dry working condition, resulting in a total drawdown of 2.0 m. For the municipal servicing scenario, the trench base was assumed to extend approximately 2.0 m below the initial groundwater table, with groundwater lowered an additional 1.0 m below the trench base, resulting in a total drawdown of 3.0 m.

Because the representative excavations are rectangular rather than circular, the excavation geometry was converted to an equivalent radius using the following relationship:

$$r_e = \sqrt{\frac{LW}{\pi}}$$

where:

r_e = equivalent radius of the excavation;

L = excavation length; and

W = excavation width.

Using the assumed excavation dimensions, the equivalent radius is approximately 8.46 m for the 15 m by 15 m residential excavation and 3.57 m for the 20 m by 2 m service trench.

The radius of influence was estimated using the Sichardt relationship:

$$R = r_e + 3000s\sqrt{K}$$

where:

R = radial distance from the centre of the equivalent excavation to the estimated limit of groundwater influence;

r_e = equivalent radius of the excavation;

s = required groundwater drawdown;

K = hydraulic conductivity, taken as 3.46×10^{-6} m/s; and

3000 = empirical Sichardt coefficient when s is expressed in metres and K in m/s.

Based on the assumed drawdowns, the calculated radius of influence is approximately 19.62 m for the residential excavation and 20.31 m for the service trench.

Groundwater inflow was then estimated using the Dupuit equation for radial flow toward an unconfined excavation:

$$Q = \frac{\pi K(H^2 - h^2)}{\ln(R/r_e)}$$

where:

Q = estimated groundwater inflow rate;

K = hydraulic conductivity, equivalent to approximately 0.299 m/day;

H = initial effective saturated thickness, taken as 3.0 m;

h = saturated thickness remaining at the excavation following drawdown;

R = calculated radius of influence; and

r_e = equivalent excavation radius.

For the residential scenario, a total drawdown of 2.0 m from an assumed effective saturated thickness of 3.0 m results in a remaining saturated thickness, h , of approximately 1.0 m. For the service trench scenario, the assumed 3.0 m total drawdown is equal to the adopted effective saturated thickness and the remaining saturated thickness is therefore taken as 0 m for the preliminary calculation.

A factor of safety of 2.0 was applied to the calculated groundwater inflow to account for potential variability in hydraulic conductivity, groundwater levels, excavation geometry, localized permeable seams and construction conditions. The resulting preliminary estimates are summarized below.

Table 10: Preliminary Dewatering Rate Estimates

Excavation Scenario	Representative Geometry	Initial / Target Groundwater Position	Total Drawdown (m)	Calculated Groundwater Inflow (m ³ /day)	Planning Rate, FS = 2 (L/day)
Residential basement / foundation excavation	15 m x 15 m	1.0 m above base / 1.0 m below base	2.0	8.9	17,867
Municipal service trench / utility excavation	20 m x 2 m	2.0 m above base / 1.0 m below base	3.0	4.9	9,721
SWM pond excavation	To be confirmed	To be confirmed	To be confirmed	To be confirmed	To be confirmed

Using the above assumptions, the estimated groundwater inflow is approximately 8.9 m³/day for the representative residential excavation and 4.9 m³/day for the representative service trench. With the factor of safety of 2.0 applied, the corresponding planning rates are approximately 17,900 L/day and 9,700 L/day, respectively. Detailed calculations are provided in Appendix H – Preliminary Dewatering Calculations.

These estimates represent groundwater inflow only and do not include direct precipitation, surface runoff entering an open excavation or simultaneous pumping from multiple dewatered work areas.

Pumping rates are expected to be highest at the start of dewatering, when groundwater stored within the intercepted water-bearing seam and immediately surrounding soils is being removed to establish the required drawdown. Because the more permeable units at the Site occur as discontinuous seams and layers within a predominantly low-permeability clayey silt to silty clay sequence, the initial flow is not expected to be sustained indefinitely. As the intercepted seam or localized groundwater-bearing unit is dewatered, pumping rates are expected to decrease toward a lower maintenance rate controlled primarily by lateral recharge through the discontinuous seam and leakage from the surrounding fine-grained soils. The Dupuit estimates should therefore be interpreted as conservative planning-level estimates of potential initial or peak groundwater inflow rather than steady pumping rates expected to persist throughout construction.

The individual groundwater-only planning rates are below 50,000 L/day. However, the applicable water-taking threshold should be assessed based on the total groundwater and stormwater pumped from all active dewatered work areas on the construction site during any day. Concurrent excavations, multiple trench headings, precipitation and surface runoff could increase the combined daily taking above 50,000 L/day. Where applicable, the required MECP water-taking approval or registration should be confirmed prior to construction. Municipal or other discharge approval may also be required depending on the proposed discharge location.

10.0 Potential Impacts

The following potential impacts were considered for the preliminary construction dewatering assessment.

10.1 Point of Discharge and Groundwater Quality

Groundwater quality samples collected from BH26-4 and BH26-9 generally met the sanitary sewer criteria used for screening. For storm sewer screening, total suspended solids in BH26-4 and manganese in BH26-9 were reported above the referenced storm sewer criteria. Petroleum hydrocarbons, BTEX, volatile organic compounds, semi-volatile organic compounds, PCBs and oil and grease were generally not detected in the samples analyzed.

Based on the available results, the groundwater is considered to be of generally good quality; however, the current analytical results do not demonstrate that untreated groundwater would be suitable for direct discharge to a surface-water receiver. In particular, treatment for suspended solids and, if required, manganese may be necessary prior to discharge. Subject to appropriate treatment, erosion and sediment control, and confirmatory sampling demonstrating compliance with the applicable receiving-water or municipal discharge criteria, the groundwater is expected to be potentially suitable for discharge to a storm sewer, ditch or surface-water feature. Direct discharge to a drainage feature or watercourse should not occur without the appropriate approvals.

Where municipal sanitary sewer capacity and approval are available, sanitary sewer discharge is considered the preferred option based on the current screening results. Any sanitary sewer discharge should be subject to review and approval by the applicable municipal authority.

10.2 Settlement Due to Dewatering Activities

The proposed dewatering is expected to be temporary and localized to individual residential excavations, active service trench sections and localized SWM construction areas. The Site is underlain predominantly by stiff to very stiff fine-grained clayey silt to silty clay, and the more permeable groundwater-bearing horizons are discontinuous. The screening calculations indicate a limited zone of groundwater influence for the representative excavation scenarios. Accordingly, significant settlement related to temporary dewatering is not anticipated. Excavation stability, groundwater seepage and potential effects on nearby utilities, pavements or structures should nevertheless be monitored by the contractor and geotechnical consultant during construction, particularly where saturated silt or sand seams are encountered.

10.3 Surface Water and Drainage Features

The Site drains toward the Tributary D / Main Humber River system to the west and toward the Tributary E / Sub-basin 10 wetland and drainage-feature corridor to the east and southeast. Shallow groundwater flow is interpreted to generally follow this drainage framework, and seasonal seepage has been identified in the proposed SWM Pond 6 area near PZ4S/PZ4D. Temporary drawdown should therefore be managed to avoid unnecessary or prolonged lowering of shallow groundwater adjacent to retained wetland and drainage features. Direct discharge of untreated construction water to a wetland, drainage feature or watercourse should not be permitted. Any proposed surface-water discharge should include appropriate treatment, erosion and sediment control, water quality verification and required regulatory or municipal approval.

10.4 Source Protection Area

The Site is located within the Toronto and Region Source Protection Area and the CTC Source Protection Region. Background source protection mapping does not identify a Wellhead Protection Area, Intake Protection Zone or Issue Contributing Area within the Site; however, the broader Bolton North Hill lands are mapped within a Significant Groundwater Recharge Area and Highly Vulnerable Aquifer. The proposed construction dewatering is temporary and localized and is not expected to result in significant regional groundwater quantity impacts provided pumping is limited to that required to maintain safe and stable excavations and is undertaken in accordance with applicable approvals. The site water balance indicates that post-development infiltration would decrease without mitigation, but the FSR rear-yard exfiltration mitigation volume is calculated to increase post-development infiltration to approximately 43,276 m³/year, which exceeds the calculated pre-development infiltration of approximately 38,178 m³/year. The proposed infiltration mitigation should be maintained and refined through detailed design.

10.5 Well Decommissioning

Following completion of construction activities, temporary dewatering wells, well points, eductors and monitoring wells that are no longer required should be decommissioned. Monitoring wells required for ongoing groundwater, wetland or post-construction monitoring may remain in service until the monitoring program is complete. Installation and decommissioning of regulated wells should be completed by a licensed well contractor in accordance with Ontario Regulation 903 under the Ontario Water Resources Act, where applicable.

11.0 Dewatering, Discharge and Mitigation Recommendations

The following dewatering, discharge and mitigation measures are recommended for detailed design and construction planning:

- Confirm final servicing depths, active trench lengths and widths, foundation elevations, sub-excavation requirements, SWM pond bottom elevations and any proposed deeper structures.
- Refine the preliminary dewatering estimates where excavation geometry differs materially from the representative assumptions used in this assessment, where deeper excavations are proposed, or where multiple dewatered work areas will operate concurrently.
- Obtain municipal approval for dewatering discharge prior to construction. Based on the current groundwater quality results, sanitary sewer discharge is considered the preferred option where capacity and municipal approval are available.
- If discharge to a storm sewer, ditch, drainage feature or watercourse is proposed, complete additional treatment review and confirmatory sampling to address the identified storm sewer exceedances for total suspended solids and manganese.
- Provide sediment control for pumped groundwater, including settling tanks, filter bags or equivalent treatment, as required by the selected discharge route and observed water quality.
- Monitor pumping rates during active dewatering and maintain daily records of flow, discharge location, approximate pumping duration, weather conditions and visual water quality conditions.
- Assess the aggregate daily groundwater and stormwater taking from all dewatered work areas. If the combined taking is expected to exceed 50,000 L/day on any day, complete the required MECP EASR registration.
- Maintain erosion and sediment controls to prevent sediment-laden water from reaching wetlands, drainage features or watercourses, and inspect discharge controls regularly during active dewatering and following significant rainfall events.
- If turbid water, sheen, odour, sediment accumulation, erosion or off-site migration is observed, stop or redirect the discharge until appropriate treatment or corrective measures are implemented.
- Minimize the duration and extent of drawdown near the eastern wetland/drainage-feature corridor and the seasonal seepage area in the proposed SWM Pond 6 footprint.

-
- Maintain and refine the proposed clean roof-water routing and rear-yard exfiltration measures during detailed civil/SWM design to support the site water balance mitigation strategy.
 - Decommission temporary dewatering wells and monitoring wells that are no longer required in accordance with Ontario Regulation 903, where applicable.

12.0 Limitations and Closure

This report has been prepared for the exclusive use of Royal Pine Homes and the project team for the proposed development at 14475 Highway 50, Bolton, Ontario. The report is based on information available at the time of preparation, including background reporting, field observations, borehole and monitoring well data, groundwater level measurements, laboratory results, spatial analysis and civil/SWM information provided for this assessment.

The conclusions and recommendations presented herein are based on the conditions encountered at the investigation locations and on the information reviewed. Subsurface and groundwater conditions may vary between and beyond the investigated locations. Final design elements, including grading, servicing, SWM pond elevations, outlet routing, exfiltration system details and external drainage conveyance, may change and should be reviewed as design advances.

This report does not constitute a final ecological assessment, formal Headwater Drainage Feature assessment, fluvial geomorphic assessment, detailed dewatering design, discharge permit application, or final construction specification. These items should be completed by the appropriate project disciplines and coordinated with the hydrogeological findings as required.

We trust that this report provides the information required at this stage of the project. Should you have any questions regarding these findings, please contact the undersigned.

DS Consultants Ltd.



Scott Watson, B.A.T
Project Manager - Hydrogeology

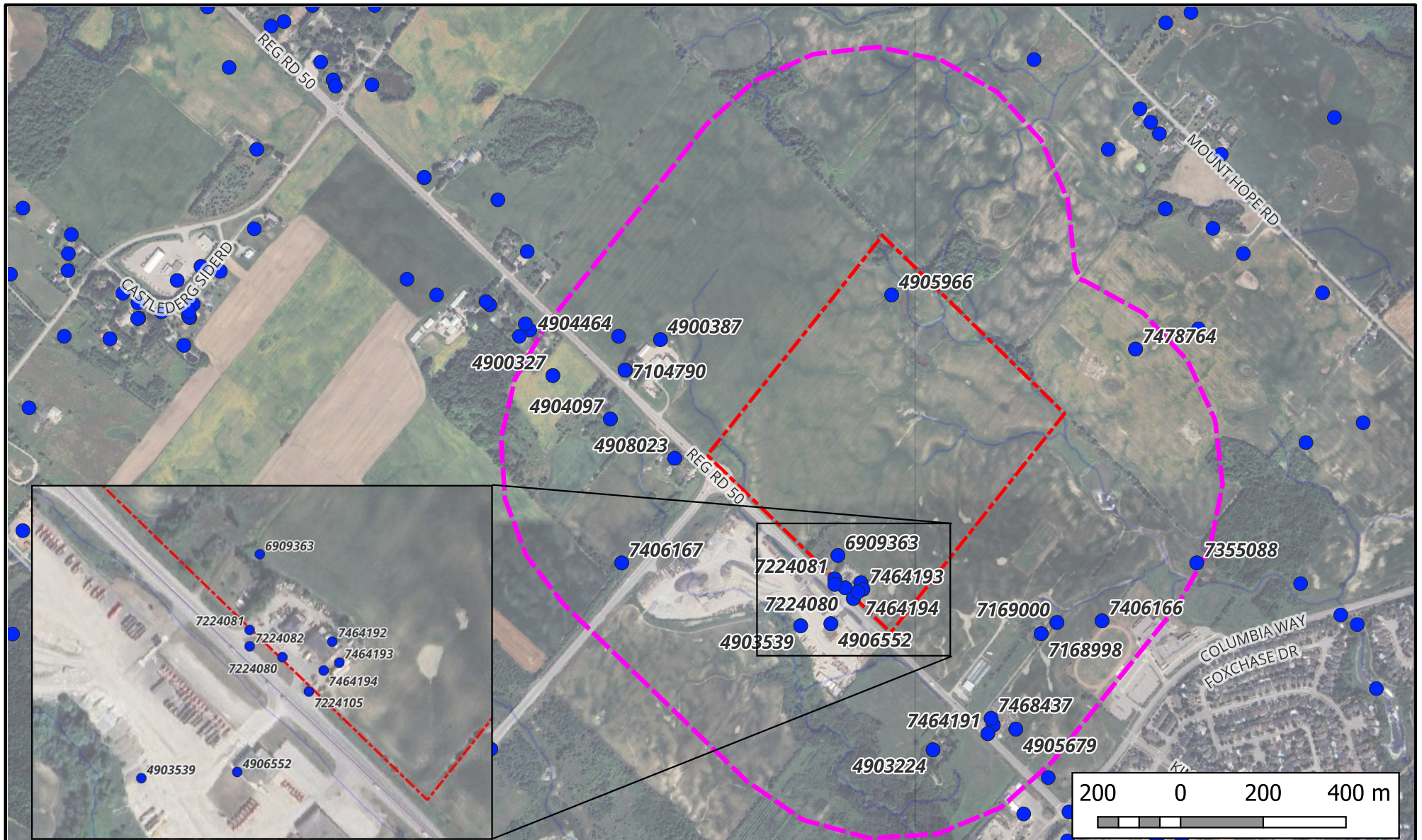


Don Hsu, P.Eng.
Senior Hydrogeologist

13.0 References

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FIGURES



Legend

- Site Boundary
- 500m Buffer
- MECP Water Well Record Location



DS CONSULTANTS LTD.

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Telephone: (905) 264-9393
www.dsconsultants.ca

Client:

Royal Pine Homes

Project:

Hydrogeological Investigation -
Proposed Development 14475 Highway 50, Bolton, ON.

Title:

MOEC Water Well Record and Site Location Map



Size:
8.5 x 11

Approved By:

LM

Drawn By:

S.W

Date:

September 2026

Rev:
0

Scale:

As Shown

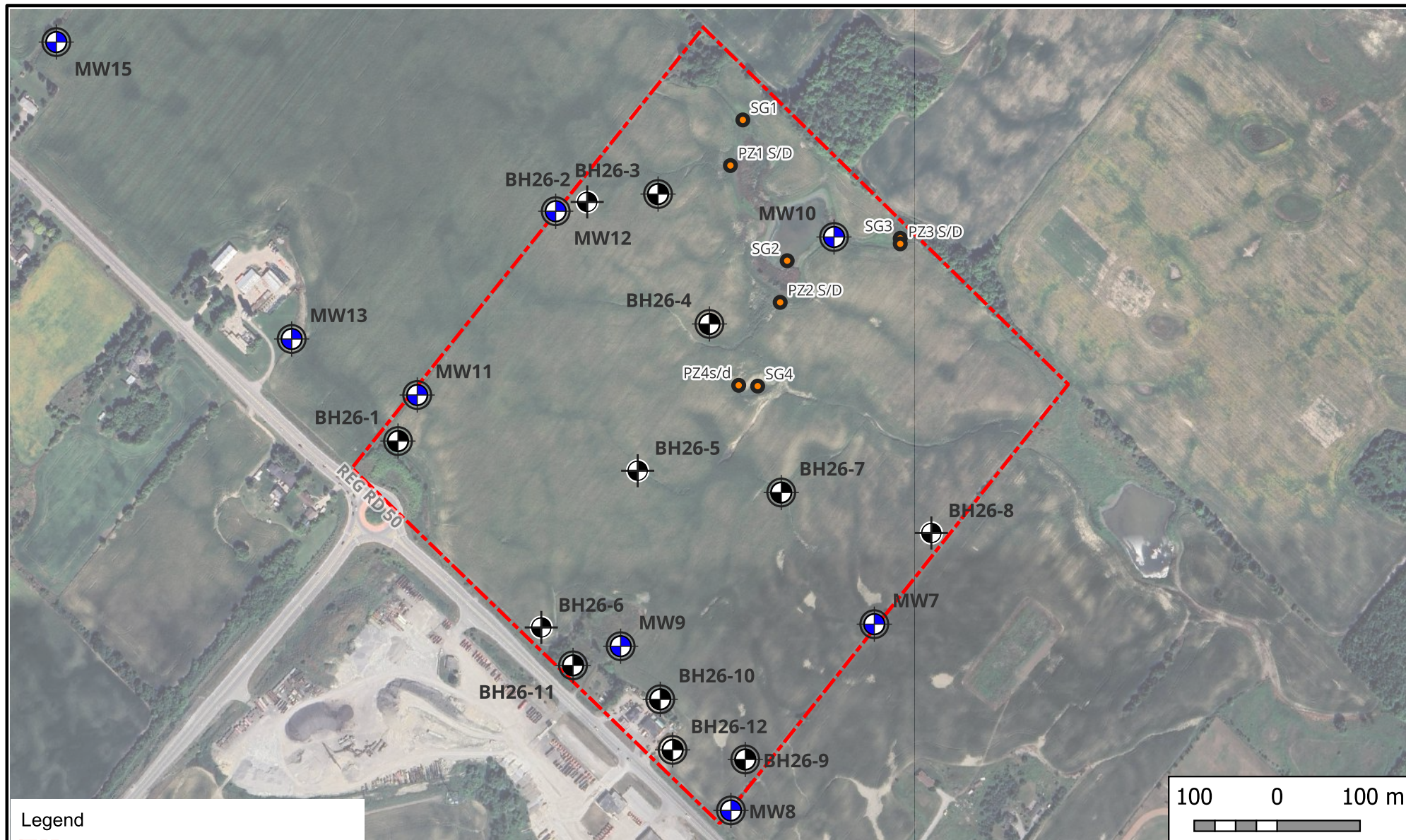
Project No.:

26-060-300

Figure No.:

1

Image/Map Source: Google Satellite Image



Legend

- Site Boundary
- Borehole Locations (DS 2026)
- Borehole and Monitoring Well Locations (DS 2026)
- Borehole and Monitoring Well Locations (Crozier 2022)
- Wetland Instruments (DS 2026)



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Project:

Hydrogeological Investigation -
Proposed Development 14475 Highway 50, Bolton, ON.

Title:

Borehole and Instrumentation Map



Size:
8.5 x 11

Rev:
0

Approved By:

LM

Drawn By:

S.W

Date:

September 2026

Scale:

As Shown

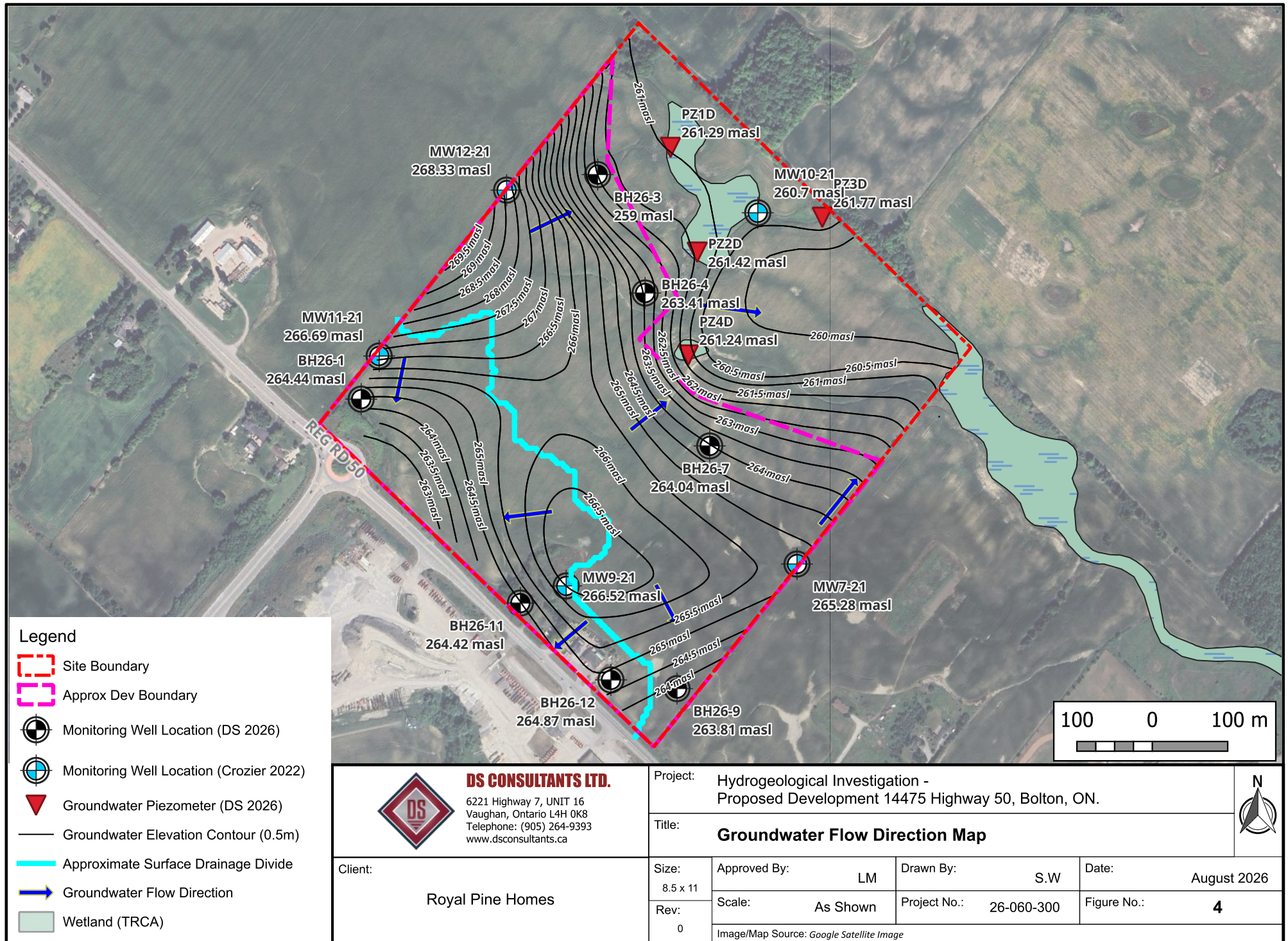
Project No.:

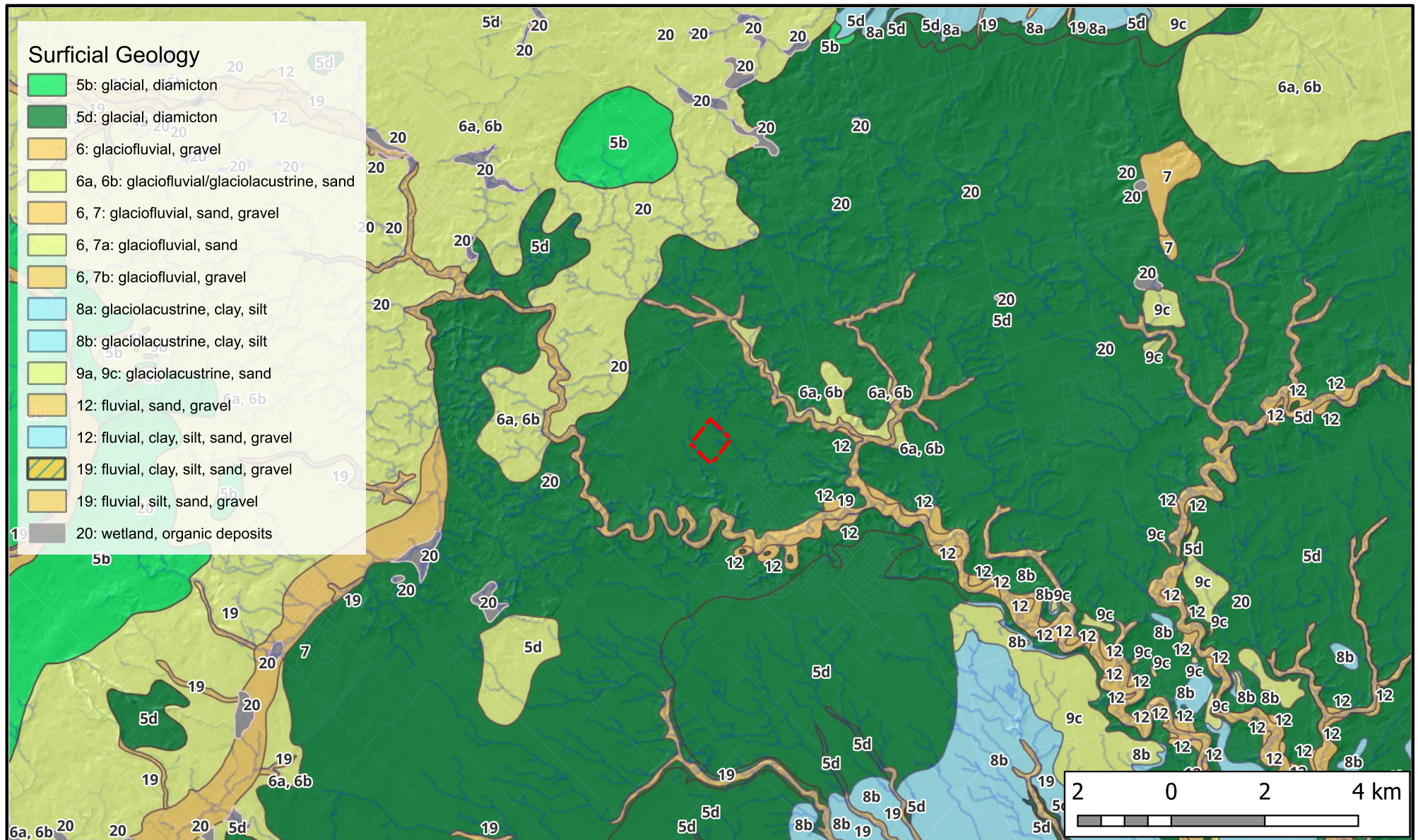
26-060-300

Figure No.:

2

Image/Map Source: Google Satellite Image





Legend

- Site Boundary
- Watercourse



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Client:

Royal Pine Homes

Project:

Hydrogeological Investigation -
Proposed Development 14475 Highway 50, Bolton, ON.

Title:

Surficial Geology Map

Size:
8.5 x 11

Approved By: LM

Drawn By: S.W

Date: September 2026

Rev:
0

Scale: As Shown

Project No.: 26-060-300

Figure No.: **3**

Image/Map Source: Google Satellite Image



Legend

-  Site Boundary
-  Cultivated
-  Forest
-  Impervious
-  Pasture & Shrub



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Client:

Royal Pine Homes

Project:

Hydrogeological Investigation -
 Proposed Development 14475 Highway 50, Bolton, ON.

Title:

Pre-Development Conceptual Model - Site Water Balance



Size:
8.5 x 11

Approved By:

D.H

Drawn By:

S.W

Date:

August 2026

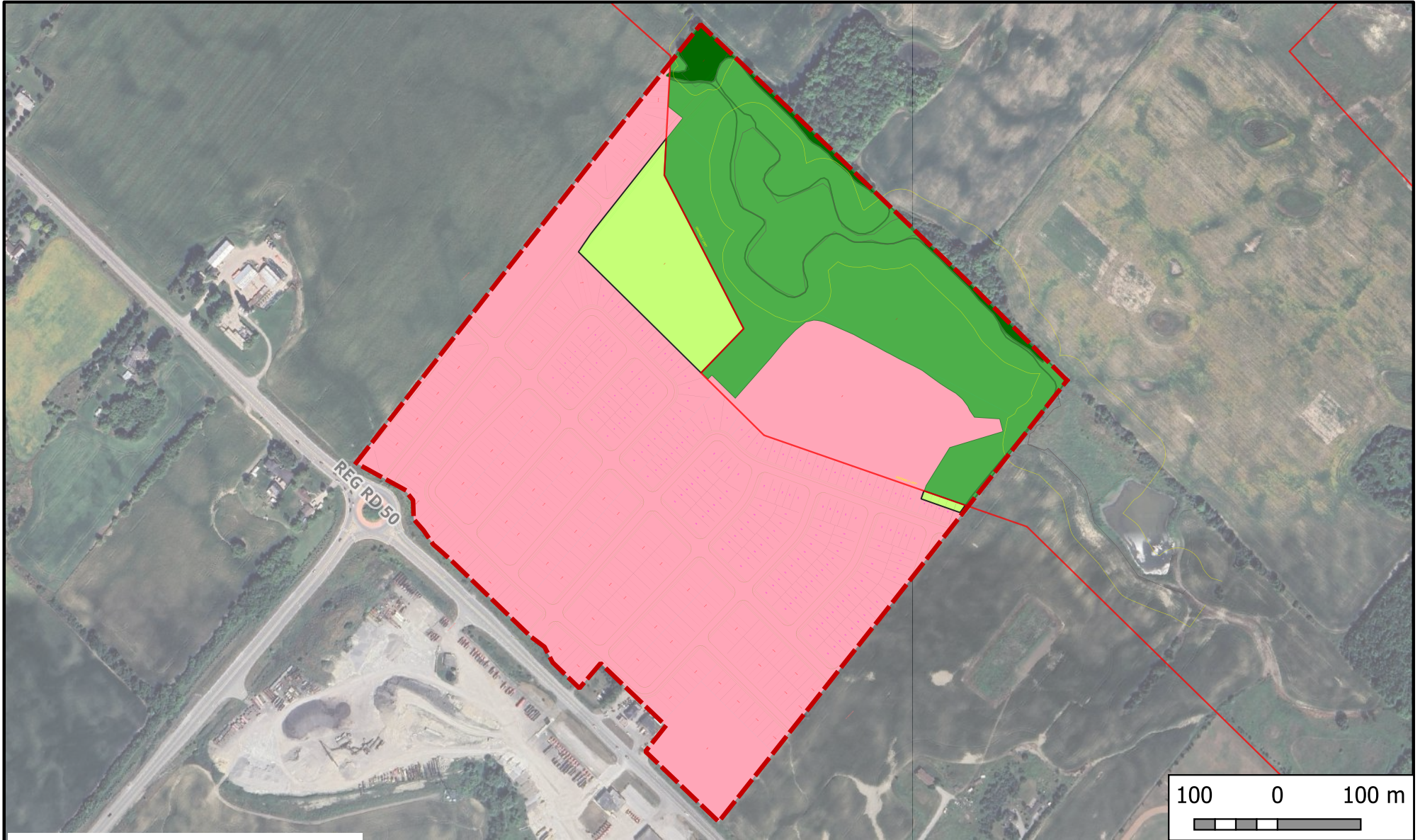
Rev:
0

Scale: As Shown

Project No.: 26-060-300

Figure No.: **5**

Image/Map Source: Google Satellite Image



Legend

- Site Boundary
- Proposed Development
- Forest
- Pasture & Shrub
- Landscaped



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 Telephone: (905) 264-9393
 www.dsconsultants.ca

Client:

Royal Pine Homes

Project:

Hydrogeological Investigation -
 Proposed Development 14475 Highway 50, Bolton, ON.

Title:

Post-Development Conceptual Model - Site Water Balance



Size:
8.5 x 11

Approved By:

D.H

Drawn By:

S.W

Date:

September 2026

Rev:
0

Scale:

As Shown

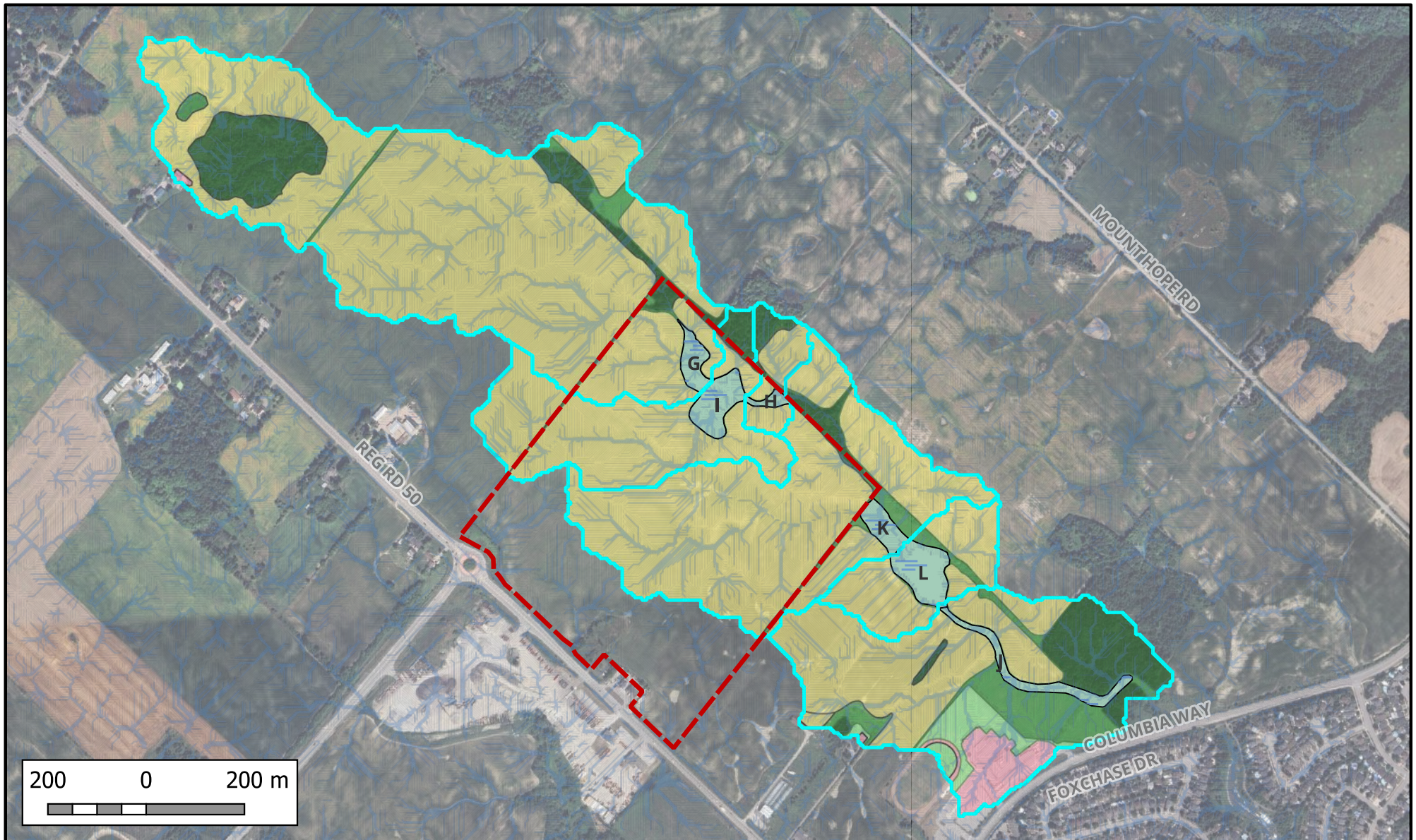
Project No.:

26-060-300

Figure No.:

6

Image/Map Source: Google Satellite Image



Legend

- Site Boundary cad
- Site Wetlands
- Wetland Catchments
- Cultivated
- Forest
- Impervious
- Pasture & Shrub
- Landscaping



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Client:

Royal Pine Homes

Project:

Hydrogeological Investigation -
Proposed Development 14475 Highway 50, Bolton, ON.

Title:

Pre-Development Conceptual Model - Wetland Catchment Mapping

Size:
8.5 x 11

Rev:
0

Approved By:

D.H

Drawn By:

S.W

Date:

September 2026

Scale:

As Shown

Project No.:

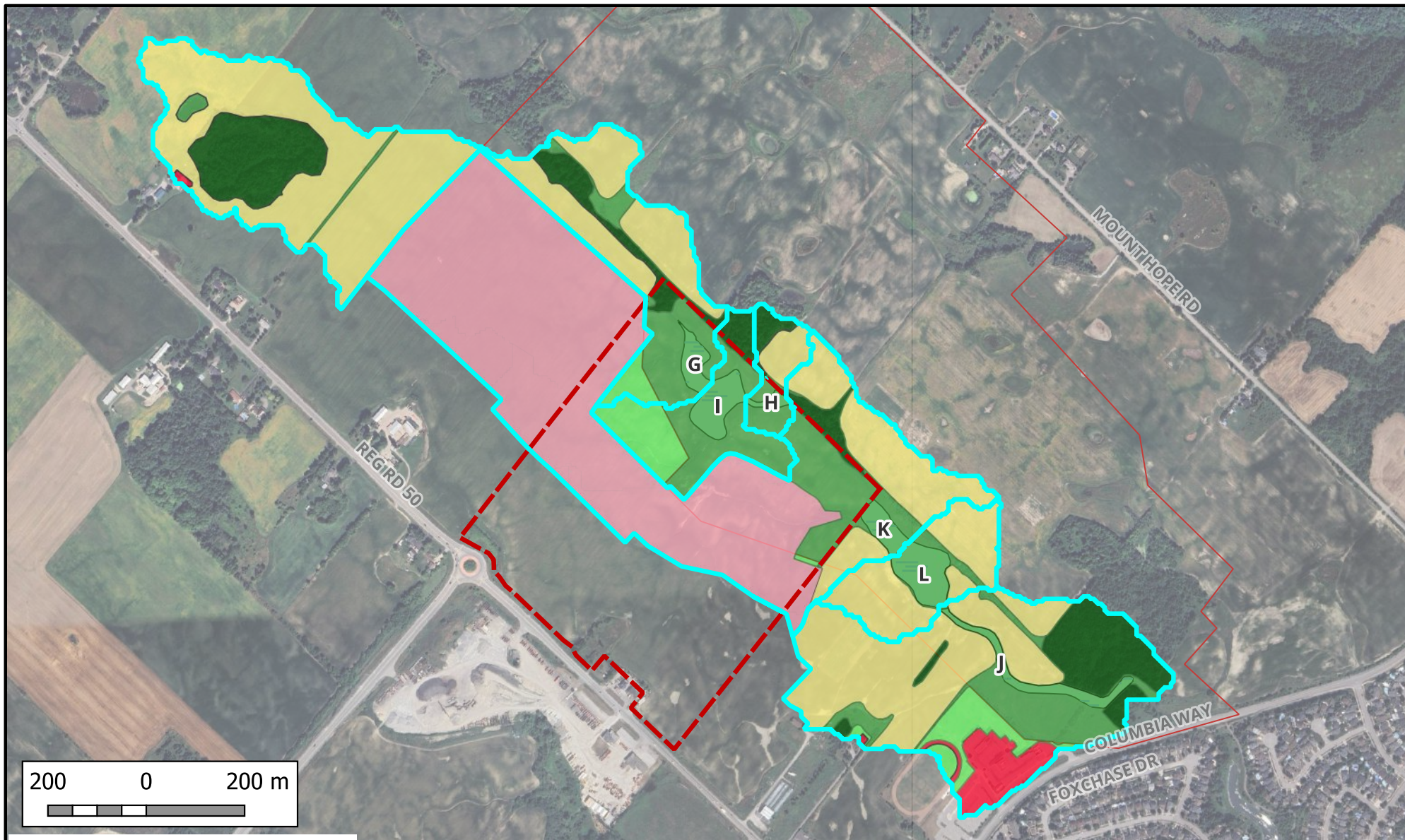
26-060-300

Figure No.:

7

Image/Map Source: Google Satellite Image





Legend

- Site Boundary
- Site Wetlands
- Wetland Catchments
- Proposed Development
- Cultivated
- Forest
- Impervious
- Landscaped
- Shrub



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Client:

Royal Pine Homes

Project:

Hydrogeological Investigation -
Proposed Development 14475 Highway 50, Bolton, ON.

Title:

Post-Development Conceptual Model - Wetland Catchment Mapping



Size:
8.5 x 11

Rev:
0

Approved By:

D.H

Drawn By:

S.W

Date:

September 2026

Scale:

As Shown

Project No.:

26-060-300

Figure No.:

8

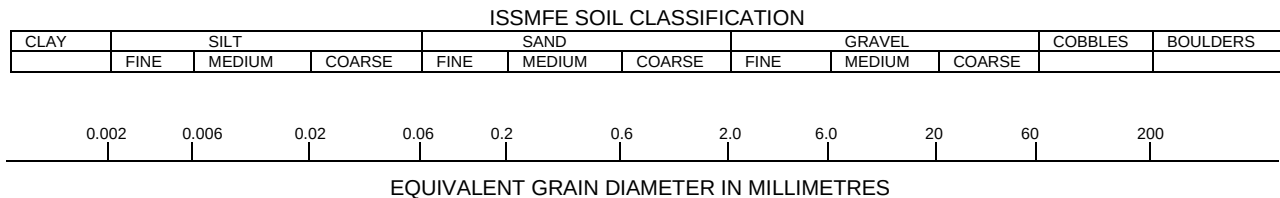
Image/Map Source: Google Satellite Image

APPENDIX A1

DS BOREHOLE AND MONITORING WELL LOGS

Drawing 1A: Notes On Sample Descriptions

1. All sample descriptions included in this report generally follow the Unified Soil Classification. Laboratory grain size analyses provided by DSCL also follow the same system. Different classification systems may be used by others, such as the system by the International Society for Soil Mechanics and Foundation Engineering (ISSMFE). Please note that, with the exception of those samples where a grain size analysis and/or Atterberg Limits testing have been made, all samples are classified visually. Visual classification is not sufficiently accurate to provide exact grain sizing or precise differentiation between size classification systems.



CLAY (PLASTIC) TO	FINE	MEDIUM	CRS.	FINE	COARSE
SILT (NONPLASTIC)	SAND			GRAVEL	

UNIFIED SOIL CLASSIFICATION

2. **Fill:** Where fill is designated on the borehole log it is defined as indicated by the sample recovered during the boring process. The reader is cautioned that fills are heterogeneous in nature and variable in density or degree of compaction. The borehole description may therefore not be applicable as a general description of site fill materials. All fills should be expected to contain obstruction such as wood, large concrete pieces or subsurface basements, floors, tanks, etc., none of these may have been encountered in the boreholes. Since boreholes cannot accurately define the contents of the fill, test pits are recommended to provide supplementary information. Despite the use of test pits, the heterogeneous nature of fill will leave some ambiguity as to the exact composition of the fill. Most fills contain pockets, seams, or layers of organically contaminated soil. This organic material can result in the generation of methane gas and/or significant ongoing and future settlements. Fill at this site may have been monitored for the presence of methane gas and, if so, the results are given on the borehole logs. The monitoring process does not indicate the volume of gas that can be potentially generated nor does it pinpoint the source of the gas. These readings are to advise of the presence of gas only, and a detailed study is recommended for sites where any explosive gas/methane is detected. Some fill material may be contaminated by toxic/hazardous waste that renders it unacceptable for deposition in any but designated land fill sites; unless specifically stated the fill on this site has not been tested for contaminants that may be considered toxic or hazardous. This testing and a potential hazard study can be undertaken if requested. In most residential/commercial areas undergoing reconstruction, buried oil tanks are common and are generally not detected in a conventional preliminary geotechnical site investigation.
3. **Till:** The term till on the borehole logs indicates that the material originates from a geological process associated with glaciation. Because of this geological process the till must be considered heterogeneous in composition and as such may contain pockets and/or seams of material such as sand, gravel, silt or clay. Till often contains cobbles (60 to 200 mm) or boulders (over 200 mm). Contractors may therefore encounter cobbles and boulders during excavation, even if they are not indicated by the borings. It should be appreciated that normal sampling equipment cannot differentiate the size or type of any obstruction. Because of the horizontal and vertical variability of till, the sample description may be applicable to a very limited zone; caution is therefore essential when dealing with sensitive excavations or dewatering programs in till materials.

DRILLING DATA

Method: Solid Stem Auger

Diameter: REF. NO.: 26-060-300

Date: Apr-21-2026 ENCL NO.: 2

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ○ 8=3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Oakbank Estate Inc.
PROJECT LOCATION: 14475 Highway 50, Bolton, Ontario
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4861756.1 E 599452.3

DRILLING DATA
Method: Solid Stem Auger
Diameter:
Date: Apr-21-2026
REF. NO.: 26-060-300
ENCL NO.: 3

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT		POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			20 40 60 80 100	20 40 60 80 100	W _p W W _L	WATER CONTENT (%)			
268.4														
268.0	TOPSOIL: 150mm		1	SS	4		268							
267.6	FILL: clayey silt to silty clay, trace rootlets, trace sand, dark brown to brown, moist, firm													
267.2	SILTY CLAY: trace sand, trace gravel, brown to grey, moist, stiff to hard		2	SS	15		267							
266.8			3	SS	27									
266.4	grey below 2.3m		4	SS	31		266							
266.0														
265.6	wet sandy silt layer at 3.1m		5	SS	15		265							
265.2														
264.8							264							
264.4	silty sand layer at 4.6m		6	SS	11		263							
264.0														
263.6							262							
263.2			7	SS	18									
262.8							261							
262.4														
262.0			8	SS	25									
261.6														
261.2														
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223.2														
222.8														
222.4														
222.0														

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Oakbank Estate Inc.
PROJECT LOCATION: 14475 Highway 50, Bolton, Ontario
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4861765.6 E 599537.7

DRILLING DATA
Method: Solid Stem Auger
Diameter:
Date: Apr-21-2026
REF. NO.: 26-060-300
ENCL NO.: 4

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		SHEAR STRENGTH (kPa)		PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT		POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			20 40 60 80 100	20 40 60 80 100	W _p	W	W _L	W _p			
266.3	TOPSOIL: 150mm															GR SA SI CL
266.0	FILL: clayey silt to silty clay, trace topsoil, trace rootlets, dark brown to brown, moist, firm		1	SS	6		266									
265.5	SILTY CLAY: trace sand, frequent silt seams, trace gravel, brown to grey, moist, stiff to very stiff wet sand layer at 1.1m		2	SS	12		265									
			3	SS	23		264									0 3 50 47
			4	SS	26		263									
			5	SS	15		262									
			6	SS	18		261									2 5 56 37
			7	SS	25		260									
			8	SS	19		259									
258.1	END OF BOREHOLE: Notes: 1) 50mm dia. monitoring well installed at depth of 7.6m upon completion. 2) Water Level Readings: Date: Water Level(mbg): May 15, 2026 dry															

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG-2021-FINAL 26-060-300GEO.GPJ DS.GDT 26-8-27

PROJECT: Geotechnical Investigation
CLIENT: Oakbank Estate Inc.
PROJECT LOCATION: 14475 Highway 50, Bolton, Ontario
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4861608.6 E 599600.7

DRILLING DATA
Method: Solid Stem Auger
Diameter:
Date: Apr-21-2026
REF. NO.: 26-060-300
ENCL NO.: 5

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)		W _p	W	W _L						
								○ UNCONFINED ● QUICK TRIAXIAL	+ FIELD VANE & Sensitivity × LAB VANE	WATER CONTENT (%)								
265.0								20	40	60	80	100						
264.0	0.2	TOPSOIL: 150mm																
		FILL: clayey silt to silty clay, trace topsoil, trace sand, brown, moist, firm to very stiff		1	SS	6												
263.9	1.1	SILTY SAND TO SANDY SILT: trace clay, brown, wet, compact		2	SS	17												
				3	SS	19												
				4	SS	22												
261.7	3.3	SILTY CLAY: trace sand, trace gravel, grey, moist, very stiff		5	SS	19												
				6	SS	22												
				7	SS	20												
258.3	6.7	END OF BOREHOLE: Notes: 1) 50mm dia. monitoring well installed at depth of 6.1m upon completion. 2) Water Level Readings: Date: Water Level(mbgl): May 15, 2026 1.6																

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG-2021-FINAL 26-060-300GEO.GPJ DS.GDT 26-8-27

PROJECT: Geotechnical Investigation
CLIENT: Oakbank Estate Inc.
PROJECT LOCATION: 14475 Highway 50, Bolton, Ontario
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4861431.9 E 599513.2

DRILLING DATA
Method: Solid Stem Auger
Diameter:
Date: Apr-20-2026
REF. NO.: 26-060-300
ENCL NO.: 6

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)		
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)										WATER CONTENT (%)	
								○ UNCONFINED ● QUICK TRIAXIAL	+	FIELD VANE & Sensitivity	×							LAB VANE	
266.7							20	40	60	80	100	10	20	30			GR SA SI CL		
0.0 266.4	TOPSOIL: 300mm		1	SS	6														
0.3 265.9	FILL: clayey silt to silty clay, trace sand, trace rootlets, brown, moist, firm												○						
0.8 265.4	SANDY SILT: trace clay, brown, wet, loose		2	SS	7									○					
1.3	SILTY CLAY: trace to some sand, trace gravel, brown to grey, moist, firm to very stiff													○					
			3	SS	22														
	grey below 2.3m																		
			4	SS	27									○			0 5 64 31		
			5	SS	21									○					
262.1 4.6	SANDY SILT TO SILT: trace clay, grey, wet, compact		6	SS	27									○			0 19 74 7		
260.7 6.0	CLAYEY SILT: interbedded silt, grey, moist, very stiff																		
			7	SS	30									○					
260.0	END OF BOREHOLE: Notes: 1) Water encountered at 0.8m during drilling.																		
6.7																			

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Oakbank Estate Inc.
PROJECT LOCATION: 14475 Highway 50, Bolton, Ontario
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4861243 E 599396.9

DRILLING DATA
Method: Solid Stem Auger
Diameter:
Date: Apr-21-2026
REF. NO.: 26-060-300
ENCL NO.: 7

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			POCKET PEN (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				WATER CONTENT (%)					
ELEV DEPTH								20 40 60 80 100	W _P	W	W _L	○ UNCONFINED	+ FIELD VANE & Sensitivity	● QUICK TRIAXIAL			
266.1							266									GR SA SI CL	
266.0	TOPSOIL: 100mm		1	SS	10												
265.3	FILL: clayey silt to silty clay, trace sand, trace topsoil, brown, moist, stiff																
265.3																	
0.8	SILTY CLAY: trace sand, trace gravel, brown, moist, stiff to very stiff		2	SS	24		265										
			3	SS	31												
			4	SS	22		264										
			5	SS	11		263										
							262										
261.5							261										
4.6	SANDY SILT: trace clay, brown, wet, compact		6	SS	21												
260.0							260										
6.1	CLAYEY SILT: interbedded silt, trace sand, grey, moist, very stiff		7	SS	20												
259.4																	
6.7	END OF BOREHOLE: Notes: 1) Water encountered at 4.6m during drilling.																

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG-2021-FINAL 26-060-300GEO.GPJ DS.GDT 26-8-27

PROJECT: Geotechnical Investigation
CLIENT: Oakbank Estate Inc.
PROJECT LOCATION: 14475 Highway 50, Bolton, Ontario
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4861405.7 E 599686.3

DRILLING DATA
Method: Solid Stem Auger
Diameter:
Date: Apr-21-2026
REF. NO.: 26-060-300
ENCL NO.: 8

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				WATER CONTENT (%)					
								20 40 60 80 100	20 40 60 80 100	20 40 60 80 100	20 40 60 80 100	W _p	W	W _L			
263.9							W. L. 264.0 m May 15, 2026										
263.7			1	SS	4												
0.3																	
263.1			2	SS	8		263										
0.8																	
			3	SS	25		262										
			4	SS	14		261										
			5	SS	12		260										
260.4			5A	SS	11		259										
3.5																	
			6	SS	11		258										
259.0																	
4.9			7	SS	13												
257.2																	
6.7																	

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG-2021-FINAL 26-060-300GEO.GPJ DS.GDT 26-8-27

PROJECT: Geotechnical Investigation
CLIENT: Oakbank Estate Inc.
PROJECT LOCATION: 14475 Highway 50, Bolton, Ontario
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4861356.9 E 599867.3

DRILLING DATA
Method: Solid Stem Auger
Diameter:
Date: Apr-21-2026
REF. NO.: 26-060-300
ENCL NO.: 9

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			
266.0	TOPSOIL: 150mm		1	SS	12			20	40	60	80	100					GR SA SI CL
265.2	FILL: clayey silt, trace sand, trace topsoil, brown, moist, stiff		2	SS	21		265										2 11 45 42
265.2	SILTY CLAY: trace sand, trace gravel, brown, moist, very stiff to hard		3	SS	36		264										
265.2			4	SS	41		263										
265.2			5	SS	31		262										
261.1	SILTY SAND: trace clay, grey, wet, compact to dense		6	SS	41		261										
260.0	SILTY CLAY: trace sand, brown, moist, very stiff		7	SS	15		260										0 4 58 38
259.3	END OF BOREHOLE: Notes: 1) Water encountered at 4.9m during drilling.																

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG-2021-FINAL 26-060-300GEO.GPJ DS.GDT 26-8-27

PROJECT: Geotechnical Investigation
CLIENT: Oakbank Estate Inc.
PROJECT LOCATION: 14475 Highway 50, Bolton, Ontario
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4861083.8 E 599642.9

DRILLING DATA

Method: Solid Stem Auger

Diameter: REF. NO.: 26-060-300

Date: Apr-21-2026 ENCL NO.: 10

[illegible]

GROUNDWATER ELEVATIONS

	1st	2nd	3rd	4th
Measurement				

GRAPH
NOTES

+ 3, × 3: Numbers refer to Sensitivity

○ $\epsilon = 3\%$ Strain at Failure

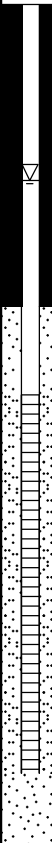
PROJECT: Geotechnical Investigation
CLIENT: Oakbank Estate Inc.
PROJECT LOCATION: 14475 Highway 50, Bolton, Ontario
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4861156.3 E 599540.4

DRILLING DATA

Method: Solid Stem Auger
Diameter:
Date: Apr-22-2026

REF. NO.: 26-060-300

ENCL NO.: 11

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT			PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)		
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)									WATER CONTENT (%)	
								○ UNCONFINED ● QUICK TRIAXIAL	+ FIELD VANE & Sensitivity × LAB VANE									
266.8 0.0	FILL: clayey silt to silty clay, trace rootlets, trace to some organics, dark brown to brown, moist, firm		1	SS	6		266 W. L. 265.4 m May 15, 2026 265 264 263 262 261									GR SA SI CL		
266.0 0.8			2	SS	24													
264.5 2.3			3	SS	27													
263.7 3.1			4	SS	36													
260.1 6.7	SILTY CLAY: trace sand, trace gravel, grey, moist, very stiff		5	SS	22													
			6	SS	27													
			7	SS	22													
END OF BOREHOLE: Notes: 1) Water encountered depth of at 5.8 m during drilling. 2) 50mm dia. monitoring well installed at depth of 6.1m upon completion. 3) Water Level Readings: Date: Water Level(mbgl): May 15, 2026 1.4																		

GROUNDWATER ELEVATIONS

	1st	2nd	3rd	4th
Measurement				

GRAPH
NOTES

+ 3, × 3: Numbers refer to Sensitivity

○ $\epsilon = 3\%$ Strain at Failure

DS SOIL LOG-2021-FINAL 26-060-300GEO.GPJ DS.GDT 26-8-27

PROJECT: Geotechnical Investigation

CLIENT: Oakbank Estate Inc.

PROJECT LOCATION: 14475 Highway 50, Bolton, Ontario

DATUM: Geodetic

BH LOCATION: See Drawing 1 N 4861197.2 E 599435.2

DRILLING DATA

Method: Solid Stem Auger

Diameter:

Date: Apr-22-2026

REF. NO.: 26-060-300

ENCL NO.: 12

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			
266.2	TOPSOIL: 130mm		1	SS	4		266	20	40	60	80	100					GR SA SI CL
266.0	FILL: clayey silt to silty clay, trace rootlets, topsoil inclusions, dark brown to brown, moist, firm to very stiff																
265.0			2	SS	20		265										
1.2	SILTY CLAY: trace sand, trace gravel, brown to grey, moist, very stiff to hard		3	SS	22		264										
			4	SS	31		263										
			5	SS	21		262										
261.4	grey below 4.6m						261										
4.8	SILTY SAND: trace clay, brown, wet, compact		6	SS	21		260										0 49 48 3
260.1																	
6.1	SILTY CLAY: trace sand, silt seams, grey, moist, stiff		7	SS	13												
259.5																	
6.7	END OF BOREHOLE: Notes: 1) Water encountered depth of at 5.2 m during drilling. 2) 50mm dia. monitoring well installed at depth of 6.1m upon completion. 3) Water Level Readings: Date: Water Level(mbg): May 15, 2026 1.8																

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

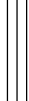
+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG-2021-FINAL 26-060-300GEO.GPJ DS.GDT 26-8-27

PROJECT: Geotechnical Investigation
CLIENT: Oakbank Estate Inc.
PROJECT LOCATION: 14475 Highway 50, Bolton, Ontario
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4861095.3 E 599555.3

DRILLING DATA
Method: Solid Stem Auger
Diameter:
Date: Apr-22-2026
REF. NO.: 26-060-300
ENCL NO.: 13

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)		W _p W W _L								
								○ UNCONFINED ● QUICK TRIAXIAL	+ FIELD VANE & Sensitivity × LAB VANE	WATER CONTENT (%)								
265.3 0.0	FILL: clayey silt to silty clay, trace rootlets/topsoil, some organics, dark brown to brown, moist, stiff		1	SS	13		265									0 16 76 8		
264.5 0.8			SILTY CLAY: trace sand, trace gravel, brown, moist, very stiff	2	SS		15	264										
				wet sandy silt pocket	3		SS	26										
					4		SS	28	263									
262.3 3.0	SILT: trace clay, some sand, grey, wet, compact		5	SS	24		262											
261.1 4.2			SILTY CLAY: trace sand, trace gravel, grey, moist, very stiff to hard	6	SS		26	261										
					260													
		7		SS	35		259											
		8		SS	43	258												
257.1 8.2	END OF BOREHOLE: Notes: 1) 50mm dia. monitoring well installed at depth of 6.1m upon completion. 2) Water Level Readings: Date: Water Level(mbgl): May 15, 2026 0.4																	

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

APPENDIX A2

SELECTED CROZIER MONITORING WELL LOGS

MONITORING WELL MW11-21

PROJECT NUMBER 0708 - 3446	DRILLING COMPANY ACE Environmental Drilling	COORDINATES 17T 0599248 4861525
PROJECT NAME Bolton North Hill	DRILLER John/Nick	COORD SYS UTM
CLIENT Bolton North Hill Landowner Group	DRILL RIG GT3126 Geoprobe	SURFACE ELEVATION 270 masl
ADDRESS 14475 Highway 50, Bolton	DRILLING METHOD Augering Hollow Flight	WELL TOC
DRILLING DATE 21/11/04	TOTAL DEPTH 6.1 m	LOGGED BY CM
LICENCE NO. 7725	DIAMETER 51 mm	CHECKED BY CG

COMPLETION 21/11/04

CASING PVC

SCREEN PVC

COMMENTS Northwest corner of property along fence line

Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
0.5	AU						TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets	Moist	Loose	267.5
1		SS 2.5 - 4.5ft	SS				SILTY CLAY: Brown, silty clay, grey silty clay seams, moist, dense, minor gravel, trace sand			267
1.5		SS 5.0 - 7.0ft	SS						Very Stiff	266.5
2										266
2.5		SS 7.5 - 9.5ft	SS					Wet	Soft - Medium	265.5
3		SS 10.0 - 12.0ft	SS							265
3.5										264.5
4										264
4.5		SS 15.0 - 17.0ft	SS				SILTY CLAY: Grey, silty clay, dense, moist, trace gravel	Wet	Soft - Medium	263.5
5										263
5.5										262.5
6										262
6.5		SS 20.0 - 22.0ft	SS				Termination Depth at: 6.10 m			261.5
7										261
7.5										260.5

Disclaimer This bore log is intended for environmental not geotechnical purposes.

Page 1 of 1

MONITORING WELL MW12-21

PROJECT NUMBER 0708 - 3446	DRILLING COMPANY ACE Environmental Drilling	COORDINATES 17T 0599417 4861745
PROJECT NAME Bolton North Hill	DRILLER John/Nick	COORD SYS UTM
CLIENT Bolton North Hill Landowner Group	DRILL RIG GT3126 Geoprobe	SURFACE ELEVATION 268 masl
ADDRESS 14475 Highway 50, Bolton	DRILLING METHOD Augering Hollow Flight	WELL TOC
DRILLING DATE 21/11/04	TOTAL DEPTH 6.1 m	LOGGED BY CM
LICENCE NO. 7725	DIAMETER 51 mm	CHECKED BY CG

COMPLETION 21/11/04

CASING PVC

SCREEN PVC

COMMENTS Edge of field, NE parcel, along fence line

Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
0.5	AU						TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets	Moist	Loose	267.5
1		SS 2.5 - 4.5ft	SS				SILTY CLAY: Brown, silty clay, moist, dense, minor gravel, trace sand		Very Stiff	267
1.5										266.5
2		SS 5.0 - 7.0ft	SS							266
2.5										265.5
3		SS 7.5 - 9.5ft	SS							265
3.5		SS 10.0 -12.0ft	SS				SANDY SILT: Grey, silt minor sand, saturated, approximately 0.80 m seam	Wet	Soft - Medium	264.5
4							SILTY CLAY: Grey, silty clay, dense, moist, trace gravel	Moist	Very Stiff	264
4.5										263.5
5		SS 15.0 - 17.0ft	SS				SILT: Brown to grey, silt, saturated	Wet	Medium	263
5.5							SILTY CLAY: Grey, silty clay, dense, moist, stone poor	Moist	Stiff	262.5
6										262
6.5		SS 20.0 - 22.0ft	SS				Termination Depth at: 6.10 m			261.5
7										261
7.5										260.5

Disclaimer This bore log is intended for environmental not geotechnical purposes.

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MONITORING WELL MW13-21

PROJECT NUMBER 0708 - 3446	DRILLING COMPANY ACE Environmental Drilling	COORDINATES 17T 0599098 4861591
PROJECT NAME Bolton North Hill	DRILLER John/Nick	COORD SYS UTM
CLIENT Bolton North Hill Landowner Group	DRILL RIG GT3126 Geoprobe	SURFACE ELEVATION 270 masl
ADDRESS 14685 Highway 50, Bolton	DRILLING METHOD Augering Hollow Flight	WELL TOC
DRILLING DATE 21/11/08	TOTAL DEPTH 6.1 m	LOGGED BY CM
LICENCE NO. 7725	DIAMETER 51 mm	CHECKED BY CG

COMPLETION 21/11/08

CASING PVC

SCREEN PVC

COMMENTS Near farm silos

Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
0.5	AU						TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets	Moist	Loose	269.5
1		SS 2.5 - 4.5ft	SS				SILTY CLAY: Brown, silty clay, grey silty clay seams, moist, dense, minor gravel, trace sand		Very Stiff	269
1.5										268.5
2		SS 5.0 - 7.0ft	SS							268
2.5										267.5
3		SS 7.5 - 9.5ft	SS							267
3.5		SS 10.0 -12.0ft	SS				SILTY CLAY: Grey, silty clay, grey silty clay seams, dense, moist, trace gravel			266.5
4										266
4.5		SS 15.0 - 17.0ft	SS							265.5
5							SANDY SILT: Grey, silty sand to sandy silt, saturated, approximately 0.60 m seam	Wet	Medium	265
5.5							SILTY CLAY: Grey, silty clay to clay, dense, moist, trace gravel	Moist	Stiff	264.5
6										264
6.5		SS 20.0 - 22.0ft	SS				Termination Depth at: 6.10 m			263.5
7										263
7.5										262.5

Disclaimer This bore log is intended for environmental not geotechnical purposes.

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MONITORING WELL MW14-21

PROJECT NUMBER 0708 - 3446	DRILLING COMPANY ACE Environmental Drilling	COORDINATES 17T 0599114 4862349
PROJECT NAME Bolton North Hill	DRILLER John/Nick	COORD SYS UTM
CLIENT Bolton North Hill Landowner Group	DRILL RIG GT3126 Geoprobe	SURFACE ELEVATION 269 masl
ADDRESS 14685 Highway 50, Bolton	DRILLING METHOD Augering Hollow Flight	WELL TOC
DRILLING DATE 21/11/05	TOTAL DEPTH 6.1 m	LOGGED BY CM
LICENCE NO. 7725	DIAMETER 51 mm	CHECKED BY CG

COMPLETION 21/11/05

CASING PVC

SCREEN PVC

COMMENTS Northeast corner of parcel along fence by woodlot and east cornfield

Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
0.5	AU			▽			TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets	Moist	Loose	268.5
1		SS 2.5 - 4.5ft	SS				SILTY CLAY: Brown, silty clay, grey silty clay seams, moist, dense, minor gravel, trace sand		Very Stiff	268
1.5										267.5
2		SS 5.0 - 7.0ft	SS							267
2.5							SANDY SILT: Brown, silty sand to sandy silt, saturated, approximately 0.50 m seam	Wet	Medium	266.5
3		SS 7.5 - 9.5ft	SS				SILTY CLAY: Brown, silty clay, dense, moist, trace gravel	Moist	Stiff	266
3.5										265.5
4							SANDY SILT: Brown, sandy silt, saturated, approximately 1 m	Wet	Medium	265
4.5										264.5
5		SS 15.0 - 17.0ft	SS				SILTY CLAY: Grey, silty clay to clay, dense, moist, trace gravel	Moist	Stiff	264
5.5										263.5
6										263
6.5		SS 20.0 - 22.0ft	SS				Termination Depth at: 6.10 m			262.5
7										262
7.5										261.5

Disclaimer This bore log is intended for environmental not geotechnical purposes.

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MONITORING WELL MW15-21

PROJECT NUMBER 0708 - 3446	DRILLING COMPANY ACE Environmental Drilling	COORDINATES 17T 0598811 4861951
PROJECT NAME Bolton North Hill	DRILLER John/Nick	COORD SYS UTM
CLIENT Bolton North Hill Landowner Group	DRILL RIG GT3126 Geoprobe	SURFACE ELEVATION 271 masl
ADDRESS 14685 Highway 50, Bolton	DRILLING METHOD Augering Hollow Flight	WELL TOC
DRILLING DATE 21/11/05	TOTAL DEPTH 6.1 m	LOGGED BY CM
LICENCE NO. 7725	DIAMETER 51 mm	CHECKED BY CG

COMPLETION 21/11/05	CASING PVC	SCREEN PVC
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COMMENTS Northwest corner of the property, behind red brick

Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
0.5	AU						TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets	Moist	Loose	270.5
1		SS 2.5 - 4.5ft	SS				SILTY CLAY: Brown, silty clay, grey silty clay seams, moist, dense, minor gravel, trace sand		Very Stiff	270
1.5										269.5
2		SS 5.0 - 7.0ft	SS							269
2.5										268.5
3		SS 7.5 - 9.5ft	SS							268
3.5		SS 10.0 -12.0ft	SS				SANDY SILT: Brown, silty sand to sandy silt, saturated, approximately 0.50 m seam	Wet	Medium	267.5
4							SILTY CLAY: Brown, silty clay, grey silty clay seams, dense, moist, trace gravel	Moist	Stiff	267
4.5							SANDY SILT: Brown, sandy silt, saturated, approximately 0.2 m	Wet	Medium	266.5
5		SS 15.0 - 17.0ft	SS				SILTY CLAY: Grey, silty clay to clay, dense, moist, trace gravel	Moist	Stiff	266
5.5										265.5
6										265
6.5		SS 20.0 - 22.0ft	SS				Termination Depth at: 6.10 m			264.5
7										264
7.5										263.5

Disclaimer This bore log is intended for environmental not geotechnical purposes.

Page 1 of 1

APPENDIX B

MECP WATER WELL RECORD SUMMARY

Appendix X

MECP Water Well Record Summary

14475 Highway 50, Bolton, Ontario

DS Project No. 26-060-100

Source and Limitations: Selected MECP Water Well Records were reviewed for the area surrounding the Site. The summary is based on MECP Water Well Information available through Ontario Well Records data. Well locations and record details reflect information submitted to the MECP and should be considered approximate. N/R indicates information that was not reported or not confirmed in the source fields reviewed. A private well survey was not completed as part of this summary.

Table X-1: Summary of Reviewed MECP Water Well Records by Reported Use / Status

Category	Number of Records	Comment
Domestic water supply	8	Reported domestic water-supply records.
Domestic/Livestock or Livestock/Domestic water supply	3	Reported mixed domestic/livestock water-supply records.
Livestock water supply	1	Reported livestock water-supply record.
Monitoring / Test Hole / Observation	4	Monitoring/test-hole or observation records; not interpreted as active potable water-supply users.
Other / Abandonment records	3	Records reported as other and/or abandonment records.
Use not reported / not confirmed	11	Records where well use was not reported or not confirmed in the source fields reviewed.
Total records reviewed	29	Selected MECP Water Well Records used for this appendix.

Table X-2: MECP Water Well Record Summary

No.	MECP Well ID	Borehole ID	Completion Date	Well Use	Final Status	Depth (m bgs)	Static Level (m bgs)	Depth to Bedrock (m bgs)	Easting	Northing	Material(s)	Aquifer	Notes
1	4900327	10315175	1955-12-10	Domestic	Water Supply	37.2	18.3	N/R	598795.6	4861628	sand/clay	Overburden	Reported water-supply well; deeper sand intervals reported.
2	4900387	10315235	1959-07-04	Livestock / Domestic	Water Supply	28.3	19.8	N/R	599055.6	4861715	sand/clay	Overburden	Reported water-supply well; quicksand/coarse sand intervals reported.
3	4903224	10318063	1969-04-10	Domestic	Water Supply	45.7	13.7	N/R	599714.6	4860723	sand/gravel/clay	Overburden	Reported domestic water-supply well.
4	4903539	10318373	1970-07-14	Domestic	Water Supply	47.5	18.3	N/R	599394.6	4861023	sand/gravel/clay	Overburden	Reported domestic water-supply well.
5	4904097	10318885	1973-02-22	Livestock	Water Supply	52.1	25.6	N/R	598934.6	4861523	sand/silt/clay	Overburden	Reported livestock water-supply well.
6	4904464	10319247	1974-09-13	Domestic	Water Supply	47.2	19.8	N/R	598954.6	4861723	sand/silt/clay	Overburden	Reported domestic water-supply well.
7	4905679	10320383	1978-10-03	Domestic	Water Supply	45.1	21.0	N/R	599914.6	4860773	gravel/sand/clay	Overburden	Reported domestic water-supply well.
8	4905966	10320609	1982-08-14	Domestic	Water Supply	12.2	3.0	N/R	599614.6	4861823	sand/clay	Overburden	Relatively shallow static water level; interpreted as localized shallow condition.
9	4906552	10321117	1986-11-15	N/R	Water Supply	57.9	17.1	N/R	599467.6	4861028	sand/clay	Overburden	Primary use not reported in source fields reviewed.
10	4908023	10322582	1995-08-11	Domestic	Water Supply	43	22.9	N/R	599090.0	4861428	sand/clay	Overburden	Reported domestic water-supply well.
11	6909363	10500042	1969-07-09	Livestock / Domestic	Water Supply	32.9	21.3	N/R	599484.6	4861193	sand/clay	Overburden	Reported water-supply well.
12	7101984	1001499005	2008-01-07	Domestic	Water Supply	54.3	31.5	N/R	598971.0	4861641	sand/silt/clay	Overburden	Reported domestic water-supply well.
13	7104790	1001585227	2007-12-11	Domestic / Livestock	Water Supply	47.5	25.2	N/R	598970.0	4861641	sand/silt/clay	Overburden	Reported domestic/livestock water-supply well.
14	7168998	1003569812	2011-08-31	Other	Abandoned - Other	N/R	1.2	N/R	599976.0	4861004	N/R	N/R	Abandonment record reported; formation log not available in source fields reviewed.
15	7169000	1003569816	2011-09-01	Other	Abandonment record	N/R	1.9	N/R	600014.0	4861031	N/R	N/R	Abandonment record reported; final status not otherwise confirmed in source fields reviewed.
16	7224080	1004949051	2014-06-10	Monitoring / Test Hole	Observation Well	5.5	N/R	N/R	599502.0	4861115	sand/silt; silt/clay	Overburden	Monitoring/test-hole record; not interpreted as active potable water supply.
17	7224081	1004949054	2014-06-10	Monitoring / Test Hole	Test Hole	5.5	N/R	N/R	599477.0	4861136	sand/silt	Overburden	Monitoring/test-hole record; not interpreted as active potable water supply.
18	7224082	1004949093	2014-06-10	Monitoring / Test Hole	Test Hole	5.5	N/R	N/R	599477.0	4861123	sand/silt	Overburden	Monitoring/test-hole record; not interpreted as active potable water supply.
19	7224105	1004949540	2014-06-10	Monitoring / Test Hole	Test Hole / Abandonment record	6.1	N/R	N/R	599522.0	4861089	sand/silt; silt/clay	Overburden	Monitoring/test-hole record; not interpreted as active potable water supply.
20	7355088	1008207222	N/R	N/R	N/R	N/R	N/R	N/R	600352.0	4861175	N/R	N/R	Use, status, depth and formation log not reported in source fields reviewed.
21	7406166	1008899713	2021-11-11	N/R	N/R	N/R	N/R	N/R	600123.0	4861035	N/R	N/R	Use/status and formation log not reported in source fields reviewed.
22	7406167	1008899716	2021-11-10	N/R	N/R	N/R	N/R	N/R	598962.0	4861175	N/R	N/R	Use/status and formation log not reported in source fields reviewed.
23	7464190	1009671716	2023-10-12	N/R	N/R	N/R	N/R	N/R	599860.0	4860783	clay/silt	Overburden	Use/status not reported in source fields reviewed.

No.	MECP Well ID	Borehole ID	Completion Date	Well Use	Final Status	Depth (m bgs)	Static Level (m bgs)	Depth to Bedrock (m bgs)	Easting	Northing	Material(s)	Aquifer	Notes
24	7464191	1009671719	2023-10-12	N/R	N/R	N/R	N/R	N/R	599847.0	4860762	clay/silt	Overburden	Use/status not reported in source fields reviewed.
25	7464192	1009671722	2023-10-06	N/R	N/R	N/R	N/R	N/R	599540.0	4861127	sand; silt/sand; silt/clay	Overburden	Use/status not reported in source fields reviewed.
26	7464193	1009671725	2023-10-06	N/R	N/R	N/R	N/R	N/R	599545.0	4861111	sand; silt/sand; silt/clay	Overburden	Use/status not reported in source fields reviewed.
27	7464194	1009671728	2023-10-06	N/R	N/R	N/R	N/R	N/R	599533.0	4861105	sand; silt/sand; silt/clay	Overburden	Use/status not reported in source fields reviewed.
28	7468437	1010063869	2023-10-10	N/R	N/R	N/R	N/R	N/R	599855.0	4860799	fill; clay; clay/silt; silt/sand	Overburden	Use/status not reported in source fields reviewed.
29	7478764	1010327683	2024-05-08	N/R	N/R	4.6	N/R	N/R	600204.0	4861692	silt/sand; sand	Overburden	Use/status not reported in source fields reviewed.

Table X-3: Generalized Geologic Descriptions from MECP Formation Logs

Note: Descriptions are generalized from the available MECP formation-log intervals and are intended for hydrogeological screening. They are not a substitute for the original well records or site-specific borehole logs.

No.	MECP Well ID	Generalized Geologic Description
1	4900327	Loam/topsoil to 0.61 m; blue clay to 5.49 m; medium sand/clay to 28.96 m; grey fine sand to 33.53 m; grey coarse sand to 37.19 m.
2	4900387	Brown loam/clay to 4.88 m; blue clay to 10.67 m; clay/medium sand to 17.07 m; quicksand to 20.42 m; blue clay to 24.38 m; blue coarse sand to 28.35 m.
3	4903224	Brown clay to 7.62 m; blue clay to 32.00 m; blue clay/silt to 43.59 m; red medium sand/gravel to 45.72 m.
4	4903539	Loam to 0.30 m; yellow clay to 7.92 m; blue clay to 39.01 m; medium sand/clay to 43.59 m; medium sand/gravel to 47.55 m.
5	4904097	Overburden/surficial material to 1.52 m; brown clay/sand to 5.49 m; blue clay to 24.38 m; blue clay/gravel to 33.53 m; blue fine sand to 36.58 m; blue fine sand/silt to 48.77 m; blue clay/silt to 52.12 m.
6	4904464	Brown clay/sand to 13.72 m; blue clay/silt to 25.60 m; silt to 42.67 m; fine sand to 45.72 m; blue clay to 47.24 m.
7	4905679	Brown clay to 4.27 m; blue gravel/clay to 24.99 m; blue clay to 41.76 m; brown sand to 45.11 m.
8	4905966	Brown loam to 0.30 m; brown loose clay to 3.05 m; brown loose sand to 6.10 m; grey hard clay to 9.14 m; brown loose sand to 12.19 m.
9	4906552	Brown sand to 3.66 m; grey clay to 33.53 m; grey sandy clay to 42.67 m; grey clay to 53.64 m; sand to 57.91 m.
10	4908023	Brown dense clay to 3.35 m; grey soft clay to 6.10 m; grey layered sand/clay to 38.10 m; grey layered sand/silt to 39.93 m; grey loose sand/clay to 42.06 m; grey layered sand/silt to 42.98 m.
11	6909363	Overburden/surficial material to 1.52 m; yellow clay with medium sand to 6.71 m; yellow clay to 31.70 m; yellow medium sand to 32.92 m.
12	7101984	Brown clay/gravel to 5.48 m; brown layered silt/clay with stones to 42.07 m; brown sand to 43.29 m; grey fine sand/clay to 46.64 m; grey fine sand to 53.65 m; grey clay/silt to 54.26 m.
13	7104790	Brown clay/sand to 4.88 m; grey clay to 7.01 m; brown sand/clay/silt to 38.40 m; grey clay to 39.01 m; grey silty sand to 40.54 m; brown medium sand to 47.55 m.
14	7168998	Formation log not reported in the source fields reviewed.
15	7169000	Formation log not reported in the source fields reviewed.
16	7224080	Black soft surface material and brown soft sand/silt to 3.00 m; grey soft silt/clay to 5.50 m.
17	7224081	Black soft surface material and brown soft sand/silt to 3.05 m; grey soft silt/sand to 5.49 m.
18	7224082	Black soft surface material and brown soft sand/silt to 3.05 m; grey soft silt/sand to 5.49 m.
19	7224105	Black soft surface material and brown soft sand/silt to 3.50 m; grey soft silt/clay to 6.10 m.
20	7355088	Formation log not reported in the source fields reviewed.
21	7406166	Formation log not reported in the source fields reviewed.
22	7406167	Formation log not reported in the source fields reviewed.
23	7464190	Brown dense clay/silt to 4.57 m; grey dense clay/silt to 7.62 m.
24	7464191	Brown dense clay/silt to 4.57 m; grey dense clay/silt to 7.62 m.
25	7464192	Brown sand to 1.83 m; grey silt/sand to 2.74 m; grey silt/clay to 7.62 m.
26	7464193	Brown sand to 1.22 m; grey silt/sand to 2.44 m; grey silt/clay to 4.57 m.
27	7464194	Brown sand to 0.91 m; grey silt/sand to 2.74 m; grey silt/clay to 4.57 m.
28	7468437	Brown fill to 1.83 m; black clay to 3.66 m; grey clay/silt to 6.10 m; grey silt/sand to 7.32 m.
29	7478764	Brown silt/sand to 2.74 m; brown sand to 4.57 m.

APPENDIX C

GROUNDWATER LEVEL SUMMARY TABLES

APPENDIX C - GROUNDWATER LEVEL SUMMARY TABLES

Table C-1 - Monitoring Well Reference Data

Monitoring Well	Surface Elev. (masl)	Stick-up (m)	MP Elev. (masl)	Total Depth (mTOC)	Bottom Elev. (masl)	Notes
BH26-1 / MW26-1	264.85	0.76	265.61	6.50	259.11	For BH26-1 through BH26-12, survey completed on ground surface; May note depth/stick- up. Existing Crozier MW; surface elevation from Crozier table, May stick-up interpreted from field note.
BH26-3 / MW26-3	266.26	0.70	266.96	8.09	258.87	
BH26-4 / MW26-4	264.98	0.87	265.85	6.62	259.23	
BH26-7 / MW26-7	263.90	0.67	264.57	3.90	260.67	
BH26-9 / MW26-9	265.55	0.73	266.28	7.30	258.98	
BH26-10 / MW26-10	266.84	—	—	—	—	
BH26-11 / MW26-11	266.18	0.77	266.95	6.14	260.81	
BH26-12 / MW26-12	265.31	0.80	266.11	6.94	259.17	
MW7-21	266.40	1.04	267.44	6.80	260.64	
MW8-21	264.56	1.08	265.64	6.10	259.54	
MW9-21	268.22	1.15	269.37	7.23	262.14	
MW10-21	262.13	1.16	263.29	7.27	256.02	
MW11-21	268.83	1.12	269.95	6.58	263.37	
MW12-21	270.05	1.16	271.21	6.67	264.54	

APPENDIX C - GROUNDWATER LEVEL SUMMARY TABLES

Table C-2 - Manual Groundwater Levels - May, June and July 2026

Monitoring Well	May 15 WL (mTOC/status)	May 15 WL (mbg)	May 15 WL Elev. (masl)	June 15 WL (mTOC/status)	June 15 WL (mbg)	June 15 WL Elev. (masl)	July 29 WL (mTOC/status)	July 29 WL (mbg)	July 29 WL Elev. (masl)
BH26-1 / MW26-1	1.17	0.41	264.44	1.28	0.52	264.33	1.41	0.65	264.20
BH26-3 / MW26-3	Dry >8.09	>7.39	259.00	7.96	>7.39	<258.87	Dry >8.09	>7.39	<258.87
BH26-4 / MW26-4	2.38	1.51	263.47	2.70	1.83	263.15	3.19	2.32	262.66
BH26-7 / MW26-7	0.53	-0.14	264.04	1.58	0.91	262.99	1.21	0.54	263.36
BH26-9 / MW26-9	2.47	1.74	263.81	2.56	1.83	263.72	3.10	2.37	263.18
BH26-10 / MW26-10	—	—	—	—	—	—	2.71	—	—
BH26-11 / MW26-11	2.53	1.76	264.42	2.60	1.83	264.35	3.58	2.81	263.37
BH26-12 / MW26-12	1.24	0.44	264.87	1.31	0.51	264.80	1.60	0.80	264.51
MW7-21	2.16	1.12	265.28	2.42	1.38	265.02	3.28	2.24	264.16
MW8-21	—	—	—	2.22	1.14	263.42	2.58	1.50	263.06
MW9-21	2.85	1.70	266.52	2.93	1.78	266.44	3.96	2.81	265.41
MW10-21	2.59	1.43	260.70	2.69	1.53	260.60	2.80	1.64	260.49
MW11-21	3.26	2.14	266.69	3.73	2.61	266.22	4.44	3.32	265.51
MW12-21	2.88	1.72	268.33	3.32	2.16	267.89	3.98	2.82	267.23

Table Notes:

- WL = water level; mbg = metres below ground surface; mTOC = metres below top of casing/measuring point.
- Negative mbg values indicate groundwater above ground surface.
- Dry wells are reported using the available total-depth information where applicable.
- BH26-10 has a July 29 water-level reading of 2.71 mTOC; stick-up and total depth were not confirmed in the source workbook, so mbg and elevation are not calculated.
- MW8-21 was not measured in May 2026 in the source workbook.
- The July 29 MW10-21 entry of 2.80 mTOC is retained from the source workbook, which flags a conflicting field-note reference indicating the well may have been dry.

APPENDIX D

HYDRAULIC CONDUCTIVITY TEST RESULTS

APPENDIX E

GROUNDWATER AND SURFACE-WATER LABORATORY CERTIFICATES



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START SURVEY

FINAL REPORT

CA40169-MAY26 R1

26-060-300, 14475 Hwy 50, Boltoon

Prepared for

DS Consultants

First Page

CLIENT DETAILS

Client DS Consultants
 Address 6221 Highway 7 Unit 6
 Vaughan, Ontario
 L4H 0K8, Canada
 Contact Scott Watson
 Telephone 905-264-9393
 Facsimile 905-264-2685
 Email swatson@dsconsultants.ca
 Works #
 Project 26-060-300, 14475 Hwy 50, Boltoon
 Reference
 Batch
 Samples WATER (2)

LABORATORY DETAILS

Project Specialist Jill Campbell, B.Sc.,GISAS
 Laboratory SGS Canada Inc.
 Address 185 Concession St., Lakefield ON, K0L 2H0
 Telephone 2165
 Facsimile 705-652-6365
 Email jill.campbell@sgs.com
 SGS Reference CA40169-MAY26
 Received 2026-05-12
 Approved 05/21/2026
 Report Number CA40169-MAY26 R1
 Date Reported 05/21/2026

COMMENTS

RL - SGS Reporting Limit
 Temperature of Sample upon Receipt: 9.0 degrees C
 Cooling Agent Present:Yes
 Custody Seal Present:Yes

Chain of Custody Number:040825

SIGNATORIES

Jill Campbell, B.Sc.,GISAS





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FINAL REPORT

CA40169-MAY26 R1

Client: DS Consultants

Project: 26-060-300, 14475 Hwy 50, Boltoon

Project Manager: Scott Watson

Samplers: Chaitanya

MATRIX: WATER

L1 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Storm Sewer Discharge - BL_53_2010

Sample Number	8	9
Sample Name	BH26-4	BH26-9
Sample Matrix	Ground Water	Ground Water
Sample Date	2026-05-12 00:00	2026-05-12 00:00

Parameter	Units	RL	L1	L2	Result	Result
General Chemistry						
Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15	< 4 ↑	< 4 ↑
Total Suspended Solids	mg/L	2	350	15	56	6
Total Kjeldahl Nitrogen	as N mg/L	0.5	100	1	< 0.5	< 0.5

Metals and Inorganics

Fluoride	mg/L	0.06	10		< 0.06	0.19
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01	< 0.01
Sulphate	mg/L	1	1500		21	97
Aluminum (total)	mg/L	0.001	50		1.00	0.483
Antimony (total)	mg/L	0.0005	5		< 0.0005	0.0006
Arsenic (total)	mg/L	0.0002	1	0.02	0.0004	0.0014
Cadmium (total)	mg/L	0.000003	0.7	0.008	0.000035	0.000124
Chromium (total)	mg/L	0.00008	5	0.08	0.00196	0.00108
Copper (total)	mg/L	0.001	3	0.05	0.002	0.002
Cobalt (total)	mg/L	0.000004	5		0.000600	0.00158
Lead (total)	mg/L	0.00009	3	0.12	0.00071	0.00051
Manganese (total)	mg/L	0.00001	5	0.05	0.0395	0.382
Molybdenum (total)	mg/L	0.0004	5		< 0.0004	0.0015
Nickel (total)	mg/L	0.0001	3	0.08	0.0015	0.0047
Phosphorus (total)	mg/L	0.003	10	0.4	0.053	0.069
Selenium (total)	mg/L	0.00004	1	0.02	0.00050	0.00128
Silver (total)	mg/L	0.00005	5	0.12	< 0.00005	< 0.00005



FINAL REPORT

CA40169-MAY26 R1

Client: DS Consultants
Project: 26-060-300, 14475 Hwy 50, Boltoon
Project Manager: Scott Watson
Samplers: Chaitanya

MATRIX: WATER

L1 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Sanitary Sewer Discharge - BL_53_2010
L2 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Storm Sewer Discharge - BL_53_2010

Sample Number	8	9
Sample Name	BH26-4	BH26-9
Sample Matrix	Ground Water	Ground Water
Sample Date	2026-05-12 00:00	2026-05-12 00:00

Parameter	Units	RL	L1	L2	Result	Result
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Metals and Inorganics (continued)

Tin (total)	mg/L	0.00006	5		0.00590	0.00562
Titanium (total)	mg/L	0.0001	5		0.0336	0.0189
Zinc (total)	mg/L	0.002	3	0.04	0.017	0.032

Microbiology

Ecoli	mpn/100mL	0		200	0	0
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Nonylphenol and Ethoxylates

Nonylphenol	mg/L	0.001	0.02		< 0.001	< 0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.2		< 0.01	< 0.01
Nonylphenol diethoxylate	mg/L	0.01			< 0.01	< 0.01
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01	< 0.01

Oil and Grease

Oil & Grease (total)	mg/L	2			< 2	< 2
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4	< 4
Oil & Grease (mineral/synthetic)	mg/L	4	15		< 4	< 4



FINAL REPORT

CA40169-MAY26 R1

Client: DS Consultants

Project: 26-060-300, 14475 Hwy 50, Boltoon

Project Manager: Scott Watson

Samplers: Chaitanya

MATRIX: WATER

L1 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Storm Sewer Discharge - BL_53_2010

Sample Number	8	9
Sample Name	BH26-4	BH26-9
Sample Matrix	Ground Water	Ground Water
Sample Date	2026-05-12 00:00	2026-05-12 00:00

Parameter	Units	RL	L1	L2	Result	Result
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Other (ORP)

pH	No unit	0.05	10	9	7.32	7.19
Mercury (total)	mg/L	0.00001	0.01	0.0004	< 0.00001	0.00001

PCBs

Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004	< 0.0001	< 0.0001
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Phenols

4AAP-Phenolics	mg/L	0.001	1	0.008	0.001	< 0.001
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SVOCs

di-n-Butyl Phthalate	mg/L	0.002	0.08	0.015	< 0.002	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.012	0.0088	< 0.002	< 0.002

VOCs

Chloroform	mg/L	0.0005	0.04	0.002	< 0.0005	< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005	0.05	0.0056	< 0.0005	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.08	0.0068	< 0.0005	< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005	4	0.0056	< 0.0005	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005	0.14	0.0056	< 0.0005	< 0.0005
Methylene Chloride	mg/L	0.0005	2	0.0052	< 0.0005	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	1.4	0.017	< 0.0005	< 0.0005
Methyl ethyl ketone	mg/L	0.02			< 0.02	< 0.02
Styrene	mg/L	0.0005	0.2		< 0.0005	< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044	< 0.0005	< 0.0005



FINAL REPORT

CA40169-MAY26 R1

Client: DS Consultants
Project: 26-060-300, 14475 Hwy 50, Boltoon
Project Manager: Scott Watson
Samplers: Chaitanya

MATRIX: WATER

L1 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Sanitary Sewer Discharge - BL_53_2010
L2 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Storm Sewer Discharge - BL_53_2010

Sample Number	8	9
Sample Name	BH26-4	BH26-9
Sample Matrix	Ground Water	Ground Water
Sample Date	2026-05-12 00:00	2026-05-12 00:00

Parameter	Units	RL	L1	L2	Result	Result
VOCs (continued)						
Trichloroethylene	mg/L	0.0005	0.4	0.008	< 0.0005	< 0.0005

VOCs - BTEX

Benzene	mg/L	0.0005	0.01	0.002	< 0.0005	< 0.0005
Ethylbenzene	mg/L	0.0005	0.16	0.002	< 0.0005	< 0.0005
Toluene	mg/L	0.0005	0.27	0.002	< 0.0005	< 0.0005
Xylene (total)	mg/L	0.0005	1.4	0.0044	< 0.0005	< 0.0005
m-p-xylene	mg/L	0.0005			< 0.0005	< 0.0005
o-xylene	mg/L	0.0005			< 0.0005	< 0.0005



EXCEEDANCE SUMMARY

				SANSEW / WATER / - - Peel Sewer Use ByLaw - Sanitary Sewer Discharge - BL_53_2010	SANSEW / WATER / - - Peel Sewer Use ByLaw - Storm Sewer Discharge - BL_53_2010
Parameter	Method	Units	Result	L1	L2

BH26-4

Total Suspended Solids	SM 2540D	mg/L	56
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15

BH26-9

Manganese	SM 3030/EPA 200.8	mg/L	0.382
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0.05



FINAL REPORT

CA40169-MAY26 R1

QC SUMMARY

Anions by discrete analyzer
Method: US EPA 375.4 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5024-MAY26	mg/L	1	<2	1	20	99	80	120	92	75	125

Biochemical Oxygen Demand
Method: SM 5210 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0024-MAY26	mg/L	2	< 2	2	30	89	70	130	87	70	130

Cyanide by SFA
Method: SM 4500 | Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0128-MAY26	mg/L	0.01	<0.01	ND	10	100	90	110	89	75	125



FINAL REPORT

CA40169-MAY26 R1

QC SUMMARY

Fluoride by Specific Ion Electrode
Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0411-MAY26	mg/L	0.06	<0.06	ND	10	100	90	110	112	75	125

Mercury by CVAAS
Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0030-MAY26	mg/L	0.00001	< 0.00001	ND	20	111	80	120	110	70	130



FINAL REPORT

CA40169-MAY26 R1

QC SUMMARY

Metals in aqueous samples - ICP-MS
Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0159-MAY26	mg/L	0.00005	<0.00005	ND	20	100	90	110	79	70	130
Aluminum (total)	EMS0159-MAY26	mg/L	0.001	<0.001	12	20	98	90	110	100	70	130
Arsenic (total)	EMS0159-MAY26	mg/L	0.0002	<0.0002	4	20	100	90	110	100	70	130
Cadmium (total)	EMS0159-MAY26	mg/L	0.000003	<0.000003	6	20	101	90	110	101	70	130
Cobalt (total)	EMS0159-MAY26	mg/L	0.000004	<0.000004	4	20	97	90	110	97	70	130
Chromium (total)	EMS0159-MAY26	mg/L	0.00008	<0.00008	9	20	96	90	110	98	70	130
Copper (total)	EMS0159-MAY26	mg/L	0.001	<0.001	5	20	97	90	110	96	70	130
Manganese (total)	EMS0159-MAY26	mg/L	0.00001	<0.00001	18	20	99	90	110	105	70	130
Molybdenum (total)	EMS0159-MAY26	mg/L	0.0004	<0.0004	2	20	104	90	110	111	70	130
Nickel (total)	EMS0159-MAY26	mg/L	0.0001	<0.0001	3	20	96	90	110	83	70	130
Lead (total)	EMS0159-MAY26	mg/L	0.00009	<0.00009	8	20	104	90	110	100	70	130
Phosphorus (total)	EMS0159-MAY26	mg/L	0.003	<0.003	2	20	98	90	110	NV	70	130
Antimony (total)	EMS0159-MAY26	mg/L	0.0005	<0.0005	ND	20	106	90	110	98	70	130
Selenium (total)	EMS0159-MAY26	mg/L	0.00004	<0.00004	3	20	102	90	110	97	70	130
Tin (total)	EMS0159-MAY26	mg/L	0.00006	<0.00006	ND	20	104	90	110	NV	70	130
Titanium (total)	EMS0159-MAY26	mg/L	0.0001	<0.0001	16	20	104	90	110	NV	70	130
Zinc (total)	EMS0159-MAY26	mg/L	0.002	<0.002	4	20	94	90	110	94	70	130



FINAL REPORT

CA40169-MAY26 R1

QC SUMMARY

Microbiology
Method: SM 9223B | Internal ref.: ME-CA-IENVIMIC-LAK-AN-021

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ecoli	BAC9210-MAY26	mpn/100mL	-	ACCEPTED	ACCEPTED							
					D							

Nonylphenol and Ethoxylates
Method: ASTM D7065-06 | Internal ref.: ME-CA-IENVIGC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0285-MAY26	mg/L	0.01	<0.01			88	55	120			
Nonylphenol monoethoxylate	GCM0285-MAY26	mg/L	0.01	<0.01			91	55	120			
Nonylphenol	GCM0285-MAY26	mg/L	0.001	<0.001			85	55	120			



FINAL REPORT

CA40169-MAY26 R1

QC SUMMARY

Oil & Grease

Method: MOE E3401 | Internal ref.: ME-CA-IENVIGC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM0253-MAY26	mg/L	2	<2	NSS	20	105	75	125			

Oil & Grease-AV/MS

Method: MOE E3401/SM 5520F | Internal ref.: ME-CA-IENVIGC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM0253-MAY26	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0253-MAY26	mg/L	4	< 4	NSS	20	NA	70	130			

pH

Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0330-MAY26	No unit	0.05	NA	0		100			NA		



FINAL REPORT

CA40169-MAY26 R1

QC SUMMARY

Phenols by SFA
Method: SM 5530B-D | Internal ref.: ME-CA-IENVISFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0132-MAY26	mg/L	0.001	<0.001	4	10	101	80	120	97	75	125

Polychlorinated Biphenyls
Method: MOE E3400/EPA 8082A | Internal ref.: ME-CA-IENVIGC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0254-MAY26	mg/L	0.0001	<0.0001	NSS	30	86	60	140	NSS	60	140



FINAL REPORT

CA40169-MAY26 R1

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-IENVIGC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0239-MAY26	mg/L	0.002	< 0.002	NSS	30	107	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0239-MAY26	mg/L	0.002	< 0.002	NSS	30	97	50	140	NSS	50	140

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-IENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0342-MAY26	mg/L	2	< 2	2	10	95	90	110	NA		
Total Suspended Solids	EWL0356-MAY26	mg/L	2	< 2	9	10	96	90	110	NA		



QC SUMMARY

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-IENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0139-MAY26	as N mg/L	0.5	<0.5	2	10	100	90	110	106	75	125
Total Kjeldahl Nitrogen	SKA0157-MAY26	as N mg/L	0.5	<0.5	4	10	100	90	110	102	75	125



FINAL REPORT

CA40169-MAY26 R1

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0217-MAY26	mg/L	0.0005	<0.0005	ND	30	102	60	130	98	50	140
1,2-Dichlorobenzene	GCM0217-MAY26	mg/L	0.0005	<0.0005	ND	30	109	60	130	104	50	140
1,4-Dichlorobenzene	GCM0217-MAY26	mg/L	0.0005	<0.0005	ND	30	107	60	130	104	50	140
Benzene	GCM0217-MAY26	mg/L	0.0005	<0.0005	ND	30	104	60	130	103	50	140
Chloroform	GCM0217-MAY26	mg/L	0.0005	<0.0005	ND	30	104	60	130	101	50	140
cis-1,2-Dichloroethene	GCM0217-MAY26	mg/L	0.0005	<0.0005	ND	30	102	60	130	101	50	140
Ethylbenzene	GCM0217-MAY26	mg/L	0.0005	<0.0005	ND	30	109	60	130	107	50	140
m-p-xylene	GCM0217-MAY26	mg/L	0.0005	<0.0005	ND	30	111	60	130	109	50	140
Methyl ethyl ketone	GCM0217-MAY26	mg/L	0.02	<0.02	ND	30	87	50	140	90	50	140
Methylene Chloride	GCM0217-MAY26	mg/L	0.0005	<0.0005	ND	30	89	60	130	88	50	140
o-xylene	GCM0217-MAY26	mg/L	0.0005	<0.0005	ND	30	110	60	130	107	50	140
Styrene	GCM0217-MAY26	mg/L	0.0005	<0.0005	ND	30	110	60	130	108	50	140
Tetrachloroethylene (perchloroethylene)	GCM0217-MAY26	mg/L	0.0005	<0.0005	ND	30	104	60	130	104	50	140
Toluene	GCM0217-MAY26	mg/L	0.0005	<0.0005	ND	30	104	60	130	103	50	140
trans-1,3-Dichloropropene	GCM0217-MAY26	mg/L	0.0005	<0.0005	ND	30	105	60	130	97	50	140
Trichloroethylene	GCM0217-MAY26	mg/L	0.0005	<0.0005	ND	30	102	60	130	102	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.



LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.

RL Reporting Limit.

↑ Reporting limit raised.

↓ Reporting limit lowered.

NA The sample was not analysed for this analyte

ND Non Detect

Results relate only to the sample tested.

Data reported represent the sample as submitted to SGS.

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Please refer to SGS General Conditions of Services located at http://www.sgs.com/terms_and_conditions.htm (Printed copies are available upon request.)

Test method information available upon request.

"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

-- End of Analytical Report --

Industries & Environment - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

Received By: Amner Received By (signature): Amner
Received Date: 05/12/26 (mm/dd/yy) Custody Seal Present: Yes ☒ No ☐
Received Time: 17:30 (hr:min) Custody Seal Intact: Yes ☒ No ☐
Company: DS Consultants Ltd. (same as Report Information)
Contact: Scott Watson
Address: 6221 Hwy 7, Unit 16
Vegreville, ON
Phone: _____
Fax: _____
Email: swatson@dsconsultants.com

REPORT INFORMATION
Company: DS Consultants Ltd. (same as Report Information)
Contact: Scott Watson
Address: 6221 Hwy 7, Unit 16
Vegreville, ON
Phone: _____
Fax: _____
Email: swatson@dsconsultants.com

INVOICE INFORMATION
Received By (signature): Amner
Custody Seal Present: Yes ☒ No ☐
Custody Seal Intact: Yes ☒ No ☐
Company: DS Consultants Ltd. (same as Report Information)
Contact: Scott Watson
Address: 6221 Hwy 7, Unit 16
Vegreville, ON
Phone: _____
Fax: _____
Email: swatson@dsconsultants.com

REGULATIONS
Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA
☐ ODWS Not Reportable *See note

RECORD OF SITE CONDITION (RSC)
☐ O.Reg 153/04 ☐ O.Reg 406/19
Soil Volume ☐ <350m3 ☐ >350m3
Soil Texture:
Table 1 ☐ Res/Park ☐ Soil Texture:
Table 2 ☐ Ind/Com ☐ Coarse
Table 3 ☐ Agri/Other ☐ Medium/Fine
Table ☐ Appx.
Soil Volume ☐ <350m3 ☐ >350m3

SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorg (Cd, Cr, Cu, Hg, Ni, Pb, Se, Ag, Tl, U, V, Zn)	Full Metals Suite (As, Ba, Be, Bi, Br, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mn, Mo, Ni, Pb, Se, Ag, Tl, U, V, Zn)	ICP Metals only	PAHs only	SVOCs (all incl PAHs, ABNs, CPS)	PCBs Total	F1-F4 + BTEX	F1-F4 only (no BTEX)	VOCs (all incl BTEX)	BTEX only	Pesticides (Organochlorine or specify other)	Sewer Use: Specify pkg:	Water Character General	ABN ☐ OCPP ☐ BTEX ☐ PCB ☐ light ☐	Unfiltered -
BH26-4	5/12/26	pm	24	GW	Y															Unfiltered -
BH 26-9	5/12/26	pm	24	GW	N															Unfiltered
																				one of
																				the 12 Arsenic
																				bottle was
																				broken lid

Observations/Comments/Special Instructions

Sampled By (NAME): Chaitanya Signature: Chaitanya
Relinquished by (NAME): Chaitanya Signature: Chaitanya
Date of Issue: 06 SEP 2024
Note: Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. (2) Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). (3) Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.



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START SURVEY

FINAL REPORT

CA40179-MAY26 R1

26-060-300, 14475 Hwy 50, Bolton

Prepared for

DS Consultants

First Page

CLIENT DETAILS

Client DS Consultants
Address 6221 Highway 7 Unit 6
Vaughan, Ontario
L4H 0K8, Canada
Contact Scott Watson
Telephone 905-264-9393
Facsimile 905-264-2685
Email swatson@dsconsultants.ca
Works #
Project 26-060-300, 14475 Hwy 50, Bolton
Reference
Batch
Samples WATER (2)

LABORATORY DETAILS

Project Specialist Jill Campbell, B.Sc.,GISAS
Laboratory SGS Canada Inc.
Address 185 Concession St., Lakefield ON, K0L 2H0
Telephone 2165
Facsimile 705-652-6365
Email jill.campbell@sgs.com
SGS Reference CA40179-MAY26
Received 2026-05-13
Approved 05/25/2026
Report Number CA40179-MAY26 R1
Date Reported 05/25/2026

COMMENTS

MAC - Maximum Acceptable Concentration
AO/OG - Aesthetic Objective / Operational Guideline
NR - Not reportable under applicable Provincial drinking water regulations as per client.
NDOGHPC - No Data: Overgrown with HPC

Temperature of Sample upon Receipt: 9.0 degrees C
Cooling Agent Present:Yes
Custody Seal Present:Yes

Chain of Custody Number:040826

spike recovery low for Br due to sample matrix

SIGNATORIES

Jill Campbell, B.Sc.,GISAS





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FINAL REPORT

CA40179-MAY26 R1

Client: DS Consultants
Project: 26-060-300, 14475 Hwy 50, Bolton
Project Manager: Scott Watson
Samplers: Chaitanya/Ken

MATRIX: WATER

Sample Number	7	8
Sample Name	SG-2	SG-3
Sample Matrix	Surface Water	Surface Water
Sample Date	2026-05-13 00:00	2026-05-13 00:00

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

Parameter	Units	RL	L1	L2	Result	Result
General Chemistry						
UV Transmittance	%T				17.7	19.2
Alkalinity	mg/L as CaCO3	2	500		169	166
Bicarbonate	mg/L as CaCO3	2			169	166
Carbonate	mg/L as CaCO3	2			< 2	< 2
OH	mg/L as CaCO3	2			< 2	< 2
Colour	TCU	3	5		85	77
Conductivity	uS/cm	2			342	341
Total Suspended Solids	mg/L	2			11	17
Turbidity	NTU	0.10	5	1	7.0	13
Organic Nitrogen	mg/L	0.05	0.15		1.07	1.19
Total Kjeldahl Nitrogen (N)	as N mg/L	0.05			1.12	1.24
Ammonia+Ammonium (N)	as N mg/L	0.04			0.05	0.05
Dissolved Organic Carbon	mg/L	1	5		17	16
Total Organic Carbon	mg/L	1			18	18



FINAL REPORT

CA40179-MAY26 R1

Client: DS Consultants
Project: 26-060-300, 14475 Hwy 50, Bolton
Project Manager: Scott Watson
Samplers: Chaitanya/Ken

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

Sample Number	7	8
Sample Name	SG-2	SG-3
Sample Matrix	Surface Water	Surface Water
Sample Date	2026-05-13 00:00	2026-05-13 00:00

Parameter	Units	RL	L1	L2	Result	Result
Metals and Inorganics						
Fluoride	mg/L	0.06		1.5	0.14	0.16
Bromide	mg/L	0.3			< 0.3	< 0.3
Nitrite (as N)	as N mg/L	0.03		1	0.06	0.04
Nitrate (as N)	as N mg/L	0.06		10	4.00	3.47
Sulphate	mg/L	2	500		25	24
Sulphide	mg/L	0.02			< 0.02	< 0.02
Hardness	mg/L as CaCO3	0.05	100		200	199
Aluminum (total)	mg/L	0.001	0.1		0.120	0.171
Arsenic (total)	mg/L	0.0002		0.01	0.0009	0.0009
Boron (total)	mg/L	0.002		5	0.013	0.011
Barium (total)	mg/L	0.00008		1	0.0203	0.0178
Beryllium (total)	mg/L	0.000007			0.000017	0.000017
Bismuth (total)	mg/L	0.00001			< 0.00001	< 0.00001
Cobalt (total)	mg/L	0.000004			0.000211	0.000267
Calcium (total)	mg/L	0.01			65.9	65.0
Cadmium (total)	mg/L	0.000003		0.005	0.000016	0.000027
Copper (total)	mg/L	0.001	1		0.004	0.003
Chromium (total)	mg/L	0.00008		0.05	0.00034	0.00036
Iron (total)	mg/L	0.007	0.3		0.346	0.414
Potassium (total)	mg/L	0.009			6.83	6.39
Magnesium (total)	mg/L	0.001			8.65	8.89



FINAL REPORT

CA40179-MAY26 R1

Client: DS Consultants

Project: 26-060-300, 14475 Hwy 50, Bolton

Project Manager: Scott Watson

Samplers: Chaitanya/Ken

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03

L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

Sample Number	7	8
Sample Name	SG-2	SG-3
Sample Matrix	Surface Water	Surface Water
Sample Date	2026-05-13 00:00	2026-05-13 00:00

Parameter	Units	RL	L1	L2	Result	Result
Metals and Inorganics (continued)						
Manganese (total)	mg/L	0.00001	0.05		0.0918	0.150
Molybdenum (total)	mg/L	0.0004			< 0.0004	< 0.0004
Nickel (total)	mg/L	0.0001			0.0008	0.0009
Sodium (total)	mg/L	0.01	200	20	6.60	5.50
Phosphorus (total)	mg/L	0.003			0.040	0.048
Lead (total)	mg/L	0.00009		0.01	0.00025	0.00026
Silicon (total)	mg/L	0.02			0.39	0.33
Silver (total)	mg/L	0.00005			< 0.00005	< 0.00005
Strontium (total)	mg/L	0.00008			0.142	0.140
Thallium (total)	mg/L	0.000005			< 0.000005	< 0.000005
Tin (total)	mg/L	0.00006			< 0.00006	< 0.00006
Titanium (total)	mg/L	0.0001			0.0043	0.0079
Antimony (total)	mg/L	0.0005		0.006	< 0.0005	< 0.0005
Selenium (total)	mg/L	0.00004		0.05	0.00033	0.00033
Uranium (total)	mg/L	0.000002		0.02	0.000856	0.000823
Vanadium (total)	mg/L	0.00001			0.00145	0.00155
Zinc (total)	mg/L	0.002	5		0.002	0.002
Cation sum	meq/L	-9999			4.51	4.44
Anion Sum	meq/L	-9999			4.39	4.22
Anion-Cation Balance	% difference	-9999			1.36	2.52
Ion Ratio	none	-9999			1.03	1.05



FINAL REPORT

CA40179-MAY26 R1

Client: DS Consultants
Project: 26-060-300, 14475 Hwy 50, Bolton
Project Manager: Scott Watson
Samplers: Chaitanya/Ken

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

Sample Number	7	8
Sample Name	SG-2	SG-3
Sample Matrix	Surface Water	Surface Water
Sample Date	2026-05-13 00:00	2026-05-13 00:00

Parameter	Units	RL	L1	L2	Result	Result
Metals and Inorganics (continued)						
Total Dissolved Solids (calculated)	mg/L	-9999			234	225
Conductivity (calculated)	uS/cm	-9999			445	433
Langeliers Index 4° C	@ 4° C	-9999			0.29	0.26
Saturation pH 4°C	pHs @ 4°C	-9999			7.90	7.91
Microbiology						
Total Coliform	MPN/100mL	0		0	1065	4152
Ecoli	mpn/100mL	0		0	76	62
Heterotrophic Plate Count (HPC)	cfu/1mL	0			NDOGHPC	NDOGHPC
Other (ORP)						
pH	No unit	0.05	8.5		8.19	8.17
Chloride	mg/L	1	250		15	12
Mercury (total)	mg/L	0.00001			< 0.00001	< 0.00001
Phenols						
4AAP-Phenolics	mg/L	0.001			0.004	0.003



EXCEEDANCE SUMMARY

				ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03	ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03
Parameter	Method	Units	Result	L1	L2

SG-2

Organic Nitrogen		mg/L	1.07	0.15	
Colour	SM 2120	TCU	85	5	
Turbidity	SM 2130	NTU	7.0	5	1
Aluminum	SM 3030/EPA 200.8	mg/L	0.120	0.1	
Hardness	SM 3030/EPA 200.8	mg/L as CaCO3	200	100	
Iron	SM 3030/EPA 200.8	mg/L	0.346	0.3	
Manganese	SM 3030/EPA 200.8	mg/L	0.0918	0.05	
Dissolved Organic Carbon	SM 5310	mg/L	17	5	
E.Coli MPN	SM 9223B	mpn/100mL	76		0
Total Coliform	SM 9223B	MPN/100mL	1065		0

SG-3

Organic Nitrogen		mg/L	1.19	0.15	
Colour	SM 2120	TCU	77	5	
Turbidity	SM 2130	NTU	13	5	1
Aluminum	SM 3030/EPA 200.8	mg/L	0.171	0.1	
Hardness	SM 3030/EPA 200.8	mg/L as CaCO3	199	100	
Iron	SM 3030/EPA 200.8	mg/L	0.414	0.3	
Manganese	SM 3030/EPA 200.8	mg/L	0.150	0.05	
Dissolved Organic Carbon	SM 5310	mg/L	16	5	
E.Coli MPN	SM 9223B	mpn/100mL	62		0
Total Coliform	SM 9223B	MPN/100mL	4152		0



FINAL REPORT

CA40179-MAY26 R1

QC SUMMARY

Alkalinity

Method: SM 2320 | Internal ref.: ME-CA-1ENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0354-MAY26	mg/L as CaCO3	2	< 2	1	20	102	80	120	NA		

Ammonia by SFA

Method: SM 4500 | Internal ref.: ME-CA-1ENVISFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0163-MAY26	mg/L	0.04	<0.04	4	10	102	90	110	95	75	125



FINAL REPORT

CA40179-MAY26 R1

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO5028-MAY26	mg/L	1	<1	2	20	102	70	130	108	70	130
Sulphate	DIO5028-MAY26	mg/L	2	<2	ND	20	105	80	120	107	75	125

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-IENVIIC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bromide	DIO0443-MAY26	mg/L	0.3	<0.3	1	20	94	90	110	63	75	125
Nitrite (as N)	DIO0443-MAY26	mg/L	0.03	<0.03	2	20	99	80	120	94	70	130
Nitrate (as N)	DIO0443-MAY26	mg/L	0.06	<0.06	0	20	100	80	120	NV	70	130



FINAL REPORT

CA40179-MAY26 R1

QC SUMMARY

Carbon by SFA

Method: SM 5310 | Internal ref.: ME-CA-|ENV|SFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0140-MAY26	mg/L	1	<1	1	20	97	90	110	80	75	125
Total Organic Carbon	SKA0140-MAY26	mg/L	1	<1	1	20	97	90	110	80	75	125

Carbonate/Bicarbonate

Method: SM 2320 | Internal ref.: ME-CA-|ENV|EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Carbonate	EWL0354-MAY26	mg/L as CaCO3	2	< 2	ND	10	NA	90	110	NA		
Bicarbonate	EWL0354-MAY26	mg/L as CaCO3	2	< 2	1	10	NA	90	110	NA		
OH	EWL0354-MAY26	mg/L as CaCO3	2	< 2	ND	10	NA	90	110	NA		



FINAL REPORT

CA40179-MAY26 R1

QC SUMMARY

Colour

Method: SM 2120 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Colour	EWL0363-MAY26	TCU	3	< 3	ND	10	90	80	120	NA		

Conductivity

Method: SM 2510 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0354-MAY26	uS/cm	2	< 2	0	10	99	90	110	NA		

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0441-MAY26	mg/L	0.06	<0.06	ND	10	101	90	110	103	75	125



FINAL REPORT

CA40179-MAY26 R1

QC SUMMARY

Mercury by CVAAS
Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0033-MAY26	mg/L	0.00001	< 0.00001	ND	20	108	80	120	114	70	130



FINAL REPORT

CA40179-MAY26 R1

QC SUMMARY

Metals in aqueous samples - ICP-MS
Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0166-MAY26	mg/L	0.00005	<0.00005	ND	20	101	90	110	75	70	130
Aluminum (total)	EMS0166-MAY26	mg/L	0.001	<0.001	ND	20	100	90	110	123	70	130
Arsenic (total)	EMS0166-MAY26	mg/L	0.0002	<0.0002	ND	20	101	90	110	102	70	130
Barium (total)	EMS0166-MAY26	mg/L	0.00008	<0.00008	ND	20	101	90	110	98	70	130
Beryllium (total)	EMS0166-MAY26	mg/L	0.000007	<0.000007	13	20	100	90	110	101	70	130
Boron (total)	EMS0166-MAY26	mg/L	0.002	<0.002	ND	20	101	90	110	101	70	130
Bismuth (total)	EMS0166-MAY26	mg/L	0.00001	<0.00001	ND	20	97	90	110	87	70	130
Calcium (total)	EMS0166-MAY26	mg/L	0.01	<0.01	ND	20	98	90	110	95	70	130
Cadmium (total)	EMS0166-MAY26	mg/L	0.000003	3e-006	ND	20	101	90	110	97	70	130
Cobalt (total)	EMS0166-MAY26	mg/L	0.000004	<0.000004	ND	20	101	90	110	100	70	130
Chromium (total)	EMS0166-MAY26	mg/L	0.00008	<0.00008	ND	20	100	90	110	91	70	130
Copper (total)	EMS0166-MAY26	mg/L	0.001	<0.001	ND	20	101	90	110	98	70	130
Iron (total)	EMS0166-MAY26	mg/L	0.007	<0.007	ND	20	104	90	110	100	70	130
Potassium (total)	EMS0166-MAY26	mg/L	0.009	<0.009	ND	20	103	90	110	99	70	130
Magnesium (total)	EMS0166-MAY26	mg/L	0.001	<0.001	ND	20	102	90	110	98	70	130
Manganese (total)	EMS0166-MAY26	mg/L	0.00001	<0.00001	ND	20	101	90	110	101	70	130
Molybdenum (total)	EMS0166-MAY26	mg/L	0.0004	<0.0004	ND	20	95	90	110	98	70	130
Sodium (total)	EMS0166-MAY26	mg/L	0.01	<0.01	1	20	101	90	110	99	70	130
Nickel (total)	EMS0166-MAY26	mg/L	0.0001	<0.0001	ND	20	101	90	110	98	70	130
Lead (total)	EMS0166-MAY26	mg/L	0.00009	<0.00009	ND	20	101	90	110	95	70	130



FINAL REPORT

CA40179-MAY26 R1

QC SUMMARY

Metals in aqueous samples - ICP-MS (continued)
Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-1ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Phosphorus (total)	EMS0166-MAY26	mg/L	0.003	<0.003	ND	20	101	90	110	NV	70	130
Antimony (total)	EMS0166-MAY26	mg/L	0.0005	<0.0005	ND	20	109	90	110	114	70	130
Selenium (total)	EMS0166-MAY26	mg/L	0.00004	<0.00004	ND	20	101	90	110	103	70	130
Silicon (total)	EMS0166-MAY26	mg/L	0.02	<0.02	ND	20	96	90	110	NV	70	130
Tin (total)	EMS0166-MAY26	mg/L	0.00006	<0.00006	ND	20	96	90	110	NV	70	130
Strontium (total)	EMS0166-MAY26	mg/L	0.00008	<0.00008	ND	20	99	90	110	99	70	130
Titanium (total)	EMS0166-MAY26	mg/L	0.0001	<0.0001	ND	20	103	90	110	NV	70	130
Thallium (total)	EMS0166-MAY26	mg/L	0.000005	<0.000005	ND	20	100	90	110	76	70	130
Uranium (total)	EMS0166-MAY26	mg/L	0.000002	<0.000002	ND	20	99	90	110	91	70	130
Vanadium (total)	EMS0166-MAY26	mg/L	0.00001	<0.00001	ND	20	102	90	110	101	70	130
Zinc (total)	EMS0166-MAY26	mg/L	0.002	<0.002	ND	20	102	90	110	98	70	130



FINAL REPORT

CA40179-MAY26 R1

QC SUMMARY

Microbiology
Method: SM 9215A | Internal ref.: ME-CA-~~ENV~~MIC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Heterotrophic Plate Count (HPC)	BAC9235-MAY26	cfu/1mL	-	ACCEPTED	ACCEPTED							
Ecoli	BAC9235-MAY26	mpn/100mL	-	ACCEPTED	ACCEPTED							
Total Coliform	BAC9235-MAY26	MPN/100mL	-	ACCEPTED	ACCEPTED							

pH
Method: SM 4500 | Internal ref.: ME-CA-~~ENV~~IEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0354-MAY26	No unit	0.05	NA	0		100			NA		



FINAL REPORT

CA40179-MAY26 R1

QC SUMMARY

Phenols by SFA
Method: SM 5530B-D | Internal ref.: ME-CA-IENVISFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0149-MAY26	mg/L	0.001	<0.001	5	10	102	80	120	97	75	125

Sulphide by SFA
Method: SM 4500 | Internal ref.: ME-CA-IENVISFA-LAK-AN-008

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphide	SKA0176-MAY26	mg/L	0.02	<0.02	ND	20	103	80	120	NA	75	125

Suspended Solids
Method: SM 2540D | Internal ref.: ME-CA-IENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0364-MAY26	mg/L	2	< 2	6	10	96	90	110	NA		



FINAL REPORT

CA40179-MAY26 R1

QC SUMMARY

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-IENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen (N)	SKA0160-MAY26	mg/L	0.05	<0.05	3	10	100	90	110	106	75	125

Turbidity

Method: SM 2130 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Turbidity	EWL0349-MAY26	NTU	0.10	< 0.10	0	10	101	90	110	NA		

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.

RL Reporting Limit.

↑ Reporting limit raised.

↓ Reporting limit lowered.

NA The sample was not analysed for this analyte

ND Non Detect

Results relate only to the sample tested.

Data reported represent the sample as submitted to SGS.

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Please refer to SGS General Conditions of Services located at http://www.sgs.com/terms_and_conditions.htm (Printed copies are available upon request.)

Test method information available upon request.

"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

No: 040826

Page 1 of 1

Received By: Scott KenReceived By (signature): Scott KenReceived Date: 05/13/26 (mm/dd/yy)Custody Seal Present: Yes ☒ No ☐Received Time: 10:30 (hr : min)Custody Seal Intact: Yes ☒ No ☐Cooling Agent Present: Yes ☒ No ☐ Type: IceTemperature Upon Receipt (°C): 5.0LAB LIMS # CA40179-170426

REPORT INFORMATION

INVOICE INFORMATION

Company: OS Consultants☒ (same as Report Information)Contact: Scott Ken

Company: _____

Address: 6281 Hwy 7, Unit-16Contact: AccountingPhone: 905-264-9393

Address: _____

Fax: _____

Phone: _____

Email: Scott@osconsultants.com

Email: _____

REGULATIONS

☐ O.Reg 153/04☐ O.Reg 406/19☐ Table 1☐ Res/Park☐ Soil Texture:☐ Table 2☐ Ind/Com☐ Coarse☐ Table 3☐ Agr/Other☐ Medium/Fine☐ Table _____☐ Appx. _____☐ Soil Volume ☐ <350m3 ☐ >350m3☐ ODWS Not Reportable *See note

Sewer By-Law:

☐ Sanitary☐ PW/OO☐ MMER☐ CCME☐ Other: _____☐ MISA

Municipality: _____

RECORD OF SITE CONDITION (RSC)

☐ YES ☐ NO

SAMPLE IDENTIFICATION

DATE SAMPLED

TIME SAMPLED

OF BOTTLES

MATRIX

1 SG-2 5/13/26 Am 14 Surface N2 SG-3 5/13/26 Am 14 Surface N3 SG-3 5/13/26 Am 14 Surface N4 SG-3 5/13/26 Am 14 Surface N5 SG-3 5/13/26 Am 14 Surface N6 SG-3 5/13/26 Am 14 Surface N7 SG-3 5/13/26 Am 14 Surface N8 SG-3 5/13/26 Am 14 Surface N9 SG-3 5/13/26 Am 14 Surface N10 SG-3 5/13/26 Am 14 Surface N11 SG-3 5/13/26 Am 14 Surface N12 SG-3 5/13/26 Am 14 Surface N

Field Filtered (Y/N)

Metals & Inorganics
incl CrVI, CN, Hg, pH, B(HWS), EC, SAR, soil)
(Cl, Na-water)Full Metals Suite
ICP metals plus B(HWS-soil only) Hg, CrVIICP Metals only Sb, As, Ba, Be, B, Cd,
Cr, Co, Cu, Pb, Mo, Ni, Se, Ag, Tl, U, V, Zn

PAHs only

SVOCs
all incl PAHs, ABNs, CPsPCBs Total ☐ Aroclor ☐

F1-F4 + BTEX

F1-F4 only
no BTEXVOCs
all incl BTEX

BTEX only

Pesticides
Organochlorine or specify otherSewer Use:
Specify pkg:Water Characterization Pkg
General ☐ Extended ☒☐ Metals☐ VOC☐ VOC☐ PCB☐ B(a)P☐ ABN☐ Ignit.☐ Ignit.☐ Ignit.☐ Ignit.☐ Ignit.☐ Ignit.☐ Ignit.

ANALYSIS REQUESTED

M & I

SVOC

PCB

PHC

VOC

Pest

Other (please specify)

SPLP TCLP

Specify tests

Specify tests

COMMENTS:

Quotation #:

Project #: 26-060-300

P.O. #:

Site Location/ID: 14475 Hwy 50,

TURNAROUND TIME (TAT) REQUIRED

☐ Client Regular TAT☒ Regular TAT (5-7 days)

RUSH TAT (Additional Charges May Apply):

☐ 1 Day☐ 2 Days☐ 3 Days☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

Observations/Comments/Special Instructions

Sampled By (NAME): Christina / KenSignature: OKSignature: OKDate: 5/13/26 (mm/dd/yy)

Pink Copy - Client

Relinquished By (NAME): Christina / KenSignature: OKSignature: OKDate: 5/13/26 (mm/dd/yy)

Yellow & White Copy - SGS

Version 1.18

Date of Issue: 06 SEP 2024

Note: Submission of samples to SGS is acknowledgment that you have been provided direction on sample collection/handling and transportation of samples. (2) Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). (3) Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

APPENDIX F

SITE WATER BALANCE CALCULATIONS

APPENDIX F - SITE WATER BALANCE TABLES

Table F-1 - Climate Data Used in Water Balance

Climate inputs are based on Environment and Climate Change Canada Canadian Climate Normals 1991-2020 for Toronto Pearson (Airport), Climate ID 6158731. Annual precipitation used in the water balance is 806.8 mm/year. Potential evapotranspiration was estimated using the Thornthwaite method with a latitude/daylight correction.

Month	Mean Temp. (°C)	Adjusted PET (mm)	Precipitation (mm)	Surplus (mm)	Deficit (mm)
January	-5.0	0.0	61.6	61.6	0.0
February	-4.4	0.0	50.2	50.2	0.0
March	0.6	1.7	50.5	48.8	0.0
April	7.0	31.7	76.7	45.0	0.0
May	13.7	78.7	77.6	0.0	1.1
June	19.2	118.2	80.7	0.0	37.5
July	22.1	141.0	74.0	0.0	67.0
August	21.1	123.3	68.5	0.0	54.8
September	16.9	82.0	69.4	0.0	12.6
October	10.0	40.3	67.2	26.9	0.0
November	4.1	12.1	71.8	59.7	0.0
December	-1.6	0.0	58.6	58.6	0.0
Annual / Total	—	629.0	806.8	350.7	172.9

Albion Field Centre is closer to the Site but is available in the older 1981-2010 normal period and was not used for the primary current-normal calculation.

Table F-2 - Hydrologic Parameters

Hydrologic Class	Soil Moisture Storage (mm)	MECP Infiltration Factor	Runoff Coefficient	Impervious Evap. Factor	Notes
Cultivated	200	0.40	0.60	—	Topography 0.20 + clay soil 0.10 + cultivated cover 0.10
Pasture / Shrub	200	0.40	0.60	—	Used for pre-development and post-development shrub/open-space cover
Forest	250	0.50	0.50	—	Higher storage/infiltration assigned to forested cover
Landscape	125	0.35	0.65	—	Used for post-development landscaped/pervious areas
Roof	0	0.00	0.85	0.15	Roof areas retained for roof-runoff checks only; not used to split the current post-development Dev area
Impervious	0	0.00	0.85	0.15	Pavement, roofs, driveways, school/SWM hardscape and other hard surfaces

APPENDIX F - SITE WATER BALANCE TABLES

Table F-3 - Pre-Development Water Balance

Component	Area (ha)	AET (m³/yr)	Evaporation (m³/yr)	Infiltration (m³/yr)	Runoff (m³/yr)	Total Output (m³/yr)	Hydrologic Class
Cultivated	36.81	210,496	0	34,597	51,896	296,989	Cultivated
Shrub	3.14	17,981	0	2,955	4,433	25,369	Pasture / Shrub
Forest	0.55	3,216	0	625	625	4,466	Forest
Impervious	0.17	0	207	0	1,175	1,382	Impervious
Total	40.68	231,693	207	38,178	58,128	328,206	

Table F-4 - Pre-Development Monthly Water Balance

Month	AET (m³)	Impervious Evap. (m³)	Infiltration (m³)	Runoff (m³)	Total Output (m³)
March	673	13	7,940	11,917	20,543
April	12,857	20	7,310	11,015	31,202
May	31,865	20	0	113	31,998
June	46,459	21	0	117	46,597
July	49,008	19	0	108	49,135
August	39,234	18	0	100	39,351
September	30,341	18	0	101	30,460
October	16,344	17	2,392	3,668	22,422
November	4,912	18	4,245	6,442	15,617
December	0	15	2,334	3,570	5,919
January	0	16	5,794	8,732	14,541
February	0	13	8,162	12,247	20,421
Annual	231,693	207	38,178	58,128	328,206

APPENDIX F - SITE WATER BALANCE TABLES

Table F-5 - Post-Development Spatial Analysis and FSR Pond Split

Spatial Category	Raw Area (ha)	Normalized Area (ha)	Percent of Site
Proposed Development	28.15	28.13	69.1%
Shrub / Open Space	9.57	9.56	23.5%
Landscaped	2.44	2.44	6.0%
Forest	0.55	0.55	1.4%
Total	40.70	40.68	100.0%

Table F-6 - Proposed Development Split by SWM Pond

Drainage Area	FSR Area from Site (ha)	Proportional Split	Scaled Development Area (ha)	FSR Imperviousness	Impervious Area (ha)	Pervious Area (ha)
SWM Pond 6	11.18	41.2%	11.58	63.0%	7.29	4.28
SWM Pond 7	15.98	58.8%	16.55	71.0%	11.75	4.80
Total / weighted	27.16	100.0%	28.13	67.7%	19.05	9.08

APPENDIX F - SITE WATER BALANCE TABLES

Table F-7 - Post-Development Water Balance Without Mitigation

Component	Area (ha)	AET (m ³ /yr)	Evaporation (m ³ /yr)	Infiltration (m ³ /yr)	Runoff (m ³ /yr)	Total Output (m ³ /yr)
Pond 6 Development - Pervious	4.28	23,552	0	3,855	7,159	34,565
Pond 6 Development - Impervious	7.29	0	8,828	0	50,026	58,855
Pond 7 Development - Pervious	4.80	26,385	0	4,318	8,020	38,723
Pond 7 Development - Impervious	11.75	0	14,221	0	80,585	94,806
Shrub / Open Space	9.56	54,671	0	8,986	13,479	77,135
Landscaped	2.44	13,393	0	2,192	4,071	19,655
Forest	0.55	3,216	0	625	625	4,466
Total	40.68	121,217	23,049	19,976	163,964	328,206

Table F-8 - Post-Development Monthly Water Balance Without Mitigation

Month	AET (m ³)	Impervious Evap. (m ³)	Infiltration (m ³)	Runoff (m ³)	Total Output (m ³)
March	360	1,443	3,972	14,769	20,543
April	6,866	2,191	3,657	18,487	31,202
May	17,018	2,217	0	12,563	31,797
June	24,596	2,305	0	13,064	39,966
July	25,164	2,114	0	11,980	39,258
August	19,902	1,957	0	11,089	32,949
September	15,958	1,983	0	11,235	29,176
October	8,729	1,920	1,379	13,208	25,236
November	2,624	2,051	2,510	15,875	23,060
December	0	1,674	1,436	11,929	15,039
January	0	1,760	2,939	14,860	19,559
February	0	1,434	4,083	14,904	20,421
Annual	121,217	23,049	19,976	163,964	328,206

APPENDIX F - SITE WATER BALANCE TABLES

Table F-9 - FSR Mitigation Calculation

Mitigation / Deficit Item	Value	Units	Notes
Pre-development infiltration	38,178	m³/year	DS calculated
Post-development infiltration without mitigation	19,976	m³/year	DS calculated using spatial-analysis land uses and FSR pond-specific imperviousness
DS post-to-pre infiltration deficit	18,202	m³/year	Pre-development infiltration minus post-development infiltration
FSR annual exfiltration / infiltration credit	23,300	m³/year	Mitigation input from FSR
Applied mitigation credit	23,300	m³/year	Full FSR annual exfiltration / infiltration credit
FSR mitigation credit above DS deficit	5,098	m³/year	Positive value indicates the full FSR credit exceeds the DS recalculated post-to-pre deficit
Post-development infiltration with mitigation	43,276	m³/year	
Post-development runoff without mitigation	163,964	m³/year	DS calculated
Post-development runoff with mitigation	140,664	m³/year	Assumes full mitigation credit

Table F-10 - Site Water Balance Summary

Component	Pre-Development	Post-Development Without Mitigation	Change: Post - Pre	Post-Development With FSR Mitigation	Change: Mitigated - Pre	Units
Precipitation	328,206	328,206	0	328,206	0	m³/year
Total ET / Evaporation	231,900	144,266	-87,634	144,266	-87,634	m³/year
Infiltration	38,178	19,976	-18,202	43,276	5,098	m³/year
Runoff	58,128	163,964	105,836	140,664	82,536	m³/year
Total Outputs	328,206	328,206	0	328,206	0	m³/year
Post-to-pre infiltration deficit	—	18,202	—	18,202	—	m³/year
FSR mitigation credit available	—	—	—	23,300	—	m³/year
Applied mitigation credit	—	—	—	23,300	—	m³/year

The full 23,300 m³/year FSR mitigation credit is applied without capping to the DS-calculated post-to-pre infiltration deficit. The resulting mitigated infiltration is approximately 5,098 m³/year above the calculated pre-development infiltration volume. The separate residential roof-runoff availability check treats roof surfaces as 100% impervious and deducts only the 15% impervious evaporation/loss allowance.

APPENDIX F - SITE WATER BALANCE TABLES

Table F-11 - Monthly Allocation of FSR Mitigation

Month	Precip. (mm)	Share of Annual Precip. (%)	Applied LID Infiltration (m³)	Post Inf. - No Mitigation (m³)	Post Runoff - No Mitigation (m³)	Post Inf. - With Mitigation (m³)	Post Runoff - With Mitigation (m³)
March	50.5	6.3%	1,458	3,972	14,769	5,430	13,311
April	76.7	9.5%	2,215	3,657	18,487	5,872	16,272
May	77.6	9.6%	2,241	0	12,563	2,241	10,321
June	80.7	10.0%	2,331	0	13,064	2,331	10,734
July	74.0	9.2%	2,137	0	11,980	2,137	9,843
August	68.5	8.5%	1,978	0	11,089	1,978	9,111
September	69.4	8.6%	2,004	0	11,235	2,004	9,231
October	67.2	8.3%	1,941	1,379	13,208	3,320	11,268
November	71.8	8.9%	2,074	2,510	15,875	4,584	13,801
December	58.6	7.3%	1,692	1,436	11,929	3,129	10,237
January	61.6	7.6%	1,779	2,939	14,860	4,718	13,081
February	50.2	6.2%	1,450	4,083	14,904	5,533	13,455
TOTAL	806.8	100.0%	23,300	19,976	163,964	43,276	140,664

Monthly distribution of the annual mitigation credit is proportional to monthly precipitation and is used for annual accounting only; detailed LID hydraulics and drawdown remain subject to civil design.

Table F-12 - Residential Roof Runoff Availability Check

Roof Runoff Check	Area (ha)	Gross Precipitation (m³/yr)	15% Evaporation / Loss (m³/yr)	Available Roof Runoff (m³/yr)	Basis / Comparison
Total residential roofs	7.4352	59,987	8,998	50,989	Roof area treated as 100% impervious; only the 15% impervious evaporation/loss is deducted from annual precipitation.
Assumed rear-facing 50% of residential roofs	3.7176	29,994	4,499	25,495	Conceptual clean roof-water source available for rear-yard exfiltration, subject to final roof-leader routing and detailed design.
FSR annual infiltration mitigation requirement	—	—	—	23,300	Annual exfiltration/infiltration credit identified in the FSR.
Rear-facing roof runoff above FSR requirement	—	—	—	2,195	Annual-volume comparison only; does not confirm hydraulic capacity, seasonal timing, storage or drawdown performance.

APPENDIX G

WETLAND RISK EVALUATION SUPPORTING TABLES

APPENDIX G - WETLAND RISK EVALUATION SUPPORTING TABLES

Table G-1 - Background Wetland Sensitivity Summary

The ecological sensitivity component was carried forward from the April 2022 Crozier Wetland Water Balance Risk Assessment. The current DS assessment did not independently re-evaluate vegetation, fauna or flora sensitivity.

Wetland	Vegetation Community Sensitivity	Fauna Sensitivity	Flora Sensitivity	Highest Ecological Sensitivity
G	Low	High	Medium	High
I	Low	High	Low	High
H	Low	High	Medium	High
K	Low	High	Medium	High
L	Low	High	Low	High
J	Low	High	Medium	High

Source: C.F. Crozier & Associates Inc. (April 2022), Wetland Water Balance Risk Assessment, Table 3.

APPENDIX G - WETLAND RISK EVALUATION SUPPORTING TABLES

Table G-2 - Current DS Wetland Catchment and Impervious Cover Calculations

Wetland catchments were treated cumulatively in the downstream sequence G -> I -> H -> K -> L -> J. Areas identified as Proposed Development were assigned 63% imperviousness, consistent with the SWM Pond 6 imperviousness reported in the FSR. Existing retained impervious areas were included in total catchment areas but were not included in the proposed-development impervious cover score.

Wetland	Existing Catchment (ha)	Post-development Catchment (ha)	Catchment Change (%)	Proposed Development Area (ha)	Applied Proposed Imperviousness	Proposed Impervious Area (ha)	Impervious Cover Score (%)
G	45.46	28.32	-37.7%	0.00	63%	0.00	0.0%
I	56.66	34.29	-39.5%	0.00	63%	0.00	0.0%
H	58.86	36.49	-38.0%	0.00	63%	0.00	0.0%
K	80.96	75.47	-6.8%	29.14	63%	18.36	24.3%
L	86.49	81.01	-6.3%	29.14	63%	18.36	22.7%
J	108.97	102.43	-6.0%	29.14	63%	18.36	17.9%

Catchment Change (%) = (Post-development Catchment - Existing Catchment) / Existing Catchment x 100.

Proposed Impervious Area = Proposed Development Area x 63%. Impervious Cover Score = Proposed Impervious Area / Post-development Catchment x 100.

APPENDIX G - WETLAND RISK EVALUATION SUPPORTING TABLES

Table G-3 - Wetland Risk Characterization

Wetland	Catchment Change	Impervious Cover Score	Hydrologic Change Rating	Ecological Sensitivity	Overall Risk	Primary Basis
G	-37.7%	0.0%	High	High	High	Large mapped reduction in contributing catchment area.
I	-39.5%	0.0%	High	High	High	Large mapped reduction in contributing catchment area.
H	-38.0%	0.0%	High	High	High	Large mapped reduction in contributing catchment area.
K	-6.8%	24.3%	Medium	High	High	Impervious cover associated with Proposed Development area.
L	-6.3%	22.7%	Medium	High	High	Impervious cover associated with Proposed Development area.
J	-6.0%	17.9%	Medium	High	High	Impervious cover associated with Proposed Development area.

Supporting Notes

- The current DS hydrologic-change assessment is based on the catchment and land-use mapping prepared for this report; it replaces the older hydrologic-change ratings from the 2022 background assessment for the Site-specific evaluation.
- The ecological sensitivity for Wetlands G, I, H, K, L and J remains High based on the background Crozier/Dillon sensitivity assessment.
- An external/upgradient drainage area (EXT8) currently conveys drainage toward Wetland G. Future routing should be confirmed through civil/SWM design coordination because changes to the lands north of the Site may alter existing drainage patterns.
- Previous assessment information identifies Wetlands G, H, I, J, K and L as groundwater-fed or groundwater-influenced. The relative groundwater contribution has not been quantified in the current report and is subject to continued monitoring.

References

C.F. Crozier & Associates Inc. (2022). Wetland Water Balance Risk Assessment, Bolton North Hill Option 1 & Option 2 Lands, Town of Caledon, Region of Peel. Project No. 708-3446. April 2022.

Schaeffers Consulting Engineers (2026). Functional Servicing and Stormwater Management Report, Oakbank Estates, Town of Caledon, Project 2026-5635. August 2026.

DS Consultants Ltd. (2026). Hydrogeological Investigation and Wetland Risk Evaluation, 14475 Highway 50, Bolton, Ontario. Project No. 26-060-100

APPENDIX H

CONSTRUCTION DEWATERING CALCULATIONS

APPENDIX H – PRELIMINARY DEWATERING CALCULATIONS

14475 Highway 50, Bolton, Ontario | DS Project 26-060-100 / 26-060-300

H-1 Calculation Basis and Summary

Preliminary construction dewatering rates were estimated using a Dupuit-based radial groundwater-flow approach. The method relates groundwater inflow to hydraulic conductivity, drawdown, effective saturated thickness and excavation geometry. For conservative screening, the highest measured hydraulic conductivity is applied and the localized coarser-grained seams are treated as a continuous groundwater-bearing unit, although the borehole data indicate that these units are discontinuous.

Equations

$$\text{Equivalent excavation radius: } r_e = \sqrt{A / \pi}$$

$$\text{Radius of influence (Sichardt): } R = r_e + 3000 s \sqrt{K}$$

$$\text{Dupuit groundwater inflow: } Q = \pi K (H^2 - h^2) / \ln(R / r_e)$$

Where A = excavation area; r_e = equivalent excavation radius; R = radial distance to unaffected groundwater; K = hydraulic conductivity; s = total drawdown; H = initial saturated thickness; h = remaining saturated thickness at the excavation after drawdown; and Q = groundwater inflow.

Summary of Preliminary Dewatering Estimates

Scenario	Geometry	Initial GW Position	Target GW Position	Total Drawdown	Q (m ³ /day)	FS	Planning Rate (L/day)
Residential basement / foundation	15 m × 15 m	1.0 m above base	1.0 m below base	2.0	8.9	2	17,867
Municipal service trench / utility	20 m × 2 m	2.0 m above base	1.0 m below base	3.0	4.9	2	9,721
SWM pond excavation	To be confirmed	To be confirmed	To be confirmed	To be confirmed	To be confirmed	—	To be confirmed

The calculated rates represent groundwater inflow only and exclude direct precipitation, surface runoff entering open excavations, and simultaneous pumping from multiple work areas. Pumping rates are expected to be highest during initial drawdown and to decline as the intercepted discontinuous water-bearing seam is locally dewatered. The estimates are therefore interpreted as conservative initial/peak planning rates rather than steady pumping rates expected to persist throughout construction.

References

Cashman, P.M. and Preene, M. (2012). Groundwater Lowering in Construction: A Practical Guide to Dewatering, 2nd Edition. CRC Press.
Powers, J.P., Corwin, A.B., Schmall, P.C. and Kaack, W.E. (2007). Construction Dewatering and Groundwater Control, 3rd Edition. Wiley.
DS Consultants Ltd. (2026). Hydrogeological Investigation and Wetland Risk Evaluation, 14475 Highway 50, Bolton, Ontario.
Ontario MECP – Water Taking User Guide: <https://www.ontario.ca/page/water-taking-user-guide-environmental-activity-and-sector-registry>

APPENDIX H – PRELIMINARY DEWATERING CALCULATIONS

H-2 Residential Basement / Foundation Excavation

Input / Calculation	Symbol	Value	Units
Hydraulic conductivity	K	3.46E-06	m/s
Hydraulic conductivity	K	0.30	m/day
Effective saturated thickness	H	3.00	m
Excavation length	L	15.00	m
Excavation width	W	15.00	m
Excavation area	A	225.00	m ²
Initial groundwater above base		1.00	m
Target groundwater below base		1.00	m
Total drawdown	s	2.00	m
Equivalent excavation radius	re	8.46	m
Radius to unaffected groundwater	R	19.62	m
Remaining saturated thickness	h	1.00	m
Calculated groundwater inflow	Q	8.93	m ³ /day

Calculation

$$re = \sqrt{(A / \pi)} = \sqrt{(225.00 / \pi)} = 8.46 \text{ m}$$

$$R = re + 3000 s \sqrt{K} = 8.46 + 3000(2.0)\sqrt{(3.46E-06)} = 19.62 \text{ m}$$

$$Q = \pi K(H^2 - h^2) / \ln(R/re) = 8.93 \text{ m}^3/\text{day}$$

$$\text{Planning rate with factor of safety} = Q \times 2.0 = 17,867 \text{ L/day}$$

The residential scenario assumes that the excavation base is approximately 1.0 m below the initial groundwater table and that groundwater is lowered an additional 1.0 m below the excavation base to maintain a safe and dry excavation. This results in a total drawdown of 2.0 m. The planning rate is expected to be highest during initial drawdown and to decrease as the intercepted discontinuous groundwater-bearing seam is locally dewatered.

APPENDIX H – PRELIMINARY DEWATERING CALCULATIONS

H-2 Residential Basement / Foundation Excavation

Input / Calculation	Symbol	Value	Units
Hydraulic conductivity	K	3.46E-06	m/s
Hydraulic conductivity	K	0.30	m/day
Effective saturated thickness	H	3.00	m
Excavation length	L	15.00	m
Excavation width	W	15.00	m
Excavation area	A	225.00	m ²
Initial groundwater above base		1.00	m
Target groundwater below base		1.00	m
Total drawdown	s	2.00	m
Equivalent excavation radius	re	8.46	m
Radius to unaffected groundwater	R	19.62	m
Remaining saturated thickness	h	1.00	m
Calculated groundwater inflow	Q	8.93	m ³ /day

Calculation

$$re = \sqrt{(A / \pi)} = \sqrt{(225.00 / \pi)} = 8.46 \text{ m}$$

$$R = re + 3000 s \sqrt{K} = 8.46 + 3000(2.0)\sqrt{(3.46E-06)} = 19.62 \text{ m}$$

$$Q = \pi K(H^2 - h^2) / \ln(R/re) = 8.93 \text{ m}^3/\text{day}$$

$$\text{Planning rate with factor of safety} = Q \times 2.0 = 17,867 \text{ L/day}$$

The residential scenario assumes that the excavation base is approximately 1.0 m below the initial groundwater table and that groundwater is lowered an additional 1.0 m below the excavation base to maintain a safe and dry excavation. This results in a total drawdown of 2.0 m. The planning rate is expected to be highest during initial drawdown and to decrease as the intercepted discontinuous groundwater-bearing seam is locally dewatered.