Hydrogeological Investigation
4721 & 5061 Stouffville Rd
Hwy 48 & Stouffville Road Development
Whitchurch-Stouffville, Ontario

Prepared For:

Times Group Corporation

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Date: October 16, 2026

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19-043-103 **October 16, 2026**

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RE: Hydrogeological Investigation – 4721 & 5061 Stouffville Road, Whitchurch-Stouffville, ON

DS Consultants Ltd. (DS) was retained by Times Group Corporation to conduct a hydrogeological investigation for the proposed development at 4721 and 5061 Stouffville Road, Whitchurch-Stouffville, Ontario. A previous hydrogeological investigation, dated April 4, 2025 (Project No. 19-043-103), assessed the Site Plan Area shown in Figure 3. The proposed development within the Site Plan Area includes 19- to 29-storey buildings, with three levels of underground parking in the East Block (P3; to 249.35 masl) and two levels in the West Block (P2; to 250.60 masl).

This updated report focuses on the larger Zoning By-Law Amendment (ZBA) Study Area, which includes the Site Plan Area, future development lands, stormwater management (SWM) facilities, and municipal road lands, and has a total area of 67,198.40 m². The ZBA Study Area is assessed using an updated review of Ministry of the Environment, Conservation and Parks (MECP) Water Well Records (WWR), revised mapping, and field investigation data from previous studies. These data, collected primarily within the Site Plan Area and surrounding lands, are used to characterize hydrogeological conditions across the larger ZBA Study Area. This report also provides an updated water balance based on the stormwater catchment boundaries provided by SCS Consulting Group Ltd. (SCS), which cover a total area of 72,298 m², inclusive of the ZBA Study Area.

Based on the results of our investigation, the following conclusions are presented:

1. DS completed the in-situ investigations in stages in 2019, 2021, 2024 and 2026. The boreholes and monitoring wells are shown on Figure 3. These observations provide direct site-specific information for that area. The ZBA Study Area includes lands beyond the Site Plan Area; those expanded lands were not subject to the same level of in-situ investigation and are characterized in this update using additional field results from previous investigations together with expanded desktop review.

2. The updated MECP WWR search identified 90 records within 500 m of the ZBA Study Area boundary. Reported use codes include 24 domestic (DO), 20 monitoring (MO), 11 monitoring/test-hole (MT), 2 stock/domestic (ST/DO), and 1 each test-hole/monitoring (TH/MO), test hole (TH), not in use (NU), commercial/public supply (CO/PS), and public supply (PS); 28 records have no use code reported. Formation logs are available for 60 records and most commonly describe clay or clayey silt, with sand,

gravel and silt also reported. Reported well depths range from 4.6 to 82 mbgs and static water levels from -1.2 to 32.3 mbgs. The records describe reported use and subsurface conditions; current well use and continuity of water-bearing units have not been confirmed.

3. The MECP PTTW Open Data Catalogue search identified one active PTTW within 1 km of the Site. The permitted source is surface water.

4. The topography at the site ranges from approximately 254.3 to 256.7 masl, generally sloping south. Willowgrove Creek is located approximately 1.5 km west of the site and is a branch of Little Rouge Creek, which ultimately flows into Lake Ontario approximately 25 km south of the Site. A creek is located east of the site along Highway 48. Wetland mapping identifies one evaluated wetland within the development area that is proposed for removal and two Provincially Significant Wetlands (PSWs) east of Highway 48; the PSWs are approximately 50 m east of the east Site boundary.

5. The overburden geology at the site generally consisted of clayey silt and silty clay overlying a sand and gravel confined aquifer.

6. Whitchurch-Stouffville's municipal water supply is obtained primarily from groundwater wells. The MECP WWR search identified records coded for private water supply uses within 500 m of the ZBA Study Area; however, the records do not confirm whether these wells are present or currently in use. Before dewatering, a survey should confirm the presence and use of wells near the proposed excavations that could be affected by the preliminary zones of influence.

7. Groundwater levels were monitored in the listed BH21 wells from 2021 through April 2022, and later in BH24 and BH25 wells during 2024 to 2026. Groundwater elevations in the listed BH21 wells ranged from 248.3 to 256.5 masl. Calculated elevations in the later BH24 and BH25 monitoring rounds ranged from 253.1 to 255.3 masl. The March 2026 BH25-1 field note records the well as frozen, and that reading is excluded from the calculated range. Sub-artesian conditions were encountered in wells screened in underlying cohesionless deposits.

8. Based on groundwater elevations, shallow groundwater flow is interpreted to be generally westward and southward, away from the mapped wetland features. Groundwater levels are subject to seasonal fluctuations and may vary in response to changing climatic conditions, which may also affect shallow groundwater flow directions at the Site. DS is currently undertaking continuous groundwater level monitoring at the Site for one (1) year.

9. In total, four (4) Single Well Response Tests (slug tests) were completed by DS at the site between May 2019 and February 2021, and an additional five (5) slug tests were conducted in November 2024, and one (1) test was conducted at BH25-1 in February 2025 to estimate hydraulic conductivity (k) for the representative geological units in which the wells were screened. The k-values ranged between 3.1 X 10^{-7} to 4.9 x 10^{-6} m/s in the underlying cohesionless unit and 1.9 X 10^{-9} to 7.5 x 10^{-7} m/s in the overlying clayey silt material, indicative of medium to high permeability lithology in the lower unit and low to medium permeability in the upper unit.

10. One (1) unfiltered groundwater sample was collected from monitoring well BH19-5 and BH24-5 on October 7th, and November 15th, 2024, respectively. Samples were submitted to SGS Laboratories in Lakefield, Ontario. SGS is certified by the Canadian Association of Laboratory Accreditation Inc. (CALA) and Canadian Standard Association (CSA). The analytical results were compared to the parameter limits listed under the York Region sanitary and storm sewer by-law 2021_102. The reported analytical results indicate manganese exceeded the York Region storm sewer criteria from BH24-5. No exceedances were reported against York Region sanitary sewer criteria and against both criteria from BH19-5.

11. The Site and study area are located within the Toronto Region Source Protection Area (SPA). The Site and study area are located within a Highly Vulnerable Aquifer (HVA) with a score of 6, indicating moderate risk to the aquifer from construction. However, since construction is anticipated within the overlying till, construction is not anticipated to impact the underlying sand aquifer. The site is also located within a Significant Groundwater Recharge (SGRA). Given the low permeability of the overlying till material identified during the field investigation, the site does not readily support recharge.

12. The estimated short-term construction dewatering rates are approximately 54,000 L/day (54 m^3/day) for P2 West Block and 72,000 L/day (72 m^3/day) for P3 East Block, with a combined rate of 126,000 L/day (126 m^3/day), including a 100% safety factor. Applying the Sichardt equation to the groundwater drawdown and area-specific geometric-mean hydraulic conductivity values gives preliminary edge-distance screens of approximately 8.9 m for P2 West Block and 16.2 m for P3 East Block. These are empirical screening estimates and should be confirmed against the final excavation conditions and hydrostratigraphy. An EASR is recommended to be submitted to the MECP for construction dewatering prior to construction.

13. Following construction, long-term groundwater flow to the underfloor and perimeter drainage systems would depend on upward groundwater flux and drainage along the foundation walls. For a permanently drained design, preliminary screening using the highest reported hydraulic conductivity for the upper overburden unit and a 100% safety factor estimates flows of approximately 88,270 L/day (88.3 m^3/day) for P2 West Block and 73,771 L/day (73.8 m^3/day) for P3 East Block, for a combined rate of approximately 162,041 L/day (162 m^3/day). This combined estimate is below the 400,000 L/day PTTW screening threshold applied in this assessment. The screening values should be verified against final basement geometry and hydrogeological conditions; actual rates should be confirmed during construction.

14. The Site and ZBA Study Area are located within a municipal Wellhead Protection Area-Quantity (WHPA-Q). The site is categorized to be at moderate risk for both water taking without returning it to the same source (WHPA-Q1), and for reducing recharge to the area (WHPA-Q2). Any WHPA-Q areas where significant or moderate drinking water stress has been identified is an area where significant drinking water quantity threat activities can occur. In these areas, future activities must return water to the same source and must not reduce recharge.

15. Based on the current pre-development and post-development site water balance for the 72,298 m^2 water-balance area, which is distinct from the 67,198.40 m^2 ZBA Study Area, the unmitigated development is estimated to decrease annual actual evapotranspiration from 41,649 to 22,687 m^3/year, decrease infiltration from 13,843 to 6,968 m^3/year, and increase runoff from 9,229 to 30,852 m^3/year. With the modeled LID assumptions, annual infiltration is estimated at 23,455 m^3/year and runoff at 10,971 m^3/year and confirms that the mitigation is sufficient in removing the infiltration deficit. These mitigated estimates are conditional on the modeled LID routing, capture and infiltration assumptions and require confirmation against the final Civil design.

16. Wetland mapping identifies an evaluated wetland within the development area that is proposed for removal and two PSWs east of Highway 48. The PSWs are approximately 50 m east of the east Site boundary. The preliminary construction and permanent edge-distance screens are shorter than this separation, so the estimated zones of influence do not extend to the PSWs. This is a screening interpretation based on empirical Sichardt estimates and does not establish actual drawdown or rule out hydraulic connection. Potential effects on the creek and the evaluated wetland within the development area should be considered in the dewatering and monitoring plans. A wetland water balance risk evaluation may be required by TRCA before development. DS recommended monitoring groundwater and surface-water features and collecting surface-water samples to establish baseline water quality conditions.

Should you have any questions regarding these findings, please contact the undersigned.

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1.0 INTRODUCTION

DS Consultants Ltd. (DS) was retained by Times Group Corporation to conduct a hydrogeological investigation for the proposed development at 4721 and 5061 Stouffville Road, Whitchurch-Stouffville, Ontario. A previous hydrogeological investigation, dated April 4, 2025 (Project No. 19-043-103), assessed the Site Plan Area shown in Figure 3. This updated report focuses on the larger Zoning By-Law Amendment (ZBA) Study Area, which includes the Site Plan Area, future development lands, stormwater management (SWM) facilities, and municipal road lands, and has a total area of 67,198.40 m². Field investigation data from previous studies, collected primarily within the Site Plan Area and surrounding lands, are used together with an updated MECP Water Well Records (WWR) review and revised mapping to characterize hydrogeological conditions across the larger ZBA Study Area. The expanded portions of the ZBA Study Area were not investigated at the same density and are assessed using these existing results together with updated desktop information. The updated water balance is based on the stormwater catchment boundaries provided by SCS Consulting Group Ltd. (SCS), which cover a total area of 72,298 m², inclusive of the ZBA Study Area. The investigation evaluates hydrogeological conditions relevant to the proposed development and estimates construction dewatering and permanent drainage volumes for the underground structure.

1.2 Scope of Work

The scope of work for this investigation included:

- Site visits;
- Desktop review of pertinent geological and hydrogeological resources;
- Review the MECP Water Well Records and water use in the surrounding area;
- Field work, including the borehole and monitoring-well programs, was completed primarily within the Site Plan Area shown in Figure 3; the expanded portions of the ZBA Study Area were not investigated at the same density;
- Single well response tests (slug tests) to estimate hydraulic conductivity in screened units within the investigated area;
- Characterization of stratigraphy and groundwater levels based on the available site-specific investigation locations;
- Estimate construction dewatering volumes and permanent drainage volumes for three (3) levels of underground parking; and
- Assess potential constraints of the site associated with future proposed development

2.0 FIELD INVESTIGATION

2.1 Previous Field Investigation

In May 2019, DS drilled one (1) borehole (BH19-5) equipped with a monitoring well within the Site Plan Area, as part of the geotechnical, environmental and hydrogeological investigations. The borehole was advanced to 15.2 mbgs (239.1 masl). Sub-artesian conditions were encountered at BH19-5, with water levels above ground surface in May 2019. One single well response test was completed at BH19-5 in 2019, yielding a hydraulic conductivity of 3.1 x 10-6 m/s for the screened silty sand unit (DS, 2019).

In February and March 2021, DS completed additional geotechnical field work within the Site Plan Area under Project No. 19-043-101. The associated borehole log set documents BH21-1 through BH21-20 (DS, 2021a, 2021c, 2021d). The hydrogeological investigation records that five (5) boreholes were completed as monitoring wells. These five monitoring-well boreholes were advanced to depths ranging from 12.3 to 15.8 mbgs, and monitoring wells were screened from 6.0 to 15.8 mbgs. The wells were completed with 50 mm diameter PVC pipes, 1.5 or 3.05 m screens and above-ground protective casings. Three (3) single well response tests (SWRTs) were completed using rising-head tests to estimate hydraulic conductivity in the screened soils.

2.2 Current Field Investigation

In October and November 2024, DS drilled twelve (12) boreholes within the Site Plan Area and equipped five (5) with monitoring wells. The associated borehole logs are documented in the 2024 geotechnical log set (DS, 2024). Boreholes were advanced to depths ranging from 15.3 to 23.4 mbgs, and monitoring wells were screened from 7.1 to 9.1 mbgs. In February 2025, DS advanced borehole BH25-1 to 37.1 mbgs within the investigated area to assess the extent of a deeper aquifer, and installed a monitoring well to 21.3 mbgs (DS, 2025).

Monitoring wells were developed before use for groundwater-level monitoring, hydraulic conductivity testing and groundwater-quality assessment. Six (6) SWRTs were completed in the 2024 and 2025 investigation programs using rising-head tests. The borehole and monitoring-well locations, together with the Site Plan Area and ZBA Study Area, are shown on Figure 3.

3.0 SITE SETTING

3.1 Physiography and Drainage

According to Ontario Geological Survey (OGS) mapping, the Site is within the South Slope physiographic region, characterized by drumlinized till plains. The Oak Ridges Moraine (ORM) borders this region to the north. Ministry of Natural Resources and Forestry (MNRF) mapping, however, places the Site within the ORM boundary; the sources therefore differ in their regional designation. The ORM is a prominent, hummocky ridge extending approximately 160 km east–west from the Trent River to the Niagara Escarpment, north of the Greater Toronto Area. Its thick granular deposits supply groundwater to tributaries originating along the Moraine's north and south slopes.

The site is currently used for agricultural purposes. The topography ranges from approximately 254.3 to 256.7 masl, generally sloping south. Willowgrove Creek is approximately 1.5 km west of the site and is a branch of Little Rouge Creek, which ultimately flows into Lake Ontario approximately 25 km south of the Site. A creek is located east of the site along Highway 48. Wetland mapping identifies one evaluated wetland within the development area and two Provincially Significant Wetlands (PSWs) east of Highway 48. The natural heritage mapping is shown in Appendix F. Drainage is generally controlled by streams and local topography.

3.2 Geology

The following summarizes regional geology and the interpreted conditions across the ZBA Study Area based on available desktop information and site-specific soil investigations. Available borehole locations are shown in Figure 3 and include investigations within the Site Plan Area and areas south and west of the ZBA boundary.

3.2.1 Quaternary Geology

Surficial geology mapping indicates clay- to silt-textured glacial till, mapped as Halton Till and described as derived from glaciolacustrine deposits or shale. At the Site, overburden generally comprises clayey silt and silty clay till overlying a confined sand and gravel aquifer. The surficial geology is shown in Figure 2.

3.2.2 Bedrock Geology

According to the Ontario Geological Survey mapping across the region the bedrock at the site is predominantly comprised of shale, limestone, dolostone, siltstone of the Georgian Bay Formation; Blue Mountain Formation; Billings Formation; Collingwood Member; and Eastview Member. Bedrock was not encountered during the current investigation. Due to the thickness of the overburden and deep nature of the expected contact, it is not expected that bedrock will influence the groundwater system in respect to the current hydrogeological investigation.

3.2.3 Site Geology

On-site subsurface soils were interpreted from the boreholes and monitoring wells drilled by DS within the Site Plan Area and areas south nd west of the ZBA limits. Their locations are shown on Figure 3, and detailed subsurface conditions are presented in Appendix A. The conditions observed at those investigation locations are summarized below. A geological cross-section A-A’ is presented in Figure 5.

Topsoil/Fill: A surficial layer of topsoil of 125 to 3800 mm thick was found in all boreholes. It should be noted that the thickness of the topsoil explored at the borehole locations may not be representative of the site and should not be relied on to calculate the amount of topsoil at the site. Below the topsoil, fill materials and/or weathered/disturbed soils consisting of clayey silt to silty clay and sandy silt to silty sand were encountered in all boreholes, extending to depths varied from 0.8 to 2.4 m below ground surface. These soils were found traces of rootlets and topsoil inclusions.

Clayey Silt TO Silty Clay (Till): Cohesive deposits of clayey silt to silty clay (till) were encountered in all boreholes, extending to depths ranging from 9.0 m to 37.1 m below existing ground surface. Boreholes BH24-3 to BH24-5, BH24-9, BH24-12 and BH25-1 were terminated in the clayey silt to silty clay (till). These soils were found to be weathered/disturbed due to ploughing activities in the past. Traces of rootlets and topsoil inclusions were also observed in the weathered deposits. Occasional sand seams and cobble/boulder were present within the clayey silt to silty clay (till) deposits. These deposits were found in a firm to hard consistency.

Sandy Silt to Silty Sand Till: Sandy silt to silty sand till deposits were encountered in all boreholes, extending to depths of 12.0 to 23.4 m below existing grade. Sandy silt to silty sand till deposits were found to be in a compact to very dense state. Occasional sand seams and cobble/boulder were present within the sandy silt to silty sand till deposits.

Cohesionless Sandy Soils (Silt, Sandy Silt to Silty Sand and Sand): Cohesionless water bearing soils consisting of silt, sandy silt to silty sand and sand were encountered at various depths in all boreholes except for boreholes BH24-4 to BH24-6. The cohesionless soils were present in a compact to very dense state.

4.0 HYDROGEOLOGY

The hydrogeology relevant to the proposed development was evaluated using DS monitoring wells located primarily within the Site Plan Area, MECP WWRs within 500 m of the ZBA Study Area, and Oak Ridges Moraine Groundwater Program mapping. Conditions in the expanded portions of the ZBA Study Area are interpreted from desktop information and the available site-specific data.

4.1 Hydrostratigraphy

Based on the review of subsurface soils and regional mapping from the Oak Ridges Moraine Groundwater Program, five (5) hydrostratigraphic units were identified in the vicinity of the Site, from youngest to oldest:

- **Oak Ridges Aquifer Complex (ORAC):** The ORAC sediments overlie a regional unconformity with infill tunnel channels forming a prominent east-west ridge. The ORAC sediments generally consist of silt and fine sands, but also include gravel seams and some clay. The aquifer is generally unconfined except for areas where it underlies the Halton Till. The ORM sediments are considered high recharge areas.

- **Lower Newmarket Till:** The Newmarket till is a thick aquitard, characterized by low hydraulic conductivity and forms an extensive sheet with various heterogeneous soil characteristics.

- **Thorncliffe Formation:** formed of poorly exposed, interbedded lake sediments and till. It generally comprises of sand and silt, clay, and till. The aquifer is confined by the Newmarket fill aquitard. The unit is characterized by sandy formations with high hydraulic conductivity.

- **Sunnybrook Drift:** Aquitard material separating the Thorncliffe deposits form the Scarborough Formation generally described as clast poor mud consisting of silt and clay.

- **Scarborough Formation:** The Scarborough formation is an aquifer formed of organic rich sands over silt and clays from melt water from glaciation which occurred about 40,000 to 90,000 years ago.

4.2 Local Groundwater Use

As part of the hydrogeological investigation, DS completed a search of the Ministry of the Environment, Conservation and Parks (MECP) water well records (WWRs) database for a 500 m offset from the ZBA Study Area boundary. The updated search identified 90 WWR records. Reported well use include 24 domestic (DO), 20 monitoring (MO), 11 monitoring/test-hole (MT), 2 livestock/domestic (ST/DO), 1 test-hole/monitoring (TH/MO), 1 test hole (TH), 1 not in use (NU), 1 commercial/public supply (CO/PS), and 1 public supply (PS); 28 records have no use code reported.

Where reported, well depths range from 4.6 to 82 m below ground surface (mbgs), and static water levels range from -1.2 to 32.3 mbgs. These codes reflect reported record use and do not confirm current use. Driller formation logs were available for 60 records and most commonly described clay or clayey silt; sand, gravel and silt were also reported. Fill was expressly noted in 10 logs and till in 4. The logs show variable stratigraphic sequences and do not establish lateral continuity of water-bearing units.

Figure 1 shows the MECP water well location plan. Most communities of Whitchurch-Stouffville continue to be served by municipal groundwater, where groundwater is generally taken from the Oak Ridges Moraine (ORM) to service municipal water supply. A door-to-door water well survey is recommended within the ZBA Study Area to confirm the presence and current use of identified wells.

4.3 Groundwater Levels

Groundwater levels were monitored in 2021–2022 and again from November 2024 through March 2026. Table 4-1 presents the selected groundwater elevations used to assess seasonal high groundwater elevations and gradients across the ZBA boundary as shown in Figure 4. Appendix B provides the detailed monitoring records for the wells included in this assessment, grouped by well. The selected readings span different measurement dates.

Across the listed BH21 series monitoring wells, groundwater elevations ranged from 248.3 to 256.5 masl. Calculated elevations in the BH24 and BH25 series monitoring wells from November 2024 through March 2026 ranged from 253.1 to 255.3 masl. Sub-artesian conditions were encountered in wells screened in underlying cohesionless deposits.

Near-ground-surface groundwater levels indicate that the underlying confined layer is under pressure. The updated interpreted shallow groundwater contour map is shown in Figure 4. Based on groundwater elevations, shallow groundwater flow is interpreted to be generally westward and southward. Groundwater levels are subject to seasonal fluctuations and may vary in response to changing climatic conditions, which may also affect shallow groundwater flow directions at the Site.

Table 4-1: Seasonal High Groundwater Elevations

Well ID	Measurement Date	Depth to Water (mbgs)	Groundwater Elevation (masl)
BH21-1	April 19, 2022	1.2	253.3
BH21-2	April 19, 2022	0.3	254.9
BH21-3	April 19, 2022	2.8	253.8
BH21-4	April 19, 2022	0.5	256.2
BH21-5	April 19, 2022	-0.2	255.8
BH21-9	April 19, 2022	2.3	249.4
BH21-12	April 19, 2022	-0.6	252.3
BH21-18	April 19, 2022	3.6	252.9
BH21-19	April 19, 2022	3.0	252.8
BH24-1	March 2, 2026	1.3	255.3
BH24-4	March 2, 2026	0.6	254.8
BH24-8	March 2, 2026	0.2	254.4
BH24-9	March 2, 2026	1.2	254.6
BH25-1	March 2, 2026	—	254.3*
BH24-13	March 2, 2026	3.3	253.2
BH24-14	March 2, 2026	4.4	253.4

4.4 Single Well Response Test Analysis

In total, four (4) Single Well Response Tests (slug tests) were completed by DS at the site between May 2019 and February 2021. An additional five (5) slug tests were conducted in November 2024, and one (1) test was conducted at BH25-1 in February 2025 to estimate hydraulic conductivity (k) for the representative geological units in which the wells were screened. The testing was completed using data loggers placed at the bottom of the monitoring wells to accurately measure the change in the hydraulic head versus time. Hydraulic conductivity (k) values were calculated using the Bouwer and Rice method using the AquiferTest® Software. The semi-log plots for normalized drawdown versus time are provided in Appendix C. The k-values ranged between 3.1 X 10-7 to 4.9 x 10-6 m/s in the underlying cohesionless unit and 1.9 X 10-9 to 7.5 x 10-7 m/s in the overlying clayey silt material, indicative of medium to high permeability lithology in the lower unit and low to medium permeability in the upper unit. Table 4-2 presents the Hydraulic Conductivity (k) values for the representative geological units.

Table 4-2: Summary of Hydraulic Conductivity (k) Test Results

Well ID	Screened Interval (mbgs)	Screened Formation	K-value (m/s)
BH21-1	12.2-15.2	Sand and Gravel, Silty Sand Till	1.6×10^{-6}
BH21-3	4.5-6.0	Sand	4.9×10^{-6}

BH21-4	10.7-12.2	Sandy Silt Till	6.8×10^{-7}
BH19-5	12.2-15.2	Silty Sand to Sandy Silt, Sand and Gravel	3.1×10^{-7}
BH25-1	16.3-21.3	Silty Sand and Silty Sand to Sandy Silt Till	3.2×10^{-7}
		Geomean	8.8×10^{-7}
BH24-1	6.1-9.1	Silty Clay Till & Clayey Silt	1.1×10^{-8}
BH24-4	4.6-7.6	Clayey Silt to Silty Clay Till	7.5×10^{-7}
BH24-5	4.6-7.6	Clayey Silt	7.1×10^{-8}
BH24-8	4.1-7.1	Clayey Silt Till & Clayey Silt	7.5×10^{-8}
BH24-9	5.6-8.6	Clayey Silt	1.9×10^{-9}
		Geomean	3.8×10^{-8}

4.5 Groundwater Quality Analysis

To assess the suitability for discharge of groundwater to the York Region sewers, one (1) unfiltered groundwater sample was collected from monitoring wells BH19-5 and BH24-5 on October 7th and November 15th, 2024, respectively. The samples were placed in pre-cleaned laboratory supplied vials and/or bottles provided with analytical test group-specific preservatives, as required. Dedicated nitrile gloves were used during sample handling. The groundwater samples were submitted to SGS Laboratories in Lakefield, Ontario. SGS is certified by the Canadian Association of Laboratory Accreditation Inc. (CALA) and the Canadian Standard Association (CSA). The analytical results were compared to the parameter limits listed under the York Region Sewer Use Bylaw 2021_102. The reported analytical results indicate manganese exceeded the York Region storm sewer criteria from BH24-5. No exceedances were reported against York Region sanitary sewer criteria from both samples. Table 4-3 presents a summary of the exceeded parameters, and the certificate of analysis is provided in Appendix D.

Table 4-3: Parameters in Groundwater Exceeding the York Region Sewer Use Bylaw

Parameter	Unit	York Region Storm Sewer By-Law Criteria	York Region Sanitary Sewer By-Law Criteria	BH19-5	BH24-5
Manganese	mg/L	0.15	5	0.0131	**0.323**

Note: 0.00- Exceeded Storm Bylaw **0.00**- Exceeded Sanitary Bylaw

5.0 CONSTRUCTION DEWATERING- UNSEALED EXCAVATION

Construction dewatering is anticipated within the site boundaries for the proposed development. The estimates are based on the proposed site plan. The development includes a 19- to 29-storey high-rise building with two underground levels in the P2 West Block (extending to 250.60 masl) and three underground levels in the P3 East Block (extending to 249.35 masl). Footings are estimated to extend 2.5 m below the P2 floor slab (248.10 masl) and P3 floor slab (246.85 masl). Groundwater should be lowered to 1 m below the footings, corresponding to elevations of 247.10 masl for P2 West and 245.85 masl for P3 East. Dewatering will be required for excavation below the groundwater table, and aquifer depressurization will be required for excavations below the estimated safe excavation depths (SEDs). SEDs are discussed in the geotechnical report under separate cover. The following section estimates construction dewatering using the steady-state flow equation for an unsealed excavation.

5.1 Total Estimation of Flow Rate- (Short Term/Construction Dewatering)

This section calculates the estimated dewatering needed considering the open-cut excavation methods using the Dupuit expression for an unconfined aquifer in steady-state conditions. The Sichardt edge-distance screen is added to the equivalent excavation radius to obtain the outer radius used in the Dupuit calculation (R0 = Re + edge distance).

$$Q = \frac{\pi K(H^2 - h^2)}{2.3 \log\left(\frac{R_0}{re}\right)} \qquad \text{Equation 5.1}$$

$$R_0 = C(H - h)\sqrt{k} \qquad \text{Equation 5.2}$$

$$r_e = \sqrt{\frac{ab}{\pi}} \qquad \text{Equation 5.3}$$

Where,

	P2 (West Block)	P3 (East Block)
H- Initial Elevation of Water Table (m)	8.4	11
h-Final Elevation of Water Table (m)	1	1
K- Hydraulic Conductivity (m/s)	1.6×10^{-7} (geomean for area)	2.9×10^{-7} (geomean for area)
Re- Equivalent Excavation Radius (m)	74.2	54.7
Sichardt edge-distance screen (m)	8.9	16.2
R0- Outer Radius for Dupuit Calculation (m)	83.1	70.9
A- Area (m^2)	17,300	9,400
C- Sichardt Coefficient (K in m/s)	3,000	3,000
Q- Flow Rate (L/day)	**27,000**	**36,000**

Q- Maximum Flow Rate (L/day), 100% safety factor	**54,000**	**72,000**

The estimated short-term construction dewatering rates are approximately 54,000 L/day (54 m^3/day) for P2 West Block and 72,000 L/day (72 m^3/day) for P3 East Block, for a combined rate of 126,000 L/day (126 m^3/day), including a 100% safety factor. Initial rates may be higher while groundwater is removed from storage in the overburden, and are expected to decrease after the target water level is reached. The maximum flow calculation provides a conservative estimate to account for conditions that may arise during construction.

Surface water runoff and precipitation may accumulate in the excavation resulting in additional water discharge. Water discharge will depend on the size of the excavation, precipitation intensity and excavation method. To represent a 'significant' precipitation event, an estimated 25 mm precipitation event in 24 hours was used to estimate potential storm water discharge. This would account for approximately **340,000 L discharged over a 48-hour period (340 m^3over a 48-hour period)** for the entire Site. Surface water and stormwater contributions during construction are no longer included in the construction groundwater taking EASR and PTTW limits as of July 1st, 2021. Stormwater contributions are to be addressed under other activity requirements.

5.2 Zone of Influence During Construction

The Sichardt equation (Equation 5.2) provides an empirical estimate of the edge distance measured outward from the excavation. Using the groundwater drawdown and area-specific geometric-mean hydraulic conductivity values summarized above, the preliminary edge-distance screens are approximately 8.9 m for P2 West Block and 16.2 m for P3 East Block. These distances are added to the equivalent excavation radii to obtain outer radii of approximately 83.1 m and 70.9 m, respectively, for the Dupuit flow calculations. The nearest PSWs are approximately 50 m east of the east Site boundary; therefore, the preliminary construction edge-distance screens do not extend to the PSWs. The equation represents steady-state conditions and does not precisely predict actual drawdown; the estimates should be checked against the final excavation conditions.

5.3 Permanent Drainage (Long-term Discharge)

A watertight, bathtub-type basement is the preferred mitigation for permanent dewatering because it would avoid planned long-term groundwater discharge. The design should account for groundwater pressure and uplift. The permanent drainage calculations below represent the alternative drained design for P2 West Block and P3 East Block, should a watertight structure not be feasible or permanent drainage otherwise be required. Estimated groundwater inflow for that alternative was calculated using the Dupuit equation.

	P2 (West Block)	P3 (East Block)
H- Initial Elevation of Water Table (m)	6.4	7.0
h-Final Elevation of Water Table (m)	0.5	0.5
K- Hydraulic Conductivity (m/s)	7.5 x 10-7 (maximum upper-unit value)	7.5 x 10-7 (maximum upper-unit value)

Re- Equivalent Excavation Radius (m)	74.2	54.7
Edge-distance screen (m)	15.3	16.9
R0- Outer Radius for Dupuit Calculation (m)	89.6	71.6
A- Area (m^2)	17,300	9,400
C- Sichardt Coefficient (K in m/s)	3,000	3,000
Q- Flow Rate (L/day)	**44,135**	**36,886**
Q- Maximum Flow Rate (L/day), 100% safety factor	**88,270**	**73,771**

For the permanently drained design, preliminary screening using the highest reported hydraulic conductivity for the upper overburden unit (7.5 x 10^{-7} m/s) and a 100% safety factor estimates theoretical groundwater flows of approximately 88,270 L/day (88.3 m^3/day) for P2 West Block and 73,771 L/day (73.8 m^3/day) for P3 East Block, for a combined estimate of approximately 162,041 L/day (162 m^3/day). These screening estimates retain the excavation areas and groundwater levels summarized above and should be verified against the final basement geometry. If this alternative is selected, actual rates and drainage control system design should be confirmed during construction to ensure it is designed to manage the actual flow.

These permanent drainage estimates represent groundwater inflow to the underfloor and perimeter systems only. They exclude surface runoff and direct precipitation, including the separate 25 mm event used to estimate temporary construction stormwater accumulation in Section 5.1. Surface water and stormwater are managed separately under the stormwater design and applicable approvals. The values of 74.2 m for P2 West Block and 54.7 m for P3 East Block are equivalent excavation radii, not zones of influence. The permanent-drainage edge-distance screens are approximately 15.3 m for P2 West Block and 16.9 m for P3 East Block.

5.4 Permit Requirements

5.4.1 Environmental Activity and Sector Registry (EASR) /Permit to Take Water (PTTW) Application

An EASR is required to be submitted to the MECP if the taking of groundwater and stormwater for a temporary construction project is between 50,000 L/day and 400,000 L/ day. The EASR application is an online registry and should be submitted to the MECP before any construction dewatering. A PTTW is only required to be submitted to the MECP if the taking of groundwater and stormwater for a temporary construction project is more than 400,000 L/ day.

Since the expected design dewatering rates for the unsealed excavation is above 50,000 L/day, an EASR application is required for short-term dewatering during construction.

The combined preliminary permanent drainage estimate, including a 100% safety factor, is approximately 162,041 L/day and is below the 400,000 L/day PTTW screening threshold applied in this assessment. Applicable water-taking and discharge requirements should be confirmed for the final foundation drainage

design and receiving system. Actual rates may vary with site conditions and should be confirmed during construction.

5.4.2 Discharge Permits

A discharge permit may be required from the York Region if private water is to be sent to the storm sewer system for construction dewatering and permanent drainage.

6.0 SITE WATER BALANCE

To understand and compare existing hydrologic conditions, a Thornthwaite site water balance was completed. The Thornthwaite water balance (Thornthwaite, 1948; Mather, 1978; 1979) is an accounting type method used to analyze the allocation of water among various components of the hydrologic cycle. Inputs to the model are monthly temperature, Site latitude, precipitation, and stormwater run-off. Outputs include monthly potential and actual evapotranspiration, evaporation, water surplus, total infiltration, and total runoff. For ease of calculation, a spreadsheet model was used for the computation.

When precipitation (P) occurs, it can either runoff (R) through the surface water system, infiltrate (I) to the water table, or evaporate/evapotranspiration (ET) from the earth's surface and vegetation. The sum of R and I is termed as the water surplus (S). When long-term averages of P, R, I and ET are used, there is no net change in groundwater storage (ST). Annually, however, there is a potential for small changes in ST. The annual water budget can be stated as **P = ET + R + I + ST** and the components are discussed below.

6.1 Pre-Development Water Balance

The Site Water Balance uses a total area of 72,298 m^2 based on the Civil catchment schedule. The ZBA Study Area boundary is 67,198.40 m^2; these are separate area bases. Pre-development conditions are represented as moderately rooted crop throughout the water-balance area. Figure 6A shows the pre-development conceptual model. The pre-development model uses the monthly climate data, site latitude, native-soil water holding capacity and infiltration factors described below.

The average annual precipitation for the area is approximately 895.2 mm/year. For the pre-development pervious area, the model estimates annual potential evapotranspiration (PET) of approximately 612 mm/year, about 68% of annual precipitation.

Precipitation (P)

Based on the 30-year average for the Richmond Hill Climate Station in Ontario, the average precipitation for the area is about 895 mm/year for the period between 1981 and 2010. Also, the average monthly temperature from this station has been used. The monthly distribution of precipitation is presented in Table 1, Appendix G.

Storage (St)

Groundwater storage (ST) of native soils for the existing Site was estimated using values of Water Holding Capacity (mm) of respective land use and soil types identified in Table 3.1 of the Storm Water Management

(SWM) Planning & Design Manual (MOE, March 2003). The land uses, soil types and respective water holding capacities chosen to represent existing conditions at the Site include the following with their respective water holding capacity applied to March for monthly calculations:

- Agricultural/Moderately Rooted Crops, Silt Soils– 200 mm

Using the procedures outlined in the SWM Planning & Design Manual for the above land use and soil type, the annual change in storage is zero (0).

Evapotranspiration (Et)

Monthly Potential Evapotranspiration (PET) is estimated using monthly temperature data and is defined as a water loss from a homogeneous vegetation-covered area that never lacks water (Thornthwaite,1948; Mather, 1978). In the Thornthwaite water balance model, PET is calculated using the Hamon equation (Hamon, 1961);

PET Hamon = 13.97 * d * D2 * Wt

Where:
d = the number of days in the month
D = the mean monthly hours of daylight in units of 12 hours
Wt = a saturated water vapour density term = 4.95 * e0.627/100
T = the monthly mean temperature in degrees Celsius

The calculated Actual Evapotranspiration (AET) is based on PET and changes in ST (Δ ST). Where there is not enough P to satisfy PET, a reduction in ST occurs. As a result, volumes of AET are less than PET. Also, it is assumed that evaporation will occur and will amount to approximately 15% of the total precipitation for an impervious cover.

Precipitation Surplus (S)

Precipitation surplus is calculated as P–ET. For pervious areas, ET is considered AET and for impervious areas, ET is evaporation.

Infiltration (I) and Runoff (R)

For pervious areas, precipitation surplus has two (2) components in the Thornthwaite model: a runoff component (overland flow that occurs when soil moisture capacity is exceeded) and an infiltration component. The infiltration factors for topography, soil type and cover prescribed in Table 3.1 of the SWM Planning & Design Manual give the existing-condition factors shown in Table 6-1. The runoff component is the remaining precipitation surplus following actual evapotranspiration and infiltration.

The resulting annual evapotranspiration, infiltration and runoff volumes for the pre-development Site are summarized in Table 6-2.

Table 6-1 - Existing Conditions – Infiltration Factor

Land uses / soil types	Topography	Soil	Cover	Total Infiltration Factor
Agricultural/Moderately Rooted Crop	0.2	0.2	0.2	0.6

Table 6-2 – Summary of Pre-Development Water Balance

Land Uses / Soil Types	ET Volume (m^3/year)	AET Volume (m^3/year)	Infiltration Volume (m^3/year)	Runoff Volume (m^3/year)
Agricultural/Moderately Rooted Crop	NIL	41,649	13,843	9,229

The detailed calculations are provided in Table 2, Appendix F

6.2 Post Development Water Balance

Post-development conditions use the same 30-year average climate data and site latitude as the pre-development model. The Civil catchment schedule provides the 72,298 m^2 water-balance area, comprising 31,388 m^2 of impervious area and 40,910 m^2 of pervious area, including the 1,042 m^2 green roof. The ZBA Study Area boundary is 67,198.40 m^2. The green roof is identified separately in the area schedule because its water-balance treatment differs from ground-level pervious areas. Figure 6B shows the post-development conceptual model. The unmitigated annual outputs are summarized in Table 6-3; modeled LID results are also shown for comparison.

PRECIPITATION (P)

Based on the 30-year average for the Richmond Hill WWTP Climate Station, the average precipitation for the area is about 895 mm/year for the period between 1981 and 2010. Also, the average monthly temperature from this station has been used. The monthly distribution of precipitation is presented in Table 1, Appendix G.

Storage (St)

The land uses, soil types and respective water holding capacities chosen to represent existing conditions at the Site including the following with their respective water holding capacity applied to March for monthly calculations:

- Park (Urban Lawns)/Silt Loam – 125 mm

Like the pre-development conditions, using the procedures outlined in the SWM Planning & Design Manual for each land use, the annual change in storage is 0. The monthly distribution of ST for each of the land use/soil types is presented in Table 3, Appendix G.

Evapotranspiration (Et)

The total impervious area in the current Civil schedule is 31,388 m^2. Evaporation from hard surfaces is assumed to be 15% of annual precipitation, equivalent to approximately 134.3 mm/year. The resulting annual hard-surface evaporation is approximately 4,215 m^3/year. The mitigated scenario also includes modeled LID evaporation, as summarized in Table 6-3.

For post-development pervious areas, monthly PET is estimated using the same climate inputs and the post-development soil moisture holding capacity. The modeled annual actual evapotranspiration (AET) for post-development conditions without LID mitigation is 22,687 m^3/year. The mitigated case is summarized in Table 6-3.

Precipitation Surplus (S)

For post-development pervious surfaces, precipitation surplus is calculated as precipitation less actual evapotranspiration (P–AET).

For impervious surfaces, precipitation surplus is calculated as precipitation less evaporation, with evaporation assumed to be 15% of precipitation. The mitigated case also accounts for the modeled LID evaporation shown in Table 6-3.

Infiltration (I) and Runoff (R)

The post-development water balance without LID mitigation estimates annual infiltration of 6,968 m^3/year. The modeled LID case estimates annual infiltration of 23,455 m^3/year, subject to the assumptions and qualifications in Section 6.3.

The runoff component is the remaining volume of precipitation surplus following infiltration. Annual runoff without LID mitigation is estimated at 30,852 m^3/year. With the modeled LID assumptions, annual runoff is estimated at 10,971 m^3/year. The detailed monthly and catchment calculations are maintained in the current water-balance workbook.

6.3 Site Water Balance Results

Without LID mitigation, the development is estimated to reduce annual infiltration by 6,875 m^3/year (from 13,843 to 6,968 m^3/year) and increase annual runoff by 21,623 m^3/year (from 9,229 to 30,852 m^3/year), relative to pre-development conditions. The modeled results use the 72,298 m^2 water-balance area, distinct from the 67,198.40 m^2 ZBA Study Area, and remain conditional on confirmation of catchment routing, facility drawdown and infiltration assumptions by Civil.

The preliminary Civil LID concept includes a green roof, water-reuse tanks, a bioretention facility and infiltration trenches. The September 2026 concept plan identifies approximate storage capacities of 15.6 m^3 for the green roof, 56.5 m^3 for the reuse tanks, 420.8 m^3 for the bioretention facility and 37.2 m^3 for the trenches. The mitigated water balance models infiltration from the proposed facilities and estimates annual

infiltration of 23,455 m^3/year, compared with 13,843 m^3/year pre-development. This indicates a modeled annual infiltration surplus of about 9,612 m^3/year for the modeled water-balance area. On-site infiltration to native soils is the mechanism intended to return captured water to the local groundwater system; storage and reuse reduce runoff but are not counted as groundwater recharge unless the water is subsequently infiltrated.

The modeled infiltration credit is conditional on confirming facility inverts, seasonal high groundwater clearance, native-soil infiltration rates, drawdown, underdrains, overflow/bypass and catchment routing. The final servicing/LID design should coordinate these details with the dewatering mitigation strategy. Table 6-3 summarizes the pre-development, post-development without mitigation, and post-development with modeled LID conditions for the 72,298 m^2 water-balance area.

Table 6-3- Summary of Water Balance Analysis – Pre-Development and Post-Development

Hydrologic Output	Pre-Development	Post-Development (No LIDs)	Post-Development (With LIDs)
Water Balance Area (m2)	72,298	72,298	72,298
Precipitation (m3/year)	64,721	64,721	64,721
Total Evaporation (m3/year)	0	4,215	7,612
Total AET (m3/year)	41,649	22,687	22,684
Total Infiltration (m3/year)	13,843	6,968	23,455
Total Runoff (m3/year)	9,229	30,852	10,971

7.0 POTENTIAL IMPACTS

The potential impacts associated with a development occurring at the site are presented in the sections below.

7.1 Oak Ridges Moraine Conservation Plan

The Site falls under O.Reg 140/02: Oak Ridges Moraine Conservation Plan. The ORM Conservation Plan is an ecologically based plan that provides land use and resource management direction for land and water within the Moraine. The site is categorized is designated as countryside area.

Countryside Areas provide an agricultural and rural transition and buffer between the Natural Core Areas and Natural Linkage Areas and the urbanized Settlement Areas. Infrastructure uses are permitted in Countryside Areas. Residential developments, and small-scall commercial, industrial, and institutional uses are permitted in Countryside Areas. Additional permitted land uses are outlined in section 12(3) and section 13(3) of O.Reg 140/02. The Ontario Ministry of Natural Resources and Forestry Map is shown in Appendix F.

7.2 Local Groundwater Use

The updated MECP Water Well Record (WWR) search identified 90 records within 500 m of the ZBA Study Area boundary, including records coded for domestic, stock/domestic, commercial/public supply and public supply uses. These are reported record-use codes and do not confirm whether a well is present or currently in use. Before dewatering, wells near the proposed excavations should be identified and their current use confirmed to assess whether any could be affected by the temporary or permanent dewatering activities. The preliminary zones-of-influence screening indicates that the estimated effects would be limited to areas close to the excavations; actual drawdown will depend on site conditions.

7.3 Current PTTW Search

The MECP Permit to Take Water (PTTW) Open Data Catalogue was searched within a 1 km radius of the Site. The search identified one active PTTW for a surface-water source. Based on the preliminary zones-of-influence screening, the proposed dewatering is not expected to extend to this permitted taking. The search results are summarized in Table 7-1.

Table 7-1: PTTW Search within 1 km of Site

Permit Number	Permit Holder Name	Purpose	Specific Purpose	Max Litres Per Day	Source Type	Distance from Site (km)
2307-ALLT4C	63 Golf Inc. operating as Spring Lakes Golf Club	Commercial	Golf Course Irrigation	3,410,000	Surface Water	0.99

7.4 Source Protection Area

The Site is within the Toronto Region Source Protection Area and is mapped within a Highly Vulnerable Aquifer (HVA) with a score of 6, a Significant Groundwater Recharge Area (SGRA), and a municipal Wellhead Protection Area-Quantity (WHPA-Q). The WHPA-Q designations identify moderate risk for water taking without returning water to the same source (WHPA-Q1) and for reducing recharge (WHPA-Q2). These designations identify potential source-water concerns; they do not, by themselves, establish the site-specific effect of the proposed development.

The proposed excavations are expected to extend primarily into the Halton Till, generally encountered during the investigation as clayey silt to silty clay. Field testing indicated low hydraulic conductivity in this material, and the underlying sand and gravel aquifer was not identified within the planned excavation depths. On this basis, direct construction-related effects on the underlying aquifer are expected to be

limited. The low-permeability till also limits the Site's capacity to support infiltration recharge under existing conditions.

The mitigated water balance estimates that the proposed LID measures would increase annual infiltration relative to the unmitigated post-development condition and address the modeled infiltration deficit. This outcome depends on the assumed catchment routing, facility performance and infiltration rates; these should be confirmed in the final Civil design. If permanent drainage or groundwater taking is required, its effects and applicable source-water requirements should be assessed as part of the final design and approvals. Conclusions regarding subsurface conditions are based on the investigation locations; till continuity should be checked during construction, with groundwater conditions monitored where excavations encounter permeable soils or groundwater.

The site and the study area are not located within a water intake protection zone (IPZ). No IPZ impacts are anticipated due to the proposed temporary dewatering.

7.5 Surface Water

The preliminary temporary construction edge-distance screens are approximately 8.9 m for P2 West Block and 16.2 m for P3 East Block. The permanent-drainage screens are approximately 15.3 m and 16.9 m, respectively. The nearest Provincially Significant Wetlands (PSWs) are approximately 50 m east of the east Site boundary. Based on the preliminary screens, the estimated construction and permanent zones of influence do not extend to the PSWs. In addition, ambient groundwater flow is interpreted to be generally westward and southward, away from the mapped wetland features. This screening result does not establish the absence of a hydraulic connection or rule out site-specific effects. Actual effects would depend on site conditions and should be evaluated through groundwater and surface-water monitoring during dewatering.

Wetland mapping also identifies an evaluated wetland within the development area that is proposed for reduction or removal. This on-site wetland is distinct from the two PSWs east of Highway 48 and may not require further study based on its minor significance.

Before and during dewatering, a monitoring and response program should establish baseline conditions and track groundwater levels in representative shallow and deeper wells, along with surface-water levels, flow and quality at the creek and wetland features. The program should include action levels tied to the ecological assessment, reporting frequency and contingency measures. If monitoring identifies drawdown or surface-water changes approaching the agreed limits, contingency measures should be implemented. These may include reducing or stopping pumping, groundwater reinjection or recirculation where technically and regulatorily acceptable, or modifying the excavation or waterproofing approach. Final measures should be coordinated with Civil and the ecological consultant.

8.0 LIMITATIONS

This report was prepared for the sole use of Life Construction Inc. the addressee to provide an assessment of the hydrogeological conditions on the property. The information presented in this report is based on information collected during the completion of the hydrogeological investigation by DS Consultants Ltd. DS

Consultants Ltd. was required to use and rely upon various information sources produced by other parties. The information provides in this report reflects DS' judgment in light of the information available at the time of report preparation. This report may not be relied upon by any other person or entity without the written authorization of DS Consultants Ltd. The scope of services performed in the execution of this investigation may not be appropriate to satisfy the needs of other users, and any use or reuse of this documents or findings, conclusions and recommendations represented herein, is at the sole risk of said users. The conclusions drawn from the Hydrogeological report were based on information at selected observation and sampling locations. Different conditions between and beyond these locations may become apparent during future investigations or on-site work, which could not be detected or anticipated at the time of this investigation. DS Consultants Ltd. cannot be held responsible for hydrogeological conditions at the site that was not apparent from the available information.

Should you have any questions regarding these findings, please do not hesitate to contact the undersigned.

DS Consultants Ltd.

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9.0 REFERENCES

Approved Source Protection Plan: CTS Source Protection Region. Prepared by CTC Source Protection Region, July 2015.

Chapman, L.J., and D.F. Putnam; The Physiography of Southern Ontario, Third Edition, Ontario Geological Survey Special Volume 2; 1984, & 2007.

Freeze, R.A. and J.A. Cherry. “Groundwater”. Prentice-Hall, Inc. Englewood Cliffs, NJ. 1979.

Ontario Regulation 140/02- Oak Ridges Moraine Conservation Act- 2001

Ontario Regulation 153/04 made under the Environmental Protection Act, July 1, 2011.

Ontario Regulation 245/11- Environmental Activity and Sector Registry.

SCS Consulting Group Ltd. (SCS), 2026. Potential L.I.D. Locations, 5061 Stouffville Road, Stouffville Expansion Area, Drawing 2234P-3.7, September 2026.

SCS Consulting Group Ltd. (SCS), 2026. Water Balance Sizing Calculations, Stouffville Expansion Area, Project No. 2234B, September 2026.

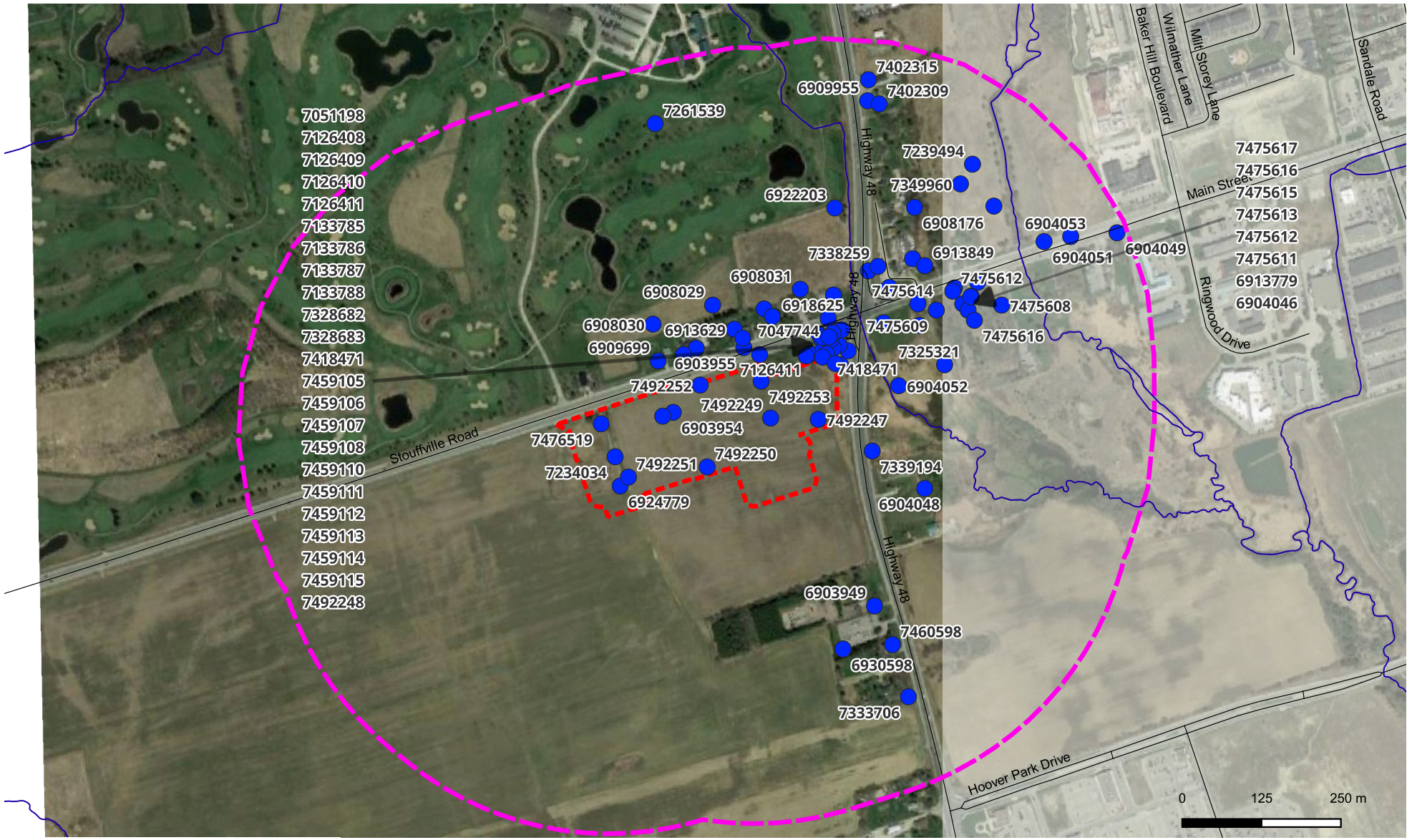
SCS Consulting Group Ltd. (SCS), 2026. Proposed Storm Drainage Plan, 5061 Stouffville Road, Stouffville Expansion Area, Drawing 2234P-3.3, September 2026.

DS Consultants Ltd. (DS), 2019. Preliminary Hydrogeological Investigation, 4721 & 5061 Stouffville Road, Whitchurch-Stouffville, Ontario. Project No. 19-043-100, June 12, 2019.

DS Consultants Ltd. (DS), 2021. Geotechnical Investigation – Additional Work: Borehole Logs BH21-1 to BH21-20, Project No. 19-043-101, 4721 and 5061 Stouffville Road, Whitchurch-Stouffville, Ontario. Log set issued May 3, 2021.

DS Consultants Ltd. (DS), 2021. Preliminary Hydrogeological Investigation, 4721 & 5061 Stouffville Road, Whitchurch-Stouffville, Ontario. Project No. 19-043-101, July 8, 2021.

J:\-GIS\2019 PROJECTS\19-043-100 4721 and 5061 Stouffville Road_Times Group\1-QGIS\HydroG-101\NE Corner\Figure 1 – Site Location and MECP Well Records.qgs



Legend

- Approx Property Boundary
- 500m Buffer
- Registered Water Well (MECP WWR)

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5061-4721 Stouffville Road, Whitchurch-Stouffville, ON

Title: **SITE LOCATION AND MECP WELL RECORDS**

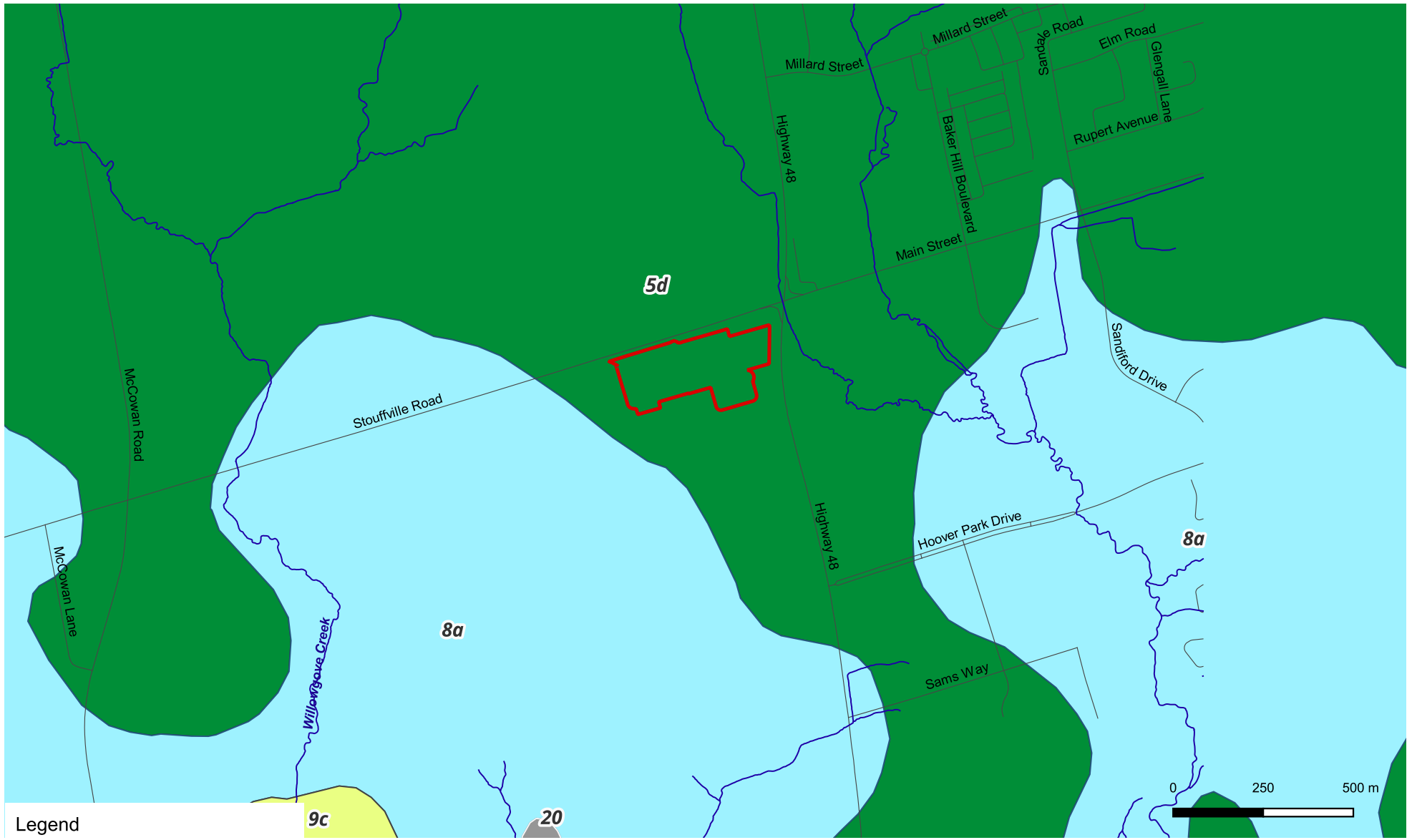
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Client: TIMES GROUP

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	S.W	S.Y	October 2026
Rev: 0	Scale: As Shown	Project No.: 19-043-101	Figure No.: 1

Image/Map Source: *Google Satellite Image*

J:\-GIS\2019 PROJECTS\19-043-100 4721 and 5061 Stouffville Road_Times Group\1-QGIS\HydroG-101\NE Corner\Figure 2 – Surficial Geology Map.qgs



Legend

- 500m Buffer
- Approx Property Boundary
- 20: wetlandorganic deposits
- 5d: Glacial Diamicton (Halton TIII)
- 8a: Glaciolacustrine clay / silt
- 9c: Glaciolacustrine Sand

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Title: **SURFICIAL GEOLOGY MAP**

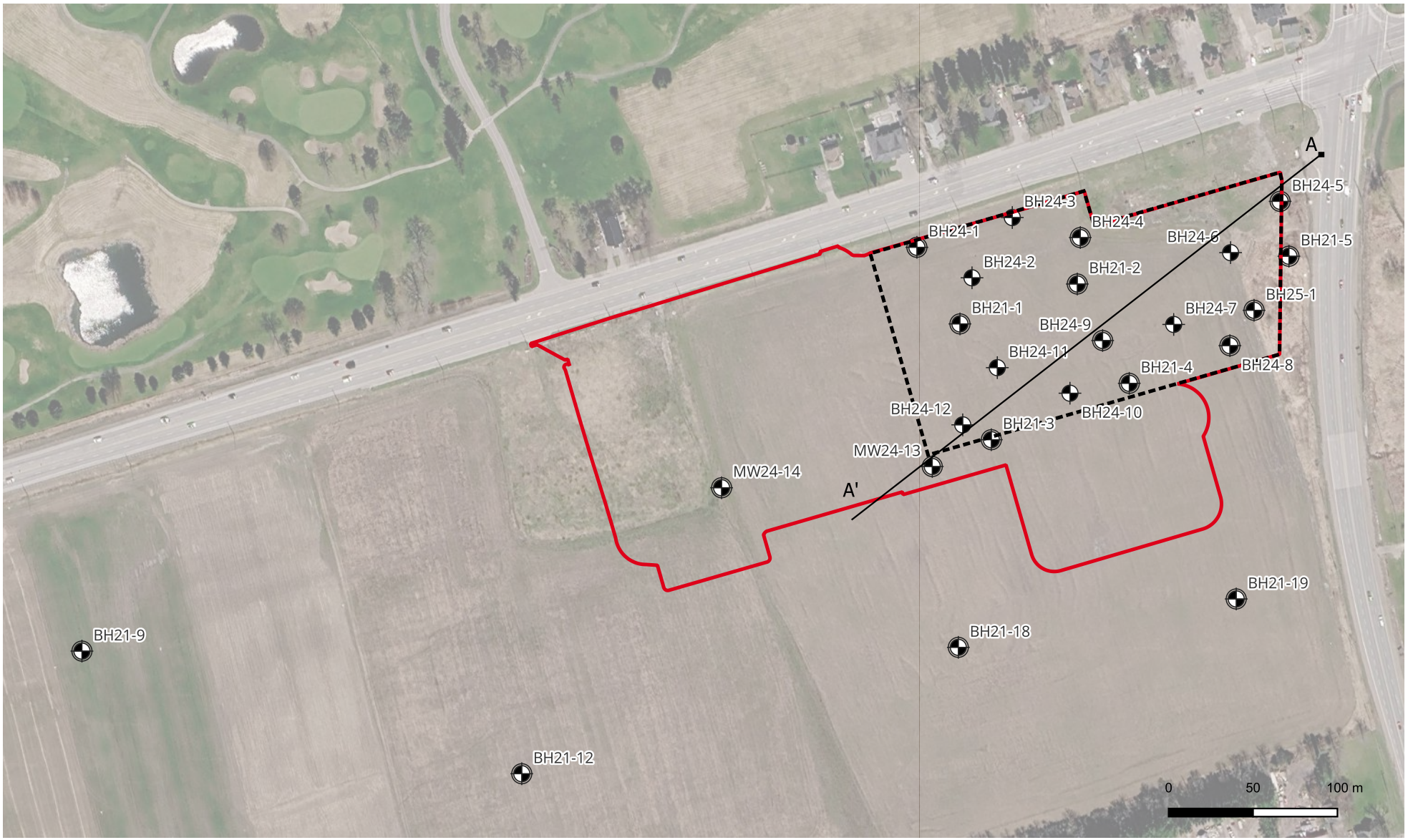
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Size:	Approved By:	Drawn By:	Date:
8.5 x 11	D.S	S.Y	October 2026
Rev: 0	Scale: As Shown	Project No.: 19-043-101	Figure No.: 2

Image/Map Source: *Esri Topo Map & https://www.mndm.gov.on.ca/*

J:\-GIS\2019 PROJECTS\19-043-100 4721 and 5061 Stouffville Road_Times Group\1-QGIS\HydroG-101\NE Corner\Figure 3 – Borehole and Monitoring Well Locations (updated 2026).qgs



Legend

- Site Plan Boundary
- ZBA Study Area Boundary
- Borehole Locations
- Borehole / Monitoring Well Locations

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5061-4721 Stouffville Road, Whitchurch-Stouffville, ON

Title: **BOREHOLE AND MONITORING WELL LOCATION MAP**

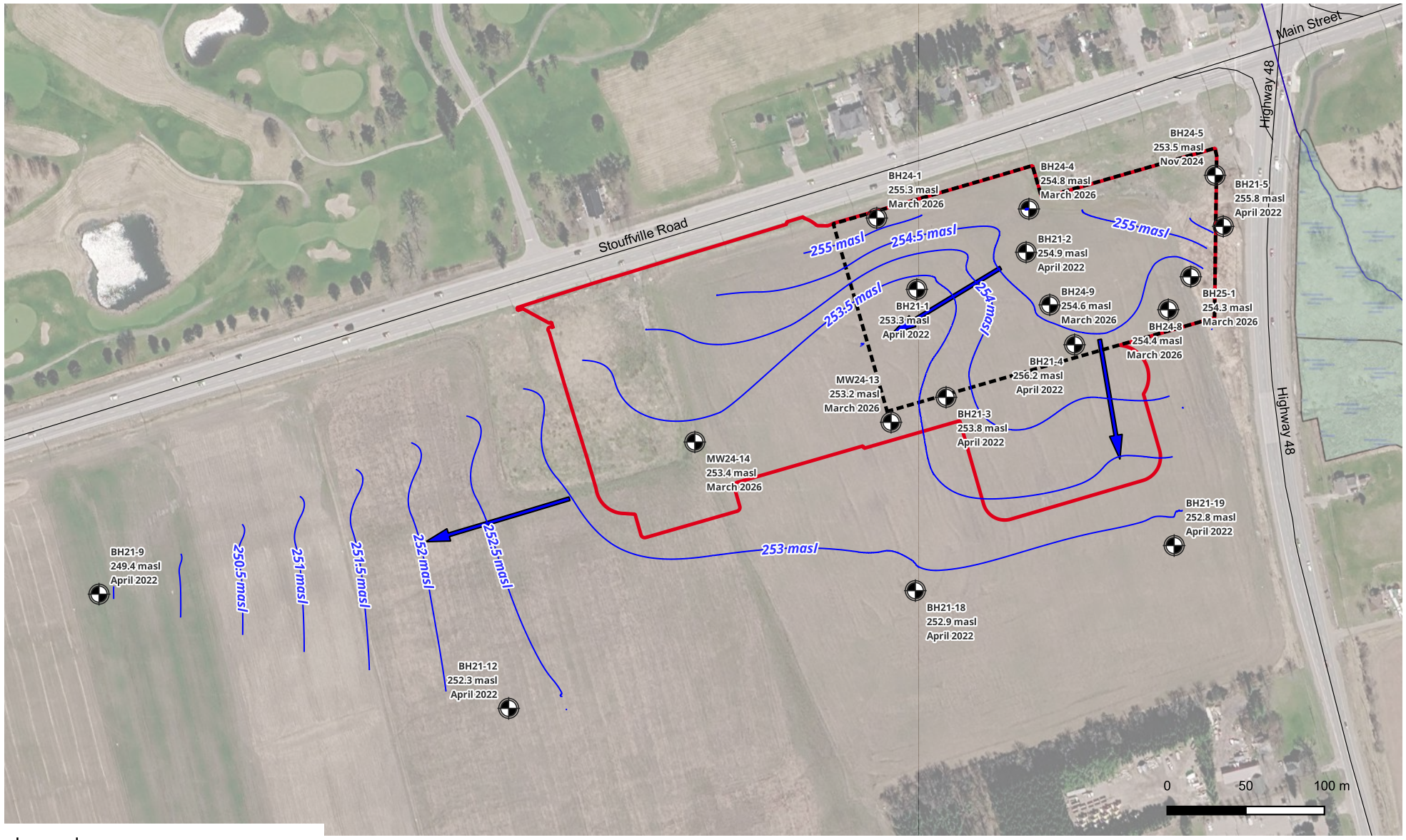
N

Client: TIMES GROUP

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	S.W	S.Y	October 2026
Rev: 0	Scale: As Shown	Project No.: 19-043-101	Figure No.: 3

Image/Map Source: *Google Satellite Image*

J:\-GIS\2019 PROJECTS\19-043-100 4721 and 5061 Stouffville Road_Times Group\1-QGIS\HydroG-101\NE Corner\Figure 4 - GW Elevation Contours and Flow Direction (updated 2026).qgs



Legend

- Site Plan Boundary
- ZBA Study Area Boundary
- Borehole / Monitoring Well Locations
- Groundwater Flow Direction
- Little Rouge Creek at Stouffville Wetland Complex

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Project: HYDROGEOLOGICAL INVESTIGATION
5061-4721 Stouffville Road, Whitchurch-Stouffville, ON

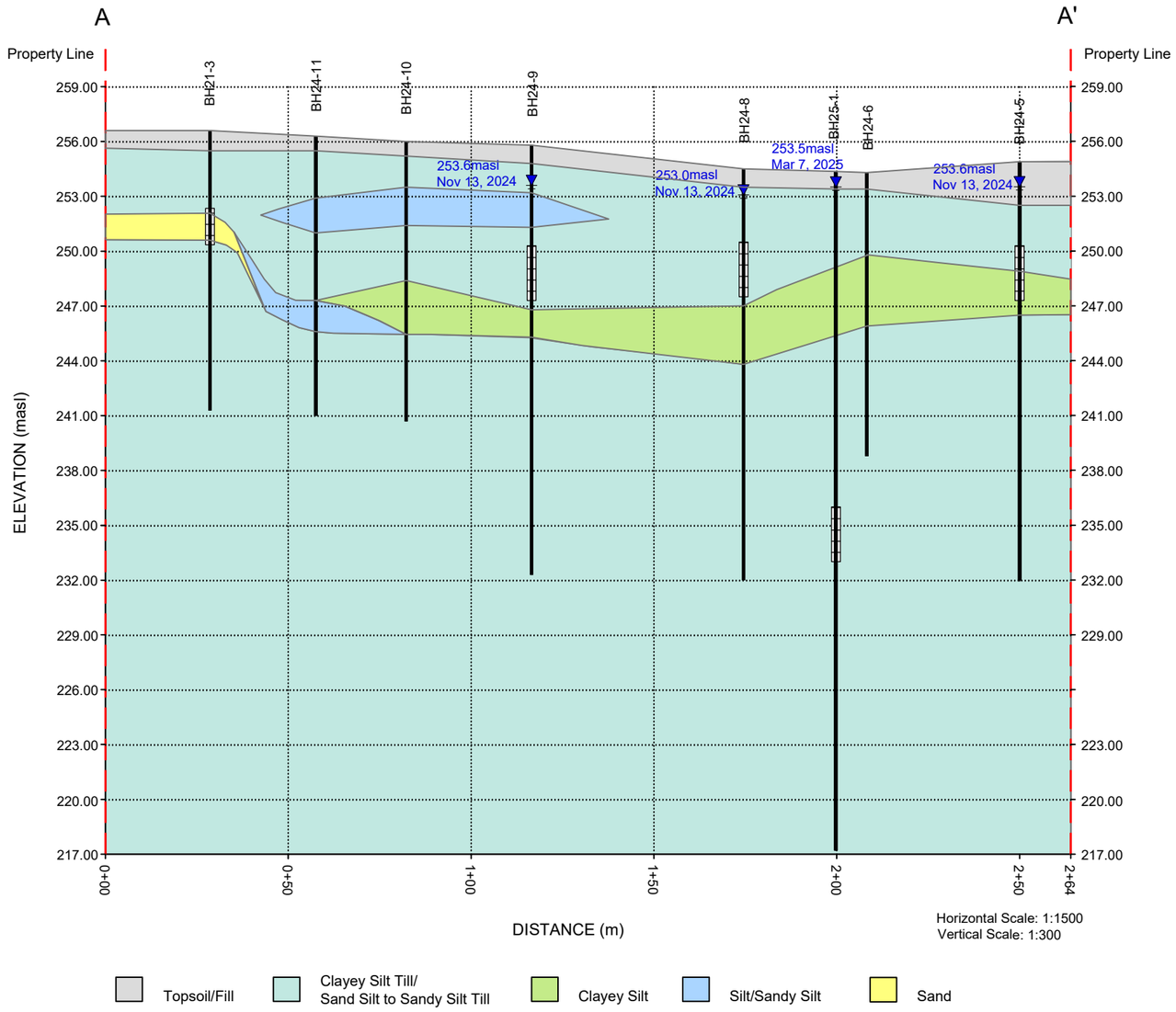
Title: **GROUNDWATER FLOW DIRECTION MAP**

N

Client: TIMES GROUP

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	S.W	S.Y	October 2026
Rev: 0	Scale: As Shown	Project No.: 19-043-101	Figure No.: 4

Image/Map Source: *Google Satellite Image*



Path:j:\-gis\2019 projects\19-043-100 4721 and 5061 stouffville road _times group\7-misc\cad\geological cross section - ne.dwg

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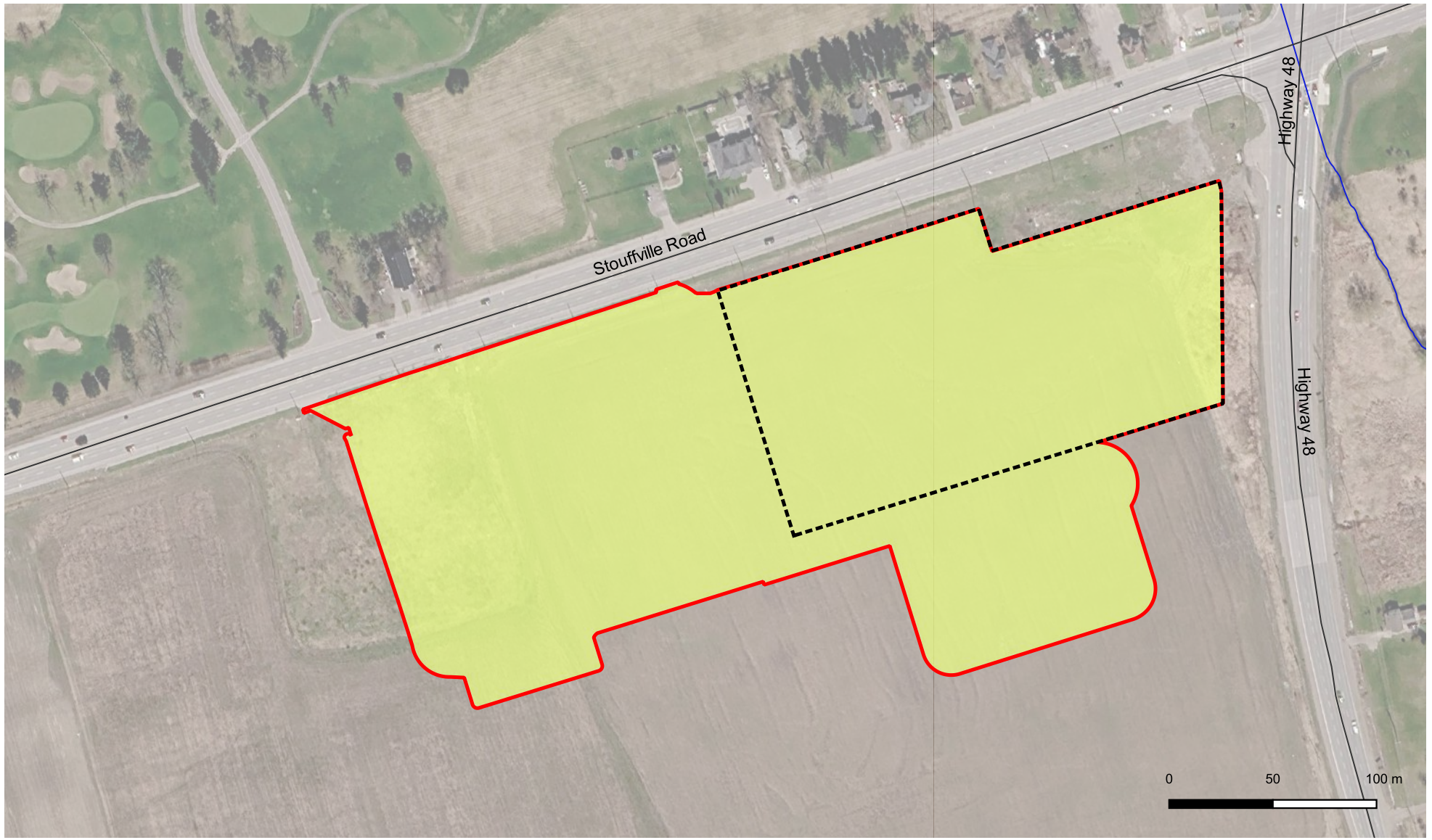
Client: TIMES GROUP

Project: HYDROGEOLOGICAL INVESTIGATION
5061-4721 Stouffville Road, Whitchurch-Stouffville, ON

Title: **GEOLOGICAL CROSS SECTION A-A'**

Size:	Approved By:	Drawn By:	Date:
11 X 17	D.S	S.Y	April 2025
Rev.	Scale: As Shown	Project No: 19-043-101	Figure No. **5**

J:\-GIS\2019 PROJECTS\19-043-100 4721 and 5061 Stouffville Road_Times Group\1-QGIS\HydroG-101\NE Corner\Waterbalance\Figure 1 - Pre Development Landuse.qgs



Legend

- Site Plan Boundary
- ZBA Study Area
- Agricultural and Open Space

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Project: HYDROGEOLOGICAL INVESTIGATION
5061-4721 Stouffville Road, Whitchurch-Stouffville, ON

Title: **PRE DEVELOPMENT LANDUSE**

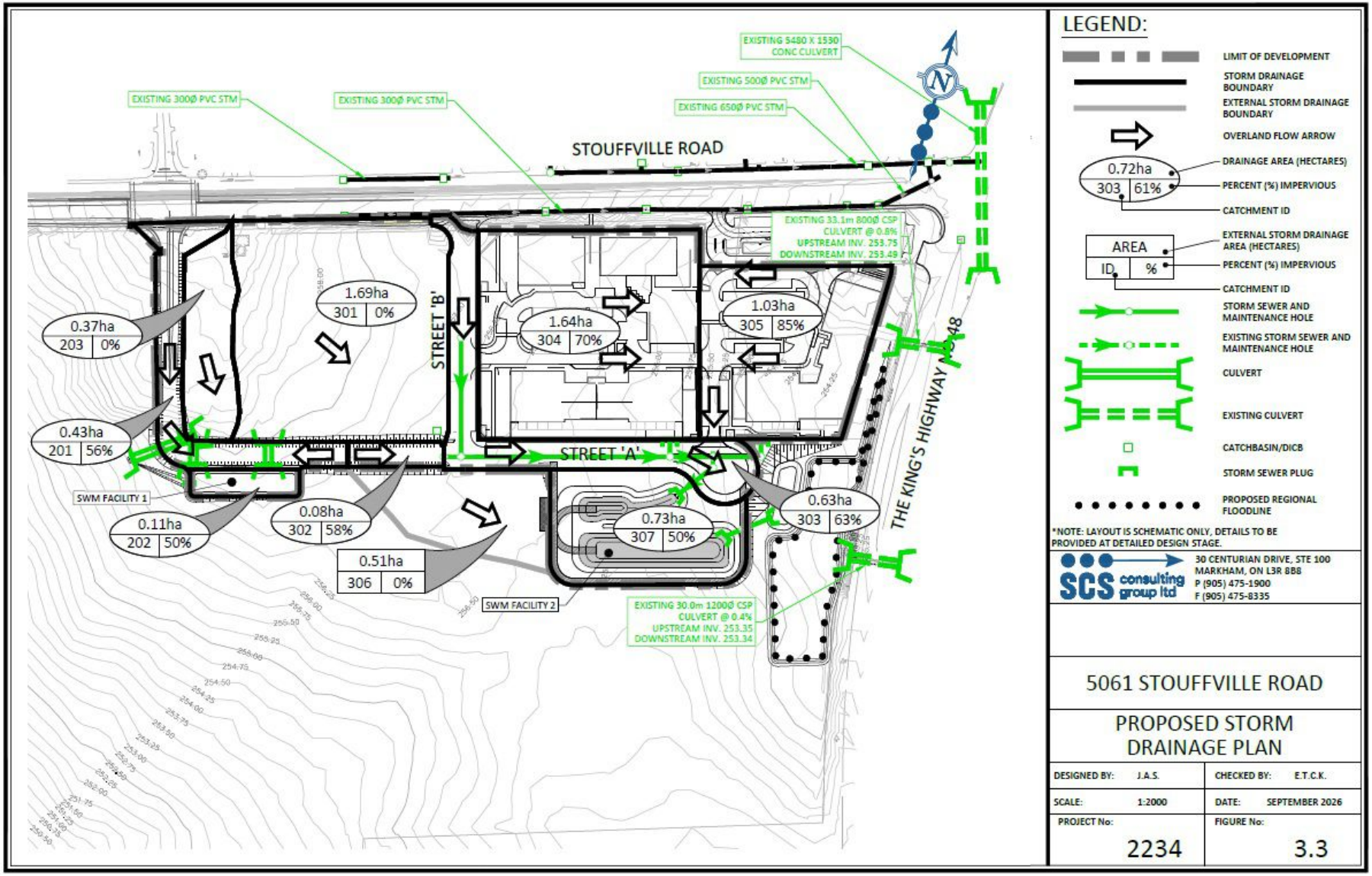
N

Client: TIMES GROUP

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	D.G	S.Y	October 2026
Rev: 0	Scale: As Shown	Project No.: 19-043-100	Figure No.: **6A**

Image/Map Source: *Google Satellite Image*

J:\-GIS\2019 PROJECTS\19-043-100 4721 and 5061 Stouffville Road_Times Group\1-QGIS\HydroG-101\NE Corner\Figure 6b - Post Development Landuse.qgs



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Project: HYDROGEOLOGICAL INVESTIGATION
5061-4721 Stouffville Road, Whitchurch-Stouffville, ON

Title: **POST DEVELOPMENT LANDUSE**

N

Client: TIMES GROUP

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	S.W	S.Y	October 2026
Rev: 0	Scale: As Shown	Project No.: 19-043-100	Figure No.: **6B**

Image/Map Source: *Google Satellite Image*

APPENDIX A

Borehole Logs

4721 & 5061 Stouffville Road
Whitchurch-Stouffville, Ontario

INCLUDED MATERIAL

BH19-5 — May 2019

BH21-1 to BH21-20 — February–March 2021

BH24-1 to BH24-12 — October–November 2024

BH25-1 — February 2025

Original borehole log sheets are reproduced in their issued format.

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LOG OF BOREHOLE BH19-5

PROJECT: Preliminary Geotechnical Investigation
CLIENT: Times Group Corp
PROJECT LOCATION: 4721 to 5061 Stouffville Road, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4869147.9 E 637851

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: May/01/2019

REF. NO.: 19-043-100
ENCL NO.: 6

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS / 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION
254.3						W. L. 254.6 m May 23, 2019	254
254.2 0.1	**TOPSOIL:** 125mm		1	SS	5		
253.5 0.8	**FILL:** silty clay, trace sand, brown, moist, firm						253
1	**SANDY SILT TILL:** trace to some clay, some gravel, occasional cobble/boulder, brown, wet, compact to very dense		2	SS	10		
			3	SS	14		252
2			4	SS	78		
3	some clay, grey, moist below 3.1m		5	SS	94		251
4							250
5			6	SS	86		
248.2 6.1							249
	CLAYEY SILT TILL: sandy, trace gravel, grey, moist, hard		7	SS	40		248
7 246.7 7.6							247
	SILT TO SANDY SILT: some clay, grey, moist, dense		8	SS	46		
8 245.2 9.1							246
	CLAYEY SILT TILL: sandy, trace gravel/ cobble, grey, moist, hard		9	SS	36		245
10							244
11			10	SS	47		
12 242.1 12.2							243
	SILTY SAND TO SANDY SILT TILL: trace to some clay, trace cobbles, grey, moist, very dense		11	SS	86		242
13 241.0 13.3							241
	SAND AND GRAVEL: trace silt, grey, wet, dense		12	SS	39		
14 15 239.1 15.2	**END OF BOREHOLE**						240

Notes:
1) 50mm dia. monitoring well installed at 15.2 mbgl upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
May 23, 2019	-0.30 (above ground surface)

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)
SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
(20 40 60 80 100)

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)

POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)

METHANE AND GRAIN SIZE DISTRIBUTION (%)				
GR	SA	SI	CL	
19	33	38	10	

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 19-043-100; 4271 STOUFFVILLE.GPJ DS.GDT 7/16/19

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LOG OF BOREHOLE BH21-1

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4869159.459 E 637854.913

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Feb-11-2021

REF. NO.: 19-043-101
ENCL NO.: 8

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
254.5					
254.2 / 0.0	**TOPSOIL:** 300mm	1	SS	7	
253.7 / 0.3	**CLAYEY SILT:** some sand, trace gravel, brown, moist, firm (weathered)				
253.5 / 1.0	**SILTY SAND:** trace clay, trace gravel, brown, wet, compact	2	SS	17	
	SANDY SILT TILL: trace clay, trace gravel, brown, moist, compact to dense	3	SS	17	
		4	SS	20	252
		5	SS	36	251
	grey below 4.5m	6	SS	31	250
248.5					249
6.0	**CLAYEY SILT TILL:** some sand, trace gravel, grey, moist, very stiff	7	SS	25	248
		8	SS	19	247
		9	SS	17	246
		10	SS	22	245
242.3					244
12.2	**SAND AND GRAVEL:** silty, trace cobble, trace clay, grey, saturated, compact	11	SS	29	243
240.8					242
13.7	**SILTY SAND TILL:** trace clay, trace gravel, brown, wet, compact to very dense	12	SS	21	241
		13	SS	52	240
238.7					239
15.8	**END OF BOREHOLE**				

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	1.37
Feb. 25, 2021	0.4

GROUND WATER CONDITIONS: W. L. 254.1 m Feb 21, 2025; W. L. 253.1 m Apr 13, 2021

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)

SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE

PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

METHANE AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
2	17	54	27

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

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LOG OF BOREHOLE BH21-10

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4868532.915 E 637163.443

DRILLING DATA
Method: Solid Stem Auger/ Mud Rotary
Diameter: 2150mm
Date: Mar-01-2021

REF. NO.: 19-043-101
ENCL NO.: 17

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION
249.0 / 0.0	**TOPSOIL:** 405mm						
248.6 / 0.4	**SANDY SILT:** trace gravel, trace clay, brown, moist, loose (weathered)		1	SS	7		
248.2 / 0.8	**SILTY SAND TILL:** trace clay, trace gravel, brown, moist to very moist, compact to dense		2	SS	18	W. L. 248.1 m W. L. 247.9 m Mar 21, 2015	
			3	SS	35		247
246.7 / 2.3	**SANDY SILT TILL:** some clay, trace gravel/ cobble, brown, moist, compact grey below 3m		4	SS	18		246
			5	SS	10		245
244.5 / 4.5	**SILTY SAND TILL:** trace clay, trace gravel, grey, wet, dense		6	SS	45		244
243.0 / 6.0	**GRAVELLY SAND:** trace clay, trace cobble, trace silt, grey, saturated, compact		7	SS	28		243
241.5 / 7.5	**SILTY SAND:** trace clay, some gravel to gravelly, trace cobble, grey, wet, very dense		8	SS	95/ 230mm		242
			9	SS	54		241
238.5 / 10.5	**SANDY SILT:** some clay, trace gravel, clay seams, grey, wet, dense		10	SS	41		240
236.8 / 12.2	**SILTY SAND:** trace clay, grey, wet, very dense		11	SS	85		239
236.4 / 12.6	**SAND:** some silt, grey, wet, very dense						238
235.5 / 13.5	**SILTY SAND:** trace clay, grey, wet, very dense		12	SS	70		237
							236
233.2 / 15.8	**END OF BOREHOLE** Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water level readings: Date: W.L. Depth (m): April 13, 2021 0.87 March 15, 2021 1.1		13	SS	76		235 234

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

METHANE AND GRAIN SIZE DISTRIBUTION (%)	GR	SA	SI	CL
	6	43	41	10
	21	53	22	4
	0	46	53	1

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

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

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LOG OF BOREHOLE BH21-11

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4868333.727 E 637116.835

DRILLING DATA
Method: Solid Stem Auger/ Mud Rotary
Diameter: 150mm
Date: Feb-23-2021

REF. NO.: 19-043-101
ENCL NO.: 18

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
245.3					
0.0 / 244.9	**TOPSOIL:** 355mm	1	SS	12	245
0.4 / 244.5	**SANDY SILT:** trace gravel, trace clay, trace topsoil/ organic, brown, moist, compact (weathered)				
1 0.8	**SANDY SILT TILL:** trace clay, trace gravel, brown, very moist, compact	2	SS	10	244
2 243.0		3	SS	26	243
2.3	**SILT:** some clay, brown, wet, compact to dense	4	SS	21	
3 241.9		5	SS	31	
3.4	**SILTY SAND:** trace clay, brown, wet, dense				
4	grey below 4.5				241
240.4		6	SS	16	
4.9	**CLAYEY SILT TILL:** trace sand, trace gravel, grey, moist, very stiff to hard				
6		7	SS	21	239
7					238
8		8	SS	48	
9					237
		9	SS	50/ 150mm	236
10 234.8					235
10.5	**SANDY SILT TILL:** trace clay, trace gravel/ cobble, grey, wet, very dense	10	SS	50/ 125mm	
11					234
12 233.0					
12.3	**END OF BOREHOLE**	11	SS	50/ 100mm	233

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	2.5
March 22, 2021	2.8

GROUND WATER CONDITIONS: W. L. 242.8 m; W. L. 242.5 m; Mar 21, 2022

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)

SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

METHANE AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
0	6	83	11

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

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

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LOG OF BOREHOLE BH21-12

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4868835.857 E 637416.19

DRILLING DATA
Method: Solid Stem Auger/ Mud Rotary
Diameter: 150mm
Date: Mar-03-2021

REF. NO.: 19-043-101
ENCL NO.: 19

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION
251.7							
250.4 0.0	**TOPSOIL:** 305mm						
0.3 250.9	**CLAYEY SILT:** sandy, trace gravel, some organics, brown, moist, stiff(weathered)		1	SS	13		251
1 0.8	**SANDY SILT TILL:** trace clay, trace gravel/ cobble, brown, moist, compact		2	SS	17	W. L. 250.9 m Mar 21, 2015	
2			3	SS	12		250
	grey below 2.3m		4	SS	17		
248.7							249
3.0	**SANDY SILT:** trace clay, grey, moist, compact wet below 3.5m		5	SS	29		
4 247.2							248
4.5	**SILTY SAND TILL:** trace gravel/ cobble, grey, wet, very dense		6	SS	90/ 255mm		247
5 245.7							246
6.0	**SANDY SILT TILL:** trace clay, trace gravel/ cobble, grey, wet, very dense		7	SS	82/ 280mm		
7 244.2							245
7.5	**CLAYEY SILT:** some sand, trace gravel, sand seams, grey, moist, hard		8	SS	58		244
8 242.7							243
9.0 242.2	**CLAYEY SILT TILL:** some sand, trace gravel, sand seams, grey, moist, hard		9	SS	59		
9.5	**SAND AND GRAVEL:** trace silt, trace clay, grey, saturated, very dense						242
10 241.2							
10.5	**SILTY SAND:** trace clay, some gravel, grey, wet, dense to very dense		10	SS	70		241
11							
12	gravelly below 12.2m		11	SS	41		240
238.9							239
12.8	**END OF BOREHOLE**						

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	0.79
March 15, 2021	0.8

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

METHANE AND GRAIN SIZE DISTRIBUTION (%)

	GR	SA	SI	CL
3	6	41	43	10
10	14	49	32	5

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

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LOG OF BOREHOLE BH21-13

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4868636.425 E 637407.141

DRILLING DATA
Method: Solid Stem Auger/ Mud Rotary
Diameter: 150mm
Date: Mar-03-2021

REF. NO.: 19-043-101
ENCL NO.: 20

ELEV / DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
248.1												
0.0 / 247.7	**TOPSOIL:** 405mm		1	SS	14		W. L. 248.1 m Mar 21, 2015					
0.4 / 247.3	**CLAYEY SILT:** sandy, trace gravel, trace organics, brown, moist, stiff (weathered)						247					
0.8	**CLAYEY SILT TILL:** sandy, trace gravel, brown, moist, firm to very stiff		2	SS	14							
			3	SS	27		W. L. 246.7 m Mar 21, 2015					
							Bentonite					
			4	SS	17							
	wet sand seams below 3m						245					
			5	SS	7							
243.6							244					
4.5	**SANDY SILT:** trace clay, grey, saturated, compact		6	SS	28							0 20 76 4
							Filter Pack Slotted Pipe					
242.1							242					
6.0	**CLAYEY SILT TILL:** trace sand, trace gravel, grey, moist, very stiff to hard		7	SS	45							
							241					
			8	SS	20							
							Bentonite					
							239					
			9	SS	30							
							238					
	wet sand seams below 10.5											
			10	SS	39		237					
							Filter Pack Slotted Pipe					
235.9							236					
12.2 / 235.5	**SAND AND GRAVEL:** some silt, trace clay, trace cobble, grey, saturated, very dense		11	SS	88/ 230mm							
12.6	**END OF BOREHOLE**											

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	0.2 (Shallow)
April 13, 2021	0.39 (Deep)
March 15, 2021	0.0 (shallow at ground surface)
March 15, 2021	1.4 (Deep)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

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LOG OF BOREHOLE BH21-14

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4868718.984 E 637661.309

DRILLING DATA
Method: Solid Stem Auger/ Mud Rotary
Diameter: 150mm
Date: Feb-22-2021

REF. NO.: 19-043-101
ENCL NO.: 21

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION
252.8							
252.8 0.0	**TOPSOIL:** 330mm						
0.3 252.0	**CLAYEY SILT:** sandy, trace gravel, brown, moist, very stiff (weathered)		1	SS	18		
0.8	**CLAYEY SILT TILL:** sandy, trace gravel, brown, moist, stiff		2	SS	9		
			3	SS	9		
250.5							
2.3 249.8	**SANDY SILT:** trace clay, brown, saturated, compact		4	SS	19		
3.0	**SAND:** trace clay, brown, saturated, disturbed		5	SS	disturbed		
248.3							
4.5	**CLAYEY SILT TILL:** some sand, trace gravel, trace cobble, wet sand seams, grey, moist, very stiff to hard		6	SS	19		
			7	SS	26		
			8	SS	28		
			9	SS	43		
			10	SS	84		
			11	SS	50		
240.6							
12.2 240.0	**SANDY SILT TILL:** trace clay, trace gravel, sand seams, grey, wet, very dense		12	SS	88/ 280mm		
12.8	**END OF BOREHOLE**						

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	0.85
Feb. 25, 2021	0.04

W. L. 252.8 m Feb 21, 2025
W. L. 252.0 m Apr 13, 2021

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)

SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)

POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)

METHANE AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
0	31	67	2

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

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LOG OF BOREHOLE BH21-15

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4868492.213 E 637585.892

DRILLING DATA
Method: Solid Stem Auger/ Mud Rotary
Diameter: 150mm
Date: Feb-25-2021

REF. NO.: 19-043-101
ENCL NO.: 22

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS "N" 0.3 m
248.2 / 0.0	**TOPSOIL:** 380mm	1	SS	14
247.8 / 0.4	**CLAYEY SILT:** trace gravel, trace clay, trace topsoil/ organic brown, moist, stiff (weathered)	2	SS	8
246.7 / 1.5	**CLAYEY SILT TILL:** some sand, trace gravel, grey, very moist, stiff to very stiff	3	SS	13
		4	SS	17
244.8 / 3.4	**SANDY SILT TILL:** trace clay, trace gravel, grey, wet, compact	5	SS	13
		6	SS	17
242.2 / 6.0	**CLAYEY SILT TILL:** trace sand, trace gravel, grey, moist, stiff to hard	7	SS	10
		8	SS	30
239.2 / 9.0	**SANDY SILT TILL:** trace clay, trace gravel/ cobble, clay seams, grey, saturated, dense to very dense	9	SS	45
		10	SS	50/ 125mm
236.0 / 12.3	**SILTY SAND TILL:** trace clay, trace gravel/ cobble, grey, wet, very dense	11	SS	50/ 125mm
	END OF BOREHOLE			

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	0.33
March 22, 2021	0.7

W. L. 247.8 m
Apr 13, 2021
W. L. 247.5 m
Mar 21, 2022

DYNAMIC CONE PENETRATION RESISTANCE PLOT
SHEAR STRENGTH (kPa)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE
PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L
WATER CONTENT (%)

METHANE AND GRAIN SIZE DISTRIBUTION (%)				
GR	SA	SI	CL	
0	2	60	38	

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

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LOG OF BOREHOLE BH21-16

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4868483.757 E 637782.84

DRILLING DATA
Method: Solid Stem Auger/ Mud Rotary
Diameter: 150mm
Date: Feb-25-2021

REF. NO.: 19-043-101
ENCL NO.: 23

ELEV / DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) / WATER CONTENT (%)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
250.2											
249.9	**TOPSOIL:** 305mm		1	SS	7		250				
0.3 / 249.4	**SANDY SILT:** trace gravel, trace clay, trace topsoil/ organic brown, moist, loose (weathered)										
1 0.8	**SANDY SILT TILL:** some clay, trace gravel/ cobble, brown, moist, compact to dense		2	SS	12		249				
2			3	SS	18						
			4	SS	30		248				
3						▼		W. L. 247.3 m Apr 13, 2021			
			5	SS	49	▽		W. L. 246.7 m Feb 21, 2025			
4 245.7							246				
4.5	**CLAYEY SILT TILL:** some sand, trace gravel/ cobble, grey, moist, hard		6	SS	30		245				
6											
			7	SS	42		244				
7 242.7							243				
7.5	**SANDY SILT TILL:** trace clay, trace gravel/ cobble, grey, wet, very dense		8	SS	50/ 150mm						
8							242				
9			9	SS	50/ 25mm		241				
10 239.5							240				
10.7	**SILTY SAND:** trace clay, gravelly/ cobble, grey, wet, very dense		10	SS	50/ 150mm						32 43 21 4
11							239				
12			11	SS	50/ 25mm		238				
13 236.5							237				
13.7	**SAND:** some gravel, trace silt, grey, wet, very dense		12	SS	50/ 150mm						
14							236				
15 235.0											
15.2	**SANDY SILT TILL:** trace clay, trace gravel, grey, wet, very dense		13	SS	50/ 25mm		235				
15.5	**END OF BOREHOLE**										

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	2.89
Feb. 25, 2021	3.5

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

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

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

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LOG OF BOREHOLE BH21-17

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4868704.503 E 637817.651

DRILLING DATA
Method: Solid Stem Auger/ Mud Rotary
Diameter: 150mm
Date: Feb-23-2021

REF. NO.: 19-043-101
ENCL NO.: 24

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION
255.4							
255.0 0.0	**TOPSOIL:** 305mm		1	SS	10		255
0.3 254.6	**SANDY SILT:** trace topsoil, trace clay, brown, moist, compact (weathered)						
1 0.8	**SANDY SILT TILL:** trace clay, trace gravel, occasional cobble, brown, moist, compact		2	SS	13		254
2			3	SS	25		
3			4	SS	18	▽	253
251.9			5	SS	26	▼	
3.5	**SANDY SILT:** trace clay, trace gravel, brown, moist, compact						
4 250.9							251
4.5	**SAND:** some silr, trace clay, trace gravel, brown, wet, compact to dense		6	SS	32		
5							250
6			7	SS	28		249
7 247.9							248
7.5	**CLAYEY SILT TILL:** some sand, trace gravel, trace cobble, wet sand seams, grey, moist, very stiff to hard		8	SS	23		
8							247
9			9	SS	37		246
10							245
11			10	SS	60		244
12 243.2							
12.2 242.7	**SANDY SILT TILL:** trace clay, trace gravel, trace cobble, grey, moist, very dense		11	SS	68		243
12.7	**END OF BOREHOLE**						

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	3.43
Feb. 25, 2021	2.8

W. L. 252.6 m Feb 21, 2025
W. L. 252.0 m Apr 13, 2021

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

METHANE AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
0	87	12	1

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

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

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LOG OF BOREHOLE BH21-18

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4868939.962 E 637680.96

DRILLING DATA
Method: Hollow Stem Auger/ Mud Rotary
Diameter: 200mm
Date: Feb-16-2021

REF. NO.: 19-043-101
ENCL NO.: 25

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS
256.5 / 0.0	**TOPSOIL:** 305mm				
0.3 / 255.7	**SANDY SILT:** trace clay, trace gravel, trace topsoil/ rootlets, brown, moist, compact (weathered)	1	SS	21	
0.8	**SANDY SILT:** some clay, brown, wet to moist, loose	2	SS	8	
1		3	SS	7	
2 / 254.2					
2.3	**SILTY SAND:** trace clay, brown, moist, dense	4	SS	38	
3 / 253.1		5	SS	27	▽
3.4	**SAND:** some silt, trace clay, brown, wet, compact				W. L. 253.0 m Feb 21, 2025 Apr 13, 2021
4 / 252.0					
4.5	**SILTY SAND:** trace clay, brown, wet, compact	6	SS	22	
5 / 250.5					
6.0	**SAND:** trace silt, trace gravel, brown, wet, compact	7	SS	17	
7 / 249.0					
7.5	**SANDY SILT TILL:** trace clay, trace gravel, trace cobble, grey, wet, very dense	8	SS	50/ 125mm	
8 / 247.5					
9.0	**CLAYEY SILT TILL:** some sand, trace gravel, trace cobble, grey, moist, very stiff to hard	9	SS	26	
10	wet sand seams below 10.5m	10	SS	30	
11 / 244.3					
12.2	**SANDY SILT TILL:** some clay, trace gravel, trace cobble, grey, wet, very dense	11	SS	74	
13		12	SS	50/ 75mm	
14 / 241.3					
15.2 / 240.7	**CLAYEY SILT TILL:** sandy, trace gravel, trace cobble, grey, moist, hard	13	SS	46	
15.8	**END OF BOREHOLE**				

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	3.7
Feb. 25, 2021	3.5

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)
SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE
PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)
METHANE AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

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LOG OF BOREHOLE BH21-19

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4868978.231 E 637843.715

DRILLING DATA
Method: Solid Stem Auger/ Mud Rotary
Diameter: 150mm
Date: Mar-04-2021

REF. NO.: 19-043-101
ENCL NO.: 26

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION
255.8							
0.0 / 255.4	**TOPSOIL:** 380mm		1	SS	15		
0.4 / 255.0	**SANDY SILT:** trace clay, trace gravel, trace organics, brown, moist, compact (weathered)						255
1 0.8	**SANDY SILT TILL:** some clay, trace gravel, brown, moist, compact		2	SS	13	▽ W. L. 254.7 m Feb 21, 2028	
2 253.5			3	SS	12		254
2.3 / 252.8	**SILT:** trace clay, trace sand, brown, wet, compact		4	SS	23		253
252.6	**SANDY SILT:** trace clay, brown, wet, compact		5	SS	28	▽ W. L. 252.8 m Apr 13, 2021	
3.3	**SAND:** some silt, trace clay, brown, wet, compact						252
4 251.3							
4.5	**CLAYEY SILT TILL:** some sand, trace gravel, trace cobble, grey, moist, very stiff		6	SS	28		251
5							
6			7	SS	16		250
7	sand seams at 7.5m						249
8			8	SS	27		248
9							247
10			9	SS	28		246
11			10	SS	24		245
12 243.6							244
243.3	**SANDY SILT TILL:** trace clay, trace gravel, grey, moist, very dense		11	SS	50/ 25mm		
12.5	**END OF BOREHOLE**						

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	2.96
Feb. 28, 2021	1.1

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

METHANE AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

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

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

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LOG OF BOREHOLE BH21-2

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4869127.615 E 637803.503

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Feb-11-2021

REF. NO.: 19-043-101
ENCL NO.: 9

ELEV / DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
255.2								
255.0 0.0	**TOPSOIL:** 300mm							
254.8 0.3	**SANDY SILT:** trace clay, trace gravel, trace organics, brown, moist, compact (weathered)		1	SS	13			
254.4 0.8	**CLAYEY SILT TILL:** sandy, trace gravel/ cobble, grey, moist, stiff to hard		2	SS	14		W. L. 255.2 m Feb 21, 2025	
			3	SS	24		W. L. 254.1 m Apr 13, 2021	
	No recovery at 2.3m		4	SS	60			
252.2 3.0	**SANDY SILT TILL:** clay seams, trace gravel/ cobble, grey, moist, dense to very dense		5	SS	37			9 30 46 15
	some clay below 4.5m		6	SS	33			
			7	SS	58			
247.7 7.5	**CLAYEY SILT TILL:** some sand to sandy, trace gravel/ cobble, grey, moist, very stiff to hard		8	SS	25			
			9	SS	30			0 2 62 36
244.5 10.7	**SANDY SILT TILL:** some clay, trace gravel/ cobble, grey, wet, compact		10	SS	15			
243.0 12.2	**SAND:** trace clay, trace gravel, grey, saturated		11	SS	disturbed			
241.5 13.7	**SANDY SILT TILL:** trace clay, trace gravel/ cobble, grey, moist, very dense		12	SS	50/ 125mm			
239.7 15.5	**END OF BOREHOLE**		13	SS	50/ 100mm			

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	1.18
Feb. 25, 2021	- 0.02 (above ground)

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)
SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE
PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

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LOG OF BOREHOLE BH21-20

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4868555.285 E 636982.483

DRILLING DATA
Method: Solid Stem Auger/ Mud Rotary
Diameter: 150mm
Date: Mar-01-2021

REF. NO.: 19-043-101
ENCL NO.: 27

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS "N" 0.3 m
246.4 / 0.0	**TOPSOIL:** 380mm	1	SS	10
246.0 / 0.4	**CLAYEY SILT:** sandy, trace gravel, trace organics/ topsoil, brown, moist, firm to stiff (weathered)	2	SS	5
244.9 / 1.5	**CLAYEY SILT TILL:** sandy, trace gravel/ cobble, sand seams, brown, very moist, hard	3	SS	43
244.6 / 1.8	**SANDY SILT TILL:** trace clay, trace gravel/ cobble, brown, moist, dense	4	SS	50
244.1 / 2.3	**SILTY SAND:** trace clay, brown, wet, very dense	5	SS	26
242.0 / 4.4	**CLAYEY SILT TILL:** some sand, trace gravel/ cobble, sand seams, brown, moist, very stiff to hard grey below 3m	6	SS	33
240.4 / 6.0	**SANDY SILT:** trace gravel, trace clay, grey, saturated, very dense	7	SS	80/ 280mm
237.4 / 9.0	**SANDY SILT TILL:** trace clay, trace gravel/ cobble, clay seams, grey, wet, very dense	8	SS	50
235.6 / 10.8	**SILTY SAND:** trace gravel, grey, saturated, dense to very dense	9	SS	94/ 280mm
232.9 / 13.5	**SILT:** some sand, trace clay, trace gravel, grey, wet, very dense	10	SS	45
231.2 / 15.2	**SANDY SILT TILL:** trace clay, trace gravel, grey, wet, very dense	11	SS	78
230.8 / 15.6	**END OF BOREHOLE**	12	SS	75
		13	SS	91/ 255mm

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	-0.83 (above ground surface)
March 15, 2021	-0.05 (above ground surface)

W. L. 247.2 m Apr 13, 2021
W. L. 246.3 m Mar 21, 2015

DYNAMIC CONE PENETRATION RESISTANCE PLOT
SHEAR STRENGTH (kPa)
UNCONFINED + FIELD VANE & Sensitivity
QUICK TRIAXIAL × LAB VANE
PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)

METHANE AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
1	26	68	5
1	14	83	2

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

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LOG OF BOREHOLE BH21-3

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4869091.791 E 637696.023

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Feb-16-2021

REF. NO.: 19-043-101
ENCL NO.: 10

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION
256.6 / 0.0	**TOPSOIL:** 380mm					
256.2 / 0.4	**CLAYEY SILT:** trace clay, trace gravel, trace topsoil, dark brown, moist, stiff to very stiff (weathered)	1	SS	21		256
255.5 / 1.1	**CLAYEY SILT TILL:** sandy, trace gravel, sand seams, brown, moist, stiff	2	SS	11		
254.3 / 2.3	**SANDY SILT TILL:** some clay, trace gravel/ cobbles, brown, moist, compact to dense	3	SS	11		255
		4	SS	22		254
		5	SS	36	W. L. 253.3 m W. L. 253.1 m Feb 21, 2025	253
252.1 / 4.5	**SAND:** some silt, trace clay, brown, saturated	6	SS	disturbed		252
250.6 / 6.0	**CLAYEY SILT TILL:** sandy, trace gravel, sand seams, grey, moist, very stiff to hard	7	SS	86/ 230mm		251
		8	SS	86/ 280mm		250
	trace sand below 9m	9	SS	24		249
245.9 / 10.7	**SANDY SILT TO SILTY SAND TILL:** trace clay, trace gravel, grey, wet, dense to very dense	10	SS	50/ 125mm		248
		11	SS	40		247
	moist below 13.7m	12	SS	50/ 125mm		246
241.3 / 15.3	**END OF BOREHOLE**	13	SS	50/ 125mm		245
						244
						243
						242

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	3.3
Feb. 25, 2021	3.5

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

METHANE AND GRAIN SIZE DISTRIBUTION (%)				
GR	SA	SI	CL	
4	30	55	11	
7	47	37	9	

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

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

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH21-4

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4869153.844 E 637681.724

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Feb-12-2021

REF. NO.: 19-043-101
ENCL NO.: 11

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
256.7					
256.4 0.0	**TOPSOILAND SILT:** 330mm	1	SS	16	
0.3 255.9	**CLAYEY SILT:** trace gravel, trace topsoil, brown, moist, very stiff (weathered)				
1 0.8		2	SS	15	
255.2	**CLAYEY SILT TILL:** sandy, trace gravel, brown, moist, very stiff				
1.5		3	SS	18	255
2	**SANDY SILT TILL:** trace clay, trace gravel/ cobble, brown, very moist, compact	4	SS	22	254
253.7					
3.0	**SANDY SILT:** trace clay, brown, wet, dense	5	SS	36	253
4 252.2					
4.5	**CLAYEY SILT TILL:** some sand, trace gravel, grey, moist, very stiff to hard	6	SS	20	252
5					
6		7	SS	34	251
7					250
8		8	SS	45	249
9					248
		9	SS	47	247
10 246.0					
10.7 11	**SANDY SILT TILL:** some clay, trace gravel/ cobble, grey, very moist, very dense	10	SS	50/ 125mm	246
12 244.4					245
12.3	**END OF BOREHOLE**	11	SS	50/ 125mm	

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	0.28
Feb. 25, 2021	1.9

W. L. 256.4 m Apr 13, 2021
W. L. 254.8 m Feb 21, 2025

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)

METHANE AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
3	16	54	27

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

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Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH21-5

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4869178.503 E 637758.266

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Feb-12-2021

REF. NO.: 19-043-101
ENCL NO.: 12

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
255.6 / 0.0	**TOPSOIL:** 330mm	1	SS	9	
0.3	**CLAYEY SILT:** trace sand, trace topsoil, brown, moist, stiff (weathered)				
254.5 / 1.1	**CLAYEY SILT TILL:** sandy, trace gravel/ cobble, grey, moist, very stiff to hard	2	SS	16	
		3	SS	15	
	grey below 2.7m	4	SS	43	
		5	SS	21	
	sand seams below 4.5m	6	SS	26	
		7	SS	25	
		8	SS	20	
246.6 / 9.0	**SANDY SILT TILL:** some clay, trace gravel/ cobble, grey, moist, very dense	9	SS	50/ 50mm	
244.9 / 10.7	**SAND:** some silt, trace clay, trace gravel, brown, wet, very dense	10	SS	94/ 280mm	
10.9	**SANDY SILT TILL:** trace clay, trace gravel, grey, moist, very dense				
243.1 / 12.5	**END OF BOREHOLE**	11	SS	50/ 25mm	

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	0.30
Feb. 25, 2021	- 0.02 (above ground)

W. L. 255.6 m
Feb 21, 2025
Apr 13, 2021

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)
SHEAR STRENGTH (kPa)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE
(20 40 60 80 100)
PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)
METHANE AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

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LOG OF BOREHOLE BH21-6

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4868618.626 E 636691.106

DRILLING DATA
Method: Solid Stem Auger/ Mud Rotary
Diameter: 150mm
Date: Feb-24-2021

REF. NO.: 19-043-101
ENCL NO.: 13

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
243.0												
0.0 / 242.6	**TOPSOIL:** 405mm		1	SS	15		242					
0.4 / 241.8	**CLAYEY SILT:** trace topsoil, trace gravel, brown, moist, firm to very sttiff (weathered)		2	SS	7							
241.6	**SILT:** some clay, brown, wet, loose											
1.5 / 241.2	**CLAYEY SILT TILL:** sandy, trace gravel/ cobble, grey, moist, very stiff		3	SS	22		241					
	grey below 2.3m		4	SS	23							5 34 44 17
			5	SS	19		240					
							239					
	wet sand seams at 4.5m		6	SS	17		238					
							237					
			7	SS	21							
235.5							236					
7.5 / 235.2	**SILTY SAND:** trace clay, some gravel, grey, wet, very dense		8	SS	56		235					13 51 30 6
233.6			9	SS	50/ (25mm)		234					
9.4	**END OF BOREHOLE** Notes: 1) Artesian conditions encountered at 9m 2) Water started flowing above ground and measured 2.1m above ground surface.											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

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LOG OF BOREHOLE BH21-7

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4868393.42 E 636804.207

DRILLING DATA
Method: Solid Stem Auger/ Mud Rotary
Diameter: 150mm
Date: Feb-23-2021

REF. NO.: 19-043-101
ENCL NO.: 14

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
241.7												
0.0 / 241.3	**TOPSOIL:** 430mm		1	SS	11							
0.4 / 240.9	**SANDY SILT:** trace gravel, trace topsoil/ organic brown, moist, compact (weathered)											
0.8 / 240.2	**SILTY CLAY:** sandy, trace gravel, brown, moist, stiff		2	SS	5							
1.5 / 239.4	**SANDY SILT TILL:** trace clay, trace gravel/ cobble, grey, moist, compact		3	SS	26		240					
2.3	**CLAYEY SILT TILL:** sandy, trace gravel/ cobble, grey, moist, very stiff to hard		4	SS	17		239					
			5	SS	31		238					3 24 56 17
			6	SS	31		237					
			7	SS	29		236					
			8	SS	23		235					
			9	SS	18		234					
	wet sand seams at 10.7m		10	SS	63/ 255mm		233					
229.5 / 12.2	**SANDY SILT TILL:** some clay, trace gravel, grey, moist, very dense		11	SS	50/ 125mm		232					9 35 42 14
			12	SS	50/ 125mm		231					
226.2	wet below 15.2m		13	SS	50/ 25mm		230					
15.5	**END OF BOREHOLE**						229					
							228					
							227					

W. L. 241.3 m
W. L. 241.1 m
Mar 21, 2022

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	0.43
March 22, 2021	0.6

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

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LOG OF BOREHOLE BH21-8

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4868816.941 E 636862.779

DRILLING DATA
Method: Solid Stem Auger/ Mud Rotary
Diameter: 150mm
Date: Feb-26-2021

REF. NO.: 19-043-101
ENCL NO.: 15

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) UNCONFINED + FIELD VANE & Sensitivity, QUICK TRIAXIAL × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
247.3						W. L. 248.1 m Apr 13, 2021						
0.0 246.9	**TOPSOIL:** 380mm		1	SS	15		W. L. 247.0 m Mar 21, 2015			42		
0.4 246.2	**SANDY SILT:** trace gravel, trace topsoil/ organic brown, moist, compact (weathered)		2	SS	19		246					
246.0 245.8 1.5	**SANDY SILT TILL:** trace clay, trace gravel, brown, moist, compact		3	SS	26		245					
245.0 2.3	**SAND AND GRAVEL:** some silt, trace clay, brown, wet, compact		4	SS	52		244					
	SANDY SILT TILL: trace clay, trace gravel, brown, moist, compact		5	SS	51		243					
	CLAYEY SILT TILL: some sand, trace gravel/ cobble, grey, moist, very stiff to hard		6	SS	23		242					8 24 49 19
240.9 6.4	**SANDY SILT TILL:** trace clay, trace gravel, grey, wet, dense		7	SS	49		241					
239.8 7.5 239.4 7.9	**SILTY SAND:** trace clay, trace gravel/ cobble, grey, wet, dense		8	SS	39		240					
	SANDY SILT TILL: trace clay, trace gravel/ cobble, grey, wet, dense to very dense		9	SS	31		239					
			10	SS	30		238					
			11	SS	50/ 25mm		237					
			12	SS	50/ 25mm		236					
231.8 15.5	clay seams at 15.4m **END OF BOREHOLE**		13	SS	50/ 25mm		235					4 40 40 16

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	-0.75 (above ground surface)
March 15, 2021	0.3

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

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LOG OF BOREHOLE BH21-9

PROJECT: Geotechnical Investigation - Additional Work
CLIENT: Times Group
PROJECT LOCATION: 4721 and 5061 Stouffville Rd, Whitchurch-Stouffvill, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4868927.43 E 637136.725

DRILLING DATA
Method: Hollow Stem Auger/ Mud Rotary
Diameter: 200mm
Date: Feb-17-2021

REF. NO.: 19-043-101
ENCL NO.: 16

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION
251.7 / 0.0	**TOPSOIL:** 300mm					
251.4 / 0.3	**SANDY SILT:** trace clay, trace topsoil, brown, moist, loose to compact (weathered)	1	SS	12		251
250.6 / 1.1	**SANDY SILT TILL:** some clay to clayey, trace gravel, brown, moist, loose to very dense	2	SS	7		
		3	SS	12		250
		4	SS	14		249
	trace clay, trace cobble below 3m	5	SS	51	W. L. 248.6 m Feb 21, 2025	
	grey below 4.5m	6	SS	39		247
245.7 / 6.0	**SILTY SAND:** trace clay, grey, wet, dense	7	SS	36		246
244.2 / 7.5	**SAND:** some silt, trace clay, grey, wet, compact	8	SS	12		245
243.8 / 7.9	**SILTY SAND:** trace clay, grey, wet, compact					244
242.7 / 9.0	**SAND AND GRAVEL:** some silt, trace gravel, grey, wet, dense	9	SS	34		243
242.4 / 9.3	**SAND:** some silt, trace clay, trace gravel, grey, wet, dense					242
241.0 / 10.7	**SAND AND GRAVEL:** some silt, trace gravel, grey, wet, dense	10	SS	41		241
239.5 / 12.2	**SILTY SAND TILL:** trace clay, trace gravel/ cobble, wet, very dense	11	SS	50/ 100mm		240
		12	SS	50/ 125mm		239
236.5 / 15.2	**SANDY SILT TILL:** some clay, trace gravel, grey, wet, very dense	13	SS	50/ 100mm		238
236.4 / 15.3	**END OF BOREHOLE**					237

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level readings:

Date:	W.L. Depth (m):
April 13, 2021	3.24
February 25, 2021	3.1

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

METHANE AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
6	34	48	12

DS SOIL LOG 19-043-101 4721 AND 5061 STOUFFVILLE RD ADDITIONAL WORK_TIMES GROUP.GPJ DS.GDT 21-5-3

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

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LOG OF BOREHOLE BH24-1

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869173.7 E 637660.6

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: Oct-24-2024

REF. NO.: 19-043-103
ENCL NO.: 2

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
256.6 / 0.0	**TOPSOIL:** 270mm				256
256.3 / 0.3	**FILL:** sandy silt, trace rootlets, trace gravel, dark brown to brown, moist, compact	1	SS	11	
255.8 / 0.8	**FILL:** clayey silt, sandy, trace organics, trace cobble, dark brown to brown, moist, stiff	2	SS	14	
255.0 / 1.6	**SANDY SILT TILL:** trace to some clay, trace gravel, occasional cobble, brown, moist, compact to dense clayey silt till layer at 2.6m	3	SS	21	255
		4	SS	34	254
253.6 / 3.0	**SILTY SAND:** trace clay, brown, wet, dense	5	SS	34	253
252.1 / 4.5	**SILTY CLAY TILL:** sandy, trace gravel, occasional cobble, grey, moist, hard	6	SS	75	252
		7	SS	54	251
249.1 / 7.5	**CLAYEY SILT:** trace sand, grey, moist, hard	8	SS	39	250
247.6 / 9.0	**SANDY SILT TO SILTY SAND TILL:** trace to some clay, trace gravel, occasional cobble, grey, moist to very moist, very dense	9	SS	50/ 130mm	249
		10	SS	50/ 130mm	248
		11	SS	50/ 130mm	247
		12	SS	50/ 130mm	246
		13	SS	50/ 130mm	245
		14	SS	50/	244
					243
					242
					241
					240

GROUND WATER CONDITIONS: W. L. 254.7 m Nov 19, 2024

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)
SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)

POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

	GR	SA	SI	CL
Switched to Mud Rotary				
	4	30	46	20
	6	36	46	12

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG-2021-FINAL 19-043-103GEO.GPJ DS.GDT 24-11-27

LOG OF BOREHOLE BH24-1

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869173.7 E 637660.6

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: Oct-24-2024

REF. NO.: 19-043-103
ENCL NO.: 2

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS / 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	SANDY SILT TO SILTY SAND TILL: trace to some clay, trace gravel, occasional cobble, grey, moist to very moist, very dense(Continued)				130mm							
18			15	SS	50/ 130mm		239		○			
19							238					
20			16	SS	50/ 130mm		237		○			
21							236					
	cobbles/boulders at 21.3m		17	SS	50/ 25mm		235					
22							234					
23 233.6												
23.0	**END OF BOREHOLE:** Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Nov. 19, 2024 1.9		18	SS	50/ 75mm				○			

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

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LOG OF BOREHOLE BH24-2

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869156.4 E 637693.6

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-28-2024

REF. NO.: 19-043-103
ENCL NO.: 3

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
256.3					
256.0 0.0	**TOPSOIL:** 270mm				
0.3	**FILL:** clayey silt, trace rootlets, trace organics, trace gravel, dark brown to brown, moist, stiff	1	SS	9	256
255.3		2	SS	10	
1.0	**CLAYEY SILT TILL:** sandy, trace gravel, brown, moist, stiff to very stiff	3	SS	10	255
2	silt layer at 2.3m	4	SS	23	254
253.3					
3.0	**SILT:** trace to some clay, trace sand, brown, wet, dense	5	SS	36	253
4					
251.7					252
254.6	**SAND:** trace silt, trace clay, grey,				
5 4.8	wet, dense	6	SS	31	
	CLAYEY SILT TILL: sandy, trace gravel, occasional cobble, grey, moist, hard				251
6		7	SS	50/ 100mm	250
7	silt layer at 7.6m				249
8		8	SS	33	248
9		9	SS	50/ 130mm	247
10					
245.8					246
10.5	**SANDY SILT TO SILTY SAND TILL:** trace to some clay, trace gravel, grey, very moist, very dense	10	SS	50/ 130mm	
11	silt layer at 10.7m				245
12		11	SS	50/ 100mm	244
13					243
14		12	SS	50/ 130mm	
15					242
240.8		13	SS	50/ 100mm	241
15.5	**END OF BOREHOLE:**				

Notes:
1) Water encountered at 3.0m during drilling.

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)
SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)

GROUND WATER CONDITIONS | STRATA PLOT | POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m³) | REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG-2021-FINAL 19-043-103GEO.GPJ DS.GDT 24-11-27

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH24-3

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869192.4 E 637716.7

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: Oct-26-2024

REF. NO.: 19-043-103
ENCL NO.: 4

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
256.2 / 0.0	**TOPSOIL:** 250mm				256
0.3 / 255.3	**FILL:** sandy silt, trace rootlets, trace gravel, dark brown to brown, moist, loose to compact	1	SS	8	
0.9	**CLAYEY SILT TILL:** sandy, trace gravel, occasional cobble, brown, moist, very stiff	2	SS	15	255
253.8		3	SS	17	
2.4 / 253.2	**SILT:** trace to some clay, trace sand, brown, moist to wet, dense	4	SS	37	254
3.0	**CLAYEY SILT TILL:** sandy, trace gravel, grey, moist, stiff to hard	5	SS	12	253
		6	SS	30	252
248.7		7	SS	26	251
7.5 / 247.2	**CLAYEY SILT:** trace sand, grey, moist, very stiff	8	SS	26	250
9.0	**SANDY SILT TO SILTY SAND TILL:** trace to some clay, trace gravel, occasional cobble, grey, moist to very moist, very dense	9	SS	50/ 100mm	249
		10	SS	50/ 130mm	248
		11	SS	50/ 100mm	247
		12	SS	50/ 130mm	246
		13	SS	50/ 130mm	245
		14	SS	50/	244
					243
					242
					241
					240

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)
SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE
PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Switched to Mud Rotary

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG-2021-FINAL 19-043-103GEO.GPJ DS.GDT 24-11-27

LOG OF BOREHOLE BH24-3

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869192.4 E 637716.7

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: Oct-26-2024

REF. NO.: 19-043-103
ENCL NO.: 4

ELEV / DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	SANDY SILT TO SILTY SAND TILL: trace to some clay, trace gravel, occasional cobble, grey, moist to very moist, very dense(Continued)				75mm		239					
18												
			15	SS	50/ 50mm		238					
19												
236.4							237					
20 19.8	**CLAYEY SILT TILL:** sandy, trace gravel, grey, moist, hard		16	SS	50/ 100mm				○			
21							236					
			17	SS	50/ 130mm		235		○			
22							234					
23												
232.8			18	SS	50/ 130mm		233		⊖			6 39 39 16
23.4	**END OF BOREHOLE:** Notes: 1) Water encountered at 2.4m during drilling.											

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

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

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LOG OF BOREHOLE BH24-4

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869181.5 E 637757.2

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-28-2024

REF. NO.: 19-043-103
ENCL NO.: 5

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
255.4					
255.2 / 0.0	**TOPSOIL:** 250mm				
0.3	**FILL:** clayey silt, trace rootlets, trace organics, trace gravel, dark brown to brown, moist, stiff to very stiff	1	SS	10	255
254.4 / 1.0	**CLAYEY SILT TO SILTY CLAY TILL:** sandy, trace gravel, brown, moist, stiff to hard	2	SS	20	254
		3	SS	13	
		4	SS	42	253
	grey below 3.0 m	5	SS	26	252
		6	SS	32	251
	silt layer at 6.1 m	7	SS	54	249
		8	SS	19	247
246.4 / 9.0	**SANDY SILT TILL:** trace to some clay, trace gravel, occasional cobble, grey, moist, very dense	9	SS	50/ 130mm	246
		10	SS	81	245
243.4 / 12.0	**CLAYEY SILT TILL:** sandy, trace gravel, occasional cobble, grey, moist, hard	11	SS	50/ 130mm	243
		12	SS	50/ 130mm	242
239.9 / 15.5	**END OF BOREHOLE:**	13	SS	50/ 100mm	240

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water Level Readings:

W. L. 254.0 m
Nov 19, 2024

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)
SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE
PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)

GR	SA	SI	CL
1	22	51	26

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

LOG OF BOREHOLE BH24-4

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869181.5 E 637757.2

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-28-2024

REF. NO.: 19-043-103
ENCL NO.: 5

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT (w_P w w_L) WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m							GR SA SI CL
	Date: Water Level(mbgl): Nov. 19, 2024 1.4											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

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LOG OF BOREHOLE BH24-5

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869205.3 E 637875.1

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: Nov-05-2024

REF. NO.: 19-043-103
ENCL NO.: 6

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
254.9					
254.8 / 0.1	**TOPSOIL:** 150mm				
254.4 / 0.5	**FILL:** sandy silt, trace rootlets, brown, moist, dense	1	SS	30	
1	**FILL:** clayey silt, trace to some organics, trace rootlets, dark grey, moist, firm	2	SS	5	254
253.2	mixed with organics at 0.8m				
1.7 / 2	**FILL:** silty sand, trace clay, trace gravel, brown, wet, loose to compact	3	SS	4	
252.5					
2.4 / 3	**CLAYEY SILT TILL:** trace to some sand, trace gravel, brown, moist, stiff to hard	4	SS	13	
		5	SS	65	252
4		6	SS	50/150mm	251
	grey below 4.6m	7	SS	46	250
249.6 / 5					
5.3 / 6	**CLAYEY SILT:** silt interbeds, trace to some sand, trace gravel, grey, moist, very stiff to hard	8	SS	58	249
		9	SS	31	
7		10	SS	35	248
8		11	SS	23	247
246.5					
8.4 / 9	**CLAYEY SILT TILL:** sandy, trace gravel, grey, moist, very stiff	12	SS	17	
		13	SS	25	246
10					245
244.4					
10.5 / 11	**SANDY SILT TO SILTY SAND TILL:** trace to some clay, trace gravel, occasional cobble, grey, very moist to wet, compact to very dense	14	SS	20	244
12	very dense below 12.0m	15	SS	50/150mm	243
13					242
14	wet below 13.7m	16	SS	50/130mm	241
15					240
		17	SS	50/130mm	
16					239
17		18	SS	50/	238

GROUND WATER CONDITIONS: W. L. 253.4 m Nov 19, 2024

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)
SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)

POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

	GR	SA	SI	CL
Switched to Mud Rotary				
	2	10	71	17

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

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

DS SOIL LOG-2021-FINAL 19-043-103GEO.GPJ DS.GDT 24-11-27

LOG OF BOREHOLE BH24-5

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869205.3 E 637875.1

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: Nov-05-2024

REF. NO.: 19-043-103
ENCL NO.: 6

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	SANDY SILT TO SILTY SAND TILL: trace to some clay, trace gravel, occasional cobble, grey, very moist to wet, compact to very dense(Continued)				130mm							
18	gravelly at 18.3m		19	SS	50/ 75mm		237					
19							236					
20			20	SS	50/ 100mm		235					
21							234					
233.6 21.3	**CLAYEY SILT TILL:** sandy, trace gravel, grey, moist, hard		21	SS	50/ 130mm							
22							233					
231.9 23.0	**END OF BOREHOLE:** Notes: 1) 50mm dia. monitoring well installed beside original location. 2) Water Level Readings: Date: Water Level(mbgl): Nov. 19, 2024 1.5		22	SS	50/ 100mm		232					

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

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LOG OF BOREHOLE BH24-6

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869174.4 E 637846.4

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-31-2024

REF. NO.: 19-043-103
ENCL NO.: 7

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION
254.4							
254.2 0.0	**TOPSOIL:** 230mm		1	SS	7		254
0.2	**FILL:** clayey silt, trace rootlets, trace organics, trace gravel, dark brown to brown, moist, firm						
253.5 0.9	**CLAYEY SILT TILLL:** sandy, trace gravel, occasional cobble, brown, moist, very stiff to hard		2	SS	19		253
2			3	SS	21		
			4	SS	24		252
3	grey below 3.1m		5	SS	35		251
4			6	SS	18		
249.9 4.5	**CLAYEY SILT:** frequent silt layers, trace sand, grey, moist, stiff to very stiff		7	SS	17		250
5			8	SS	11		249
6	trace gravel below 6.1m		9	SS	12		248
7			10	SS	26		247
8			11	SS	21		
246.0 8.4	**CLAYEY SILT TILL:** sandy, trace gravel, grey, moist, very stiff		12	SS	19		246
9			13	SS	17		245
10							
243.9 10.5	**SANDY SILT TO SILTY SAND TILL:** trace to some clay, trace gravel, grey, very moist to wet, compact to very dense		14	SS	20		244
11							243
12			15	SS	63		242
13							241
14	wet at 13.7m		16	SS	17		
15							240
239.0			17	SS	50/ 75mm		239
15.4	**END OF BOREHOLE:** Notes: 1) Water encountered at 4.0m during drilling.						

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

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LOG OF BOREHOLE BH24-7

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869131.3 E 637813.6

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Nov-01-2024

REF. NO.: 19-043-103
ENCL NO.: 8

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
254.8												
254.6 0.2	**TOPSOIL:** 250mm		1	SS	8		254					
253.9 0.9	**FILL:** clayey silt, trace rootlets, trace organics, trace gravel, dark brown to brown, moist, stiff		2	SS	13							
	CLAYEY SILT TILLL: sandy, trace gravel, occasional cobble, brown, moist, stiff to hard		3	SS	17		253					
			4	SS	52		252					
251.0			5	SS	36							
3.8 250.3	**SANDY SILT TILL:** trace to some clay, trace gravel, brown to grey, moist, very dense		6	SS	50/ 130mm		251					
4.5	**CLAYEY SILT TILL:** sandy, frequent silt pockets, trace gravel, occasional cobble, grey, moist, very stiff to hard		7	SS	49		250					
			8	SS	27		249					
			9	SS	54							
			10	SS	26		248					
			11	SS	24		247					
			12	SS	22		246					
			13	SS	25							
			14	SS	disturbed		245					
242.8							244					
12.0	**SAND:** some gravel, trace silt, trace clay, grey, wet, very dense		15	SS	69		243					15 73 9 1
241.3							242					
13.5	**SANDY SILT TILL:** trace to some clay, trace gravel, grey, very moist, very dense		16	SS	63		241					
239.3			17	SS	50/ 75mm		240					
15.5	**END OF BOREHOLE:** Notes: 1) Water encountered at 3.8 m during drilling.											

DS SOIL LOG-2021-FINAL 19-043-103GEO.GPJ DS.GDT 24-11-27

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

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LOG OF BOREHOLE BH24-8

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869119.5 E 637847.1

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: Oct-30-2024

REF. NO.: 19-043-103
ENCL NO.: 9

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
254.5 / 0.0	**TOPSOIL:** 250mm	1	SS	6	254
0.3 / 253.5	**FILL:** clayey silt, trace rootlets, trace organics, trace gravel, dark brown to brown, moist, firm	2	SS	8	
1.0	**CLAYEY SILT TILLL:** some sand, trace gravel, occasional cobble, brown, moist, stiff to hard	3	SS	14	253
		4	SS	22	252
		5	SS	38	251
	grey below 3.8m	6	SS	72	
		7	SS	50/100mm	250
		8	SS	36	249
248.5 / 6.0	**CLAYEY SILT:** silt seams/layers, trace sand, grey, moist, very stiff to hard	9	SS	39	248
		10	SS	23	247
		11	SS	21	
		12	SS	15	246
	trace gravel at 9.1m	13	SS	16	245
243.8 / 10.7	**SANDY SILT TO SILTY SAND TILL:** trace to some clay, trace gravel, grey, moist, very dense	14	SS	67	244
		15	SS	50/130mm	243
		16	SS	50/130mm	242
		17	SS	50/130mm	241
					240
					239
					238

W. L. 252.9 m
Nov 19, 2024

Switched to Mud Rotary at 3.1m

1 8 72 18

7 44 42 7

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG-2021-FINAL 19-043-103GEO.GPJ DS.GDT 24-11-27

LOG OF BOREHOLE BH24-8

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869119.5 E 637847.1

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: Oct-30-2024

REF. NO.: 19-043-103
ENCL NO.: 9

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
18	**SANDY SILT TO SILTY SAND TILL:** trace to some clay, trace gravel, grey, moist, very dense(Continued)		18	SS	50/ 130mm		237					
19			19	SS	50/ 100mm		236					
20 234.5							235					
20.0	**SILT:** trace to some clay, trace sand, trace gravel, grey, moist, very dense		20	SS	50/ 130mm							
21 233.2							234					
21.3	**SILTY SAND TO SANDY SILT TILL:** trace clay, trace gravel, grey, moist, very dense		21	SS	50/ 75mm		233					
22							232					
23 231.1			22	SS	50/ 130mm							
23.4	**END OF BOREHOLE:** Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Nov. 19, 2024 1.6											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

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LOG OF BOREHOLE BH24-9

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869120.9 E 637771.7

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-29-2024

REF. NO.: 19-043-103
ENCL NO.: 10

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION
255.8 / 0.0	**TOPSOIL:** 270mm						
0.3 / 254.8	**FILL:** clayey silt, trace rootlets, trace organics, trace gravel, dark brown to brown, moist, stiff		1	SS	8		255
			2	SS	12		
1.0 / 253.2	**CLAYEY SILT TILL:** sandy, trace gravel, brown, moist, stiff to hard		3	SS	11		254
			4	SS	32		253
2.6 / 251.3	**SILT:** trace clay, trace sand, brown to grey, wet, dense		5	SS	31		252
4.5	**CLAYEY SILT TILL:** sandy, trace gravel, grey, moist, very stiff to hard		6	SS	25	W. L. 250.8 m Nov 19, 2024	251
			7	SS	34		250
9.0 / 246.8			8	SS	30		249
	CLAYEY SILT: trace sand, silt layers, grey, moist, hard		9	SS	30		248
10.5 / 245.3	**SANDY SILT TO SILTY SAND TILL:** trace to some clay, trace gravel, occasional cobble, grey, moist to very moist, very dense		10	SS	50/ 130mm		247
			11	SS	50/ 130mm		246
			12	SS	50/ 130mm		245
			13	SS	50/ 100mm		244
			14	SS	50/		243
							242
							241
							240
							239

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
0	9	88	3

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG-2021-FINAL 19-043-103GEO.GPJ DS.GDT 24-11-27

LOG OF BOREHOLE BH24-9

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869120.9 E 637771.7

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-29-2024

REF. NO.: 19-043-103
ENCL NO.: 10

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
18 237.7 18.1	**SANDY SILT TO SILTY SAND TILL:** trace to some clay, trace gravel, occasional cobble, grey, moist to very moist, very dense(Continued)				130mm		238					
	CLAYEY SILT TILL: sandy, trace gravel, grey, moist, hard sand and gravel layer at 18.4m		15	SS	50/ 130mm		237		○			
19												
20			16	SS	50/ 75mm		236		○			
21							235					
			17	SS	50/ 130mm		234		○			
22												
23 232.6			18	SS	50/ 30mm		233		○			
23.2	**END OF BOREHOLE:** Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Nov. 19, 2024 5.0											

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

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

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LOG OF BOREHOLE BH24-10

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869089.4 E 637753

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: Nov-04-2024

REF. NO.: 19-043-103
ENCL NO.: 11

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS "N" 0.3 m	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
256.0					
255.8 / 0.2	**TOPSOIL:** 150mm				
	FILL: silty sand, some clay, trace gravel, trace rootlets, dark brown to brown, moist, compact	1	SS	17	
255.2 / 0.8	**CLAYEY SILT TILL:** sandy, trace gravel, brown, moist, stiff to very stiff	2	SS	24	
	sandy silt pockets at 1.5m	3	SS	14	
253.5 / 2.5	**SILT:** trace to some clay, trace sand, trace gravel, brown, wet, compact to dense	4	SS	19	
252.7 / 3.3	**SILTY SAND:** clayey silt pockets, brown, wet, dense	5	SS	36	Switched to Mud Rotary
		6	SS	42	
251.4 / 4.6	**CLAYEY SILT TILL:** sandy, trace gravel, grey, moist, very stiff to hard	7	SS	32	
		8	SS	31	
		9	SS	42	
	silt pockets below 6.9m	10	SS	29	
248.4 / 7.6	**CLAYEY SILT:** frequent silt layers, trace sand, grey, moist, very stiff	11	SS	17	1 2 76 21
	trace gravel at 8.4m	12	SS	27	
		13	SS	23	
245.5 / 10.5	**SANDY SILT TO SILTY SAND TILL:** trace clay, trace gravel, occasional cobble, grey, very moist to wet, very dense	14	SS	50/ 130mm	auger grinding
	gravelly at 12.2m	15	SS	50/ 130mm	
		16	SS	50/ 150mm	
240.7 / 15.3	**END OF BOREHOLE:** Notes: 1) Water encountered at 2.5m during drilling.	17	SS	50/ 75mm	

GROUND WATER CONDITIONS

ELEVATION: 255, 254, 253, 252, 251, 250, 249, 248, 247, 246, 245, 244, 243, 242, 241

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG-2021-FINAL 19-043-103GEO.GPJ DS.GDT 24-11-27

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LOG OF BOREHOLE BH24-11

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869103.6 E 637709.7

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: Nov-04-2024

REF. NO.: 19-043-103
ENCL NO.: 12

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
256.3								
256.0 0.3	**TOPSOIL:** 250mm							
255.5 0.8	**FILL:** silty clay, trace rootlets, trace gravel, trace organics, dark brown to brown, moist, stiff		1	SS	8		256	
	CLAYEY SILT TILL: sandy, trace gravel, brown, moist, stiff to hard		2	SS	11			
	sandy silt pockets at 1.5m		3	SS	13		255	
			4	SS	19		254	
252.9			5	SS	33		253	Switched to Mud Rotary
3.4 252.5	**SILT:** trace sand, trace gravel, brown, very moist, dense							
3.8	**SILTY SAND:** trace clay, brown, wet, dense		6	SS	40		252	
	silt pockets at 4.6m		7	SS	47			
251.0							251	
5.3	**CLAYEY SILT TILL:** some sand to sandy, trace gravel, occasional cobble, grey, moist, very stiff to hard		8	SS	41			
			9	SS	50/ 150mm		250	
			10	SS	50/ 130mm		249	
			11	SS	74			
	wet silt layer, very stiff at 8.4m		12	SS	22		248	7 14 61 18
247.3								
9.0	**SILT:** trace sand, trace clay, grey, moist, dense		13	SS	39		247	
245.6							246	
10.7	**SANDY SILT TO SILTY SAND TILL:** trace to some clay, trace gravel, occasional cobble, grey, moist to wet, very dense		14	SS	50/ 150mm			
			15	SS	50/ 130mm		244	
			16	SS	50/ 130mm		242	
241.3								
15.0 241.0	**CLAYEY SILT TILL:** sandy, trace gravel, occasional cobble, grey, moist, hard		17	SS	50/ 150mm		241	
15.3	**END OF BOREHOLE:**							

Notes:
1) Water encountered at 2.7m during drilling.

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)
SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)

POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

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LOG OF BOREHOLE BH24-12

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869069.4 E 637689.9

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: Oct-23-2024

REF. NO.: 19-043-103
ENCL NO.: 13

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION
256.6							
256.4 0.0	**TOPSOIL:** 250mm						
0.3 255.6	**FILL:** silty clay, trace rootlets, trace gravel, trace organics, dark brown to brown, moist, stiff		1	SS	11		256
1.0 255.1	**CLAYEY SILT:** trace sand, trace gravel, brown, moist, stiff		2	SS	11		
1.5 254.3	**SILTY SAND:** trace clay, some gravel, brown, moist, dense		3	SS	44		255
2.3 252.1	**CLAYEY SILT TILL:** sandy, trace gravel, brown, moist, very stiff		4	SS	16		254
			5	SS	20		253
4.5 250.6	**SANDY SILT TO SAND:** trace clay, brown, wet, dense		6	SS	35		252
6.0 249.1	**CLAYEY SILT TILL:** sandy, trace gravel, grey, moist, very stiff		7	SS	28		251
7.5	**CLAYEY SILT:** trace sand, grey, moist, very stiff to hard		8	SS	49		250
	silt layer at 9.1m		9	SS	23		249
10.5 244.6	**SANDY SILT TILL:** trace to some clay, trace gravel, occasional cobble, grey, moist, very dense		10	SS	50/ 130mm		248
12.0 243.1	**SANDY SILT:** trace clay, grey, wet, very dense		11	SS	50/ 30mm		247
13.5	**SANDY SILT TO SILTY SAND TILL:** trace clay, trace gravel, occasional cobble, grey, moist to very moist, very dense		12	SS	50/ 100mm		246
			13	SS	50/ 30mm		245
							244
							243
							242
							241
							240

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Switched to Mud Rotary

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG-2021-FINAL 19-043-103GEO.GPJ DS.GDT 24-11-27

LOG OF BOREHOLE BH24-12

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869069.4 E 637689.9

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: Oct-23-2024

REF. NO.: 19-043-103
ENCL NO.: 13

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS "N" 0.3 m	ELEVATION	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
18	**SANDY SILT TO SILTY SAND TILL:** trace clay, trace gravel, occasional cobble, grey, moist to very moist, very dense(Continued)	14	SS	50/130mm	239	
238.3						
18.3	**CLAYEY SILT TILL:** sandy, trace gravel, grey, moist, hard	15	SS	50/130mm	238	9 41 37 13
19						
20		16	SS	50/130mm	237	
21					236	
22		17	SS	50/130mm	235	
233.6					234	
23.0	**END OF BOREHOLE:** Notes: 1) Water encountered at 4.6m during drilling.	18	SS	50/100mm		

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)
SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE
PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
$+^3$, $\times^3$: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

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LOG OF BOREHOLE BH25-1

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869140.7 E 637861

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: Feb-26-2025

REF. NO.: 19-043-103
ENCL NO.: 14

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS "N" 0.3 m	ELEVATION
254.3					
254.0 0.2	**TOPSOIL:** 200mm	1	SS	3	
	FILL: clayey silt, trace organics, trace rootlets, trace sand to some sand, brown, moist, soft to stiff	2	SS	4	
252.6					
1.7	**CLAYEY SILT TO SILTY CLAY TILL:** sandy, trace gravel, brown to grey, moist, stiff to hard	3	SS	11	
		4	SS	24	
	silty sand layer at 3.1m	5	SS	44	
	grey below 4.6m	6	SS	31	
		7	SS	36	
		8	SS	18	
	stiff at 9.1m	9	SS	9	
243.6					
10.7	**SILTY SAND TO SANDY SILT TILL:** trace to some clay, trace to some gravel, cobble/boulder, grey, very moist to wet, compact to very dense	10	SS	28	
	clayey silt till layers below 12.5m	11	SS	50/ 75mm	
		12	SS	21	
239.3					
15.0	**SILTY SAND:** trace clay, trace gravel, grey, very moist to wet, very dense (till - like)	13	SS	45	
		14	SS	65	
236.3					
18.0	**SILTY SAND TO SANDY SILT TILL:** trace clay, trace to some gravel, cobble/boulder, grey, very moist to wet, very dense	15	SS	50/ 100mm	
		16	SS	50/ 75mm	
233.0					
21.3		17	SS	50/ 75mm	

GROUND WATER CONDITIONS: W. L. 254.1 m, Mar 07, 2025

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)

SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)	GR	SA	SI	CL
Switched to Mud Rotary				
	4	23	48	25
	9	48	35	8
	8	61	27	4
	3	32	57	8

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

LOG OF BOREHOLE BH25-1

PROJECT: Geotechnical Investigation
CLIENT: Times Group Corporation
PROJECT LOCATION: 5061 Stouffville Road, Whitchurch-Stouffville, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4869140.7 E 637861

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: Feb-26-2025

REF. NO.: 19-043-103
ENCL NO.: 14

ELEV / DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
23	**SILTY CLAY TO CLAYEY SILT TILL:** some sand to sandy, trace gravel, occasional cobble, grey, moist, hard(Continued)						232					
			18	SS	41		231					
24												
			19	SS	48		230					
25							229					
26			20	SS	42		228					
27												
			21	SS	64		227					
28							226					
29	boulder at 28.9m		22	SS	50/ 50mm		225					auger grinding
30							224					
31			23	SS	50/ 100mm		223					
32			24	SS	50/ 130mm		222					
33							221					
34			25	SS	50/ 130mm		220					
35			26	SS	50/ 100mm		219					4 41 39 16
36							218					
37 217.2			27	SS	73							
37.1	**END OF BOREHOLE:** Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Mar. 7, 2025 0.20 Mar. 24, 2025 -(0.20) above ground surface											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

APPENDIX B

Groundwater Level Monitoring Records

4721 & 5061 Stouffville Road

Whitchurch-Stouffville, Ontario

INCLUDED MATERIAL

Table B-1: Monitoring-well measurements used for the groundwater-level assessment and Figure 4.

Monitoring periods include 2021–2022 and November 2024–March 2026.

Appendix B – Groundwater Level Monitoring Records

Table B-1: Groundwater Level Monitoring Records

Well ID	Ground Elevation (masl)	Screen Interval (mbgs)	Measurement Date	Stick-up (m)	Water Level Below Top of Pipe (m)	Depth to Water (mbgs)	Groundwater Elevation (masl)
BH19-5	254.3	12.2-15.2	13-Apr-21	0.8	0.8	0.0	254.3
BH19-5	—	—	18-May-21	0.8	0.9	0.1	254.2
BH19-5	—	—	21-Jun-21	0.8	1.0	0.2	254.1
BH19-5	—	—	16-Jul-21	0.8	1.3	0.5	253.8
BH19-5	—	—	23-Aug-21	0.8	Not accessible	Not accessible	—
BH19-5	—	—	14-Sep-21	0.8	1.5	0.7	253.6
BH19-5	—	—	13-Oct-21	0.8	1.2	0.4	253.9
BH19-5	—	—	15-Nov-21	0.8	1.1	0.3	254.0
BH19-5	—	—	13-Dec-21	0.8	0.8	0.0	254.3
BH19-5	—	—	11-Jan-22	0.8	0.7	-0.1	254.4
BH19-5	—	—	15-Feb-22	0.8	0.7	-0.1	254.4
BH19-5	—	—	14-Mar-22	0.8	0.7	-0.1	254.4
BH19-5	—	—	19-Apr-22	0.8	0.7	-0.1	254.4
BH19-5	254.3	12.2-15.2	07-Oct-24	0.8	1.20	0.4	253.9
BH21-1	254.5	12.2-15.2	25-Feb-21	0.8	1.1	0.3	254.2
BH21-1	—	—	13-Apr-21	0.8	2.2	1.4	253.1
BH21-1	—	—	19-Apr-21	0.8	2.0	1.2	253.3
BH21-1	—	—	18-May-21	0.8	2.1	1.3	253.2
BH21-1	—	—	21-Jun-21	0.8	2.1	1.3	253.2
BH21-1	—	—	16-Jul-21	0.8	2.2	1.4	253.0
BH21-1	—	—	23-Aug-21	0.8	2.4	1.6	252.9
BH21-1	—	—	14-Sep-21	0.8	2.5	1.6	252.8
BH21-1	—	—	13-Oct-21	0.8	2.5	1.7	252.8
BH21-1	—	—	15-Nov-21	0.8	2.5	1.7	252.8
BH21-1	—	—	13-Dec-21	0.8	2.5	1.7	252.8
BH21-1	—	—	11-Jan-22	0.8	2.3	1.5	253.0
BH21-1	—	—	15-Feb-22	0.8	2.3	1.5	253.0
BH21-1	—	—	14-Mar-22	0.8	2.2	1.4	253.1
BH21-2	255.2	9.1-12.1	25-Feb-21	0.9	Frozen	—	—
BH21-2	—	—	13-Apr-21	0.9	2.0	1.1	254.1
BH21-2	—	—	18-May-21	0.9	1.3	0.4	254.8
BH21-2	—	—	21-Jun-21	0.9	2.4	1.5	253.7
BH21-2	—	—	16-Jul-21	0.9	1.7	0.8	254.4
BH21-2	—	—	23-Aug-21	0.9	2.0	1.1	254.1
BH21-2	—	—	14-Sep-21	0.9	2.0	1.1	254.1
BH21-2	—	—	13-Oct-21	0.9	1.6	0.7	254.4
BH21-2	—	—	15-Nov-21	0.9	1.5	0.6	254.6

Well ID	Ground Elevation (masl)	Screen Interval (mbgs)	Measurement Date	Stick-up (m)	Water Level Below Top of Pipe (m)	Depth to Water (mbgs)	Groundwater Elevation (masl)
BH21-2	—	—	13-Dec-21	0.9	1.2	0.3	254.8
BH21-2	—	—	11-Jan-22	0.9	1.2	0.3	254.9
BH21-2	—	—	15-Feb-22	0.9	1.5	0.6	254.6
BH21-2	—	—	14-Mar-22	0.9	1.2	0.3	254.9
BH21-2	—	—	19-Apr-22	0.9	1.2	0.3	254.9
BH21-3	256.6	4.5-6.0	25-Feb-21	1.0	4.4	3.4	253.2
BH21-3	—	—	13-Apr-21	1.0	4.1	3.1	253.5
BH21-3	—	—	18-May-21	1.0	4.1	3.1	253.5
BH21-3	—	—	21-Jun-21	1.0	4.0	3.0	253.6
BH21-3	—	—	16-Jul-21	1.0	4.7	3.7	252.9
BH21-3	—	—	23-Aug-21	1.0	4.8	3.8	252.8
BH21-3	—	—	14-Sep-21	1.0	4.9	3.9	252.7
BH21-3	—	—	13-Oct-21	1.0	4.9	3.9	252.7
BH21-3	—	—	15-Nov-21	1.0	4.8	3.8	252.8
BH21-3	—	—	13-Dec-21	1.0	4.4	3.4	253.2
BH21-3	—	—	11-Jan-22	1.0	4.2	3.2	253.4
BH21-3	—	—	15-Feb-22	1.0	4.5	3.5	253.1
BH21-3	—	—	14-Mar-22	1.0	4.3	3.3	253.3
BH21-3	—	—	19-Apr-22	1.0	3.8	2.8	253.8
BH21-4	256.7	10.7-12.2	25-Feb-21	0.9	2.6	1.7	255.0
BH21-4	—	—	25-Feb-21	0.9	Frozen	—	—
BH21-4	—	—	13-Apr-21	0.9	1.2	0.3	256.4
BH21-4	—	—	18-May-21	0.9	1.1	0.2	256.5
BH21-4	—	—	21-Jun-21	0.9	1.1	0.2	256.5
BH21-4	—	—	16-Jul-21	0.9	1.3	0.4	256.3
BH21-4	—	—	23-Aug-21	0.9	1.3	0.4	256.3
BH21-4	—	—	14-Sep-21	0.9	1.4	0.5	256.2
BH21-4	—	—	13-Oct-21	0.9	1.4	0.5	256.2
BH21-4	—	—	15-Nov-21	0.9	1.4	0.5	256.2
BH21-4	—	—	13-Dec-21	0.9	1.4	0.5	256.2
BH21-4	—	—	11-Jan-22	0.9	1.4	0.5	256.2
BH21-4	—	—	15-Feb-22	0.9	1.4	0.5	256.2
BH21-4	—	—	14-Mar-22	0.9	1.4	0.5	256.2
BH21-4	—	—	19-Apr-22	0.9	1.4	0.5	256.2
BH21-5	255.6	9.2-12.2	13-Apr-21	0.9	2.9	2.0	253.6
BH21-5	—	—	18-May-21	0.9	1.0	0.1	255.5
BH21-5	—	—	21-Jun-21	0.9	2.1	1.2	254.4
BH21-5	—	—	23-Aug-21	0.9	1.8	0.9	254.7
BH21-5	—	—	14-Sep-21	0.9	1.6	0.7	254.9
BH21-5	—	—	13-Oct-21	0.9	1.2	0.3	255.2
BH21-5	—	—	15-Nov-21	0.9	1.2	0.3	255.3
BH21-5	—	—	13-Dec-21	0.9	0.9	0.0	255.6

Well ID	Ground Elevation (masl)	Screen Interval (mbgs)	Measurement Date	Stick-up (m)	Water Level Below Top of Pipe (m)	Depth to Water (mbgs)	Groundwater Elevation (masl)
BH21-5	—	—	11-Jan-22	0.9	1.0	0.1	255.5
BH21-5	—	—	15-Feb-22	0.9	1.2	0.3	255.3
BH21-5	—	—	14-Mar-22	0.9	0.8	-0.1	255.7
BH21-5	—	—	19-Apr-22	0.9	0.8	-0.2	255.8
BH21-9	251.7	9.2-12.2	25-Feb-21	—	—	3.1	248.6
BH21-9	—	—	13-Apr-21	—	—	3.2	248.5
BH21-9	—	—	18-May-21	—	—	2.7	249.0
BH21-9	—	—	21-Jun-21	—	—	2.6	249.1
BH21-9	—	—	16-Jul-21	—	—	3.0	248.7
BH21-9	—	—	23-Aug-21	—	—	3.4	248.3
BH21-9	—	—	14-Sep-21	—	—	3.2	248.5
BH21-9	—	—	13-Oct-21	—	—	2.7	249.0
BH21-9	—	—	15-Nov-21	—	—	2.7	249.0
BH21-9	—	—	13-Dec-21	—	—	2.3	249.4
BH21-9	—	—	11-Jan-22	—	—	2.7	249.0
BH21-9	—	—	15-Feb-22	—	—	2.6	249.1
BH21-9	—	—	14-Mar-22	—	—	2.7	249.0
BH21-9	—	—	19-Apr-22	—	—	2.3	249.4
BH21-12	251.7	4.6-6.1	13-Apr-21	—	—	-0.2	251.9
BH21-12	—	—	18-May-21	—	—	-0.5	252.2
BH21-12	—	—	21-Jun-21	—	—	-0.5	252.2
BH21-12	—	—	16-Jul-21	—	—	-0.4	252.1
BH21-12	—	—	23-Aug-21	—	—	-0.2	251.9
BH21-12	—	—	14-Sep-21	—	—	-0.2	251.9
BH21-12	—	—	13-Oct-21	—	—	-0.3	252.0
BH21-12	—	—	15-Nov-21	—	—	-0.3	252.0
BH21-12	—	—	13-Dec-21	—	—	-0.5	252.2
BH21-12	—	—	11-Jan-22	—	—	-0.6	252.3
BH21-12	—	—	15-Feb-22	—	—	-0.3	252.0
BH21-12	—	—	14-Mar-22	—	—	-0.4	252.1
BH21-12	—	—	19-Apr-22	—	—	-0.6	252.2
BH21-18	256.5	4.6-6.1	13-Apr-21	—	—	3.7	252.8
BH21-18	—	—	18-May-21	—	—	3.6	252.9
BH21-18	—	—	21-Jun-21	—	—	3.6	252.9
BH21-18	—	—	16-Jul-21	—	—	3.9	252.6
BH21-18	—	—	23-Aug-21	—	—	4.1	252.4
BH21-18	—	—	14-Sep-21	—	—	4.1	252.4
BH21-18	—	—	13-Oct-21	—	—	4.1	252.4
BH21-18	—	—	15-Nov-21	—	—	4.2	252.3
BH21-18	—	—	13-Dec-21	—	—	4.1	252.4
BH21-18	—	—	11-Jan-22	—	—	4.0	252.5
BH21-18	—	—	15-Feb-22	—	—	3.8	252.7

Well ID	Ground Elevation (masl)	Screen Interval (mbgs)	Measurement Date	Stick-up (m)	Water Level Below Top of Pipe (m)	Depth to Water (mbgs)	Groundwater Elevation (masl)
BH21-18	—	—	14-Mar-22	—	—	3.8	252.7
BH21-18	—	—	19-Apr-22	—	—	3.6	252.9
BH21-19	255.8	3.2-4.7	15-Mar-21	—	Frozen	—	—
BH21-19	—	—	13-Apr-21	—	—	3.0	252.8
BH21-19	—	—	18-May-21	—	—	3.0	252.8
BH21-19	—	—	21-Jun-21	—	—	2.9	252.9
BH21-19	—	—	16-Jul-21	—	—	3.4	252.4
BH21-19	—	—	23-Aug-21	—	—	3.6	252.2
BH21-19	—	—	14-Sep-21	—	—	3.6	252.2
BH21-19	—	—	13-Oct-21	—	—	3.8	252.0
BH21-19	—	—	15-Nov-21	—	—	3.6	252.2
BH21-19	—	—	13-Dec-21	—	—	3.4	252.4
BH21-19	—	—	11-Jan-22	—	—	3.1	252.7
BH21-19	—	—	15-Feb-22	—	—	3.3	252.5
BH21-19	—	—	14-Mar-22	—	—	3.2	252.6
BH21-19	—	—	19-Apr-22	—	—	3.0	252.8
BH24-1	256.6	6.1-9.1	13-Nov-24	0.9	2.70	1.8	254.8
BH24-1	256.6	6.1-9.1	27-Jun-25	0.9	2.67	1.8	254.8
BH24-1	256.6	6.1-9.1	02-Mar-26	0.9	2.23	1.3	255.3
BH24-4	255.4	4.6-7.6	13-Nov-24	0.9	2.20	1.3	254.1
BH24-4	255.4	4.6-7.6	27-Jun-25	0.9	2.08	1.2	254.2
BH24-4	255.4	4.6-7.6	02-Mar-26	0.9	1.51	0.6	254.8
BH24-5	254.9	4.6-7.7	13-Nov-24	0.9	2.30	1.4	253.5
BH24-5	254.9	4.6-7.7	27-Jun-25	0.9	2.26	1.4	253.5
BH24-8	254.5	4.1-7.1	13-Nov-24	0.9	2.30	1.4	253.1
BH24-8	254.5	4.1-7.1	27-Jun-25	0.9	1.98	1.1	253.4
BH24-8	254.5	4.1-7.1	02-Mar-26	0.9	1.05	0.2	254.4
BH24-9	255.8	5.6-8.6	13-Nov-24	0.9	3.10	2.2	253.6
BH24-9	255.8	5.6-8.6	27-Jun-25	0.9	2.65	1.8	254.1
BH24-9	255.8	5.6-8.6	02-Mar-26	0.9	2.11	1.2	254.6
BH24-13	256.529	—	27-Jun-25	0.9	4.19	3.3	253.2
BH24-13	256.529	—	02-Mar-26	0.9	4.23	3.3	253.2
BH24-14	257.738	—	27-Jun-25	0.9	4.97	4.1	253.7
BH24-14	257.738	—	02-Mar-26	0.9	5.25	4.3	253.4
BH25-1	254.3	16.3-21.3	07-Mar-25	0.94	1.09	0.2	254.1
BH25-1	254.3	16.3-21.3	24-Mar-25	0.94	0.78	-0.2	254.5
BH25-1	254.3	16.3-21.3	27-Jun-25	0.94	1.44	0.5	253.8
BH25-1	254.3	16.3-21.3	02-Mar-26	0.94	0.96	—	—

Note: The BH24-13 and BH24-14 elevations are based on the supplied ground elevations for MW24-13 (256.529 masl) and MW24-14 (257.738 masl); 0.9 m stick-up heights were used to calculate depth to water below ground and groundwater elevation. The March 2, 2026 BH25-1 reading is shown as recorded, but no groundwater elevation is calculated because the well was frozen.

APPENDIX C

Hydraulic Conductivity Analysis

4721 & 5061 Stouffville Road

Whitchurch-Stouffville, Ontario

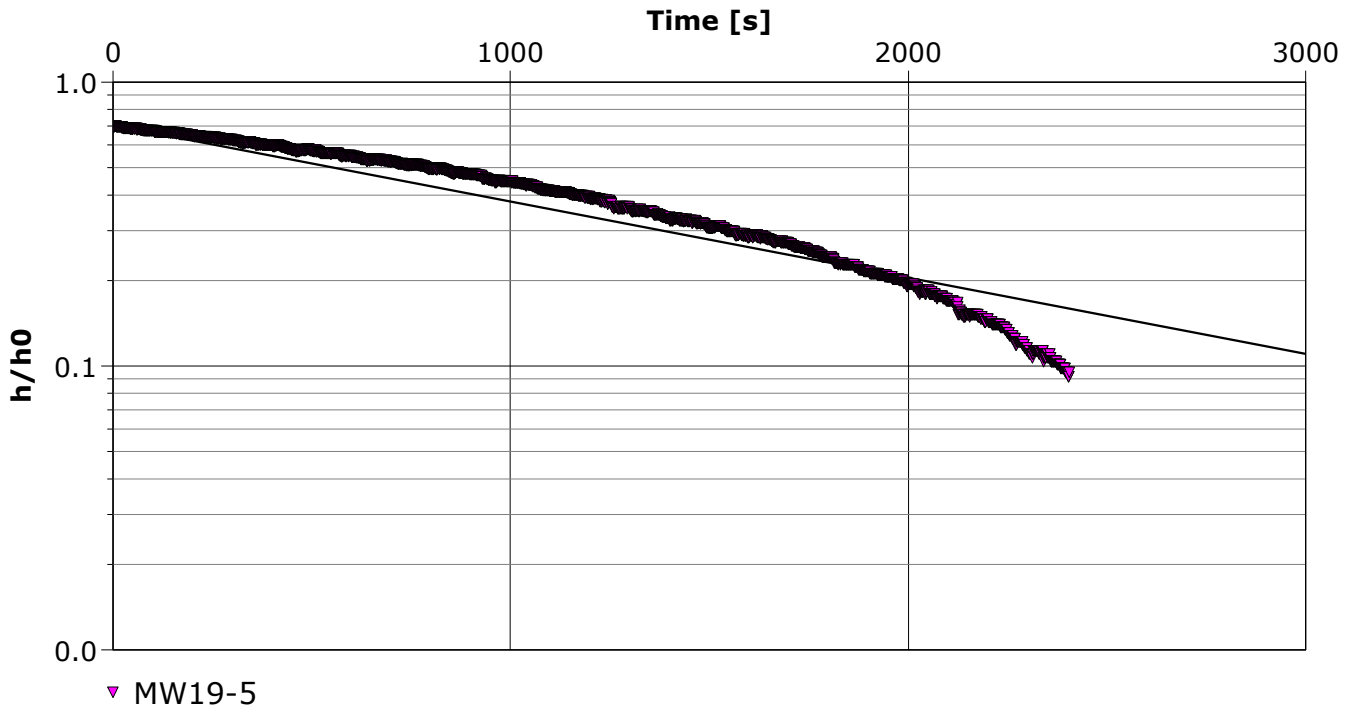
INCLUDED MATERIAL

Ten single-well response (slug) test analyses: MW19-5; BH21-1, BH21-3 and BH21-4; BH24-1, BH24-4, BH24-5, BH24-8 and BH24-9; and BH25-1.

Test plots are reproduced from the April 2025 hydrogeological report.

	Slug Test Analysis Report
	Project: 4721-5061 Stouffville Road
	Number: 19-043-100
	Client: Times Group

Location: Stouffville Road	Slug Test: MW19-5	Test Well: MW19-5
Test Conducted by: PP		Test Date: 2019-05-24
Analysis Performed by: DG	MW19-5	Analysis Date: 2019-05-27
Aquifer Thickness:		

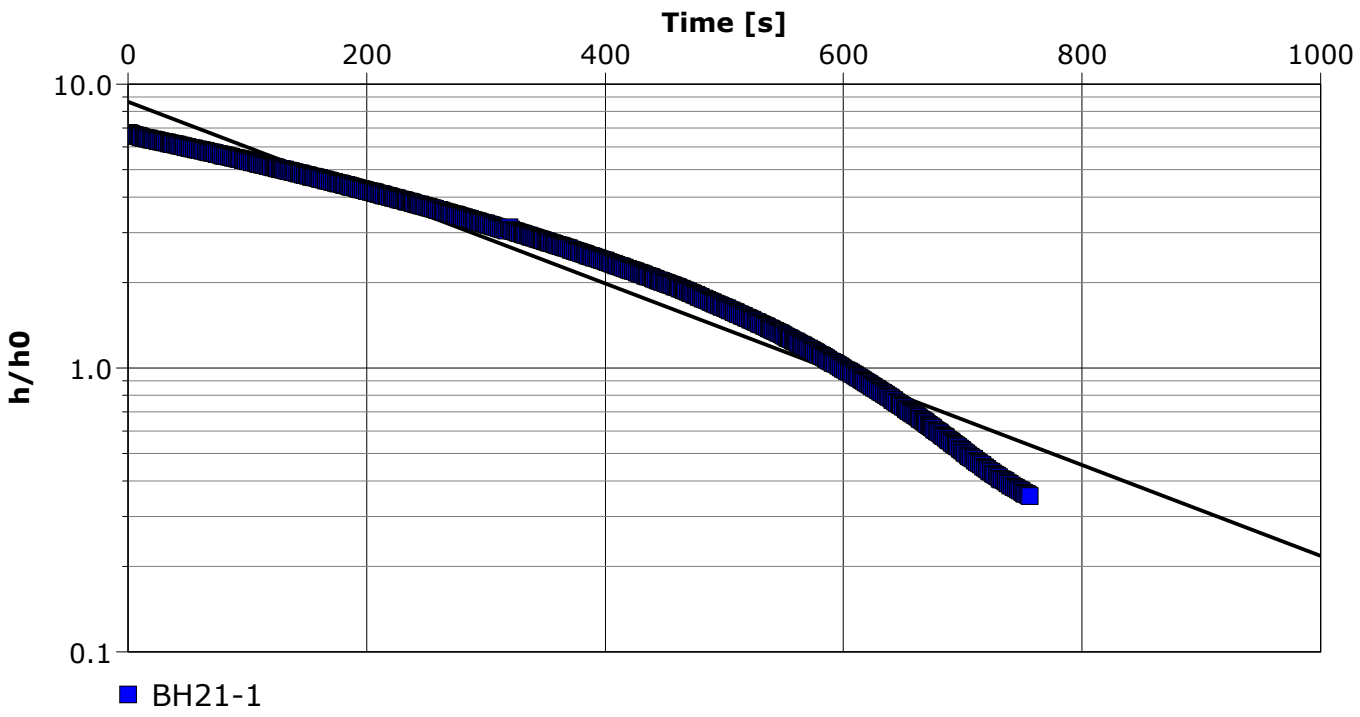


Calculation using Hvorslev

Observation Well	Hydraulic Conductivity [m/s]	
MW19-5	3.10×10^{-7}	

	Slug Test Analysis Report
	Project: 4721-5061 Stouffville Road
	Number: 19-043-101
	Client: Times Group

Location: Whitchurch-Stouffville	Slug Test: BH21-1	Test Well: BH21-1
Test Conducted by: MP		Test Date: 2021-02-25
Analysis Performed by: DG	BH21-1	Analysis Date: 2019-05-27
Aquifer Thickness: 15.80 m		

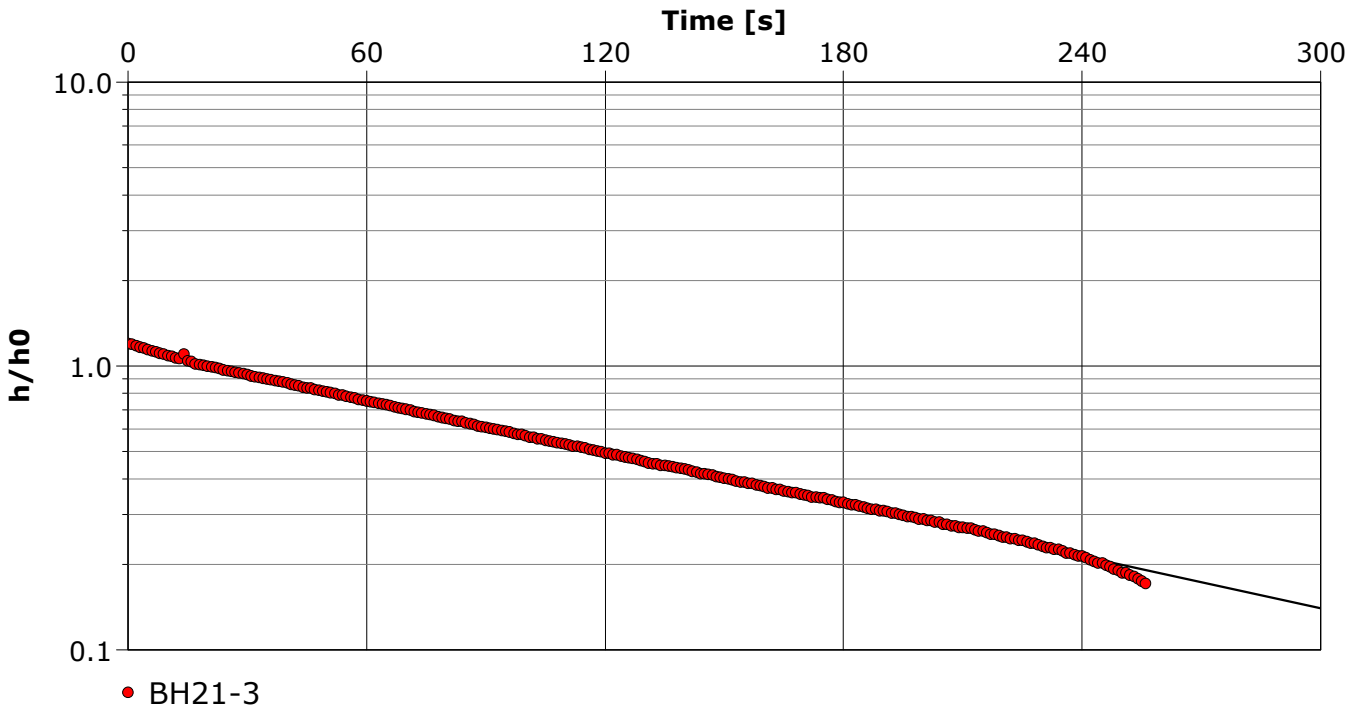


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH21-1	1.61×10^{-6}	

	Slug Test Analysis Report
	Project: 4721-5061 Stouffville Road
	Number: 19-043-101
	Client: Times Group

Location: Whitchurch-Stouffville	Slug Test: BH21-3	Test Well: BH21-3
Test Conducted by: MP		Test Date: 2021-02-25
Analysis Performed by: DG	BH21-3	Analysis Date: 2019-05-27
Aquifer Thickness: 16.30 m		

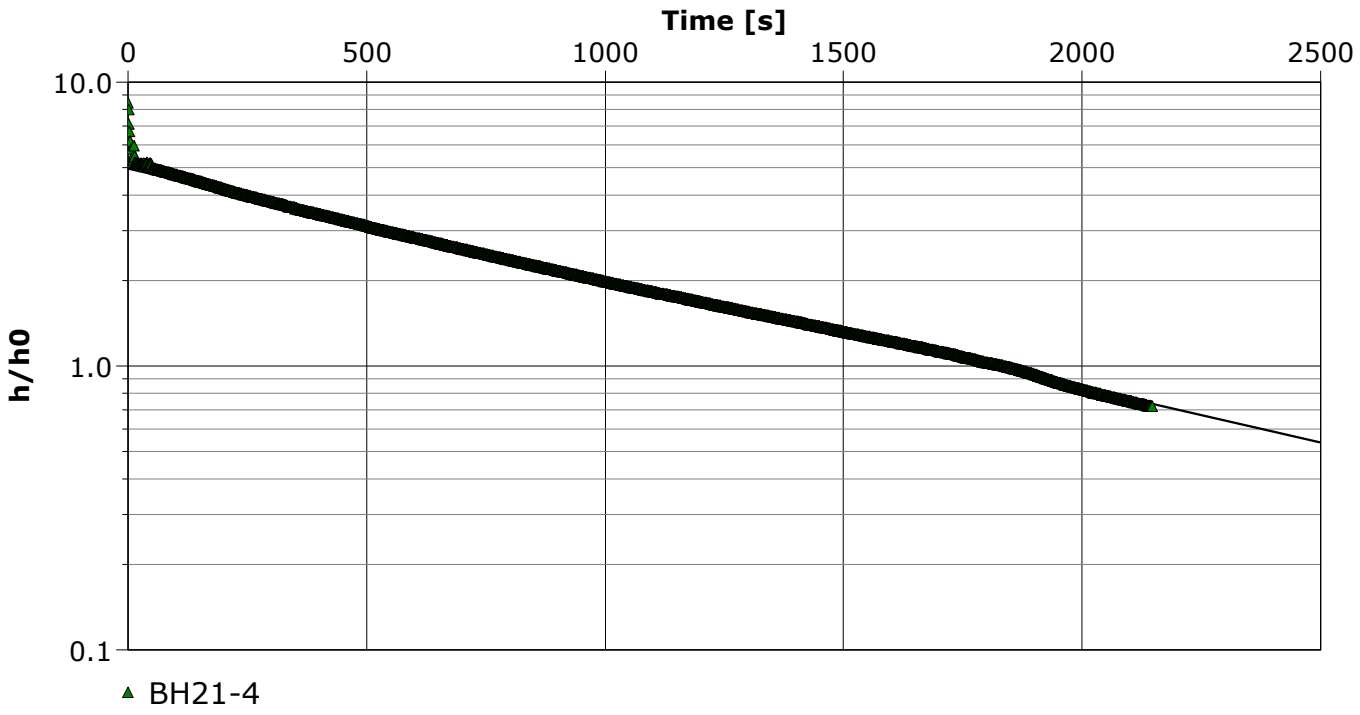


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH21-3	4.89×10^{-6}	

	Slug Test Analysis Report
	Project: 4721-5061 Stouffville Road
	Number: 19-043-101
	Client: Times Group

Location: Whitchurch-Stouffville	Slug Test: BH21-4	Test Well: BH21-4
Test Conducted by: MP		Test Date: 2021-02-25
Analysis Performed by: DG	BH21-4	Analysis Date: 2019-05-27
Aquifer Thickness: 15.30 m		

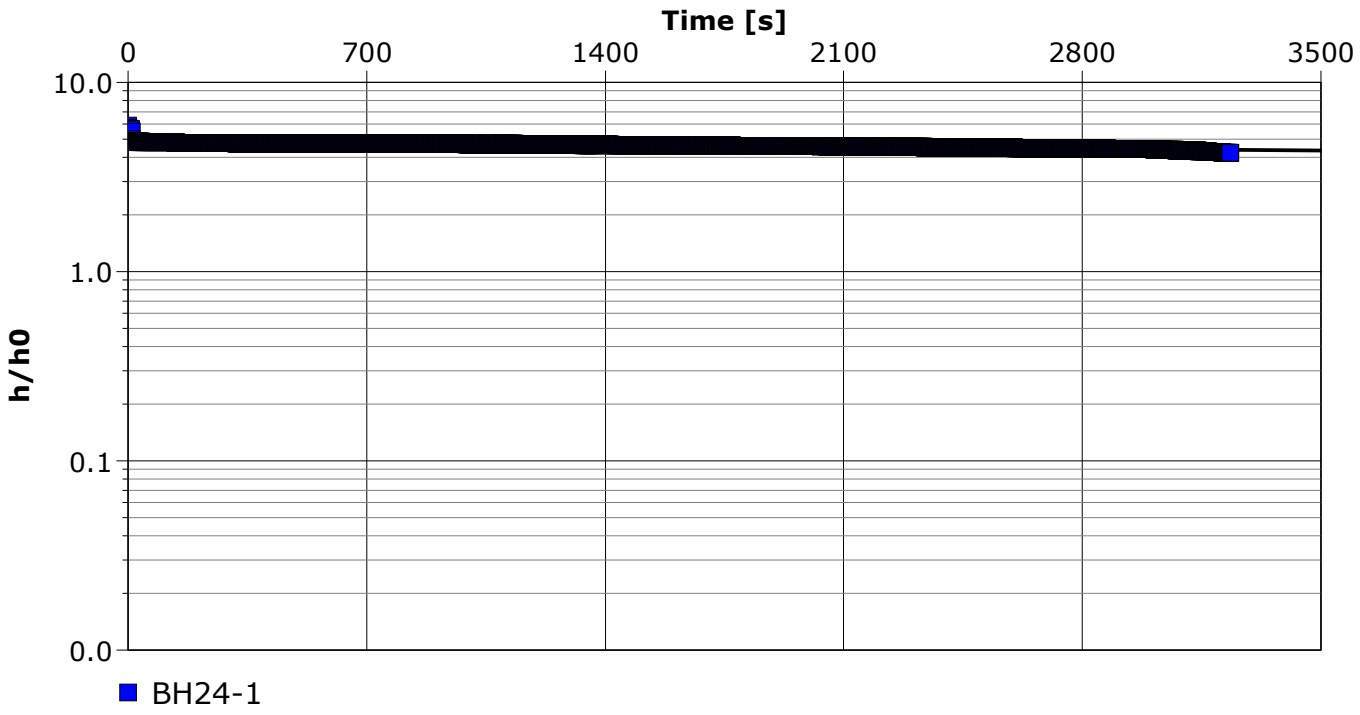


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH21-4	6.83×10^{-7}	

	Slug Test Analysis Report
	Project: 5061 Stouffville Road
	Number: 19-043-103
	Client: Times Group Corporation

Location: Whitchurch-Stouffville,ON	Slug Test: BH24-1	Test Well: BH24-1
Test Conducted by: CL		Test Date: 11/13/2024
Analysis Performed by: DS	BH24-1	Analysis Date: 11/8/2024
Aquifer Thickness: 23.00 m		

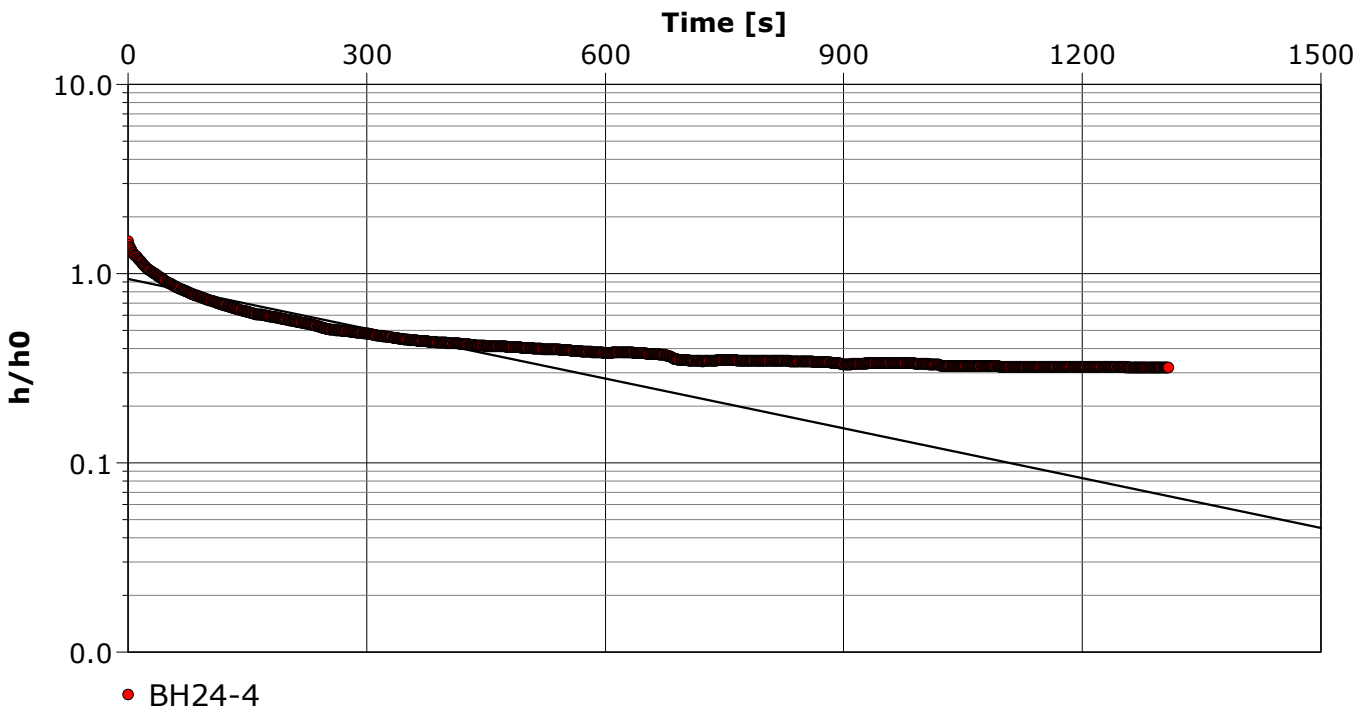


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH24-1	1.09×10^{-8}	

	Slug Test Analysis Report
	Project: 5061 Stouffville Road
	Number: 19-043-103
	Client: Times Group Corporation

Location: Whitchurch-Stouffville,ON	Slug Test: BH24-4	Test Well: BH24-4
Test Conducted by: CL		Test Date: 11/13/2024
Analysis Performed by: DS	BH24-4	Analysis Date: 11/8/2024
Aquifer Thickness: 9.00 m		

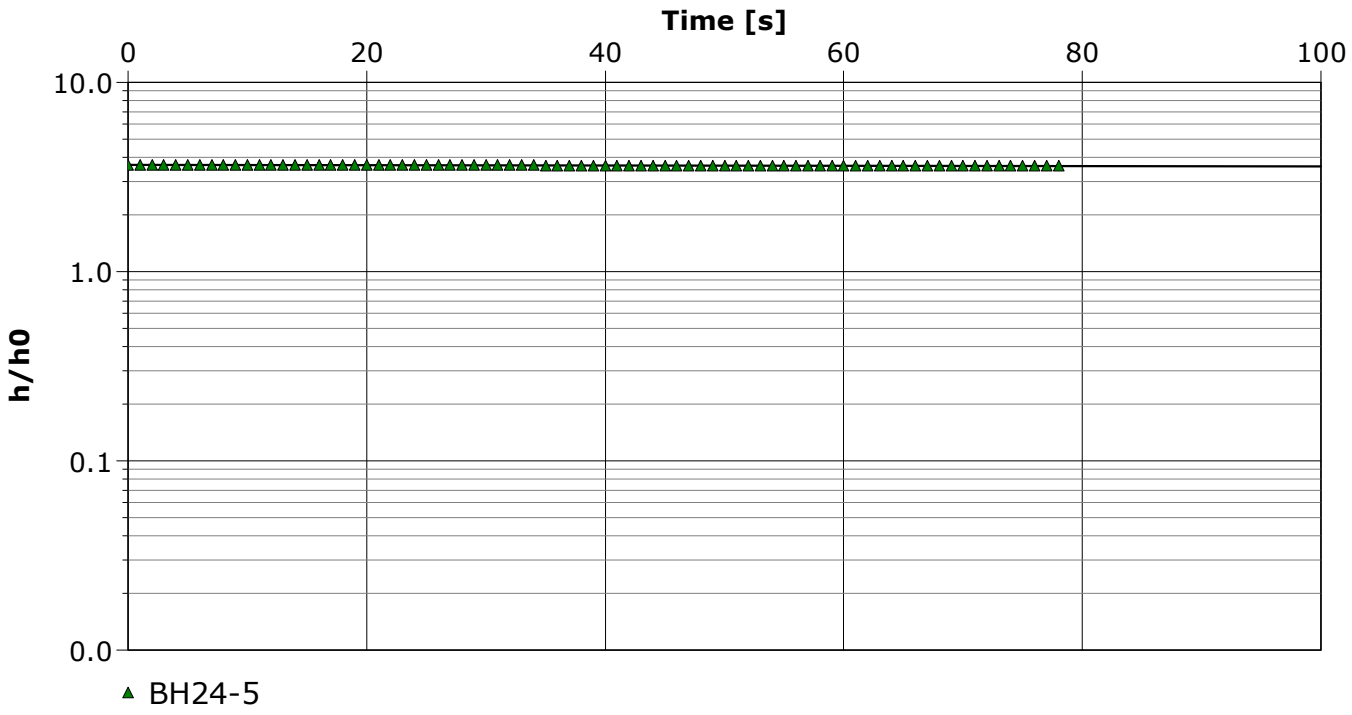


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH24-4	7.52×10^{-7}	

	Slug Test Analysis Report
	Project: 5061 Stouffville Road
	Number: 19-043-103
	Client: Times Group Corporation

Location: Whitchurch-Stouffville,ON	Slug Test: BH24-5	Test Well: BH24-5
Test Conducted by: CL		Test Date: 11/13/2024
Analysis Performed by: DS	BH24-5	Analysis Date: 11/22/2024
Aquifer Thickness: 10.50 m		

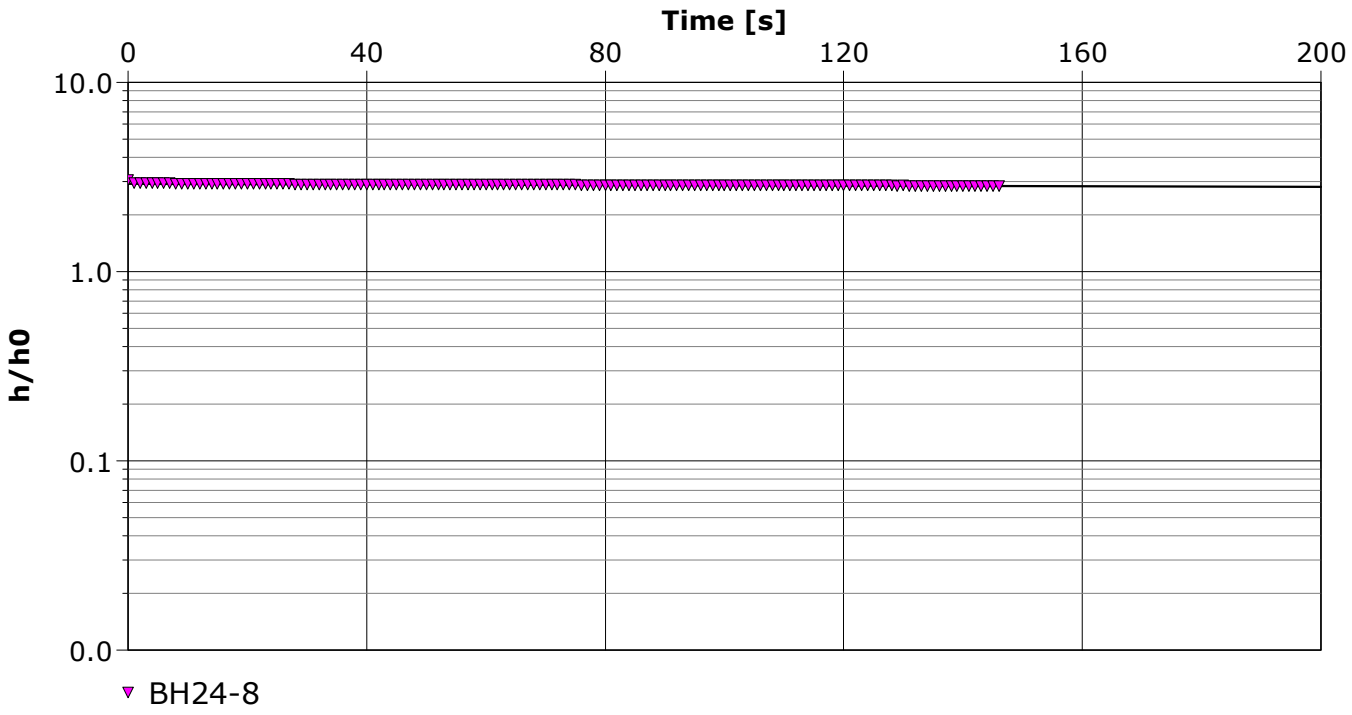


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH24-5	7.14×10^{-8}	

	Slug Test Analysis Report
	Project: 5061 Stouffville Road
	Number: 19-043-103
	Client: Times Group Corporation

Location: Whitchurch-Stouffville,ON	Slug Test: BH24-8	Test Well: BH24-8
Test Conducted by: CL		Test Date: 11/13/2024
Analysis Performed by: DS	BH24-8	Analysis Date: 11/22/2024
Aquifer Thickness: 7.50 m		

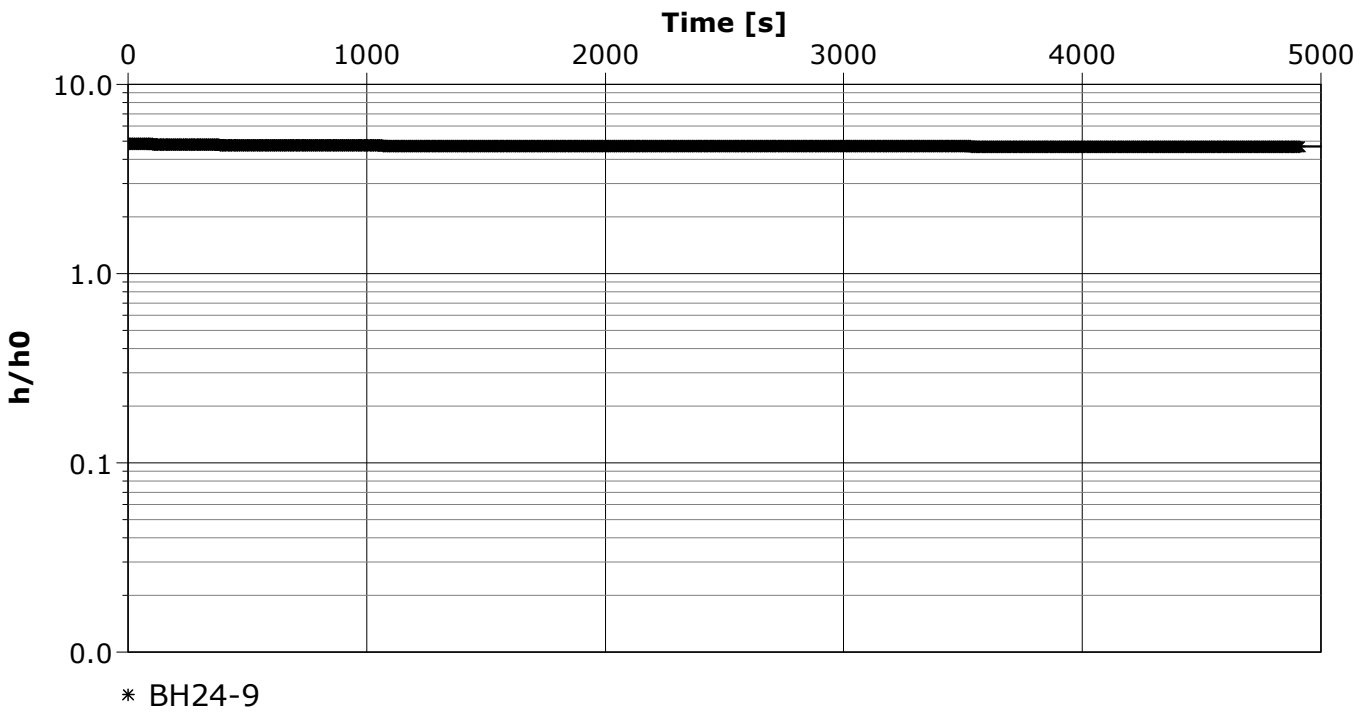


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH24-8	7.51×10^{-8}	

	Slug Test Analysis Report
	Project: 5061 Stouffville Road
	Number: 19-043-103
	Client: Times Group Corporation

Location: Whitchurch-Stouffville,ON	Slug Test: BH24-9	Test Well: BH24-9
Test Conducted by: DS		Test Date: 11/13/2024
Analysis Performed by: DS	BH24-9	Analysis Date: 11/22/2024
Aquifer Thickness: 9.00 m		

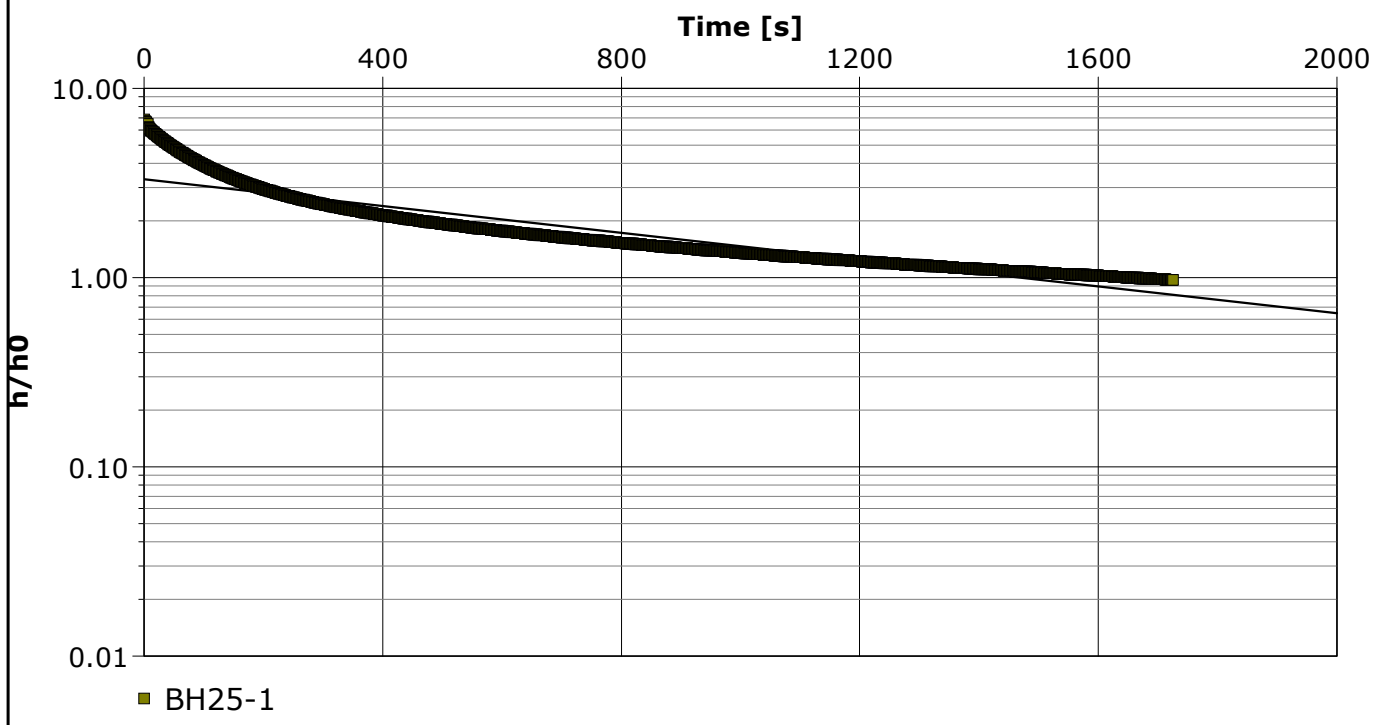


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH24-9	1.91×10^{-9}	

	Slug Test Analysis Report
	Project: 5061 Stouffville Road
	Number: 19-043-103
	Client: Times Group Corporation

Location: Whitchurch-Stouffville,ON	Slug Test: BH25-1	Test Well: BH25-1
Test Conducted by: KK		Test Date: 3/24/2025
Analysis Performed by: DS	BH25-1	Analysis Date: 3/28/2025
Aquifer Thickness: 40.00 m		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH25-1	3.24×10^{-7}	

APPENDIX D

Groundwater Quality Certificate of Analysis

4721 & 5061 Stouffville Road
Whitchurch-Stouffville, Ontario

INCLUDED MATERIAL

Laboratory certificates for groundwater samples from BH19-5 and BH24-5.

Samples collected October 7 and November 15, 2024, respectively.

Certificates are reproduced from the April 2025 hydrogeological report.





FINAL REPORT

CA40064-OCT24 R1

19-043-101, 4721-5061 Stouffville Rd.

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS

Client	DS Consultants
Address	6221 Highway 7 Unit 6 Vaughan, Ontario L4H 0K8. Canada
Contact	Don Hsu
Telephone	905-264-9393
Facsimile	905-264-2685
Email	don.hsu@dsconsultants.ca
Project	19-043-101, 4721-5061 Stouffville Rd.
Order Number	
Samples	Ground Water (1)

LABORATORY DETAILS

Project Specialist	Maarit Wolfe, Hon.B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2000
Facsimile	705-652-6365
Email	Maarit.Wolfe@sgs.com
SGS Reference	CA40064-OCT24
Received	10/07/2024
Approved	10/15/2024
Report Number	CA40064-OCT24 R1
Date Reported	10/15/2024

COMMENTS

RL - SGS Reporting Limit

Nonylphenol Ethoxylates is the sum of nonylphenol monoethoxylate and nonylphenol diethoxylate.

Temperature of Sample upon Receipt: 9 degrees C
Cooling Agent Present: yes
Custody Seal Present: yes

Chain of Custody Number: 035639

SIGNATORIES

Maarit Wolfe, Hon.B.Sc



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Client: DS Consultants
Project: 19-043-101, 4721-5061 Stouffville Rd.
Project Manager: Don Hsu
Samplers: Don Hsu

MATRIX: WATER

Sample Number	8
Sample Name	BH 19-5
Sample Matrix	Ground Water
Sample Date	07/10/2024

L1 = SANSEW / WATER / - - York Sewer Use ByLaw - Sanitary Sewer Discharge - BL_2021_102

L2 = SANSEW / WATER / - - York Sewer Use ByLaw - Storm Sewer Discharge - BL_2021_102

Parameter	Units	RL	L1	L2	Result
General Chemistry					
Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15	< 4 ↑
Total Suspended Solids	mg/L	2	350	15	9
Total Kjeldahl Nitrogen	as N mg/L	0.5	100	1	< 0.5
Metals and Inorganics					
Sulphate	mg/L	2	1500		5
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01
Fluoride	mg/L	0.06	10		0.16
Aluminum (total)	mg/L	0.001	50		0.048
Antimony (total)	mg/L	0.0009	5		< 0.0009
Arsenic (total)	mg/L	0.0002	1	0.02	0.0014
Cadmium (total)	mg/L	0.000003	0.7	0.008	< 0.000003
Chromium (total)	mg/L	0.00008	2	0.08	0.00022
Cobalt (total)	mg/L	0.000004	5		0.000042
Copper (total)	mg/L	0.001	3	0.05	< 0.001
Lead (total)	mg/L	0.00009	1	0.12	0.00010
Manganese (total)	mg/L	0.00001	5	0.15	0.0131
Molybdenum (total)	mg/L	0.0004	5		0.0010
Nickel (total)	mg/L	0.0001	2	0.08	< 0.0001
Phosphorus (total)	mg/L	0.003	10	0.4	0.019
Selenium (total)	mg/L	0.00004	1	0.02	< 0.00004
Silver (total)	mg/L	0.00005	5	0.12	< 0.00005
Tin (total)	mg/L	0.00006	5		0.00039

Client: DS Consultants
Project: 19-043-101, 4721-5061 Stouffville Rd.
Project Manager: Don Hsu
Samplers: Don Hsu

MATRIX: WATER

Sample Number	8
Sample Name	BH 19-5
Sample Matrix	Ground Water
Sample Date	07/10/2024

L1 = SANSEW / WATER / - - York Sewer Use ByLaw - Sanitary Sewer Discharge - BL_2021_102

L2 = SANSEW / WATER / - - York Sewer Use ByLaw - Storm Sewer Discharge - BL_2021_102

Parameter	Units	RL	L1	L2	Result
Metals and Inorganics (continued)					
Titanium (total)	mg/L	0.0001	5		0.0025
Zinc (total)	mg/L	0.002	2	0.04	< 0.002
Nonylphenol and Ethoxylates					
Nonylphenol	mg/L	0.001	0.02		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.2		< 0.01
Nonylphenol diethoxylate	mg/L	0.01			< 0.01
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01
Oil and Grease					
Oil & Grease (total)	mg/L	2			< 2
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4
Oil & Grease (mineral/synthetic)	mg/L	4	15		< 4
Other (ORP)					
pH	No unit	0.05	10.5	9	8.01
Mercury (total)	mg/L	0.00001	0.01	0.0004	< 0.00001

Client: DS Consultants
Project: 19-043-101, 4721-5061 Stouffville Rd.
Project Manager: Don Hsu
Samplers: Don Hsu

MATRIX: WATER

Sample Number	8
Sample Name	BH 19-5
Sample Matrix	Ground Water
Sample Date	07/10/2024

L1 = SANSEW / WATER / - - York Sewer Use ByLaw - Sanitary Sewer Discharge - BL_2021_102

L2 = SANSEW / WATER / - - York Sewer Use ByLaw - Storm Sewer Discharge - BL_2021_102

Parameter	Units	RL	L1	L2	Result
PCBs					
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004	< 0.0001
Phenols					
4AAP-Phenolics	mg/L	0.002	1	0.008	< 0.002
SVOCs					
di-n-Butyl Phthalate	mg/L	0.002	0.08	0.015	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.012	0.0088	< 0.002
VOCs					
Chloroform	mg/L	0.0005	0.04	0.002	< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005	0.05	0.0056	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.08	0.0068	< 0.0005
cis-1,2-Dichloroethylene	mg/L	0.0005	4	0.0056	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005	0.14	0.0056	< 0.0005
Methylene Chloride	mg/L	0.0005	2	0.0052	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	1.4	0.017	< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.4	0.008	< 0.0005
Methyl ethyl ketone	mg/L	0.02	8		< 0.02
Styrene	mg/L	0.0005	0.2		< 0.0005

Client: DS Consultants
Project: 19-043-101, 4721-5061 Stouffville Rd.
Project Manager: Don Hsu
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MATRIX: WATER

Sample Number	8
Sample Name	BH 19-5
Sample Matrix	Ground Water
Sample Date	07/10/2024

L1 = SANSEW / WATER / - - York Sewer Use ByLaw - Sanitary Sewer Discharge - BL_2021_102

L2 = SANSEW / WATER / - - York Sewer Use ByLaw - Storm Sewer Discharge - BL_2021_102

Parameter	Units	RL	L1	L2	Result
VOCs - BTEX					
Benzene	mg/L	0.0005	0.01	0.002	< 0.0005
Ethylbenzene	mg/L	0.0005	0.16	0.002	< 0.0005
Toluene	mg/L	0.0005	0.27	0.002	< 0.0005
Xylene (total)	mg/L	0.0005	1.4	0.0044	< 0.0005
m-p-xylene	mg/L	0.0005			< 0.0005
o-xylene	mg/L	0.0005			< 0.0005

EXCEEDANCE SUMMARY

No exceedances are present above the regulatory limit(s) indicated

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	DIO5005-OCT24	mg/L	2	<2	0	20	106	80	120	104	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)	BOD0015-OCT24	mg/L	2	< 2	2	30	97	70	130	86	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)	SKA0078-OCT24	mg/L	0.01	<0.01	ND	10	90	90	110	118	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-[ENVIEWL-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	EWL0192-OCT24	mg/L	0.06	<0.06	ND	10	96	90	110	96	75	125

Mercury by CVAAS

Method: EPA 7471A/SM 3112B I Internal ref.: ME-CA-[ENVISPE-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)	EHG0019-OCT24	mg/L	0.00001	< 0.00001	ND	20	95	80	120	118	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-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)	EMS0097-OCT24	mg/L	0.00005	<0.00005	ND	20	101	90	110	71	70	130
Aluminum (total)	EMS0097-OCT24	mg/L	0.001	<0.001	1	20	104	90	110	119	70	130
Arsenic (total)	EMS0097-OCT24	mg/L	0.0002	<0.0002	9	20	105	90	110	109	70	130
Cadmium (total)	EMS0097-OCT24	mg/L	0.000003	<0.000003	13	20	100	90	110	106	70	130
Cobalt (total)	EMS0097-OCT24	mg/L	0.000004	<0.000004	0	20	105	90	110	102	70	130
Chromium (total)	EMS0097-OCT24	mg/L	0.00008	<0.00008	5	20	105	90	110	98	70	130
Copper (total)	EMS0097-OCT24	mg/L	0.001	<0.001	ND	20	103	90	110	108	70	130
Manganese (total)	EMS0097-OCT24	mg/L	0.00001	<0.00001	1	20	104	90	110	104	70	130
Molybdenum (total)	EMS0097-OCT24	mg/L	0.0004	<0.0004	3	20	104	90	110	101	70	130
Nickel (total)	EMS0097-OCT24	mg/L	0.0001	<0.0001	ND	20	103	90	110	99	70	130
Lead (total)	EMS0097-OCT24	mg/L	0.00009	<0.00009	ND	20	102	90	110	101	70	130
Phosphorus (total)	EMS0097-OCT24	mg/L	0.003	<0.003	ND	20	98	90	110	NV	70	130
Antimony (total)	EMS0097-OCT24	mg/L	0.0009	<0.0009	ND	20	100	90	110	101	70	130
Selenium (total)	EMS0097-OCT24	mg/L	0.00004	<0.00004	16	20	102	90	110	106	70	130
Tin (total)	EMS0097-OCT24	mg/L	0.00006	<0.00006	6	20	109	90	110	NV	70	130
Titanium (total)	EMS0097-OCT24	mg/L	0.0001	<0.0001	ND	20	104	90	110	NV	70	130
Zinc (total)	EMS0097-OCT24	mg/L	0.002	<0.002	ND	20	104	90	110	104	70	130

QC SUMMARY

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	GCM0120-OCT24	mg/L	0.01	<0.01			81	55	120			
Nonylphenol monoethoxylate	GCM0120-OCT24	mg/L	0.01	<0.01			83	55	120			
Nonylphenol	GCM0120-OCT24	mg/L	0.001	<0.001			80	55	120			

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)	GCM0165-OCT24	mg/L	2	<2	NSS	20	106	75	125			

QC SUMMARY

Oil & Grease-AV/MS

Method: MOE E3401/SM 5520F | Internal ref.: ME-CA-[ENV]GC-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)	GCM0165-OCT24	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0165-OCT24	mg/L	4	< 4	NSS	20	NA	70	130			

pH

Method: SM 4500 | 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
pH	EWL0172-OCT24	No unit	0.05	NA	0		102			NA		

Phenols by SFA

Method: SM 5530B-D | Internal ref.: ME-CA-[ENV]SFA-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	SKA0089-OCT24	mg/L	0.002	<0.002	ND	10	98	80	120	96	75	125

QC SUMMARY

Polychlorinated Biphenyls

Method: MOE E3400/EPA 8082A | Internal ref.: ME-CA-[ENV]GC-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	GCM0142-OCT24	mg/L	0.0001	<0.0001	NSS	30	87	60	140	NSS	60	140

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-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	GCM0166-OCT24	mg/L	0.002	< 0.002	NSS	30	101	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0166-OCT24	mg/L	0.002	< 0.002	NSS	30	102	50	140	NSS	50	140

QC SUMMARY

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-[ENV]EWL-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	EWL0201-OCT24	mg/L	2	< 2	2	10	101	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-[ENV]SFA-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	SKA0080-OCT24	as N mg/L	0.5	<0.5	ND	10	103	90	110	105	75	125

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	GCM0119-OCT24	mg/L	0.0005	<0.0005	ND	30	98	60	130	96	50	140
1,2-Dichlorobenzene	GCM0119-OCT24	mg/L	0.0005	<0.0005	ND	30	100	60	130	88	50	140
1,4-Dichlorobenzene	GCM0119-OCT24	mg/L	0.0005	<0.0005	ND	30	102	60	130	88	50	140
Benzene	GCM0119-OCT24	mg/L	0.0005	<0.0005	ND	30	98	60	130	88	50	140
Chloroform	GCM0119-OCT24	mg/L	0.0005	<0.0005	ND	30	97	60	130	86	50	140
cis-1,2-Dichloroethylene	GCM0119-OCT24	mg/L	0.0005	<0.0005	ND	30	99	60	130	89	50	140
Ethylbenzene	GCM0119-OCT24	mg/L	0.0005	<0.0005	ND	30	100	60	130	92	50	140
m-p-xylene	GCM0119-OCT24	mg/L	0.0005	<0.0005	ND	30	99	60	130	91	50	140
Methyl ethyl ketone	GCM0119-OCT24	mg/L	0.02	<0.02	ND	30	98	50	140	82	50	140
Methylene Chloride	GCM0119-OCT24	mg/L	0.0005	<0.0005	ND	30	99	60	130	87	50	140
o-xylene	GCM0119-OCT24	mg/L	0.0005	<0.0005	ND	30	101	60	130	91	50	140
Styrene	GCM0119-OCT24	mg/L	0.0005	<0.0005	ND	30	101	60	130	90	50	140
Tetrachloroethylene (perchloroethylene)	GCM0119-OCT24	mg/L	0.0005	<0.0005	ND	30	97	60	130	87	50	140
Toluene	GCM0119-OCT24	mg/L	0.0005	<0.0005	ND	30	95	60	130	88	50	140
trans-1,3-Dichloropropene	GCM0119-OCT24	mg/L	0.0005	<0.0005	ND	30	96	60	130	86	50	140
Trichloroethylene	GCM0119-OCT24	mg/L	0.0005	<0.0005	ND	30	100	60	130	84	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. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

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

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

No: 035639

SGS 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

Page ____ of ____

Laboratory Information Section - Lab use only

Received By: Ahneen
Received Date: 10,07,24 (mm/dd/yy)
Received Time: 16:20 (hr : min)
Received By (signature):
Custody Seal Present: Yes ☑ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: ICE
Temperature Upon Receipt (°C) 9 x 3
LAB LIMS #: 40064

REPORT INFORMATION

Company: DS CONSULTANTS LTD.
Contact: DON HSU
Address: 6221 HWY 7 - U16
VAUGHAN ON, L4H 0K8
Phone: 416 722 6247
Fax:
Email: dhsu@dsconsultants.ca

INVOICE INFORMATION

☐ (same as Report Information)
Company:
Contact:
Address:
Phone:
Email:

Quotation #:
P.O. #:
Project #: 19-043-101
Site Location/ID: 4721 - 5061 STOUFFVILLE RD.

TURNAROUND TIME (TAT) REQUIRED

☒ Regular TAT (5-7days)
TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day
RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days
PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION
Specify Due Date:
*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☐ Res/Park Soil Texture: ☐ Coarse
☐ Table 2 ☐ Ind/Com ☐ Medium/Fine
☐ Table 3 ☐ Agri/Other
☐ Table ____ Appx. ____
Soil Volume ☐ <350m3 ☐ >350m3

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

Sewer By-Law:
☒ Sanitary
☒ Storm
Municipality: YORK

RECORD OF SITE CONDITION (RSC) ☐ YES ☒ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	M&I: Metals & Inorganics (incl CrVI, CN,Hg pH,(B(HWS),EC,SAR-soil) (Cl, Na-water))	M&I: Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI)	M&I: ICP Metals only (Sb,As,Ba,Be,B,Cd, Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn)	SVOC: PAHs only	SVOC: SVOCs (all incl PAHs, ABNs, CPs)	PCB: PCBs (Aroclor ☐ Total ☐)	PHC: F1-F4 + BTEX	PHC: F1-F4 only (no BTEX)	VOC: VOCs (all incl BTEX)	VOC: BTEX only	Pest: Pesticides (Organochlorine or specify other)	Other (please specify)					SPLP: Specify tests	TCLP: Specify tests	COMMENTS:
																		Sewer Use: YORK / STORM Specify pkg: Sanitary	Water Characterization Pkg General ☐ Extended ☐					
1	BH 19-5	10/7/24	11:00	18	GW	N												X							
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

5 Day TAT

Observations/Comments/Special Instructions

Sampled By (NAME): DON HSU Signature: Date: 10, 7, 24 (mm/dd/yy)
Relinquished by (NAME): DON HSU Signature: Date: 10, 7, 24 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.7
Date of Issue: 07 JUNE 2023

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.





FINAL REPORT

CA40161-NOV24 R1

19-043-103, Hwy 48 & Stouffville Rd, Stouffville

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS

Client	DS Consultants
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada
Contact	Dorothy Santos
Telephone	905-329-2735
Facsimile	905-264-2685
Email	dsantos@dsconsultants.ca
Project	19-043-103, Hwy 48 & Stouffville Rd, Stouffville
Order Number	
Samples	Ground Water (1)

LABORATORY DETAILS

Project Specialist	Jill Campbell, B.Sc.,GISAS
Laboratory	SGS Canada Inc.
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SGS Reference	CA40161-NOV24
Received	11/15/2024
Approved	11/22/2024
Report Number	CA40161-NOV24 R1
Date Reported	11/22/2024

COMMENTS

RL - SGS Reporting Limit

Nonylphenol Ethoxylates is the sum of nonylphenol monoethoxylate and nonylphenol diethoxylate.

Temperature of Sample upon Receipt: 9 degrees C
Cooling Agent Present: Yes
Custody Seal Present: Yes

Chain of Custody Number: 040723

SIGNATORIES

Jill Campbell, B.Sc.,GISAS



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Client: DS Consultants
Project: 19-043-103, Hwy 48 & Stouffville Rd, Stouffville
Project Manager: Dorothy Santos
Samplers: Chaitanya

MATRIX: WATER

L1 = SANSEW / WATER / - - York Sewer Use ByLaw - Sanitary Sewer Discharge - BL_2021_102

L2 = SANSEW / WATER / - - York Sewer Use ByLaw - Storm Sewer Discharge - BL_2021_102

Sample Number	8
Sample Name	BH 24-5
Sample Matrix	Ground Water
Sample Date	15/11/2024

Parameter	Units	RL	L1	L2	Result
General Chemistry					
Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15	< 4 ↑
Total Suspended Solids	mg/L	2	350	15	3
Total Kjeldahl Nitrogen	as N mg/L	0.5	100	1	0.6
Metals and Inorganics					
Sulphate	mg/L	2	1500		36
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01
Fluoride	mg/L	0.06	10		0.11
Aluminum (total)	mg/L	0.001	50		0.056
Antimony (total)	mg/L	0.0009	5		< 0.0009
Arsenic (total)	mg/L	0.0002	1	0.02	0.0006
Cadmium (total)	mg/L	0.000003	0.7	0.008	0.000017
Chromium (total)	mg/L	0.00008	2	0.08	0.00045
Cobalt (total)	mg/L	0.000004	5		0.00126
Copper (total)	mg/L	0.001	3	0.05	0.001
Lead (total)	mg/L	0.00009	1	0.12	0.00069
Manganese (total)	mg/L	0.00001	5	0.15	0.323
Molybdenum (total)	mg/L	0.0004	5		0.0017
Nickel (total)	mg/L	0.0001	2	0.08	0.0047
Phosphorus (total)	mg/L	0.003	10	0.4	0.024
Selenium (total)	mg/L	0.00004	1	0.02	0.00017
Silver (total)	mg/L	0.00005	5	0.12	< 0.00005
Tin (total)	mg/L	0.00006	5		0.00173

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Sample Matrix	Ground Water
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L1 = SANSEW / WATER / - - York Sewer Use ByLaw - Sanitary Sewer Discharge - BL_2021_102

L2 = SANSEW / WATER / - - York Sewer Use ByLaw - Storm Sewer Discharge - BL_2021_102

Parameter	Units	RL	L1	L2	Result
Metals and Inorganics (continued)					
Titanium (total)	mg/L	0.0001	5		0.0023
Zinc (total)	mg/L	0.002	2	0.04	0.007
Nonylphenol and Ethoxylates					
Nonylphenol	mg/L	0.001	0.02		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.2		< 0.01
Nonylphenol diethoxylate	mg/L	0.01			< 0.01
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01
Oil and Grease					
Oil & Grease (total)	mg/L	2			< 2
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4
Oil & Grease (mineral/synthetic)	mg/L	4	15		< 4
Other (ORP)					
pH	No unit	0.05	10.5	9	7.23
Mercury (total)	mg/L	0.00001	0.01	0.0004	< 0.00001

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Sample Matrix	Ground Water
Sample Date	15/11/2024

L1 = SANSEW / WATER / - - York Sewer Use ByLaw - Sanitary Sewer Discharge - BL_2021_102

L2 = SANSEW / WATER / - - York Sewer Use ByLaw - Storm Sewer Discharge - BL_2021_102

Parameter	Units	RL	L1	L2	Result
PCBs					
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004	< 0.0001
Phenols					
4AAP-Phenolics	mg/L	0.002	1	0.008	0.005
SVOCs					
di-n-Butyl Phthalate	mg/L	0.002	0.08	0.015	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.012	0.0088	< 0.002
VOCs					
Chloroform	mg/L	0.0005	0.04	0.002	< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005	0.05	0.0056	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.08	0.0068	< 0.0005
cis-1,2-Dichloroethylene	mg/L	0.0005	4	0.0056	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005	0.14	0.0056	< 0.0005
Methylene Chloride	mg/L	0.0005	2	0.0052	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	1.4	0.017	< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.4	0.008	< 0.0005
Methyl ethyl ketone	mg/L	0.02	8		< 0.02
Styrene	mg/L	0.0005	0.2		< 0.0005

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L2 = SANSEW / WATER / - - York Sewer Use ByLaw - Storm Sewer Discharge - BL_2021_102

VOCs - BTEX

Parameter	Units	RL	L1	L2	Result
Benzene	mg/L	0.0005	0.01	0.002	< 0.0005
Ethylbenzene	mg/L	0.0005	0.16	0.002	< 0.0005
Toluene	mg/L	0.0005	0.27	0.002	< 0.0005
Xylene (total)	mg/L	0.0005	1.4	0.0044	< 0.0005
m-p-xylene	mg/L	0.0005			< 0.0005
o-xylene	mg/L	0.0005			< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	SANSEW / WATER / - - York Sewer Use ByLaw - Sanitary Sewer Discharge - BL_2021_102 L1	SANSEW / WATER / - - York Sewer Use ByLaw - Storm Sewer Discharge - BL_2021_102 L2
BH 24-5					
Manganese	SM 3030/EPA 200.8	mg/L	0.323		0.15

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	DIO8029-NOV24	mg/L	2	<2	1	20	102	80	120	104	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)	BOD0029-NOV24	mg/L	2	< 2	6	30	86	70	130	82	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)	SKA0162-NOV24	mg/L	0.01	<0.01	1	10	105	90	110	88	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-[ENVIEWL-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	EWL0467-NOV24	mg/L	0.06	<0.06	ND	10	101	90	110	90	75	125

Mercury by CVAAS

Method: EPA 7471A/SM 3112B I Internal ref.: ME-CA-[ENVISPE-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)	EHG0046-NOV24	mg/L	0.00001	< 0.00001	ND	20	116	80	120	111	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-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
Tin (total)	EMS0202-NOV24	mg/L	0.00006	<0.00006	1	20	99	90	110	NV	70	130
Titanium (total)	EMS0202-NOV24	mg/L	0.0001	<0.0001	ND	20	98	90	110	NV	70	130
Zinc (total)	EMS0202-NOV24	mg/L	0.002	<0.002	2	20	98	90	110	118	70	130
Silver (total)	EMS0202-NOV24	mg/L	0.00005	<0.00005	ND	20	95	90	110	88	70	130
Aluminum (total)	EMS0202-NOV24	mg/L	0.001	<0.001	1	20	103	90	110	109	70	130
Arsenic (total)	EMS0202-NOV24	mg/L	0.0002	<0.0002	ND	20	101	90	110	109	70	130
Cadmium (total)	EMS0202-NOV24	mg/L	0.000003	<0.000003	0	20	100	90	110	105	70	130
Cobalt (total)	EMS0202-NOV24	mg/L	0.000004	<0.000004	7	20	100	90	110	109	70	130
Chromium (total)	EMS0202-NOV24	mg/L	0.00008	<0.00008	2	20	102	90	110	107	70	130
Copper (total)	EMS0202-NOV24	mg/L	0.001	<0.001	1	20	101	90	110	115	70	130
Manganese (total)	EMS0202-NOV24	mg/L	0.00001	<0.00001	7	20	103	90	110	126	70	130
Molybdenum (total)	EMS0202-NOV24	mg/L	0.0004	<0.0004	6	20	101	90	110	109	70	130
Nickel (total)	EMS0202-NOV24	mg/L	0.0001	<0.0001	3	20	98	90	110	102	70	130
Lead (total)	EMS0202-NOV24	mg/L	0.00009	<0.00009	4	20	96	90	110	103	70	130
Phosphorus (total)	EMS0202-NOV24	mg/L	0.003	<0.003	0	20	102	90	110	NV	70	130
Antimony (total)	EMS0202-NOV24	mg/L	0.0009	<0.0009	ND	20	103	90	110	102	70	130
Selenium (total)	EMS0202-NOV24	mg/L	0.00004	<0.00004	ND	20	102	90	110	117	70	130

QC SUMMARY

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	GCM0320-NOV24	mg/L	0.01	<0.01			88	55	120			
Nonylphenol monoethoxylate	GCM0320-NOV24	mg/L	0.01	<0.01			87	55	120			
Nonylphenol	GCM0320-NOV24	mg/L	0.001	<0.001			84	55	120			

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)	GCM0325-NOV24	mg/L	2	<2	NSS	20	97	75	125			

QC SUMMARY

Oil & Grease-AV/MS

Method: MOE E3401/SM 5520F | Internal ref.: ME-CA-[ENV]GC-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)	GCM0325-NOV24	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0325-NOV24	mg/L	4	< 4	NSS	20	NA	70	130			

pH

Method: SM 4500 | 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
pH	EWL0360-NOV24	No unit	0.05	NA	0		100			NA		

Phenols by SFA

Method: SM 5530B-D | Internal ref.: ME-CA-[ENV]SFA-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	SKA0191-NOV24	mg/L	0.002	<0.002	ND	10	96	80	120	NV	75	125

QC SUMMARY

Polychlorinated Biphenyls

Method: MOE E3400/EPA 8082A | Internal ref.: ME-CA-[ENV]GC-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	GCM0323-NOV24	mg/L	0.0001	<0.0001	NSS	30	75	60	140	NSS	60	140

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-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	GCM0285-NOV24	mg/L	0.002	< 0.002	NSS	30	105	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0285-NOV24	mg/L	0.002	< 0.002	NSS	30	107	50	140	NSS	50	140

QC SUMMARY

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-[ENV]EWL-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	EWL0355-NOV24	mg/L	2	< 2	3	10	93	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-[ENV]SFA-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	SKA0184-NOV24	as N mg/L	0.5	<0.5	2	10	103	90	110	98	75	125

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENV]GC-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	GCM0301-NOV24	mg/L	0.0005	<0.0005	ND	30	95	60	130	87	50	140
1,2-Dichlorobenzene	GCM0301-NOV24	mg/L	0.0005	<0.0005	ND	30	99	60	130	94	50	140
1,4-Dichlorobenzene	GCM0301-NOV24	mg/L	0.0005	<0.0005	ND	30	97	60	130	93	50	140
Benzene	GCM0301-NOV24	mg/L	0.0005	<0.0005	ND	30	99	60	130	97	50	140
Chloroform	GCM0301-NOV24	mg/L	0.0005	<0.0005	ND	30	99	60	130	94	50	140
cis-1,2-Dichloroethylene	GCM0301-NOV24	mg/L	0.0005	<0.0005	ND	30	98	60	130	96	50	140
Ethylbenzene	GCM0301-NOV24	mg/L	0.0005	<0.0005	ND	30	103	60	130	100	50	140
m-p-xylene	GCM0301-NOV24	mg/L	0.0005	<0.0005	ND	30	104	60	130	100	50	140
Methyl ethyl ketone	GCM0301-NOV24	mg/L	0.02	<0.02	ND	30	87	50	140	91	50	140
Methylene Chloride	GCM0301-NOV24	mg/L	0.0005	<0.0005	ND	30	95	60	130	89	50	140
o-xylene	GCM0301-NOV24	mg/L	0.0005	<0.0005	ND	30	103	60	130	99	50	140
Styrene	GCM0301-NOV24	mg/L	0.0005	<0.0005	ND	30	104	60	130	100	50	140
Tetrachloroethylene (perchloroethylene)	GCM0301-NOV24	mg/L	0.0005	<0.0005	ND	30	97	60	130	94	50	140
Toluene	GCM0301-NOV24	mg/L	0.0005	<0.0005	ND	30	98	60	130	94	50	140
trans-1,3-Dichloropropene	GCM0301-NOV24	mg/L	0.0005	<0.0005	ND	30	100	60	130	94	50	140
Trichloroethylene	GCM0301-NOV24	mg/L	0.0005	<0.0005	ND	30	99	60	130	93	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. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

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

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS 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

No: 040723 (1)

Page 1 of 1

Laboratory Information Section - Lab use only

Received By: Ameen
Received Date: 11/15/24 (mm/dd/yy)
Received Time: 13 : 05 (hr : min)
Received By (signature):
Custody Seal Present: Yes ☑ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: ICE
Temperature Upon Receipt (°C) 9x3
LAB LIMS #: CA4016-NOV24

REPORT INFORMATION

Company: DS Consultants Ltd.
Contact: Dorothy Santos
Address: 6221 Hwy 7, Unit-16, Vaughan, ON
Phone: 905-329-2735
Fax:
Email: DSantos@dsconsultants.ca

INVOICE INFORMATION

☑ (same as Report Information)
Company:
Contact: Accounting
Address:
Phone:
Email:

Quotation #:
P.O. #:
Project #: 19-043-103
Site Location/ID: Hwy 48 & Stouffville Rd. Stouffville

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)

TAT's are quoted in business days (exclude statutory holidays & weekends).
Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

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

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☐ Res/Park Soil Texture: ☐ Coarse
☐ Table 2 ☐ Ind/Com ☐ Medium/Fine
☐ Table 3 ☐ Agri/Other
☐ Table _____ Appx. _____
Soil Volume ☐ <350m3 ☐ >350m3

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

Sewer By-Law:
☑ Sanitary
☑ Storm
Municipality: York

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	M&I: Metals & Inorganics (incl CrVI, CN, Hg pH,(B(HWS),EC,SAR-soil) (Cl, Na-water)	M&I: Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI	M&I: ICP Metals only (Sb,As,Ba,Be,B,Cd, Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn	SVOC: PAHs only	SVOC: SVOCs (all incl PAHs, ABNs, CPs	PCB: PCBs Total ☐ Aroclor ☐	PHC: F1-F4 + BTEX	PHC: F1-F4 only (no BTEX	VOC: VOCs (all incl BTEX	VOC: BTEX only	Pest: Pesticides (Organochlorine or specify other	Other: Josh storm sewer upto sanitary sewer upto Storm sewer	Other	Other	Other: Sewer Use: (Specify pkg:	Other: Water Characterization Pkg ☐ General ☐ Extended	SPLP: Specify tests ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN	TCLP: Specify tests ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.	COMMENTS:
1	BH 24-5	11/15/24	PM	18	GW	N																			Non-filtered sample
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

Observations/Comments/Special Instructions

Sampled By (NAME): Chaitanya	Signature:	Date: 11 / 15 / 24 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): Chaitanya	Signature:	Date: 11 / 15 / 24 (mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.7
Date of Issue: 07 JUNE 2023

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.

APPENDIX E

MECP Water Well Records

4721 & 5061 Stouffville Road
Whitchurch-Stouffville, Ontario

INCLUDED MATERIAL

Previous report WWR table, followed by 45 additional records from the expanded 500 m search.

Updated use-code and formation-log summary, and revised well-location plan.

Previous table expanded to include the full 90-record search.

MECP Water Well Record Search - 500 m of site

TOWNSHIP	UTM	E	N	DATE CNTR	CASING	WATER	PUMP TEST	WELL USE	SCREEN	WELL	WELL TAG	FORMATION
WHITCHURCH-STOUFFVIL CON 08 001	17 W	638015	4869363	1976/11 3109	30 24	FR 0066	25///:	DO		6913849		LOAM 0002 BRWN CLAY 0022 BLUE CLAY STNY 0047 SAND 0050 BLUE CLAY STNY 0065 GRVL 0070
WHITCHURCH-STOUFFVIL CON 08 001	17 W	637925	4869623	1970/05 5459	5	FR 0046	0/48/3/6:0	DO	0048 4	6909955		PRDG 0017 GREY CLAY GRVL 0035 GREY GRVL CLAY BLDR 0046 GREY MSND 0052
WHITCHURCH-STOUFFVIL CON 08 001	17 W	638124	4869457	1950/11 2204	2	FR 0047		ST DO		6908178		BLUE CLAY 0047
STOUFFVILLE VILLAGE	17 W	637849	4869254	2007/09 7241	1.5			TH		7051198	(Z63654) A063681	BRWN FILL SAND LOOS 0003 BRWN CLAY SILT SOFT 0008 GREN CLAY SILT DNSE 0011 GREY CLAY SILT 0016
WHITCHURCH-STOUFFVIL CON 08 001	17 W	637999	4869455	1952/07 2204	2	FR 0052	1/15/6/:	DO		6908176		PRDG 0020 BLUE CLAY STNS 0052 GRVL 0053
STOUFFVILLE VILLAGE	17 W	637852	4869248	2009/06 7241	5.19			MT	0010 10	7126408	(Z100258) A086578	BRWN FILL SAND GRVL 0004 BRWN SAND SILT DNSE 0012 GREY CLAY SILT WBRG 0020
STOUFFVILLE VILLAGE	17 W	637868	4869236	2009/06 7241	5.19			MT	0010 10	7126409	(Z100255) A086579	BRWN FILL SAND GRVL 0004 BRWN SAND SILT DNSE 0012 GREY CLAY SILT WBRG 0020
STOUFFVILLE VILLAGE	17 W	637834	4869224	2009/06 7241	2.04			MT	0010 10	7126411	(Z100256) A086581	BRWN FILL SAND GRVL 0004 BRWN SAND SILT DNSE 0012 GREY CLAY SILT WBRG 0020
STOUFFVILLE VILLAGE	17 W	637834	4869224	2009/10 7241	2.04			MT	0010 10	7133785	(Z104753) A086581 A	
STOUFFVILLE VILLAGE	17 W	637868	4869247	2009/10 7241	2.04			MT	0010 10	7133786	(Z104750) A086580 A	
STOUFFVILLE VILLAGE	17 W	637852	4869248	2009/10 7241	2.04			MT	0010 10	7133787	(Z104749) A086578 A	
STOUFFVILLE VILLAGE	17 W	637868	4869236	2009/10 7241	2.04			MT	0010 10	7133788	(Z104751) A086579 A	
STOUFFVILLE VILLAGE	17 W	637868	4869247	2009/06 7241	2.04			MT	0007 10	7126410	(Z100257) A086580	BRWN FILL SAND GRVL 0008 BRWN SAND SILT DNSE 0012 GREY CLAY SILT DNSE 0017
WHITCHURCH-STOUFFVIL CON 08 035	17 W	638062	4869328	1949/08 2204	2	FR 0050	0//4/:	DO	0051 5	6904046		MSND CLAY 0030 BLUE CLAY 0050 BRWN CSND 0056
WHITCHURCH-STOUFFVIL CON 08 035	17 W	638015	4869012	1954/10 1622	4	FR 0050	5/20/10/10:0	DO	0053 4	6904048		FILL 0005 YLLW CLAY MSND STNS 0020 BLUE CLAY STNS 0050 YLLW MSND STNS 0057
WHITCHURCH-STOUFFVIL	17 W	637886	4868759	2006/06 7082	1.97			NU	0013 5	6930598	(Z23579) A023342	GRVL SAND 0003 BRWN CLAY SILT 0008 BRWN SAND SILT GRVL 0020
WHITCHURCH-STOUFFVIL CON 08 035	17 W	638318	4869415	1954/12 2419	2	FR 0055	//3/:	DO	0050 5	6904049		CLAY 0045 MSND 0055
WHITCHURCH-STOUFFVIL	17 W	637886	4868759	2006/11 7082						7046164	(Z70724) A023342 A	
WHITCHURCH-STOUFFVIL CON 08 035	17 W	638203	4869401	1960/06 5420	34	FR 0038	18//4/:	DO		6904051		YLLW CLAY 0003 BLUE CLAY 0038 BLUE CLAY GRVL 0040
WHITCHURCH-STOUFFVIL	17 W	637862	4869240	2007/06 6490	1.97				0010 10	7047744	(Z52236) A046388	BRWN SAND GRVL FILL 0009 GREY SILT CLAY SAND 0016 BRWN SAND WBRG 0020
WHITCHURCH-STOUFFVIL CON 08 035	17 W	637974	4869174	1960/12 2204	2	FR 0048	4/10/2/18:0	DO	0047 9	6904052		CLAY STNS 0032 GRVL 0033 CLAY STNS 0046 CSND 0056
WHITCHURCH-STOUFFVIL	17 W	638090	4869523	2014/12 7247	2	UT 0008		MT	0010 10	7239494	(Z198477) A174028	BRWN GRVL SAND FILL 0008 BRWN SILT SNDY 0012 GREY TILL CLAY SAND 0020
WHITCHURCH-STOUFFVIL CON 08 035	17 W	638245	4869409	1961/01 2204	2	FR 0058	7///:	DO		6904053		PRDG 0020 BLUE CLAY STNS 0058 CSND 0059
WHITCHURCH-STOUFFVIL CON 08 035	17 W	638075	4869303	1976/12 1350	6	FR 0045	5/45/4/1:0	DO	0045 5	6913779		GREY CLAY 0021 GREY SILT 0027 GREY CLAY GRVL 0045 GREY GRVL CLAY 0050
WHITCHURCH-STOUFFVIL CON 07 001	17 W	637590	4869587	2016/02 1413	5		7///:			7261539	(Z227322) A	
WHITCHURCH-STOUFFVIL CON 07 001	17 W	637873	4869454	1993/03 1413	6 6	FR 0268	96/240/40/1:0	CO PS	0265 3	6922203		BRWN CLAY DNSE 0012 GREY CLAY STNS BLDR 0203 GREY CLAY DNSE 0212 GREY CLAY SILT SOFT 0230 GREY CLAY SAND DNSE 0263 BLCK GRVL SAND CLN 0269
WHITCHURCH-STOUFFVIL CON 07 001	17 W	637775	4869283	1972/07 1350	6	FR 0036	3/14/10/2:20	DO		6911103		BRWN CLAY GRVL FILL 0003 BRWN CLAY 0015 BRWN GRVL CLAY 0017 GREY CLAY GRVL 0031 GREY GRVL CLAY 0036 BRWN GRVL CSND 0038
WHITCHURCH-STOUFFVIL CON 07 001	17 W	637655	4869233	1971/12 2218	2	FR 0042	2///:	DO		6910791		BRWN CLAY STNS 0042 BRWN MSND CLAY 0070

WHITCHURCH-STOUFFVIL CON 07 001	17 W	637715	4869263	1976/03 5459	6	FR 0050	3/50/3/4:0	DO	0051 3	6913629		BRWN CLAY SAND 0018 BLUE CLAY STNS 0050 BLUE SAND GRVL STNS 0054
WHITCHURCH-STOUFFVIL CON 07 001	17 W	637819	4869326	1964/05 2204	2	FR 0036	4/4/4/5:30	DO	0035 5	6908031		RED CLAY STNS 0030 BLUE CLAY 0036 CSND 0040
WHITCHURCH-STOUFFVIL CON 07 001	17 W	637635	4869223	1978/08 5459	6	FR 0058	6/50/2/:	DO		6915056		LOAM 0003 BLUE CLAY 0018 BLUE CLAY HARD 0077
WHITCHURCH-STOUFFVIL CON 07 001	17 W	637728	4869249	2005/07 1350				DO		6929288	(Z31519) A029430 A	BRWN CLAY 0006 YLLW CLAY GRVL STNS 0012 GREY CLAY GRVL BLDR 0085
WHITCHURCH-STOUFFVIL CON 07 001	17 W	637762	4869295	1950/05 2419	2	FR 0060	3///:	DO		6908028		CLAY 0020 BLUE CLAY 0040 CLAY GRVL 0050 MSND GRVL 0060
WHITCHURCH-STOUFFVIL CON 07 001	17 W	637595	4869213	1969/10 5420	34	FR 0017	3///:	DO		6909699		LOAM 0001 BRWN CLAY MSND 0012 BLUE CLAY 0017 BRWN MSND 0020
WHITCHURCH-STOUFFVIL CON 07 001	17 W	637681	4869301	1957/05 2204	2	FR 0052	3/10/3/0:30	PS		6908029		MSND CLAY 0030 BLUE CLAY STNS 0052
WHITCHURCH-STOUFFVIL CON 07 001	17 W	637587	4869271	1958/09 2204	2	FR 0052	8/12/2/96:0	DO	0047 5	6908030		CLAY 0040 BLUE CLAY STNS 0049 GRVL CLAY 0052
WHITCHURCH-STOUFFVIL CON 07 034	17 W	637936	4868827	1962/11 5420	34	FR 0020	20///:	DO		6903949		LOAM 0001 YLLW CLAY 0008 CLAY MSND 0018 CSND 0020 BLUE CLAY 0030
WHITCHURCH-STOUFFVIL CON 07 035	17 W	637863	4869280	1986/05 5459	6	FR 0192	106/185/10/2:0	DO	0192 6	6918625		BRWN SAND FILL 0005 BLUE CLAY STNS 0049 BLUE SAND CLAY 0062 BLUE CLAY HARD 0091 BLUE CLAY STNS 0115 BLUE CLAY HARD 0170 BLUE CLAY SOFT 0192 BLCK CSND 0195 BLUE SAND CLAY 0198
WHITCHURCH-STOUFFVIL CON 07 035	17 W	637755	4869223	1981/08 2218	2	FR 0042	-4//2/48:30		0051 14	6915909		BRWN CLAY STNS 0042 BLUE CLAY SAND 0065
WHITCHURCH-STOUFFVIL CON 07 035	17 W	637527	4869062	2014/10 3108						7234034	(Z162204) A	
WHITCHURCH-STOUFFVIL CON 07 035	17 W	637619	4869132	1961/04 5420	34	FR 0013	13//2/:	ST DO		6903954		LOAM 0001 YLLW CLAY MSND 0010 CSND 0020
WHITCHURCH-STOUFFVIL CON 07 035	17 W	637535	4869016	1999/01 6874	3	FR 0019	13/14/25/2:0	DO		6924779		SAND 0010 BRWN SAND 0019
WHITCHURCH-STOUFFVIL CON 07 035	17 W	637730	4869234	1961/07 2204	2	FR 0020	4/34/2/12:0	DO	0035 5	6903955		PRDG 0020 CLAY STNS 0034 GRVL 0040
WHITCHURCH-STOUFFVIL CON 08 001	17 W	637996	4869374	1957/11 2204	2	FR 0041	4///:	DO		6908179		PRDG 0022 CLAY STNS 0043 GRVL 0044
WHITCHURCH-STOUFFVIL CON 08 001	17 W	637959	4869329	2009/01 5459						7130184	(Z101450) A075302 A	

Additional WWR Records from Expanded Search

The previous report's MECP WWR table is reproduced on the preceding pages. The following 45 additional records bring the expanded search inventory to 90 records within a 500 m offset from the ZBA Study Area boundary.

BOREHOLEID	WELL_ID	COMPLETED	DEPTH	DP_BEDROCK	STATIC_LEV
1.01E+09	7492253	########	9.1		
1.01E+09	7492252	########	9.1		
1.01E+09	7492251	########	9.1		
1.01E+09	7492250	########	6.9		
1.01E+09	7492249	########	7.6		
1.01E+09	7492248	########	7.6		
1.01E+09	7492247	########	7.6		
1.01E+09	7490072	########			
1.01E+09	7476519	########			
1.01E+09	7475617	4/4/2024	6.1		
1.01E+09	7475616	4/4/2024	9.1		
1.01E+09	7475615	4/4/2024	6.1		
1.01E+09	7475614	4/4/2024	6.1		
1.01E+09	7475613	4/4/2024	15.2		
1.01E+09	7475612	4/4/2024	6.1		
1.01E+09	7475611	4/4/2024	9.1		
1.01E+09	7475610	4/4/2024	9.1		
1.01E+09	7475609	4/4/2024	6.1		
1.01E+09	7475608	4/4/2024	15.2		
1.01E+09	7460598	########			
1.01E+09	7459116	########			
1.01E+09	7459115	########			
1.01E+09	7459114	########			
1.01E+09	7459113	########			
1.01E+09	7459112	########			
1.01E+09	7459111	########			
1.01E+09	7459110	########			
1.01E+09	7459109	########			
1.01E+09	7459108	########			
1.01E+09	7459107	########			
1.01E+09	7459106	########			
1.01E+09	7459105	########			
1.01E+09	7418471	########			
1.01E+09	7402315	7/2/2021			
1.01E+09	7402309	########			
1.01E+09	7389011	3/1/2021			
1.01E+09	7349960	5/1/2019			
1.01E+09	7340263	########	8.2		
1.01E+09	7339194	########	4.6		
1.01E+09	7338259	########	10.6		

BOREHOLEID	WELL_ID	COMPLETED	DEPTH	DP_BEDROCK	STATIC_LEV
1.01E+09	7333706	########			
1.01E+09	7328683	########	6.1		
1.01E+09	7328682	########	6.1		
1.01E+09	7328681	########	6.1		
1.01E+09	7325321	########			

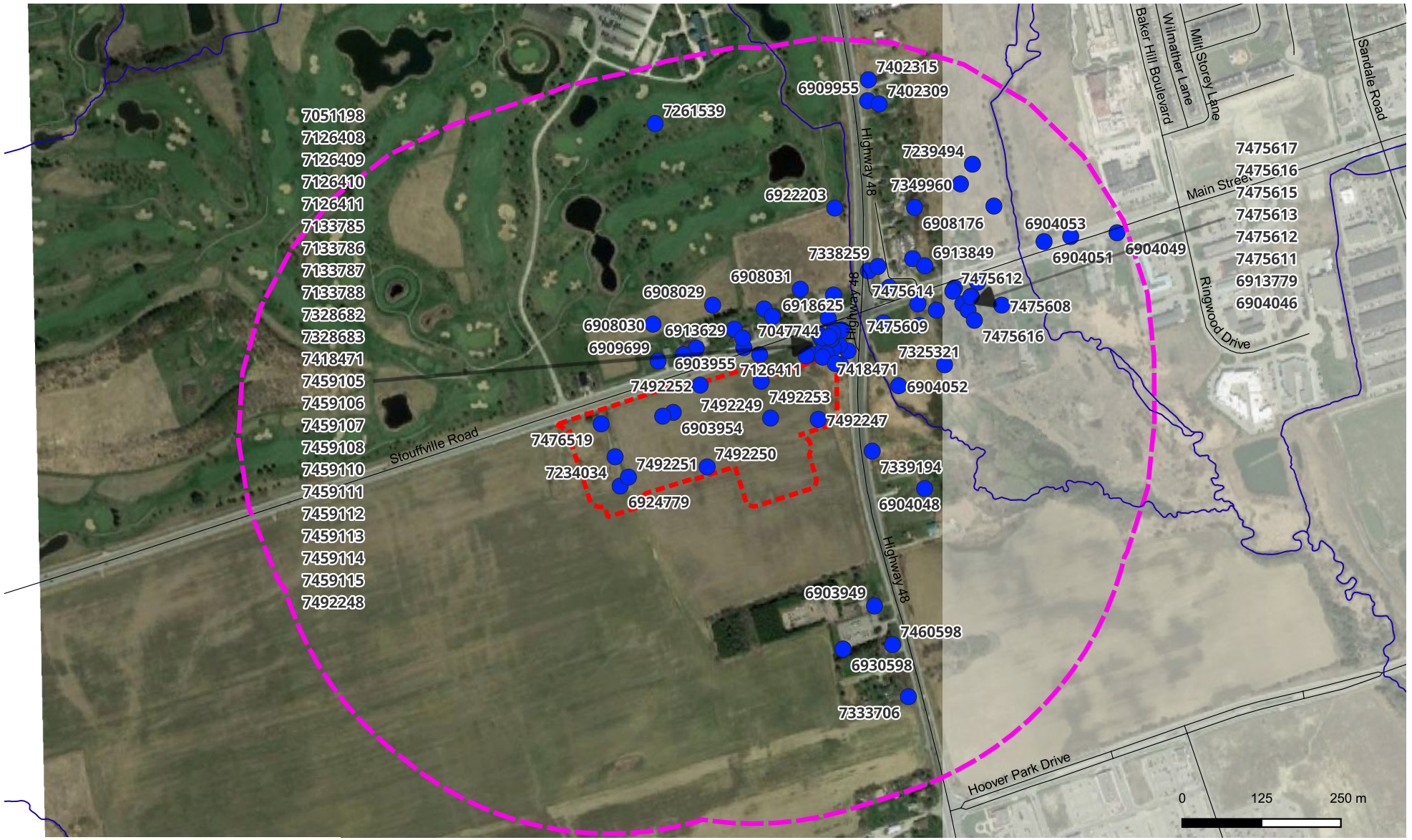
Summary of All 90 WWR Records

Reported use code	Record count
Domestic (DO)	24
Monitoring (MO)	20
Monitoring/test-hole (MT)	11
Stock/domestic (ST/DO)	2
Test-hole/monitoring (TH/MO)	1
Test hole (TH)	1
Not in use (NU)	1
Commercial/public supply (CO/PS)	1
Public supply (PS)	1
No use code reported	28
Total	90

WWR item	Summary
Formation logs available	60 of 90 records
Common materials	Clay or clayey silt; sand, gravel and silt also reported
Fill expressly noted	10 logs
Till expressly noted	4 logs
Reported well depth	4.6 to 82 m below ground surface (mbgs)
Reported static water level	-1.2 to 32.3 mbgs

The records describe variable subsurface conditions and do not establish lateral continuity of water-bearing units. Use codes reflect the use reported when the records were filed and do not confirm current well use. Well depth alone does not define the base of an aquifer. Completion dates displayed as "########" and blank source fields are retained as supplied. The new records are presented using the fields available in the supplied expanded-boundary list.

J:\-GIS\2019 PROJECTS\19-043-100 4721 and 5061 Stouffville Road_Times Group\1-QGIS\HydroG-101\NE Corner\Figure 1 – Site Location and MECP Well Records.qgs



Legend

- Approx Property Boundary
- 500m Buffer
- Registered Water Well (MECP WWR)

DS CONSULTANTS LTD.
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Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Project: HYDROGEOLOGICAL INVESTIGATION
5061-4721 Stouffville Road, Whitchurch-Stouffville, ON

Title: **SITE LOCATION AND MECP WELL RECORDS**

N

Client: TIMES GROUP

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	S.W	S.Y	October 2026
Rev: 0	Scale: As Shown	Project No.: 19-043-103	Figure No.: 1

Image/Map Source: *Google Satellite Image*

APPENDIX F

Natural Heritage Map

4721 & 5061 Stouffville Road
Whitchurch-Stouffville, Ontario

INCLUDED MATERIAL

MNRF Make-a-Map: Natural Heritage Areas, created July 1, 2021.

Map reproduced from the April 2025 hydrogeological report in its original form.

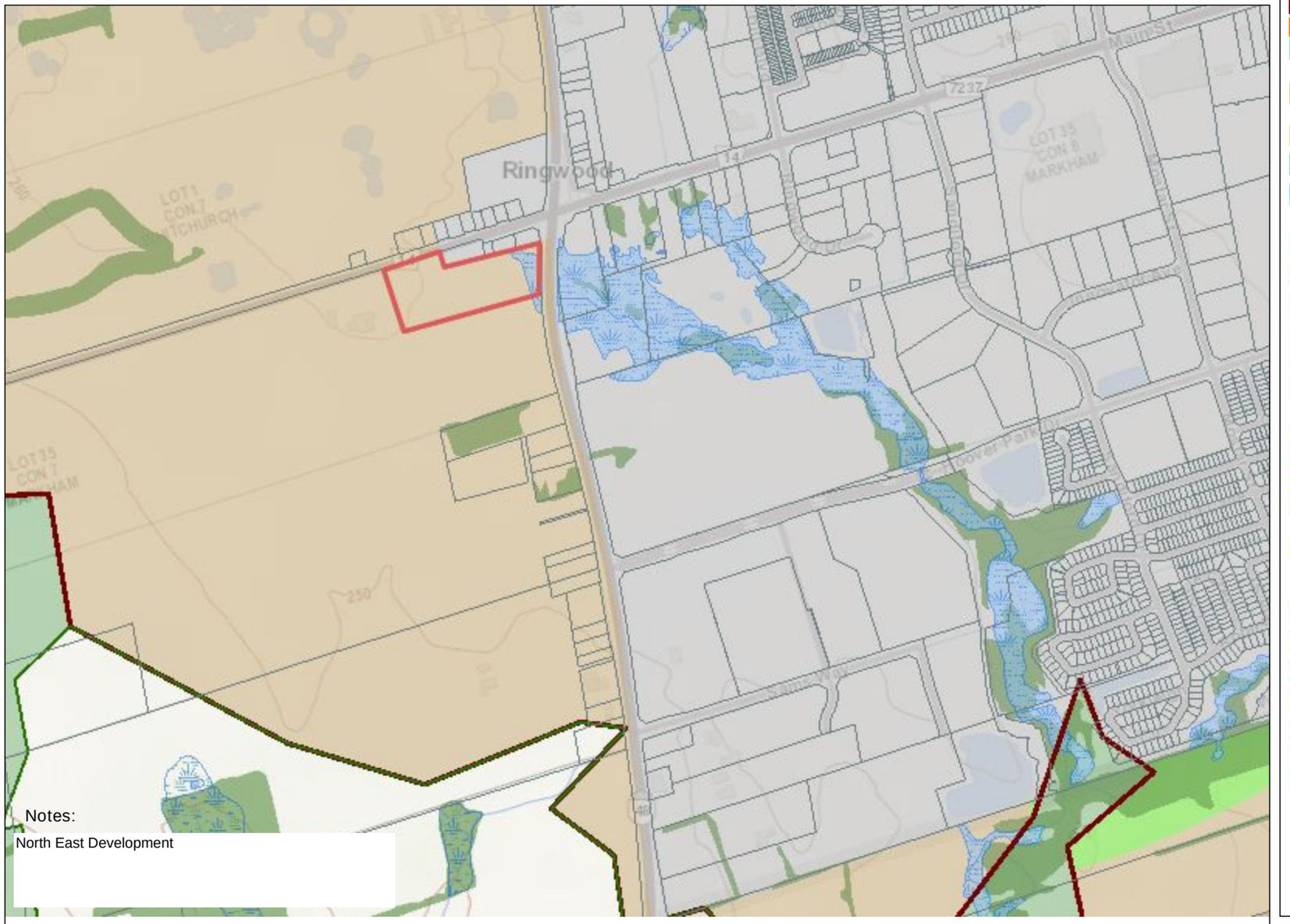
Ontario

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

4721 & 5061 Stouffville Road

Map created:7/1/2021



Notes:

North East Development

Legend

- Assessment Parcel
- Greenbelt Area Boundary
- ORM Boundary
- NEP Boundary
- NEP Parks and Open Space System
- ANSI
- Earth Science Provincially Significant/sciences de la terre d'importance provinciale
- Earth Science Regionally Significant/sciences de la terre d'importance régionale
- Life Science Provincially Significant/sciences de la vie d'importance provinciale
- Life Science Regionally Significant/sciences de la vie d'importance régionale
- Evaluated Wetland
- Provincially Significant/considérée d'importance provinciale
- Non-Provincially Significant/non considérée d'importance provinciale
- Unevaluated Wetland
- Woodland
- Conservation Reserve
- Provincial Park
- Greenbelt Towns and Villages
- ORM Land Use Designation
- Countryside Area/zone de campagne
- Natural Core Area/zone centrale naturelle
- Natural Linkage Area/lien naturel
- Palgrave Estates Residential Community/communauté résidentielle de Palgrave Estates
- Rural Settlement/zone de peuplement rurale
- Settlement Area/zone de peuplement
- NEP Land Use Designation
- Escarpment Natural Area/zone naturelle de l'escarpement
- Escarpment Protection Area/zone protégée l'escarpement
- Escarpment Recreation Area/zone récréative de l'escarpement
- Escarpment Rural Area/zone rurale de l'escarpement
- Mineral Resource Extraction Area/zone d'extraction de resources minérales
- Urban Area/zone urbaine
- Natural Heritage System

0.7 0 0.33 0.7 Kilometres

Absence of a feature in the map does not mean they do not exist in this area.

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources and Forestry(OMNRF) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.

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APPENDIX G

Site Water Balance

4721 & 5061 Stouffville Road

Whitchurch-Stouffville, Ontario

INCLUDED MATERIAL

Tables 1–5: climate normals, pre-development, post-development, post-development with mitigation, and water-balance summary.

Annual precipitation: 895.2 mm. Water-balance area: 72,298 m².

Water-balance tables supplied for the updated assessment.

DS Consultants Ltd.

October 2026

TABLE 1

CLIMATE NORMALS 1981-2010 (Richmond Hill Climate Station)

Water Balance - 5061 Stouffvill Road, Whitchurch-Stoufville, ON

	Thornthwaite (1948)					
Month	Mean Temperature (°C)	Heat Index	Unadjusted Potential Evapotranspiration (mm)	Daylight Correction Value	Adjusted Potential Evapotranspiration (mm)	Total Precipitation (mm)
January	-6.2	0.0	0.0	0.81	0.0	62.3
February	-4.9	0.0	0.0	0.82	0.0	58.0
March	-0.3	0.0	0.0	1.02	0.0	58.8
April	6.9	1.6	29.9	1.12	33.4	70.1
May	13.3	4.4	62.2	1.26	78.3	81.6
June	18.7	7.4	91.0	1.28	116.5	80.2
July	21.4	9.0	105.8	1.29	136.5	83.5
August	20.3	8.3	99.8	1.20	119.7	89.2
September	15.9	5.8	75.9	1.04	79.0	88.4
October	9.1	2.5	40.7	0.95	38.6	69.1
November	3.1	0.5	12.2	0.81	9.9	87.2
December	-2.7	0.0	0.0	0.77	0.0	66.8
TOTALS		**39.5**	**517.4**		**612.0**	**895.2**

Notes: Daylight Correction values obtained from Instruction and Tables For Computing Potential Evapotranspiration and The Water Balance (Thornthwaite & Mather, 1957)

TABLE 2

Pre-development Water Balance

Water Balance - 5061 Stouffvill Road, Whitchurch-Stoufville, ON

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.00	33.44	78.34	116.49	136.51	119.71	78.95	38.64	9.88	0.00	0.00	0.00	**611.96**
P - Total Precipitation (mm)			58.80	70.10	81.60	80.20	83.50	89.20	88.40	69.10	87.20	66.80	62.30	58.00	**895.20**
P-PET (mm)			58.80	36.66	3.26	-36.29	-53.01	-30.51	9.45	30.46	77.32	66.80	62.30	58.00	-
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-36.29	-89.30	-119.80	-110.36	-79.90	-2.58	0.00	0.00	0.00	-
Catchment 101	Moderately rooted crop (existing)	Soil Moisture Storage (mm)	200.00	200.00	200.00	163.71	110.70	80.20	89.64	120.10	197.42	200.00	200.00	200.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	113.20	119.86	103.76	78.95	38.64	9.88	0.00	0.00	0.00	**576.08**
		P-AET (mm)	58.80	36.66	3.26	-33.00	-36.36	-14.56	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-33.00	-69.36	-83.92	-74.47	-44.02	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	33.00	36.36	14.56	-9.45	-30.46	-44.02	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	33.30	66.80	62.30	58.00	**319.12**
		MECP Infiltration Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	-
		Run-Off Coefficient	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	-
		Infiltration (mm)	35.28	22.00	1.95	0.00	0.00	0.00	0.00	0.00	19.98	40.08	37.38	34.80	**191.47**
		Run-Off (mm)	23.52	14.67	1.30	0.00	0.00	0.00	0.00	0.00	13.32	26.72	24.92	23.20	**127.65**
		Catchment Area (m2) = 5381.00	Monthly Volumes												
	Total AET (m3)		0.00	179.92	421.56	609.12	644.99	558.33	424.83	207.95	53.19	0.00	0.00	0.00	**3099.88**
	Total Evaporation (m3)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Total Infiltration (m3)		189.84	118.38	10.52	0.00	0.00	0.00	0.00	0.00	107.51	215.67	201.14	187.26	**1030.31**
	Total Runoff (m3)		126.56	78.92	7.01	0.00	0.00	0.00	0.00	0.00	71.67	143.78	134.09	124.84	**686.88**
Catchment 103	Moderately rooted crop (existing)	Soil Moisture Storage (mm)	200.00	200.00	200.00	163.71	110.70	80.20	89.64	120.10	197.42	200.00	200.00	200.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	113.20	119.86	103.76	78.95	38.64	9.88	0.00	0.00	0.00	**576.08**
		P-AET (mm)	58.80	36.66	3.26	-33.00	-36.36	-14.56	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-33.00	-69.36	-83.92	-74.47	-44.02	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	33.00	36.36	14.56	-9.45	-30.46	-44.02	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	33.30	66.80	62.30	58.00	**319.12**
		MECP Infiltration Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	-
		Run-Off Coefficient	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	-
		Infiltration (mm)	35.28	22.00	1.95	0.00	0.00	0.00	0.00	0.00	19.98	40.08	37.38	34.80	**191.47**
		Run-Off (mm)	23.52	14.67	1.30	0.00	0.00	0.00	0.00	0.00	13.32	26.72	24.92	23.20	**127.65**
		Catchment Area (m2) = 60227.00	Monthly Volumes												
	Total AET (m3)		0.00	2013.71	4718.31	6817.56	7219.07	6249.14	4754.95	2327.44	595.34	0.00	0.00	0.00	**34695.53**
	Total Evaporation (m3)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Total Infiltration (m3)		2124.81	1324.92	117.73	0.00	0.00	0.00	0.00	0.00	1203.27	2413.90	2251.29	2095.90	**11531.81**
	Total Runoff (m3)		1416.54	883.28	78.49	0.00	0.00	0.00	0.00	0.00	802.18	1609.27	1500.86	1397.27	**7687.87**
Catchment 103	Moderately rooted crop (existing)	Soil Moisture Storage (mm)	200.00	200.00	200.00	163.71	110.70	80.20	89.64	120.10	197.42	200.00	200.00	200.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	113.20	119.86	103.76	78.95	38.64	9.88	0.00	0.00	0.00	**576.08**
		P-AET (mm)	58.80	36.66	3.26	-33.00	-36.36	-14.56	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-33.00	-69.36	-83.92	-74.47	-44.02	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	33.00	36.36	14.56	-9.45	-30.46	-44.02	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	33.30	66.80	62.30	58.00	**319.12**
		MECP Infiltration Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	-
		Run-Off Coefficient	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	-
		Infiltration (mm)	35.28	22.00	1.95	0.00	0.00	0.00	0.00	0.00	19.98	40.08	37.38	34.80	**191.47**
		Run-Off (mm)	23.52	14.67	1.30	0.00	0.00	0.00	0.00	0.00	13.32	26.72	24.92	23.20	**127.65**
		Catchment Area (m2) = 6690.00	Monthly Volumes												
	Total AET (m3)		0.00	223.68	524.11	757.29	801.89	694.15	528.18	258.53	66.13	0.00	0.00	0.00	**3853.97**
	Total Evaporation (m3)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Total Infiltration (m3)		236.02	147.17	13.08	0.00	0.00	0.00	0.00	0.00	133.66	268.14	250.07	232.81	**1280.95**
	Total Runoff (m3)		157.35	98.11	8.72	0.00	0.00	0.00	0.00	0.00	89.11	178.76	166.71	155.21	**853.97**
Site	Site Total Monthly Volumes														
	Total AET (m3)		0.00	2417.31	5663.98	8183.97	8665.95	7501.63	5707.96	2793.92	714.67	0.00	0.00	0.00	**41649**
	Total Evaporation (m3)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0**
	Total Infiltration (m3)		2550.67	1590.47	141.32	0.00	0.00	0.00	0.00	0.00	1444.43	2897.70	2702.50	2515.97	**13843**
	Total Runoff (m3)		1700.45	1060.31	94.22	0.00	0.00	0.00	0.00	0.00	962.95	1931.80	1801.67	1677.31	**9229**

TABLE 3

Post-development Water Balance

Water Balance - 5061 Stouffvill Road, Whitchurch-Stoufville, ON

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.00	33.44	78.34	116.49	136.51	119.71	78.95	38.64	9.88	0.00	0.00	0.00	**611.96**
P - Total Precipitation (mm)			58.80	70.10	81.60	80.20	83.50	89.20	88.40	69.10	87.20	66.80	62.30	58.00	**895.20**
P-PET (mm)			58.80	36.66	3.26	-36.29	-53.01	-30.51	9.45	30.46	77.32	66.80	62.30	58.00	-
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-36.29	-89.30	-119.80	-110.36	-79.90	-2.58	0.00	0.00	0.00	-
Catchment 201	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area* (m2) = 1893.00	Monthly Volumes												
	Impervious Area	Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
		Evaporation (mm)	8.82	10.52	12.24	12.03	12.53	13.38	13.26	10.37	13.08	10.02	9.35	8.70	**134.28**
		Run-Off (mm)	49.98	59.59	69.36	68.17	70.98	75.82	75.14	58.74	74.12	56.78	52.96	49.30	**760.92**
		Catchment Area (m2) = 2440.00	Monthly Volumes												
	Total AET (m3)		0.00	63.29	148.30	210.54	208.00	178.30	149.45	73.15	18.71	0.00	0.00	0.00	**1049.76**
	Total Evaporation (m3)		21.52	25.66	29.87	29.35	30.56	32.65	32.35	25.29	31.92	24.45	22.80	21.23	**327.64**
	Total Infiltration (m3)		55.65	34.70	3.08	0.00	0.00	0.00	0.00	0.00	51.89	63.23	58.97	54.90	**322.43**
	Total Runoff (m3)		177.61	180.09	172.32	166.33	173.18	185.00	183.34	143.31	232.75	201.77	188.18	175.19	**2179.07**
Catchment 202	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area* (m2) = 526.00	Monthly Volumes												
	Impervious Area	Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
		Evaporation (mm)	8.82	10.52	12.24	12.03	12.53	13.38	13.26	10.37	13.08	10.02	9.35	8.70	**134.28**
		Run-Off (mm)	49.98	59.59	69.36	68.17	70.98	75.82	75.14	58.74	74.12	56.78	52.96	49.30	**760.92**
		Catchment Area (m2) = 525.00	Monthly Volumes												
	Total AET (m3)		0.00	17.59	41.21	58.50	57.80	49.54	41.53	20.33	5.20	0.00	0.00	0.00	**291.69**
	Total Evaporation (m3)		4.63	5.52	6.43	6.32	6.58	7.02	6.96	5.44	6.87	5.26	4.91	4.57	**70.50**
	Total Infiltration (m3)		15.46	9.64	0.86	0.00	0.00	0.00	0.00	0.00	14.42	17.57	16.38	15.25	**89.59**
	Total Runoff (m3)		41.70	40.92	37.27	35.79	37.26	39.81	39.45	30.84	53.33	47.38	44.19	41.14	**489.07**

TABLE 3

Post-development Water Balance

Water Balance - 5061 Stouffvill Road, Whitchurch-Stoufville, ON

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.00	33.44	78.34	116.49	136.51	119.71	78.95	38.64	9.88	0.00	0.00	0.00	**611.96**
P - Total Precipitation (mm)			58.80	70.10	81.60	80.20	83.50	89.20	88.40	69.10	87.20	66.80	62.30	58.00	**895.20**
P-PET (mm)			58.80	36.66	3.26	-36.29	-53.01	-30.51	9.45	30.46	77.32	66.80	62.30	58.00	-
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-36.29	-89.30	-119.80	-110.36	-79.90	-2.58	0.00	0.00	0.00	-
Catchment 203	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	**340.65**
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area (m2) = 3653.00	Monthly Volumes												
	Total AET (m3)		0.00	122.14	286.18	406.30	401.39	344.08	288.41	141.17	36.11	0.00	0.00	0.00	**2025.77**
	Total Evaporation (m3)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Infiltration (m3)		107.40	66.97	5.95	0.00	0.00	0.00	0.00	0.00	100.14	122.01	113.79	105.94	**622.20**
	Total Runoff (m3)		107.40	66.97	5.95	0.00	0.00	0.00	0.00	0.00	100.14	122.01	113.79	105.94	**622.20**
Catchment 301	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	**340.65**
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area (m2) = 16859.00	Monthly Volumes												
	Total AET (m3)		0.00	563.69	1320.77	1875.10	1852.45	1587.96	1331.03	651.51	166.65	0.00	0.00	0.00	**9349.15**
	Total Evaporation (m3)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Total Infiltration (m3)		495.65	309.06	27.46	0.00	0.00	0.00	0.00	0.00	462.17	563.09	525.16	488.91	**2871.51**
	Total Runoff (m3)		495.65	309.06	27.46	0.00	0.00	0.00	0.00	0.00	462.17	563.09	525.16	488.91	**2871.51**

TABLE 3

Post-development Water Balance

Water Balance - 5061 Stouffvill Road, Whitchurch-Stoufville, ON

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.00	33.44	78.34	116.49	136.51	119.71	78.95	38.64	9.88	0.00	0.00	0.00	**611.96**
P - Total Precipitation (mm)			58.80	70.10	81.60	80.20	83.50	89.20	88.40	69.10	87.20	66.80	62.30	58.00	**895.20**
P-PET (mm)			58.80	36.66	3.26	-36.29	-53.01	-30.51	9.45	30.46	77.32	66.80	62.30	58.00	-
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-36.29	-89.30	-119.80	-110.36	-79.90	-2.58	0.00	0.00	0.00	-
Catchment 302	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area* (m2) = 357.00	Monthly Volumes												
	Impervious Area	Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
		Evaporation (mm)	8.82	10.52	12.24	12.03	12.53	13.38	13.26	10.37	13.08	10.02	9.35	8.70	**134.28**
		Run-Off (mm)	49.98	59.59	69.36	68.17	70.98	75.82	75.14	58.74	74.12	56.78	52.96	49.30	**760.92**
		Catchment Area (m2) = 492.00	Monthly Volumes												
	Total AET (m3)		0.00	11.94	27.97	39.71	39.23	33.63	28.19	13.80	3.53	0.00	0.00	0.00	**197.97**
	Total Evaporation (m3)		4.34	5.17	6.02	5.92	6.16	6.58	6.52	5.10	6.44	4.93	4.60	4.28	**66.07**
	Total Infiltration (m3)		10.50	6.54	0.58	0.00	0.00	0.00	0.00	0.00	9.79	11.92	11.12	10.35	**60.81**
	Total Runoff (m3)		35.09	35.86	34.71	33.54	34.92	37.30	36.97	28.90	46.25	39.86	37.17	34.61	**435.18**
Catchment 303	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area* (m2) = 2342.00	Monthly Volumes												
	Impervious Area	Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
		Evaporation (mm)	8.82	10.52	12.24	12.03	12.53	13.38	13.26	10.37	13.08	10.02	9.35	8.70	**134.28**
		Run-Off (mm)	49.98	59.59	69.36	68.17	70.98	75.82	75.14	58.74	74.12	56.78	52.96	49.30	**760.92**
		Catchment Area (m2) = 3989.00	Monthly Volumes												
	Total AET (m3)		0.00	78.31	183.48	260.48	257.34	220.60	184.90	90.51	23.15	0.00	0.00	0.00	**1298.75**
	Total Evaporation (m3)		35.18	41.94	48.83	47.99	49.96	53.37	52.89	41.35	52.18	39.97	37.28	34.70	**535.64**
	Total Infiltration (m3)		68.85	42.93	3.82	0.00	0.00	0.00	0.00	0.00	64.20	78.22	72.95	67.92	**398.90**
	Total Runoff (m3)		268.23	280.62	280.49	271.93	283.12	302.45	299.73	234.29	359.87	304.72	284.19	264.58	**3434.21**

TABLE 3

Post-development Water Balance

Water Balance - 5061 Stouffvill Road, Whitchurch-Stoufville, ON

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.00	33.44	78.34	116.49	136.51	119.71	78.95	38.64	9.88	0.00	0.00	0.00	**611.96**
P - Total Precipitation (mm)			58.80	70.10	81.60	80.20	83.50	89.20	88.40	69.10	87.20	66.80	62.30	58.00	**895.20**
P-PET (mm)			58.80	36.66	3.26	-36.29	-53.01	-30.51	9.45	30.46	77.32	66.80	62.30	58.00	-
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-36.29	-89.30	-119.80	-110.36	-79.90	-2.58	0.00	0.00	0.00	-
Catchment 304	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area* (m2) = 4934.00	Monthly Volumes												
	Impervious Area	Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
		Evaporation (mm)	8.82	10.52	12.24	12.03	12.53	13.38	13.26	10.37	13.08	10.02	9.35	8.70	**134.28**
		Run-Off (mm)	49.98	59.59	69.36	68.17	70.98	75.82	75.14	58.74	74.12	56.78	52.96	49.30	**760.92**
		Catchment Area (m2) = 11480.00	Monthly Volumes												
	Total AET (m3)		0.00	164.97	386.54	548.77	542.14	464.74	389.54	190.67	48.77	0.00	0.00	0.00	**2736.15**
	Total Evaporation (m3)		101.25	120.71	140.52	138.10	143.79	153.60	152.22	118.99	150.16	115.03	107.28	99.88	**1541.53**
	Total Infiltration (m3)		145.06	90.45	8.04	0.00	0.00	0.00	0.00	0.00	135.26	164.80	153.69	143.09	**840.38**
	Total Runoff (m3)		718.83	774.49	804.29	782.59	814.79	870.41	862.61	674.28	986.16	816.63	761.62	709.05	**9575.75**
Catchment 305	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area* (m2) = 1558.00	Monthly Volumes												
	Impervious Area	Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
		Evaporation (mm)	8.82	10.52	12.24	12.03	12.53	13.38	13.26	10.37	13.08	10.02	9.35	8.70	**134.28**
		Run-Off (mm)	49.98	59.59	69.36	68.17	70.98	75.82	75.14	58.74	74.12	56.78	52.96	49.30	**760.92**
		Catchment Area (m2) = 8791.00	Monthly Volumes												
	Total AET (m3)		0.00	52.09	122.06	173.28	171.19	146.75	123.00	60.21	15.40	0.00	0.00	0.00	**863.99**
	Total Evaporation (m3)		77.54	92.44	107.60	105.76	110.11	117.62	116.57	91.12	114.99	88.09	82.15	76.48	**1180.46**
	Total Infiltration (m3)		45.81	28.56	2.54	0.00	0.00	0.00	0.00	0.00	42.71	52.04	48.53	45.18	**265.37**
	Total Runoff (m3)		485.18	552.37	612.28	599.28	623.94	666.53	660.56	516.34	694.30	551.19	514.06	478.58	**6954.61**

TABLE 3

Post-development Water Balance

Water Balance - 5061 Stouffvill Road, Whitchurch-Stoufville, ON

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.00	33.44	78.34	116.49	136.51	119.71	78.95	38.64	9.88	0.00	0.00	0.00	**611.96**
P - Total Precipitation (mm)			58.80	70.10	81.60	80.20	83.50	89.20	88.40	69.10	87.20	66.80	62.30	58.00	**895.20**
P-PET (mm)			58.80	36.66	3.26	-36.29	-53.01	-30.51	9.45	30.46	77.32	66.80	62.30	58.00	-
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-36.29	-89.30	-119.80	-110.36	-79.90	-2.58	0.00	0.00	0.00	-
Catchment 306	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	**340.65**
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area (m2) = 5117.00	Monthly Volumes												
	Total AET (m3)		0.00	171.09	400.88	569.12	562.25	481.97	403.99	197.74	50.58	0.00	0.00	0.00	**2837.63**
	Total Evaporation (m3)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Total Infiltration (m3)		150.44	93.81	8.34	0.00	0.00	0.00	0.00	0.00	140.28	170.91	159.39	148.39	**871.55**
	Total Runoff (m3)		150.44	93.81	8.34	0.00	0.00	0.00	0.00	0.00	140.28	170.91	159.39	148.39	**871.55**
Catchment 307	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area* (m2) = 3671.00	Monthly Volumes												
	Impervious Area	Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
		Evaporation (mm)	8.82	10.52	12.24	12.03	12.53	13.38	13.26	10.37	13.08	10.02	9.35	8.70	**134.28**
		Run-Off (mm)	49.98	59.59	69.36	68.17	70.98	75.82	75.14	58.74	74.12	56.78	52.96	49.30	**760.92**
		Catchment Area (m2) = 3671.00	Monthly Volumes												
	Total AET (m3)		0.00	122.74	287.59	408.30	403.37	345.77	289.83	141.86	36.29	0.00	0.00	0.00	**2035.75**
	Total Evaporation (m3)		32.38	38.60	44.93	44.16	45.98	49.12	48.68	38.05	48.02	36.78	34.31	31.94	**492.94**
	Total Infiltration (m3)		107.93	67.30	5.98	0.00	0.00	0.00	0.00	0.00	100.64	122.61	114.35	106.46	**625.26**
	Total Runoff (m3)		291.40	286.03	260.60	250.25	260.55	278.34	275.84	215.62	372.73	331.05	308.75	287.44	**3418.60**
Site	Site Total Monthly Volumes														
	Total AET (m3)		0.00	1367.84	3204.98	4550.11	4495.14	3853.35	3229.87	1580.95	404.40	0.00	0.00	0.00	**22687**
	Total Evaporation (m3)		276.84	330.04	384.19	377.60	393.13	419.97	416.20	325.34	410.56	314.51	293.32	273.08	**4215**
	Total Infiltration (m3)		1202.75	749.98	66.64	0.00	0.00	0.00	0.00	0.00	1121.50	1366.39	1274.35	1186.39	**6968**
	Total Runoff (m3)		2771.53	2620.23	2243.71	2139.72	2227.76	2379.84	2358.49	1843.57	3447.98	3148.60	2936.50	2733.82	**30852**

TABLE 4

Post-development Water Balance With Mitigation

Water Balance - 5061 Stouffvill Road, Whitchurch-Stoufville, ON

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.00	33.44	78.34	116.49	136.51	119.71	78.95	38.64	9.88	0.00	0.00	0.00	**611.96**
P - Total Precipitation (mm)			58.80	70.10	81.60	80.20	83.50	89.20	88.40	69.10	87.20	66.80	62.30	58.00	**895.20**
P-PET (mm)			58.80	36.66	3.26	-36.29	-53.01	-30.51	9.45	30.46	77.32	66.80	62.30	58.00	-
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-36.29	-89.30	-119.80	-110.36	-79.90	-2.58	0.00	0.00	0.00	-
Catchment 201	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area* (m2) = 1893.00	Monthly Volumes												
	Impervious Area	Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
		Evaporation (mm)	8.82	10.52	12.24	12.03	12.53	13.38	13.26	10.37	13.08	10.02	9.35	8.70	**134.28**
		Run-Off (mm)	49.98	59.59	69.36	68.17	70.98	75.82	75.14	58.74	74.12	56.78	52.96	49.30	**760.92**
		Catchment Area (m2) = 2440.00	Monthly Volumes												
	Total AET (m3)		0.00	63.29	148.30	210.54	208.00	178.30	149.45	73.15	18.71	0.00	0.00	0.00	**1049.76**
	Total Evaporation (m3)		21.52	25.66	29.87	29.35	30.56	32.65	32.35	25.29	31.92	24.45	22.80	21.23	**327.64**
	Total Infiltration (m3)		55.65	34.70	3.08	0.00	0.00	0.00	0.00	0.00	51.89	63.23	58.97	54.90	**322.43**
	Runoff Before Mitigation(m3)		177.61	180.09	172.32	166.33	173.18	185.00	183.34	143.31	232.75	201.77	188.18	175.19	**2179.07**
	Runoff to Trenches for Infiltration (63.3% Benafit)		112.42	114.00	109.08	105.29	109.62	117.11	116.06	90.72	147.33	127.72	119.12	110.89	**1379.35**
	Total Runoff (m3)		65.18	66.09	63.24	61.04	63.56	67.90	67.29	52.60	85.42	74.05	69.06	64.29	**799.72**
Catchment 202	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area* (m2) = 526.00	Monthly Volumes												
	Impervious Area	Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
		Evaporation (mm)	8.82	10.52	12.24	12.03	12.53	13.38	13.26	10.37	13.08	10.02	9.35	8.70	**134.28**
		Run-Off (mm)	49.98	59.59	69.36	68.17	70.98	75.82	75.14	58.74	74.12	56.78	52.96	49.30	**760.92**
		Catchment Area (m2) = 525.00	Monthly Volumes												
	Total AET (m3)		0.00	17.59	41.21	58.50	57.80	49.54	41.53	20.33	5.20	0.00	0.00	0.00	**291.69**
	Total Evaporation (m3)		4.63	5.52	6.43	6.32	6.58	7.02	6.96	5.44	6.87	5.26	4.91	4.57	**70.50**
	Total Infiltration (m3)		15.46	9.64	0.86	0.00	0.00	0.00	0.00	0.00	14.42	17.57	16.38	15.25	**89.59**
	Total Runoff (m3)		41.70	40.92	37.27	35.79	37.26	39.81	39.45	30.84	53.33	47.38	44.19	41.14	**489.07**

TABLE 4

Post-development Water Balance With Mitigation

Water Balance - 5061 Stouffvill Road, Whitchurch-Stoufville, ON

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.00	33.44	78.34	116.49	136.51	119.71	78.95	38.64	9.88	0.00	0.00	0.00	**611.96**
P - Total Precipitation (mm)			58.80	70.10	81.60	80.20	83.50	89.20	88.40	69.10	87.20	66.80	62.30	58.00	**895.20**
P-PET (mm)			58.80	36.66	3.26	-36.29	-53.01	-30.51	9.45	30.46	77.32	66.80	62.30	58.00	-
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-36.29	-89.30	-119.80	-110.36	-79.90	-2.58	0.00	0.00	0.00	-
Catchment 203	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	**340.65**
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area (m2) = 3653.00	Monthly Volumes												
	Total AET (m3)		0.00	122.14	286.18	406.30	401.39	344.08	288.41	141.17	36.11	0.00	0.00	0.00	**2025.77**
	Total Evaporation (m3)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Infiltration (m3)		107.40	66.97	5.95	0.00	0.00	0.00	0.00	0.00	100.14	122.01	113.79	105.94	**622.20**
	Total Runoff (m3)		107.40	66.97	5.95	0.00	0.00	0.00	0.00	0.00	100.14	122.01	113.79	105.94	**622.20**
Catchment 301	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	**340.65**
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area (m2) = 16859.00	Monthly Volumes												
	Total AET (m3)		0.00	563.69	1320.77	1875.10	1852.45	1587.96	1331.03	651.51	166.65	0.00	0.00	0.00	**9349.15**
	Total Evaporation (m3)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Total Infiltration (m3)		495.65	309.06	27.46	0.00	0.00	0.00	0.00	0.00	462.17	563.09	525.16	488.91	**2871.51**
	Runoff Before Mitigation (m3)		495.65	309.06	27.46	0.00	0.00	0.00	0.00	0.00	462.17	563.09	525.16	488.91	**2871.51**
	Runoff to East Facility for Infiltration (51.5% Benafit)		255.26	159.17	14.14	0.00	0.00	0.00	0.00	0.00	238.02	289.99	270.46	251.79	**1478.83**
	Total Runoff (m3)		240.39	149.90	13.32	0.00	0.00	0.00	0.00	0.00	224.15	273.10	254.70	237.12	**1392.68**

TABLE 4

Post-development Water Balance With Mitigation

Water Balance - 5061 Stouffvill Road, Whitchurch-Stoufville, ON

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.00	33.44	78.34	116.49	136.51	119.71	78.95	38.64	9.88	0.00	0.00	0.00	**611.96**
P - Total Precipitation (mm)			58.80	70.10	81.60	80.20	83.50	89.20	88.40	69.10	87.20	66.80	62.30	58.00	**895.20**
P-PET (mm)			58.80	36.66	3.26	-36.29	-53.01	-30.51	9.45	30.46	77.32	66.80	62.30	58.00	-
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-36.29	-89.30	-119.80	-110.36	-79.90	-2.58	0.00	0.00	0.00	-
Catchment 302	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area* (m2) = 357.00	Monthly Volumes												
	Impervious Area	Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
		Evaporation (mm)	8.82	10.52	12.24	12.03	12.53	13.38	13.26	10.37	13.08	10.02	9.35	8.70	**134.28**
		Run-Off (mm)	49.98	59.59	69.36	68.17	70.98	75.82	75.14	58.74	74.12	56.78	52.96	49.30	**760.92**
		Catchment Area (m2) = 492.00	Monthly Volumes												
	Total AET (m3)		0.00	11.94	27.97	39.71	39.23	33.63	28.19	13.80	3.53	0.00	0.00	0.00	**197.97**
	Total Evaporation (m3)		4.34	5.17	6.02	5.92	6.16	6.58	6.52	5.10	6.44	4.93	4.60	4.28	**66.07**
	Total Infiltration (m3)		10.50	6.54	0.58	0.00	0.00	0.00	0.00	0.00	9.79	11.92	11.12	10.35	**60.81**
	Runoff Before Mitigation (m3)		35.09	35.86	34.71	33.54	34.92	37.30	36.97	28.90	46.25	39.86	37.17	34.61	**435.18**
	Runoff to East Facility for Infiltration (69.1% Benafit)		24.24	24.78	23.98	23.18	24.13	25.78	25.55	19.97	31.96	27.54	25.69	23.91	**300.71**
	Total Runoff (m3)		10.84	11.08	10.72	10.36	10.79	11.53	11.42	8.93	14.29	12.32	11.49	10.69	**134.47**
Catchment 303	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area* (m2) = 2342.00	Monthly Volumes												
	Impervious Area	Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
		Evaporation (mm)	8.82	10.52	12.24	12.03	12.53	13.38	13.26	10.37	13.08	10.02	9.35	8.70	**134.28**
		Run-Off (mm)	49.98	59.59	69.36	68.17	70.98	75.82	75.14	58.74	74.12	56.78	52.96	49.30	**760.92**
		Catchment Area (m2) = 3989.00	Monthly Volumes												
	Total AET (m3)		0.00	78.31	183.48	260.48	257.34	220.60	184.90	90.51	23.15	0.00	0.00	0.00	**1298.75**
	Total Evaporation (m3)		35.18	41.94	48.83	47.99	49.96	53.37	52.89	41.35	52.18	39.97	37.28	34.70	**535.64**
	Total Infiltration (m3)		68.85	42.93	3.82	0.00	0.00	0.00	0.00	0.00	64.20	78.22	72.95	67.92	**398.90**
	Runoff Before Mitigation (m3)		268.23	280.62	280.49	271.93	283.12	302.45	299.73	234.29	359.87	304.72	284.19	264.58	**3434.21**
	Runoff to East Facility for Infiltration (69.1% Benafit)		185.34	193.91	193.82	187.90	195.64	208.99	207.12	161.90	248.67	210.56	196.38	182.82	**2373.04**
	Total Runoff (m3)		82.88	86.71	86.67	84.03	87.48	93.46	92.62	72.40	111.20	94.16	87.81	81.75	**1061.17**

TABLE 4

Post-development Water Balance With Mitigation

Water Balance - 5061 Stouffvill Road, Whitchurch-Stoufville, ON

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.00	33.44	78.34	116.49	136.51	119.71	78.95	38.64	9.88	0.00	0.00	0.00	**611.96**
P - Total Precipitation (mm)			58.80	70.10	81.60	80.20	83.50	89.20	88.40	69.10	87.20	66.80	62.30	58.00	**895.20**
P-PET (mm)			58.80	36.66	3.26	-36.29	-53.01	-30.51	9.45	30.46	77.32	66.80	62.30	58.00	-
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-36.29	-89.30	-119.80	-110.36	-79.90	-2.58	0.00	0.00	0.00	-
Catchment 304	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Runoff Before Retention Tank (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Evaporation Retention Tank (2.5 mm)	7.06	4.40	0.39	0.00	0.00	0.00	0.00	0.00	6.58	8.02	7.48	6.96	**40.88**
		Run-Off (mm)	22.34	13.93	1.24	0.00	0.00	0.00	0.00	0.00	20.83	25.38	23.67	22.04	**129.45**
		Catchment Area* (m2) = 3892.00	Monthly Volumes												
	Impervious Area	Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
		Evaporation (mm)	8.82	10.52	12.24	12.03	12.53	13.38	13.26	10.37	13.08	10.02	9.35	8.70	**134.28**
		Runoff Before Retention Tank (mm)	49.98	59.59	69.36	68.17	70.98	75.82	75.14	58.74	74.12	56.78	52.96	49.30	
		Evaporation Retention Tank (2.5 mm)	12.00	14.30	16.65	16.36	17.03	18.20	18.03	14.10	17.79	13.63	12.71	11.83	**182.62**
		Run-Off (mm)	37.98	45.28	52.71	51.81	53.94	57.62	57.11	44.64	56.33	43.15	40.25	37.47	**578.30**
		Catchment Area (m2) = 11480.00	Monthly Volumes												
	Green Roof Area	Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		AET Factor given 10.8mm storm retention	0.00	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.00	0.00	0.00	-
		Run-Off Coefficient	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.85	0.85	-
		Evaporation (mm)	8.82	10.52	12.24	12.03	12.53	13.38	13.26	10.37	13.08	10.02	9.35	8.70	**134.28**
		AET (mm)	0.00	59.59	69.36	68.17	70.98	75.82	75.14	58.74	74.12	0.00	0.00	0.00	**551.91**
		Run-Off (mm)	49.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.78	52.96	49.30	**209.02**
		Catchment Area (m2) = 1042.00	Monthly Volumes												
Total AET (m3)			0.00	192.22	377.18	503.91	501.60	445.60	385.57	211.61	115.71	0.00	0.00	0.00	**2733.39**
Total Evaporation (m3)			275.61	312.96	345.89	338.46	352.39	376.44	373.07	291.62	393.61	313.11	292.02	271.86	**3937.04**
Total Infiltration (m3)			114.42	71.35	6.34	0.00	0.00	0.00	0.00	0.00	106.70	129.99	121.24	112.87	**662.91**
Runoff Before Mitigation (m3)			575.11	574.09	609.97	594.77	619.24	661.51	655.58	512.45	727.77	653.35	609.34	567.28	**7360.48**
Runoff to East Facility for Infiltration (62.5% Benafit)			359.44	358.81	381.23	371.73	387.03	413.45	409.74	320.28	454.86	408.35	380.84	354.55	**4600.30**
Total Runoff (m3)			215.67	215.28	228.74	223.04	232.22	248.07	245.84	192.17	272.91	245.01	228.50	212.73	**2760.18**

TABLE 4

Post-development Water Balance With Mitigation

Water Balance - 5061 Stouffvill Road, Whitchurch-Stoufville, ON

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.00	33.44	78.34	116.49	136.51	119.71	78.95	38.64	9.88	0.00	0.00	0.00	**611.96**
P - Total Precipitation (mm)			58.80	70.10	81.60	80.20	83.50	89.20	88.40	69.10	87.20	66.80	62.30	58.00	**895.20**
P-PET (mm)			58.80	36.66	3.26	-36.29	-53.01	-30.51	9.45	30.46	77.32	66.80	62.30	58.00	-
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-36.29	-89.30	-119.80	-110.36	-79.90	-2.58	0.00	0.00	0.00	-
Catchment 305	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Runoff Before Retention Tank (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Evaporation Retention Tank (1.5 mm)	4.23	2.64	0.23	0.00	0.00	0.00	0.00	0.00	3.95	4.81	4.49	4.18	**24.53**
		Run-Off (mm)	25.17	15.69	1.39	0.00	0.00	0.00	0.00	0.00	23.47	28.59	26.66	24.82	**145.80**
		Catchment Area* (m2) = 1558.00	Monthly Volumes												
	Impervious Area	Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
		Evaporation (mm)	8.82	10.52	12.24	12.03	12.53	13.38	13.26	10.37	13.08	10.02	9.35	8.70	**134.28**
		Runoff Before Retention Tank (mm)	49.98	59.59	69.36	68.17	70.98	75.82	75.14	58.74	74.12	56.78	52.96	49.30	**760.92**
		Evaporation Retention Tank (1.5 mm)	7.20	8.58	9.99	9.82	10.22	10.92	10.82	8.46	10.67	8.18	7.63	7.10	**109.57**
		Run-Off (mm)	42.78	51.00	59.37	58.35	60.75	64.90	64.32	50.28	63.45	48.60	45.33	42.20	**651.35**
		Catchment Area (m2) = 8791.00	Monthly Volumes												
	Total AET (m3)		0.00	52.09	122.06	173.28	171.19	146.75	123.00	60.21	15.40	0.00	0.00	0.00	**863.99**
	Total Evaporation (m3)		147.40	171.98	195.77	192.05	199.95	213.60	211.69	165.47	214.97	167.46	156.18	145.40	**2181.92**
	Total Infiltration (m3)		45.81	28.56	2.54	0.00	0.00	0.00	0.00	0.00	42.71	52.04	48.53	45.18	**265.37**
	Runoff Before Mitigation (m3)		415.31	472.83	524.11	512.99	534.09	570.55	565.44	441.99	594.32	471.82	440.03	409.66	**5953.15**
	Runoff to East Facility for Infiltration (62.5% Benafit)		259.57	295.52	327.57	320.62	333.81	356.60	353.40	276.24	371.45	294.89	275.02	256.04	**3720.72**
	Total Runoff (m3)		155.74	177.31	196.54	192.37	200.29	213.96	212.04	165.74	222.87	176.93	165.01	153.62	**2232.43**
Catchment 306	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	**340.65**
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area (m2) = 5117.00	Monthly Volumes												
	Total AET (m3)		0.00	171.09	400.88	569.12	562.25	481.97	403.99	197.74	50.58	0.00	0.00	0.00	**2837.63**
	Total Evaporation (m3)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Total Infiltration (m3)		150.44	93.81	8.34	0.00	0.00	0.00	0.00	0.00	140.28	170.91	159.39	148.39	**871.55**
	Runoff Before Mitigation (m3)		150.44	93.81	8.34	0.00	0.00	0.00	0.00	0.00	140.28	170.91	159.39	148.39	**871.55**
	Runoff to East Facility for Infiltration (51.5% Benafit)		77.48	48.31	4.29	0.00	0.00	0.00	0.00	0.00	72.24	88.02	82.09	76.42	**448.85**
	Total Runoff (m3)		72.96	45.50	4.04	0.00	0.00	0.00	0.00	0.00	68.03	82.89	77.31	71.97	**422.70**

TABLE 4

Post-development Water Balance With Mitigation

Water Balance - 5061 Stouffvill Road, Whitchurch-Stoufville, ON

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.00	33.44	78.34	116.49	136.51	119.71	78.95	38.64	9.88	0.00	0.00	0.00	**611.96**
P - Total Precipitation (mm)			58.80	70.10	81.60	80.20	83.50	89.20	88.40	69.10	87.20	66.80	62.30	58.00	**895.20**
P-PET (mm)			58.80	36.66	3.26	-36.29	-53.01	-30.51	9.45	30.46	77.32	66.80	62.30	58.00	-
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-36.29	-89.30	-119.80	-110.36	-79.90	-2.58	0.00	0.00	0.00	-
Catchment 307	Pervious Area	Soil Moisture Storage (mm)	125.00	125.00	125.00	88.71	35.70	5.20	14.64	45.10	122.42	125.00	125.00	125.00	-
		Actual Potential Evapotranspiration (mm)	0.00	33.44	78.34	111.22	109.88	94.19	78.95	38.64	9.88	0.00	0.00	0.00	**554.55**
		P-AET (mm)	58.80	36.66	3.26	-31.02	-26.38	-4.99	9.45	30.46	77.32	66.80	62.30	58.00	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.02	-57.40	-62.39	-52.94	-22.49	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.02	26.38	4.99	-9.45	-30.46	-22.49	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	58.80	36.66	3.26	0.00	0.00	0.00	0.00	0.00	54.83	66.80	62.30	58.00	**340.65**
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-
		Infiltration (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Run-Off (mm)	29.40	18.33	1.63	0.00	0.00	0.00	0.00	0.00	27.41	33.40	31.15	29.00	**170.33**
		Catchment Area* (m2) = 3671.00	**Monthly Volumes**												
	Impervious Area	Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
		Evaporation (mm)	8.82	10.52	12.24	12.03	12.53	13.38	13.26	10.37	13.08	10.02	9.35	8.70	**134.28**
		Run-Off (mm)	49.98	59.59	69.36	68.17	70.98	75.82	75.14	58.74	74.12	56.78	52.96	49.30	**760.92**
		Catchment Area (m2) = 3671.00	**Monthly Volumes**												
	Total AET (m3)		0.00	122.74	287.59	408.30	403.37	345.77	289.83	141.86	36.29	0.00	0.00	0.00	**2035.75**
	Total Evaporation (m3)		32.38	38.60	44.93	44.16	45.98	49.12	48.68	38.05	48.02	36.78	34.31	31.94	**492.94**
	Total Infiltration (m3)		107.93	67.30	5.98	0.00	0.00	0.00	0.00	0.00	100.64	122.61	114.35	106.46	**625.26**
	Runoff Before Mitigation (m3)		291.40	286.03	260.60	250.25	260.55	278.34	275.84	215.62	372.73	331.05	308.75	287.44	**3418.60**
	Runoff to East Facility for Infiltration (69.1% Benafit)		201.36	197.65	180.07	172.92	180.04	192.33	190.60	148.99	257.56	228.76	213.35	198.62	**2362.25**
	Total Runoff (m3)		90.04	88.38	80.53	77.33	80.51	86.01	85.23	66.63	115.17	102.29	95.40	88.82	**1056.35**
Site	Site Total Monthly Volumes														
	Total AET (m3)		0.00	1395.09	3195.62	4505.24	4454.61	3834.21	3225.90	1601.88	471.33	0.00	0.00	0.00	**22684**
	Total Evaporation (m3)		521.07	601.84	677.73	664.25	691.58	738.79	732.17	572.32	753.99	591.96	552.08	513.98	**7612**
	Total Infiltration (m3)		2647.24	2123.01	1299.14	1181.64	1230.26	1314.24	1302.46	1018.10	2915.02	3007.41	2804.82	2611.23	**23455**
	Total Runoff (m3)		1082.81	948.15	727.03	683.96	712.10	760.71	753.89	589.30	1267.53	1230.14	1147.27	1068.08	**10971**

TABLE 5
Water Balance Summary
Water Balance - 5061 Stouffvill Road, Whitchurch-Stoufville, ON

Total Runoff (m3)	March	April	May	June	July	August	Sept	October	Nov	Dec	January	February	Annual Total
Pre-development	1700	1060	94	0	0	0	0	0	963	1932	1802	1677	**9229**
Post-development	2772	2620	2244	2140	2228	2380	2358	1844	3448	3149	2936	2734	**30852**
Post-development with Mitigation	1083	948	727	684	712	761	754	589	1268	1230	1147	1068	**10971**
Deficit	618	112	-633	-684	-712	-761	-754	-589	-305	702	654	609	**-1742**

* - (ve) value implies a net increase

Total Infiltration (m3)	March	April	May	June	July	August	Sept	October	Nov	Dec	January	February	Annual Total
Pre-development	2551	1590	141	0	0	0	0	0	1444	2898	2702	2516	**13843**
Post-development	1203	750	67	0	0	0	0	0	1122	1366	1274	1186	**6968**
Post-development with Mitigation	2647	2123	1299	1182	1230	1314	1302	1018	2915	3007	2805	2611	**23455**
Deficit	-97	-533	-1158	-1182	-1230	-1314	-1302	-1018	-1471	-110	-102	-95	**-9612**

* - (ve) value implies a net increase

Current study area	Pre-development area (m^2)	Post-development area (m^2)	Area change (m^2)	Impervious area (%)	Pre-development impervious area (m^2)	Post-development impervious area (m^2)	Impervious increase (m^2)
Site total	72298	72298	0	43.4%	0	31388	31388

* - (ve) value implies a net increase

Sources: City of Toronto, Wet Weather Flow Management Guidelines (2006), Figure 1a; Civil facility sizing calculations (September 2026);