HYDROGEOLOGICAL INVESTIGATION
1656 GREEN LANE EAST
EAST GWILLIMBURY, ONTARIO
L9N 0L8

REPORT NO.: 2177-21-HM
REPORT DATE: OCTOBER 22, 2024
REVISION NO.: 00

PREPARED FOR:
NEWROADS AUTOMOTIVE GROUP
18100 YONGE ST
NEWMARKET, ONTARIO
L3Y 3V1

110 KONRAD CRESCENT, UNIT 16, MARKHAM, ONTARIO L3R 9X2
TEL.: 905-940-8509 FAX: 905-940-8192

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1 Introduction

1.1 Project Background

Toronto Inspection Ltd. was retained by NewRoads Automotive Group (the Client) to conduct a hydrogeological investigation for the property at 1656 Green Lane East, in East Gwillimbury, Ontario. (The "Site")

The Client's contact information is as follows:

NewRoads Automotive Group
18100 Yonge Street
Markham, Ontario
L3Y 3V1

The following plans and drawings were reviewed in preparation of this report:

- Overall Site Plan, 1656 Green Lane East, East Gwillimbury. Drawing A1.0. Issued August 29, 2024. Ware Malcom (WMA Inc.).
- Concept Plan, Newmarket Toyota. Drawing No. A0.1 to A2.0 Version V1R2. Issued June 17, 2024. WEIS Retail Network Innovation.
- Site Grading Plan, New Road - Toyota, 1656 Green Lane East, East Gwillimbury ON. Drawings No. SG-01. Issued February 12, 2024. GEI Consultants Inc.

Based on a review of the aforementioned plans and drawings, the proposed development is a Motor Vehicle sale and Rental Establishment, consisting of a one storey commercial building with no basement.

The location of the Site is shown in **Figure 1**. The Overall Site Plan (WMA, 2024) and Site Grading Plans (GEI, 2024) are provided in **Appendix A**.

1.2 Site Description

The Site is located on Green Lane East, approximately 630m west of Highway 404 and 425 m east of Leslie Street in the Township of East Gwillimbury, Regional Municipality of York at the following UTM coordinates:

UTM Zone: 17 T
Easting: 625525 Northing: 4882542

The Site is approximately 2.87 Ha in area and near rectangle in shape. The Site is a vacant parcel and was historically used for agricultural purposes. The area immediately surrounding the Site is used for industrial, agricultural and commercial land uses.

1.3 Objectives of the Hydrogeological Investigation

The objectives of this hydrogeological investigation were to identify regulations applicable to the development of the Site including a source water protection assessment that evaluates the proposed development with respect to land-use policies of the Lake Simcoe Protection Plan (LSPP) (Ministry of the Environment (MOE), 2009) and the South Georgian Bay Lake Simcoe

(SGBLS) Source Protection Plan (SGBLS Source Protection Region (SPR), 2024), characterize the existing geological and hydrogeological conditions at the Site, identify dewatering requirements for the during- and post-construction phases, and evaluate potential impacts to underlying aquifers and surrounding receptors resulting from construction and potential dewatering activities.

1.4 Scope of Work

1.4.1 Conceptual Understanding

A conceptual understanding of the regional and local geological and hydrogeological systems was developed through the review of existing reports and available geological information. This included:

- Source Water Protection Plans and associated technical reports;
- Mapping and reports from the Lake Simcoe Region Conservation Authority (LSRCA);
- Geological and hydrogeological information from the Ontario Geological Survey (OGS);
- Geological and hydrogeological information from the Oak Ridges Moraine Groundwater Program (ORMGP);
- Mapping from the Ontario Ministry of Natural Resources and Forestry (MNRF); and
- Water well records from the Ministry of the Environment, Conservation, and Parks (MECP) Water Well Information System (WWIS) and Permit to Take Water (PTTW) records from the MECP PTTW database.

1.4.2 Field Investigation

The local scale geological and hydrogeological settings of the Site were characterized using a network of five boreholes installed by Toronto Inspection Ltd. in July of 2024. Boreholes were completed to depths ranging from 6.2 to 7.7 meters below ground surface (mbgs). Of these five boreholes, three were completed as monitoring wells, with Schedule 40 polyvinyl chloride (PVC) riser pipe and 3.05 m (10 foot) long slotted screens, installed to depths of 6.10 mbgs.

Monitoring wells were used to measure static groundwater levels, to conduct in-situ hydraulic conductivity testing, and to collect representative groundwater quality samples. Monitoring wells were installed according to the relevant provisions of Regulation 903 (Reg. 903) by a licenced well contractor with Toronto Inspection Ltd. staff in attendance. Once it is determined that the monitoring wells are no longer required, they should be decommissioned by a licensed well contractor per Reg. 903.

1.4.3 Data Analysis

The data analysis component of this hydrogeological investigation included the following items:

- Determination of soil stratigraphy and hydrostratigraphy;
- Determination of groundwater elevations, including the seasonal high groundwater elevation;
- Determination of the hydraulic conductivity of overburden soils;

- Evaluation of potential dewatering requirements for the Site;
- Identification of groundwater usage in the area and surrounding sensitive receptors; and
- Options for short-term and long-term mitigation of potential impacts to natural features, sensitive receptors, and vulnerable areas from development of the Site.

2 Relevant Regulations and Policies

Environmental regulations and policies which may be relevant for the development of the Site, and which this investigation has been completed in accordance with, are listed below and discussed briefly:

- Town of East Gwillimbury Official Plan (Office Consolidation October 2018);
- Regional Municipality of York (York Region) Official Plan (Office Consolidation June 2024);
- The Corporation of Town of East Gwillimbury Sewer Use By-Law # 2008-54;
- York Region Sewer Use Bylaw No. 2021-102;
- Ontario Regulation (O. Reg.) 179/06: LSRCA Guidelines;
- Lake Simcoe Protection Plan (2009);
- The Ontario Water Resource Act (1990);
- O. Reg. 387/04: Water Taking and Transfer;
- The Clean Water Act, 2006; and
- South Georgian Bay Lake Simcoe Source Protection Plan (2024)

Town of East Gwillimbury Official Plan (2018)

The Town of East Gwillimbury Official Plan identifies development and land-use objectives for the Town of East Gwillimbury to 2031. Based on a review of Schedule A of the Official Plan, the Site is located within an Employment Area, and a Natural Heritage System is designated around the tributary of the East Holland River that flows through the Site. As per Schedule B-4, a small area at the west end of the Site is located within a Mixed Business Employment area, while the remaining majority of the Site falls within the Prestige Employment area.

York Region Official Plan (2022)

The York Region Official Plan sets out directions and policies that guide economic, environmental and community planning decisions within York Region. The Official Plan reflects the designations as identified within other planning instruments including regional Source Protection Plans. According to Map 1 of the Official Plan, the Site is located within an Urban Area.

The Site does not fall within the Regional Greenlands System, the Oak Ridges Moraine Conservation Plan (ORMCP) Area, the Greenbelt Plan Area, any Areas of Natural and Scientific Interest (ANSIs), or any Key Hydrologic Features as identified on Official Plan mapping.

The Official Plan establishes, in accordance with the Clean Water Act (CWA), specific requirements for developments occurring within Well Head Protection Areas (WHPAs) and Intake Protection Zones (IPZs) including the requirements for Source Water Impact Assessment and Mitigation Plans (SWIAMPs) and filing of Section 59 Notices (Source Protection Permits). It also establishes Recharge Management Areas within WHPA-Q1 and WHPA-Q2 areas that are delineated under the CWA. A climate-based water balance is required for all Sites in York Region within designated Recharge Management Areas to demonstrate that pre-development infiltration volumes can be maintained. A water balance study is also required for major development in SGRAs. Where pre-development infiltration volumes cannot be maintained as a result of the inherent physical limitations of the Site, off-site recharge augmentation within the same WHPA-Q2 or monetary compensation may be required.

The Corporation of Town of East Gwillimbury Sewer Use By-Law # 2008-54.

The Town of East Gwillimbury regulates private discharges of groundwater to the municipal storm and sanitary sewer system and establishes the Schedule of Sewer Service Charges and Rates. Should any private water within the Site require discharge to the municipal system, be it during or after construction, an approval from the Town will be required.

York Region Sewer Use Bylaw No. 2021-102

The discharge of private water to a municipal sewer in York Region is regulated by York Region's *Sewer Bylaw No. 2021-102* (Sewer Use Bylaw). Should any private water within the Site require discharge to a municipal sewer owned by York Region, a sewer use permit will be required. To obtain a permit, an application form must be submitted to York Region using their online Sewer Use Bylaw Services portal. The application review process generally takes anywhere from three to six weeks depending on the complexity of the application.

O. Reg. 179/06 LSRCA Implementation Guidelines

Under Section 28 of the *Conservation Authorities Act*, local conservation authorities are mandated to protect the health and integrity of the regional greenspace system and to maintain or improve the hydrological and ecological functions performed by valley and stream corridors. The LSRCA, through its regulatory mandate, is responsible for issuing permits under O. Reg. 179/06: *Lake Simcoe Region Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.* Permits are issued for new development proposals or certain site alteration works within LSRCA regulated areas.

A review of LSRCA (2019) mapping indicates that a portion of the Site near its middle and along a tributary of Holland River (Sharon Creek) that flows through the Site in a north-south direction, fall within LSRCA regulated areas. As such, a permit under O. Reg. 179/06 for development in that area is expected. Pre-consultation should be completed with the LSRCA to confirm.

Lake Simcoe Protection Plan (2009)

The LSPP (MOE, 2009) was prepared following the establishment of the Lake Simcoe Protection Act (LSPA) in 2008. The objective of the LSPA and the LSPP is to safeguard the ecological health and natural function of Lake Simcoe and its tributaries. The LSPP requires applications for major development (>500 m^2 impervious area) within the Lake Simcoe Watershed to provide a stormwater management plan accompanied by a climate-based water balance and a phosphorus balance to evaluate, where applicable, the potential post-construction infiltration deficit and increases in phosphorus loadings to Lake Simcoe, respectively. Water and phosphorus balance assessments are to be completed for the proposed development as part of the Stormwater Management Report for the Site.

Ontario Water Resource Act (1990)

Under Section 34 of the Ontario Water Resources Act (OWRA), a PTTW is required from the MECP for any water taking that is greater than 50,000 L/day. For water takings related to construction site dewatering or road construction, water takings of more than 50,000 L/day but less than 400,000 L/day may be registered on the Environmental Activity and Sector Registry (EASR) under *O. Reg. 63/16: Registrations Under Park II.2 of The Act – Water Takings*. Water takings during construction that will exceed more than 400,000 L/day will require a PTTW issued

by the MECP; water takings post-construction that will exceed 50,000 L/day will also require a PTTW issued by the MECP.

O. Reg. 387/04 Water Taking and Transfer Regulation

O. Reg. 387/04 under the OWRA describes the relevant assessment criteria and outlines certain prohibited water taking and transfer activities that are evaluated by the MECP prior to issuing a PTTW as well as for applicants who are self-registering on the EASR. The regulation also clarifies certain prescribed activities that are exempt from the PTTW/EASR requirements and outlines the data collection and reporting commitments for PTTW and EASR registration holders. Any water taking activity that is regulated by the OWRA will need to be undertaken in accordance with O. Reg. 387/04.

The Clean Water Act, 2006

The MECP mandates the protection of existing and future sources of drinking water under the Clean Water Act (CWA). Initiatives undertaken under the CWA include the delineation of vulnerable areas for drinking water areas including WHPAs, SGRAs, IPZs, and Highly Vulnerable Aquifer areas (HVAs) as well as the assessment of drinking water quantity threat areas (WHPA-Q1, WHPA-Q2 and IPZ-Q) within Source Protection Regions.

Based on a review of the MECP (2023a) Source Protection Information Atlas, the Site falls within the Lake Simcoe and Couchiching/Black River Source Protection Area within the South Georgian Bay Lake Simcoe Source Protection Region. The Site is located within or intersects the following vulnerable areas: a WHPA-Q1 and WHPA-Q2, and an IPZ-3 in the area surrounding the stream, as shown in LSRCA (2023) mapping.

South Georgian Bay Lake Simcoe Source Protection Plan (2015)

Source Protection Plans are developed under the CWA and identify the policies that restrict, regulate and prohibit land use activities within vulnerable drinking water areas. Local municipalities and regional governments are required under the CWA to implement the SPPs through integration into planning policy. The Site is located within the policy boundaries of the South Georgian Bay Lake Simcoe Source Protection Plan (SGBLS SPP) (SGBLS SPR, 2022).

The South Georgian Bay Lake Simcoe Source Protection Plan (SGBLS-SPR, 2022) outlines land use policies to be implemented within the Lake Simcoe and Couchiching/Black River Source Protection Area to safeguard vulnerable drinking water areas from threats to both quantity and quality. Given the proposed development and its location within a WHPA-Q1/-Q2, policies LUP-11, LUP-12, LUP-13 and LUP-15 applicable to the Site. Policies LUP-11, LUP-12, LUP-13 and LUP-15 are related to the maintenance of groundwater resources in the Source Protection Area and implemented through the YROP.

3 Regional Geological and Hydrogeological Understanding

3.1 Topography and Drainage

The Site is within the East Holland River Subwatershed which covers an area of 247 km^2 and is under the jurisdiction of the LSRCA (LSRCA, 2010). The East Holland River Subwatershed drains northward toward Lake Simcoe. Sharon Creek, a tributary of the East Holland River flows south through the Site dissecting it into an eastern and western portion. Once off-site the creek flows west then north into the East Holland River.

The topography at the site is undulating. Based on a review of the Site Grading Plan, Drawing No. SG-01 provided by GEI Consultants dated August 2024, the existing topographic elevation at the Site varies from a high of 275 masl at the northeastern boundary to a low of 266 masl at the western boundary.

A topographic map of the Site and the surrounding area is presented in **Figure 2**. The Site Grading Plan is provided in **Appendix A**.

3.2 Physiography

The Site is situated within the physiographic region known as the Schomberg Clay Plains. The Schomberg Clay Plains are characterized by rolling relief covered by deposits of fine-grained sediments, typically 15 m thick, which are draped over an irregular till plain (Chapman and Putnam, 1984).

A physiographic map of the Site and the surrounding area is presented in **Figure 3**.

3.3 Surficial Geology

Mapping from the OGS (2010) indicates that the surficial geology across the Site consists of three different deposit types. The majority of Site is composed of fine-textured glaciolacustrine deposits. A portion of the Site extending from the centre to the north-eastern property limit has deposits of stone-poor, carbonate-derived silty to sandy till. Another small area along the east boundary of the Site is composed of coarse-textured glaciolacustrine deposits.

The surficial geology of the Site and surrounding area is presented in **Figure 4**.

3.4 Bedrock Geology

Based on a review of geological mapping, the bedrock unit underlying the Site is the Lindsay Formation comprised of middle Ordovician limestone (Armstrong and Dodge, 2007). The top of bedrock elevation is expected to be at approximately 103.5 mbgs (162 masl) (ORMGP, 2018).

The bedrock geology of the Site and the surrounding area is presented in **Figure 5**.

3.5 Regional Geology and Hydrogeology

The current understanding of the regional geological and hydrogeological environment is based on scientific work conducted by, and information available from, the York, Peel, Durham, Toronto and The Conservation Authorities Moraine Coalition (YPDT-CAMC) as made available through the ORMGP and regional Source Water Protection technical studies. The following description of regional hydrogeology is based on information presented in ORMGP (2018) mapping and Earthfx Inc. (2013).

3.5.1 Hydrostratigraphy

The following hydrostratigraphic units typically overlie the bedrock (from youngest to oldest) within the general vicinity of the Site:

A. Recent Deposits
B. Halton Till (Aquitard)
C. Oak Ridges Moraine (Aquifer)
D. Channel Sediments (Aquifer/Aquitard)
E. Newmarket Till (Aquitard)
F. Thorncliffe Formation (Aquifer)
G. Sunnybrook Drift (Aquitard)
H. Scarborough Formation (Aquifer)

The units are depicted in the regional hydrostratigraphic cross-sections provided in **Figure 6** and **Figure 7**, as described by the ORMGP (2018). The cross-section in **Figure 6** depicts the regional hydrostratigraphy in a north to south orientation along Leslie Street from Mt Albert Road to Davis Drive; this section line is approximately 410 m west from the Site. The cross-section in **Figure 7**, represents the hydrostratigraphy in a west to east orientation along Green Lane East from 2nd Concession Road to Woodbine Avenue; the Site is located directly north of this section line.

A brief description of each hydrostratigraphic unit is provided below.

- **Recent Deposits –** The uppermost surficial geologic unit consists of glaciolacustrine deposits consisting of mainly glaciolacustrine derived fine sands, silts and clays. Recent deposits are expected to be absent or present at the Site in limited amounts.
- **Halton Till –** The Halton Till was deposited approximately 13,000 years before present (B.P.) during the last glacial advance in the area. The Halton Till is comprised of deposits of sandy silt till to clayey silt till. The Halton Till is not expected to be present at the Site.
- **Oak Ridges Moraine –** The Oak Ridges Moraine (ORM) was deposited approximately 12,000 to 13,000 years B.P. The ORM is a prominent geological feature within the Subwatershed as it supports numerous residential and municipal groundwater supply wells. The deposits of the ORM generally consist of layers of sand and gravel. The ORM is not expected to be present at the Site.
- **Channel Sediments –** Following the deposition of the Newmarket Till (discussed below), glacial meltwaters created a series of erosional (tunnel) channels along the upper surface of the till unit. The tunnel channels that were left behind were infilled with silt and sand deposits as the energy of the meltwaters diminished. The silt and sand infill are referred to as Channel Sand Aquifer and Channel Silt Aquitard, respectively. Collectively the units

are referred to as the Channel Sediments. The Channel Sediments are not expected to be present at the Site.

- **Newmarket Till –** The Newmarket Till was deposited approximately 18,000 to 20,000 years B.P. It is divided into the Upper Newmarket Till (aquitard), the Inter-Newmarket Sediments (aquifer), and the Lower Newmarket Till (aquitard). The Upper Newmarket Till is mainly present north of the ORM, while the Inter-Newmarket Sediments are thought to be discontinuous sand lenses of glaciolacustrine origin between the upper and lower tills. The Upper Newmarket Till is expected to be present at the Site at elevations ranging from 268 masl (5 mbgs) in the western portion of the Site to 271 masl (2 mbgs) in the eastern corner. The Inter Newmarket Sediments are expected to be present at the Site at approximate elevations ranging from 250 masl (23 mbgs) at the northwestern corner to 256 masl (17 mbgs) at the southeastern corner. Lower Newmarket Till is expected to be encountered at approximate elevations from 247 masl (26 mbgs) in the northern portion to 245 masl (28 mbgs) in the southern corner.
- **Thorncliffe Formation –** The Thorncliffe Formation was deposited approximately 45,000 years B.P. and consists of glaciofluvial deposits containing sand and silty sand. Regionally, the unit acts as an aquifer with variable grain size and thickness. The Thorncliffe Formation is expected to be present at the Site at elevations ranging from 208 masl (65 mbgs) in the northwest corner of the Site to 228 masl (45 mbgs) in the southern portion.
- **Sunnybrook Drift –** The Sunnybrook Drift was deposited approximately 45,000 years B.P.; it is interpreted to be a silt and clay formation formed as a result of glacial and lacustrine processes, which acts as an aquitard. The Sunnybrook Drift is expected to be present at the Site at elevations ranging from 181 masl (92 mbgs) in the northwest to 184 masl (89 mbgs) in the southeast.
- **Scarborough Formation –** The Scarborough Formation was deposited during the Wisconsin glaciation approximately 70,000 years to 90,000 years B.P. It is a fluvial-deltaic system consisting of sand, silt and clay deposits, which acts as an aquifer. The Scarborough Formation is expected to be present at the Site at elevations ranging from 169 masl (104 mbgs) in the northwest to 172 masl (101 mbgs) in the southeast.

3.6 Regional Groundwater Flow

At a regional scale, groundwater flows from the topographic highs associated with the Oak Ridges Moraine, south of the Site, to the topographic lows associated with Lake Simcoe to the north. Regional groundwater flow patterns will be influenced by the presence of major watercourses.

4 Local Geology and Hydrogeology

The current understanding of the local geological and hydrogeological environment at the Site is based on the geotechnical, environmental, and hydrogeological investigations conducted by Toronto Inspection Ltd. The findings from site-specific borings completed during these investigations were evaluated in the context of the regional hydrogeological setting to develop a conceptual hydrogeological model for the Site.

4.1 Overburden

Based on the soil characterizations from the borehole data, the overburden material consists of 0.6 m to 2.3 m of fill, which is underlain by sand and silt textured deposits described as silty sand till, sandy silt till, and sandy silt in the borehole logs and extend to the termination depth of borehole investigations at up to 7.7 mbgs.

Borehole locations from the Toronto Inspection Ltd. (2024) geotechnical investigation are shown in **Figure 8**. Borehole logs are included in **Appendix B**.

4.2 Bedrock Geology

Bedrock was not encountered within and up to the terminal depths (7.7 mbgs) of the borehole investigation. As mentioned, the limestone bedrock interface is expected at an elevation of approximately 103.5 mbgs (162 masl).

4.3 Groundwater Conditions

4.3.1 On-Site Monitoring Network

A monitoring network consisting of three monitoring wells was established at the Site. Monitoring well locations are shown in **Figure 8**. A summary of the monitoring well construction details is provided in **Table 4-1** below.

Table 4-1 Monitoring Well Construction Summary

Well ID	Ground Elevation (masl)	Screen Interval (mbgs/masl)	Well Diameter (m)	Screen Length (m)	Screened Unit
24BH-1 (MW)	269.92	3.05 – 6.10 / 266.87 – 263.82	0.051	3.048	sandy silt till
24BH-4 (MW)	270.53	3.05 – 6.10 / 267.48 – 264.43	0.051	3.048	sandy silt till/ silty sand till
24BH-5 (MW)	272.16	3.05 – 7.62 / 267.59 – 264.54	0.051	3.048	sandy silt till

4.3.2 Preliminary Groundwater Levels

Groundwater elevations were measured on September 25, 2024. A summary of static groundwater level measurements is presented in **Table 4-2** and **Table 4-3** in mbgs (relative to the existing grade), and masl, respectively.

It is noted the groundwater measured in the low permeability till soils does not represent a significant water bearing aquifer deposit. Small amounts of groundwater are found perched within lenses of more permeable material within the till matrix; or, within the till soils themselves.

Based on the manual measurements, groundwater elevations ranged between a high of 270.10 masl at 24BH-5 (MW) in the northeast portion of the Site measured to a low of 262.12 masl at 24BH-1 (MW) in the western portion of the Site.

Table 4-2 Preliminary Water Level Measurements (mbgs)

Well ID	Screen Interval (mbgs)	25-Sep-24
24BH-1 (MW)	3.05 – 6.10	1.77
24BH-4 (MW)	3.05 – 6.10	1.24
24BH-5 (MW)	4.57 – 7.62	2.06

Notes:

1. Water levels are relative to existing ground surface.

Table 4-3 Preliminary Water Level Measurements (masl)

Well ID	Screen Interval (masl)	25-Sep-24
24BH-1 (MW)	266.67 – 263.82	268.15
24BH-4 (MW)	267.48 – 264.43	269.29
24BH-5 (MW)	267.59 – 264.54	270.10

4.3.3 Hydraulic Conductivity

Single well hydraulic response testing in the form of rising-head tests was conducted at all on-Site monitoring wells on September 18, 2024, to estimate the in-situ hydraulic conductivity (K) of the screened overburden materials. Prior to testing, each well was developed in order to mitigate the influence of native, near-well materials disturbed during the drilling program.

During the rising head test, a pseudo-instantaneous drop in the water level was achieved by extracting water from the well using a manual inertial pump. The water level recovery was measured by a datalogger taking readings at pre-programmed intervals and left in place to record recovery. For the purposes of the test, sufficient recovery was considered to be at or above approximately 85% of the pre-test water column.

The hydraulic conductivity was estimated using the Hvorslev (1951) method with the data recorded by the dataloggers. The corresponding analyses are presented in **Appendix C**. A summary of hydraulic conductivities is presented in **Table 4-4**.

Table 4-4 Summary of Hydraulic Conductivity Calculations

Well ID	Screen Interval mbgs/masl	Material Tested	Hvorslev Method K (m/s)
24BH-1 (MW)	3.05 – 6.10 / 266.87 – 263.82	silty sand till	8.9×10^{-8}
24BH-4 (MW)	3.05 – 6.10 / 267.48 – 264.43	silty sand, sand	1.1×10^{-7}
24BH-5 (MW)	4.57 – 7.62 / 267.59 - 264.54	silty sand till	1.2×10^{-7}
		Geometric Mean	1.06×10^{-7}

The results of the hydraulic conductivity analyses identified a hydraulic conductivity for the shallow silt and sand textured overburden ranging from 8.9×10^{-8} m/s to 1.2×10^{-7} m/s. The calculated geometric mean of all results was 1.06×10^{-7} m/s. The hydraulic conductivity estimates are within the expected range for silty material, which can vary on the order of 10^{-9} m/s to 10^{-5} m/s, and for silty sand material, which can vary on the order of 10^{-7} m/s to 10^{-3} m/s (Freeze and Cherry, 1979).

It is anticipated that the bulk hydraulic conductivity of the overburden soils is approximately equivalent to the geometric mean of all reported results. As such, groundwater seepage rates into open excavation below the groundwater table will be calculated using a horizontal hydraulic conductivity equivalent to 1.06×10^{-7} m/s.

4.3.4 Groundwater Quality

An unfiltered groundwater quality sample was collected from 24BH-4 (MW) on September 18, 2024. The collected groundwater quality sample was submitted for analysis to SGS Environmental Services in Lakefield, Ontario. The sample was analyzed for and assessed against the parameters and corresponding criteria listed in the York Region Sewage Use Bylaw No. 2021-102. The laboratory analytical results and Certificate of Analysis are included in **Appendix D**. Laboratory analytical results are summarized in **Table 4-5**.

Table 4-5 Groundwater Quality Results

Analysis	Units	York Table 1 Sanitary By-Law Limit	York Table 2 Storm By-Law Limit	RDL	24BH-4 (MW)
Conventional					
Biochemical Oxygen Demand (BOD)	mg/L	300	15	2	< 4 ↑
Total Kjeldahl Nitrogen (TKN)	as N mg/L	100	1	0.5	<0.5
Oil and Grease – Mineral and Synthetic	mg/L	150	---	4	< 4
Oil and Grease–- Animal and Vegetable	mg/L	15	---	4	< 4
Phenolics-4AAP	mg/L	1	0.008	0.002	0.002
Total Phosphorus (P)	mg/L	10	0.4	0	0.026
Total Suspended Solids (TSS)	mg/L	350	15	2	24
pH	no unit	6.0-10.5	6.0-9.0	0	7.53
Other					
Total Cyanide (CN)	mg/L	2	0.02	0.01	< 0.01
Fluoride (F-)	mg/L	10	---	0.06	0.14
Sulphate (SO4)	mg/L	1500	---	2	42
Metals					
Total Aluminum (Al)	mg/L	50	---	0.001	0.367
Total Antimony (Sb)	mg/L	5	---	0.0009	< 0.0009
Total Arsenic (As)	mg/L	1	0.02	0.0002	0.0017
Total Cadmium (Cd)	mg/L	0.7	0.008	0.000003	0.000004
Total Chromium (Cr)	mg/L	2	0.08	0.00008	0.00061
Total Cobalt (Co)	mg/L	5	---	0.000004	0.000334
Total Copper (Cu)	mg/L	3	0.05	0.0002	<0.0001
Total Lead (Pb)	mg/L	1	0.12	0.00009	0.00032
Total Manganese (Mn)	mg/L	5	0.15	0.00001	0.00403
Total Mercury (Hg)	mg/L	0.01	0.0004	0.00001	<0.00001
Total Molybdenum (Mo)	mg/L	5	---	0.0004	0.0015
Total Nickel (Ni)	mg/L	2	0.08	0.0001	0.0008
Total Selenium (Se)	mg/L	1	0.02	0.00004	<0.00004

Analysis	Units	York Table 1 Sanitary By-Law Limit	York Table 2 Storm By-Law Limit	RDL	24BH-4 (MW)
Total Silver (Ag)	mg/L	5	0.12	0.00005	< 0.00005
Total Tin (Sn)	mg/L	5	---	0.00006	0.00013
Total Titanium (Ti)	mg/L	5	---	0.00005	0.0178
Total Zinc (Zn)	mg/L	2	0.04	0.002	0.016
Organics					
Benzene	mg/L	0.01	0.002	0.0005	< 0.0005
Chloroform	mg/L	0.04	0.002	0.0005	< 0.0005
1,2-Dichlorobenzene	mg/L	0.05	0.0056	0.0005	< 0.0005
1,4-Dichlorobenzene	mg/L	0.08	0.0068	0.0005	< 0.0005
cis-1,2-Dichloroethylene	mg/L	4	0.0056	0.0005	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.14	0.0056	0.0005	< 0.0005
Ethylbenzene	mg/L	0.16	0.002	0.0005	< 0.0005
Methylene Chloride	mg/L	2	0.0052	0.0005	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	1.4	0.017	0.0005	< 0.0005
Tetrachloroethylene	mg/L	1	0.0044	0.0005	< 0.0005
Toluene	mg/L	0.27	0.002	0.0005	< 0.0005
Trichloroethylene	mg/L	0.4	0.008	0.0005	< 0.0005
Total Xylenes	mg/L	1.4	0.0044	0.0005	< 0.0005
Di-n-butyl phthalate	mg/L	0.08	0.015	0.002	< 0.002
Bis (2-ethylhexyl) phthalate	mg/L	0.012	0.0088	0.002	< 0.002
Polychlorinated Biphenyls (PCBs)	mg/L	0.001	0.0004	0.0001	< 0.0001
Methyl Ethyl Ketone	mg/L	8	---	0.02	< 0.02
Styrene	mg/L	0.2	---	0.005	< 0.0005
Nonylphenol	mg/L	0.02	---	0.001	< 0.001
Nonylphenol ethoxylates	mg/L	0.2	---	0.01	< 0.01

Notes:
Yellow highlighted cells indicate an exceedance of storm sewer criteria.
Bolded cells indicate an exceedance of sanitary sewer criteria.
↑ indicates increased readable detection limit (RDL)

Based on the laboratory analytical results, the parameters met the criteria for *Table 1 – Limits for Sanitary Sewer Discharge* and *Table 2 – Limits for Storm Sewer / Land Drainage Works Discharge* with exception of Total Suspended Solids (TSS) which exceeded the storm sewer limits of Table 2.

5 Preliminary Calculation of Dewatering Rates and Estimation of Zone of Influence

Dewatering calculations provide an estimate of the expected dewatering rates and discharge options to complete below ground construction in open cut excavations under suitable conditions. Calculated rates are provided for the purpose of obtaining water taking and/or discharge permits. This section does not provide a design of dewatering operations. The design of dewatering operations and the selection of effective dewatering and discharge measures are solely the responsibility of the dewatering contractor. Dewatering rates are provided herein for groundwater and stormwater control only. Dewatering rates for groundwater control were estimated based on the interpretation of the hydrogeological Site conditions and development details as outlined in the Site Plan (WMA, 2024) and Site Grading Plan (GEI, 2024). Copies of the plans are provided in **Appendix A** for reference. Complete details for the proposed servicing were not available at the time of writing, as such dewatering requirements for servicing installation were not calculated.

Please Note: Estimations provided are based on preliminary water level monitoring, and do not include site servicing for the plan. A review and update of dewatering requirements is required once full site servicing details are available, and/or in the event of future design changes for the proposed development.

5.1 Aquifer Characteristics

The overburden at the Site consists of 0.5 m to 1.2 m of fill, 2.1 to 2.3 m at 24BH-3 and 24BH-4 (MW), which overlays sand and silt textured deposits (silty sand till, sandy silt till,) that extend to the termination depth of the borehole investigations, 7.7 mbgs. Based on the details available, below ground excavation during construction is expected to extend into the sandy and silty till deposits. In order to estimate dewatering rates for the Site, we have assumed the fill till deposits can be modelled as an unconfined aquifer with hydraulic properties as indicated by Site-specific field data.

The geometric mean of all hydraulic conductivity values from the single well response testing, 1.06×10^{-7} m/s, is used as the hydraulic conductivity value for the deposits to be dewatered in the calculations.

The highest recorded water level elevation during the long-term elevation was used for dewatering calculations.

5.2 Required Drawdown

Dewatering will be required to draw the water level down to below the depth of excavation for foundation of the proposed building. The following assumptions were made in the assessment of dewatering requirements:

- The finished floor elevations (FFE) in the final condition is 272.60 masl, as shown in the Site Grading Plan (DWG. SG-01, GEI, 2024, **Appendix A**);
- The bottom of excavation will be 1.0 m below the FFE to account for the slab thickness and footings;
- The target dewatering level will be 1 m below the base of the excavation;

- The estimated maximum groundwater elevation was taken as the maximum reported groundwater elevation data set for monitoring wells within/closest to the building footprint, using manual measurements taken from monitoring wells available on-Site.
- The dimensions of the excavation for the building were taken from the Site Grading Plan (DWG No. SG-01, GEI, 2024, **Appendix A**).

The dewatering requirements for the Site are summarized in **Table 5-1** below.

Table 5-1 Summary of Dewatering Requirements

Scenario	Ground Surface (Final)	Base of Excavation	Width of Excavation	Length of Excavation	Maximum Groundwater Elevation	Dewatered Groundwater Elevation	Maximum Required Drawdown
	(masl)	(masl)	(m)	(m)	(masl)	(masl)	(m)
Building Foundation	272.60	271.60	62	71	271.10	270.60	0.50

5.3 Radius of Influence

Considering the drawdown requirements, dimensions of the excavation and underlying soil conditions, it is anticipated that the dominant mode of groundwater flow to the excavations will be planar. An estimate of the Radius of Influence (ROI) for dewatering excavations can be calculated using the following equation (Cashman and Preene, 2013):

$$R_{01} = 2.45\sqrt{\frac{HK}{S_y}t}$$

where,

R_{01}	=	Radius of influence beyond which there is negligible drawdown (m)
H	=	Distance from initial static water level to assumed bottom of saturated aquifer contributing flows (m)
S_y	=	Specific yield of the aquifer formation (based on value for a silt after Morris and Johnson, 1967)
t	=	Time, in seconds, required to draw the static groundwater level to the desired level (s), assumed equivalent to 14 days.
K	=	Hydraulic Conductivity of aquifer formation (m/s)

A summary of the DOI estimations for the dewatering calculations is presented in **Table 5-2** below.

Table 5-2 Radius of Influence

Scenario	H	S_y	K	t	R_{01}
	(m)	[-]	(m/s)	(s)	(m)
Building Foundations	10	0.20	1.1×10^{-7}	1,209,600	7

5.4 Preliminary Dewatering Rate Calculations

5.4.1 Short Term Dewatering

The calculation of anticipated dewatering rates, to control groundwater inflows to the excavation during construction, is based on equations provided in *Construction Dewatering and Groundwater Control: New Methods and Applications, Third Edition* (Powers et al., 2007).

The dewatering assessment assumes steady-state flow into an open excavation; however, it should be recognized that a transient condition may exist at the start of dewatering and that during this time, flows can be expected to be higher but will dissipate over time to steady-state conditions as aquifer storage is depleted. The equations have the following assumptions:

- ideal aquifer conditions, i.e., homogeneous, isotropic, uniform thickness and infinite areal extent;
- fully penetrating pumping well(s);
- horizontal flow to the pumping well(s); and
- a constant pumping rate with the flow to the pumping well(s) corresponding to steady-state conditions.

The following equation for radial flow to an excavation in an unconfined aquifer was used for dewatering estimate for foundation at the proposed building:

$$Q = \frac{\pi K (H^2 - h^2)}{\ln(R_{02}/r_e)}$$

where,

Q	=	Anticipated pumping rate (m^3/day)
K	=	Hydraulic conductivity (m/day)
H	=	Distance from the static water level to the bottom of the saturated aquifer (m)
h	=	Depth of water in the well while pumping (m)
r_e	=	Equivalent well radius. Approximately equivalent to half the width of excavation
R_{02}	=	Radius of Influence (m) from excavation, beyond which there is negligible drawdown (m)

To account for uncertainties and the natural variability in the range of hydraulic conductivity and water levels that may be encountered in the subsurface, the calculated short-term dewatering rates for groundwater control were multiplied by a factor of safety of 2. Incorporating the factor of safety also provides flexibility to the dewatering contractor in meeting project schedules and helps to account for the initial pumping period under transient conditions when dewatering volumes are expected to be higher.

Please Note: As indicated previously servicing trench dewatering calculations have not been included in this preliminary assessment. Construction dewatering calculations will need to be updated when servicing trench information becomes available.

5.4.2 Allowance for Precipitation

While an excavation remains open, it may be necessary to remove stormwater which enters the excavation as direct precipitation. Incorporating additional discharge requirements provides an estimate of a worst-case dewatering scenario for the purpose of dewatering discharge permits and/or approvals. To account for additional dewatering volumes a 24-hour depth of accumulation of 27 mm was considered. A rainfall depth of 27 mm represents the 99th percentile of daily rainfall at the King City North climate station (Environment and Climate Change Canada, 2023). The King City North climate station is located approximately 18 km southwest of the Site.

5.4.3 Long Term Dewatering

Since the building Finished Floor Elevation (FFE) is anticipated to remain above the seasonally high perched groundwater table, it is assumed that a method of groundwater control will not be required to manage groundwater seepage around the foundation floor and walls over the long-term.

5.4.4 Summary

The anticipated dewatering volumes for groundwater control were added to the estimated dewatering volumes for direct precipitation into the open excavations to determine total dewatering rates. A summary of the estimated dewatering rates is presented in **Table 5-3**. Dewatering calculation sheets can be found in **Appendix F**. Dewatering rate estimates have been prepared for permitting requirements only.

Table 5-3 Dewatering Rate Summary

Scenario	H	h	K	R_0	Short-Term Pumping Rate Q		
	m	m	m/day	m	m^3/day	L/day	L/s
Building Footings	10	9	9.2×10^{-3}	50			
	Groundwater				3.500 (1,800)	3,500 (1,800)	0.04 (0.02)
	Precipitation				118.900	118,900	1.38
	Total				122.400 (120.700)	122,400 (120,700)	1.42 (1.40)

Notes:

1. Short Term Pumping Rates shown rounded to the nearest 100 L/day.
2. Groundwater pumping rates include a factor of safety of 2.
3. Groundwater pumping rates inside brackets do not include the safety factor.

5.5 Dewatering Permit Requirements

The cumulative sum of dewatering for anticipated structures at the site (exclusive of trenches for serving installations) is considered for the purposes of applying for permits and approvals. These sums should be re-evaluated once dewatering estimates for servicing installations have been completed.

The estimated maximum groundwater dewatering rate required during construction to achieve the desired drawdown for groundwater control is 3,500 L/day. The estimated stormwater dewatering volume assuming direct precipitation to excavation of 27 mm over a 24-hour period is

118,900 L/day. The total estimated dewatering rate, for groundwater and stormwater takings is 122,400 L/day.

While the estimated dewatering rate is below the 50,000 L/day EASR threshold, and dewatering of direct precipitation inflow into an excavation is not considered part of dewatering within the 50,000-400,000 EASR range, as a risk management tool an EASR should be considered for the project to provide flexibility to deal with potentially unforeseen circumstances.

The estimated seasonally high groundwater table is below the Finished Floor Elevation (FFE); therefore, it is anticipated site grading, drainage, and impervious surfaces along with standard perimeter drainage around the building will be sufficient to prevent groundwater levels from temporarily rising above the FFE. As a result, long-term dewatering requirements are not anticipated at this time.

It is important; however, to note long-term drainage requirements should be reassessed once seasonally high groundwater level measurements have been obtained for the property and once final site designs with respect to grading, drainage, and impervious surfaces have been established to confirm whether long-term drainage may be necessary to prevent groundwater levels from rising above the FFE. In the event long-term drainage is necessary, it is reasonable to suggest daily discharge volumes would likely be below the threshold for a PTTW and only permitting for discharge to a municipal sewer would be required.

5.6 Disposal Options for Discharge Water

Three potential dewatering discharge options were identified as part of this investigation for the dewatering discharge:

- **Option 1:** Discharge to municipal sewers or land drainage works in the Township of Whitchurch-Stouffville or York Region;
- **Option 2:** Discharge overland to a vegetated area;
- **Option 3:** Removal via Pump Truck

Pre-treatment may be required to allow discharge quality to meet the applicable criteria for the receivers. The selection of a dewatering discharge option, including mitigation and monitoring for water quantity and quality impacts, is the responsibility of the dewatering contractor. Potential discharge options are discussed in detail below.

Option 1 – Discharge to a Municipal Sewers or Land Drainage Works in the Township of Whitchurch-Stouffville or York Region

Dewatering effluent may be discharged to land drainage works, or if present municipal sewers, near to the Site, granted any necessary approvals under *York Region Sewer Use Bylaw No. 2021-102* or *The Corporation of Town of East Gwillimbury Sewer Use By-Law # 2008-54* are obtained, and the discharge quantity and quality meet applicable criteria.

It is noted that York Region does not allow construction dewatering discharge into the municipal storm sewer, however it can be directed to the sanitary sewer pending approval.

Parameter concentrations for the groundwater quality samples obtained during this investigation met the discharge quality criteria for York Region's *Table 1—- Limits for Sanitary Sewer Discharge*.

The Total Suspended Solids (TSS) concentration exceeded the *Table 2 – Limits for Storm Sewer / Land Drainage Works Discharge*.

Consultation with the appropriate municipality is recommended if this option is required for temporary construction dewatering.

Option 2 – Discharge Overland to a Vegetated Area

Dewatering discharge may be directed to any low-lying, vegetated area adjacent to the Site, from where it can infiltrate to the subsurface or runoff to the ultimate receiver, e.g., roadside ditch, surface water feature. The following controls should be implemented to minimize impacts to the natural environment with this option:

- Dewatering discharge shall be dispersed prior to discharge to the ground surface to dissipate the energy from the flow and reduce the potential for erosion;
- Dewatering discharge shall pass through a sediment control device prior to discharge to the natural environment;
- Dewatering discharge from the sediment control device shall be to a naturally vegetated area where there will be no prior interaction with paved surfaces ahead of release to a natural water body;
- Dewatering discharge shall be halted if there is a visible petroleum hydrocarbon film or sheen present in the discharge;
- Dewatering discharge from the sediment control device shall be no closer than 30 m from any water body, and as far as practicably possible from the sloped embankments of any water body to prevent scouring and erosion; and
- Appropriate erosion and sediment control measures shall be implemented, in accordance to minimize the risk of environmental degradation.

Option 3 – Removal via Pump Truck

Dewatering discharge may be contained on-Site for collection and transfer by a licensed hauling contractor to a registered disposal facility. This option should be considered as a contingency in the event that discharge to the sewer system is not feasible, e.g., the discharge approval for the sewer expires, is suspended, or is in any other way terminated. However, it Is important to note that removal of precipitation accumulation (e.g., rainwater) may significantly increase the volume of water that needs to be managed, making haulage impractical due to increased costs and logistical challenges associated with handling large quantities of water.

The dewatering contractor is responsible for the selection of the approved hauling contractor and registered waste disposal facility, and for meeting any pre-disposal requirements, e.g., water quality sampling which may by the registered disposal facility.

6 Potential Receptors

As part of this investigation, the potential receptors of impacts from development were identified. From a groundwater perspective, receptors are classified based on their connection to and reliance on groundwater for maintenance, be it for natural habitat or water supply. For this investigation, an understanding of the potential receptors to groundwater control and construction activities at the Site as well as other development impacts was determined by:

- Querying the MECP (2024b) WWIS for records of private water supply wells within a 500 m radius of the Site;
- Querying the MECP (2024) PTTW database to identify permitted water takers within a 500 m radius of the Site;
- A review of the MNRF (2024) Natural Heritage Areas mapping portal for potential ecological receptors within a 500 m radius of the Site.
- A review of the MECP (2024a) Source Protection Information Atlas for vulnerable source water protection areas.

6.1 MECP Water Well Record Search

A query of the MECP (2024b) WWIS within a 500 m radius of the Site returned a total of 45 water well records. The majority of these records (54%) were classified as Abandoned/Unknown. Wells used for Water Supply – Domestic/Livestock accounted for 42%, while 4% were designated as Monitoring Test Holes.

Well usage details for water well records within 500 m of the Site are summarized in **Table 6-1**. **Figure 9** shows the location of MECP well records within the 500 m search radius. **Appendix G** provides the list of MECP well records returned by the search.

Table 6-1 MECP Well Records within 500 m Radius

Primary Well Use	Number of Wells within 500 m Buffer of Site	Percentage of Total
Water Supply – Domestic/Livestock	19	42 %
Monitoring Test Hole	2	4 %
Abandoned/Unknown	24	54 %
Total	**45**	

Water supply wells comprise of 42% of all records found within a 500 m buffer of the Site, the majority of which were filed for domestic water supply wells. The records show that these wells were installed between 1950 and 1996. The calculated zone of influence from construction dewatering is 7 m. One of the identified wells is completed in the shallow subsurface (less than 12 mbgs); however, this well is not located within the calculated radius of influence. As a result, no impacts to private water supply wells from temporary construction dewatering would be anticipated.

Details for the water supply well records and their distance from the Site boundaries are summarized in **Table 6-2. Appendix G** includes the records of each water supply well provided by the MECP.

Table 6-2 Water Supply Well Details within 500 m Radius

Well ID	Completed date	Supply Use	Distance from Site (m)	Depth (m)
6900075	07-12-1961	Domestic	383	28
6900076	12-04-1961	Domestic	466	49.7
6900077	18-12-1961	Domestic	378	36
6900079	02-03-1962	Domestic	387	30.8
6900080	11-02-1950	Livestock	432	35.4
6900206	24-04-1964	Domestic	278	12.2
6900209	21-09-1965	Domestic	264	8.2
6908964	21-08-1968	Domestic	446	14
6910578	20-10-1971	Domestic	487	18.9
6910629	07-07-1971	Domestic	431	15.2
6911053	14-01-1972	Domestic	478	51.2
6911255	11-12-1972	Domestic	253	63.4
6911689	10-04-1973	Domestic	465	24.4
6914826	06-11-1978	Domestic	493	43.3
6919140	13-11-1987	Domestic	454	36.6
6919711	15-06-1988	Domestic	0	21.9
6923755	29-11-1996	Domestic	453	108.5

6.2 Permitted Water Users

A search was conducted to identify the permitted groundwater users within 500 m of the Site. No active PTTW records were identified within the 500 m radius.

6.3 Ecological Receptors

Based on a query of the MNRF (2023) Natural Heritage Areas mapping portal, the Site is not located within 500 m of Areas of Natural Scientific Interest (ANSI). A tributary of the East Holland River flows north through the Site separating it into western portions. Several woodland and an unevaluated wetland were identified adjacent to the Site to its north, south and west. Environmental features are presented in **Figure 10**.

6.4 Vulnerable Source Water Protection Areas

Based on a review of the York Region Official Plan mapping, the Site is located within both WHPA-Q1 and WHPA-Q2 areas, and an IPZ-3 is located around the on-Site tributary. Vulnerable drinking water areas located at the Site and in the surrounding area are illustrated in **Figure 10**.

7 Impact Assessment and Mitigation

7.1 Identification and Mitigation of Short-Term Impacts

7.1.1 Potential Short-Term Impacts to the Groundwater System

Construction dewatering activities in open excavations will cause the local perched groundwater water levels to drop temporarily and may increase the risk of contamination to subsurface. However, the drawdown resulting from construction dewatering is expected to be short-term in duration with water levels recovering following cessation of dewatering. The underlying Site soils are of low permeability, which will limit the potential for contaminant migration through the subsurface. Based on the above, significant short-term impacts to the groundwater system are not expected.

7.1.2 Potential Short-Term Impacts to the Surface Water System

Dewatering activities will temporarily lower perched groundwater levels, potentially impacting the amount of baseflow available to surface water features; however, as the near-surface groundwater is perched within low permeability soils it is unlikely significant lateral of vertical flux of groundwater occurs. As water courses are present on-Site and in close proximity to the northern Site boundary, short-term impacts to the surface water system may include the discharge of sediment, hazardous materials, or other deleterious substances, e.g., construction debris, into water features unless mitigative measures are implemented.

7.1.3 Potential Short-Term Impacts to Other Groundwater Users

A temporary decline in the near-surface perched groundwater levels could reduce the available yield for nearby groundwater takers. Shallow water wells within the zone of influence would be at greatest risk of impact from this activity. Based on the results of the MECP water well records and PTTW review, there are no private groundwater users within the 7 m zone of influence predicted for short-term dewatering during construction for the proposed building respectively. Therefore, short-term impacts to other groundwater users are not anticipated.

7.1.4 Mitigation of Short-Term Impacts

Best practices should be employed to minimize the risk and impact of contaminant spills and/or the off-Site release of construction debris and sediment. A Site-Specific Spill Prevention and Response Plan is recommended during construction to mitigate potential spills; it is also recommended that potential hazardous materials be stored in designated areas with appropriate containment away from areas of high vehicle traffic. An Erosion and Sediment Control (ESC) Plan should also be in place. Both plans should include routine monitoring to assess and maintain Spill and ESC protections on the perimeter of the water course and site boundary, to prohibit the release of sediments and other spilled contaminants into the water course and/or off-Site. Where well designed and implemented environmental management plans are in place, impacts to receptors can be minimized.

7.2 Identification and Mitigation of Long-Term Impacts

7.2.1 Potential Long-Term Impacts to the Groundwater System

Groundwater recharge volumes are expected to decline post development due to increase in impervious area. The Site is within a WHPA-Q1/-Q2, areas where long-term reductions in groundwater recharge could pose a risk to the quantity of water supplies available; however, the near-surface till soils act as a hydraulic barrier to vertical percolation of significant volumes of precipitation.

The installation of Site servicing and/or utilities may introduce pipe bedding materials whose permeabilities are higher than those of the native soils. Where permeable pipe bedding materials are placed in low permeability native soil below the groundwater table, the contrast in permeabilities has the potential to create preferential pathways for groundwater flow. Corresponding impacts may include the localized lowering of the groundwater table as well as subsurface transport of contamination along servicing trenches.

7.2.2 Potential Long-Term Impacts to the Surface Water System

As the near-surface groundwater is perched within low permeability soils it is unlikely significant lateral of vertical flux of groundwater occurs. As a result, it is expected the site does not provide significant groundwater baseflow to surface water features. It is anticipated stormwater management strategies for the property will address increases in surface water runoff and the potential impact from changes in runoff volumes to on site and nearby surface water features.

7.2.3 Potential Long-Term Impacts to Other Groundwater Users

Water supply wells within the shallow (<12 m deep) subsurface would be a greatest risk from these impacts. Based on a review of the MECP water well records, no wells within the zone of influence have a depth of less than 12 m. Given the low number of shallow wells and their distance from the subject property, significant impacts are not expected.

7.2.4 Mitigation of Long-Term Impacts

The Site is located within an Intake Protection Zone with a vulnerability score of 3, indicating that spills involving chemical and pathogen contaminants could potentially reach the intake. To mitigate these risks long-term operations should use best-management practices to minimize the impact of industrial activities on the quality of water supplies at, and surrounding, the Site.

If there is a potential for groundwater to be diverted and follow the paths created by new or relocated utilities or services, groundwater barriers may be installed to prevent migration along utility or service trenches. The necessity for cut-off collars or trench seals should be evaluated and discussed with the engineer responsible for the design for the specific pipe location.

8 Summary

A summary of the preliminary hydrogeological investigation is provided below:

- The Site is located within the East Holland River Subwatershed, which is within the jurisdiction of the LSRCA. Sharon Creek flows east to west through the north of the Site, once off-site the creek flows west along the property boundary and then north to the East Holland River. LSRCA regulated areas are delineated around Sharon Creek.
- The Site is located within the Lake Simcoe and Couchiching/Black River Source Protection Area and intersects at an IPZ-3. The Site is also completely within a WHPA-Q1 and WHPA-Q2.
- The Site has a ground surface elevation range of 266 masl to 273 masl, with topography sloping down to the south and west toward the East Holland River.
- The surficial geology across the Site consists of fine-textured glaciolacustrine deposits; stone-poor, carbonate-derived silty to sandy till, and coarse-textured glaciolacustrine deposits.
- Boreholes were drilled on-Site to a depth of 7.7 mbgs and encountered fill underlain by sand and silt textured deposits.
- Groundwater levels were measured from September 25, 2024, at on-Site wells. Groundwater elevations ranged from 268.15 masl at 24BH-1(MW) in the northwest portion of the Site to 270.10 masl at 24BH-5(MW) in the eastern portion of the Site over the period of monitoring.
- Hydraulic conductivity estimates for the silt and sand textured overburden ranged from 8.9×10^{-8} m/s to 1.2×10^{-7} m/s, with a geometric mean of 1.06×10^{-7} m/s.
- An unfiltered groundwater quality sample was collected from 24BH-4 (MW) on September 18, 2024, and compared with the *Regional Municipality of York Discharge of Sewer, Storm Water and Land Drainage By-law No. 2014-23*. Total Suspended Solids (TSS) was the only parameter to fail the criteria for *Table 2 – Limits for Storm Sewer Discharge*; all tested parameters meet the *Table 1 – Limits for Sanitary Sewer Discharge* and *Table 2 – Limits for Storm Sewer Discharge.*
- The preliminary estimated dewatering rate for groundwater control during construction of the building foundations is 3,500 L/day. Assuming additional dewatering for stormwater control, due to 27 mm of direct precipitation to the excavation in a 24-hour period, rates would increase by 118,900 L/day to a total of 122,400 L/day. Water takings for construction above 50,000 L/day but below 400,000 L/day require an EASR to proceed. While the calculated dewatering requirements are below the EASR threshold, the project may want to consider obtaining an EASR as a risk management measure. Consideration of the approach to construction phasing, dewatering and stormwater control is recommended in determining the dewatering permits and approvals required for construction. These values are subject to change upon completion of long-term monitoring period, once full site servicing details are available, and/or in the event of future design changes for the proposed development.

- Development may create short- and long-term impacts for the local surface water and ground water systems. The following are recommended as mitigation:
    - A site-specific Spill Prevention and Response Plan, as well as a site-specific ESC Plan,are recommended during construction. Where well designed and implemented environmental management plans are in place, unacceptable short-term impacts to the environment are not expected.
    - Where there exists a possibility that groundwater may be diverted and follow the path of new/relocated utilities or services, groundwater barriers may be used to prevent groundwater migration down servicing/utility trenches.
    - Long-term operations should use best-management practices to manage risks from industrial activities that could potentially impact the quality of water supplies at, and surrounding, the Site.

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Toronto Inspection Ltd. 2024. Report on Geotechnical Investigation at 1656 Green Lane East, East Gwillimbury, Ontario. October 8, 2024.

10 General Statement of Limitation

The comments presented in this report are based on the soil and groundwater samples gathered from the borehole/monitoring well locations indicated on the plan of this report. There is no warranty expressed or implied or representations made by Toronto Inspection Ltd. that this program has discovered all potential environmental risks or liabilities associated with the subject site.

Although we consider this report to be representative of the subsurface conditions at the subject property in the areas investigated, any interpretation of factual data or unexpected soil conditions which exhibit noticeable discolouration, odour, etc. in areas not investigated in this report, should be discussed in consultation with us prior to any initiation of activity. Our responsibility is limited to an accurate assessment of the soil condition prevailing at the locations investigated at the time of the study.

To the fullest extent permitted by law, the clients maximum aggregate recovery against Toronto Inspection Ltd., its directors, employees, sub-contractors and representatives, for any and all claims by **NewRoads Automotive Group** for all causes including, but not limited to, claims of breach of contract, breach of warranty and/or negligence, shall be the amount of fees paid to Toronto Inspection Ltd. for its professional engineering services rendered with respect to the particular site which is the subject of the claim by the client.

Any use and/or interpretation of the data presented in this report, and any decisions made on it by the third party are responsibility of the third party. Toronto Inspection Ltd. accepts no responsibility for loss of time and damages, if any, suffered by the third party as a result of decisions or actions based on this report.

Any legal actions arising directly or indirectly from this work and/or Toronto Inspection Ltd.'s performance of the services shall be filed no longer than two years from the date of Toronto Inspection Ltd.'s substantial completion of the services. Toronto Inspection Ltd. shall not be responsible to the client for lost revenues, loss of profits, cost of content, claims of customers, or other special indirect, consequential, or punitive damages.

Yours truly,

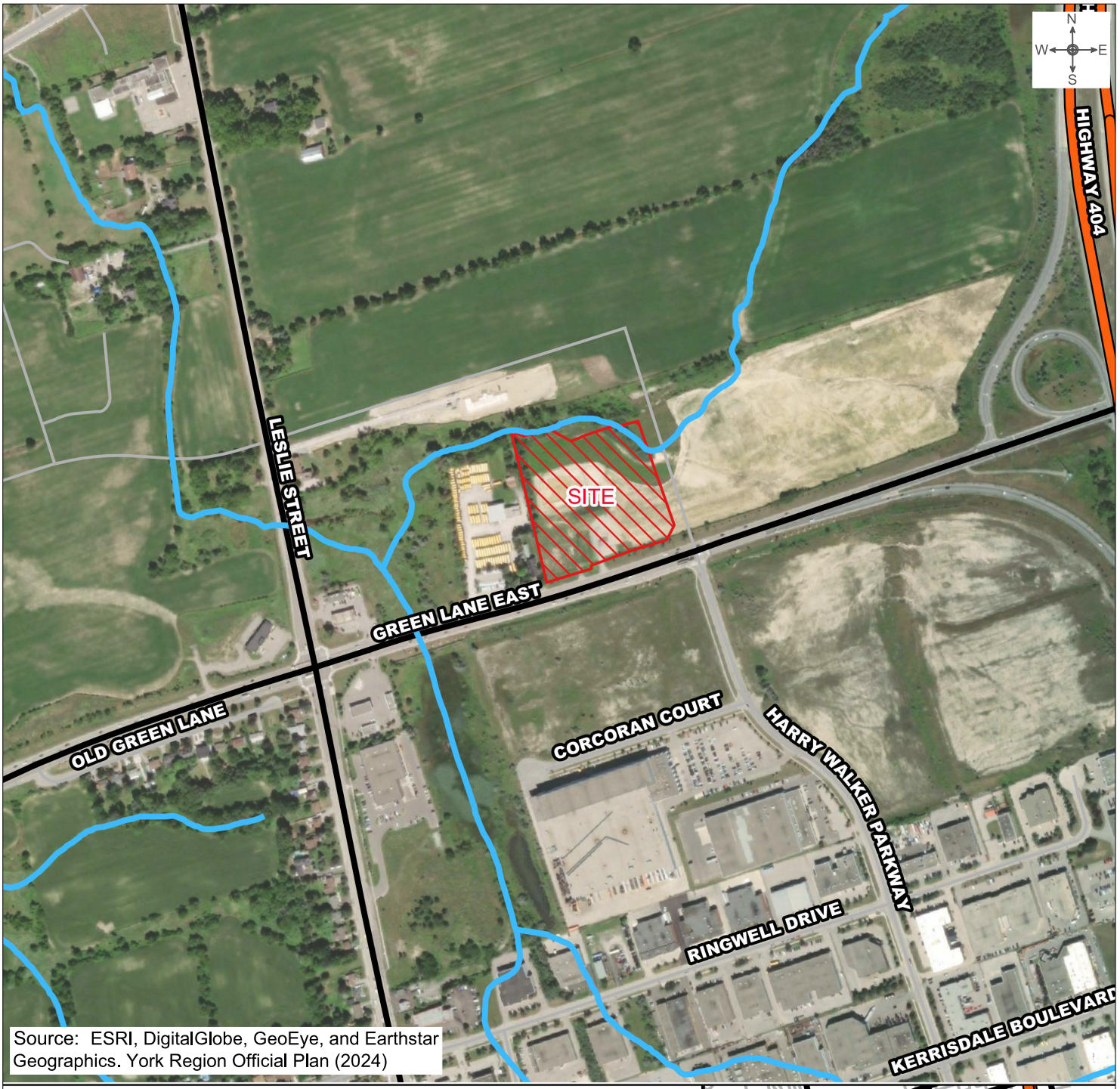
Toronto Inspection Ltd.

Sanjay Goel, B.E.S.
Environmental Scientist
Vice-President

Chris Helmer, B.Sc., P.Geo
Senior Hydrogeologist
MECP Licensed Well Contractor and
Class 5 Well Technician

PROFESSIONAL GEOSCIENTIST
22-Oct-2024
CHRIS HELMER
PRACTISING MEMBER
2285
ONTARIO

FIGURES

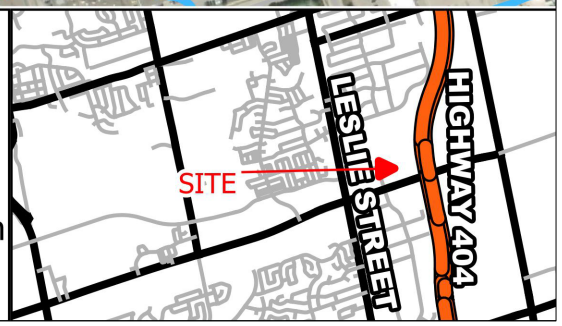


Legend

Site Location
Watercourse
Local
Arterial
Highway

0 100 200 300 m

1:7,500



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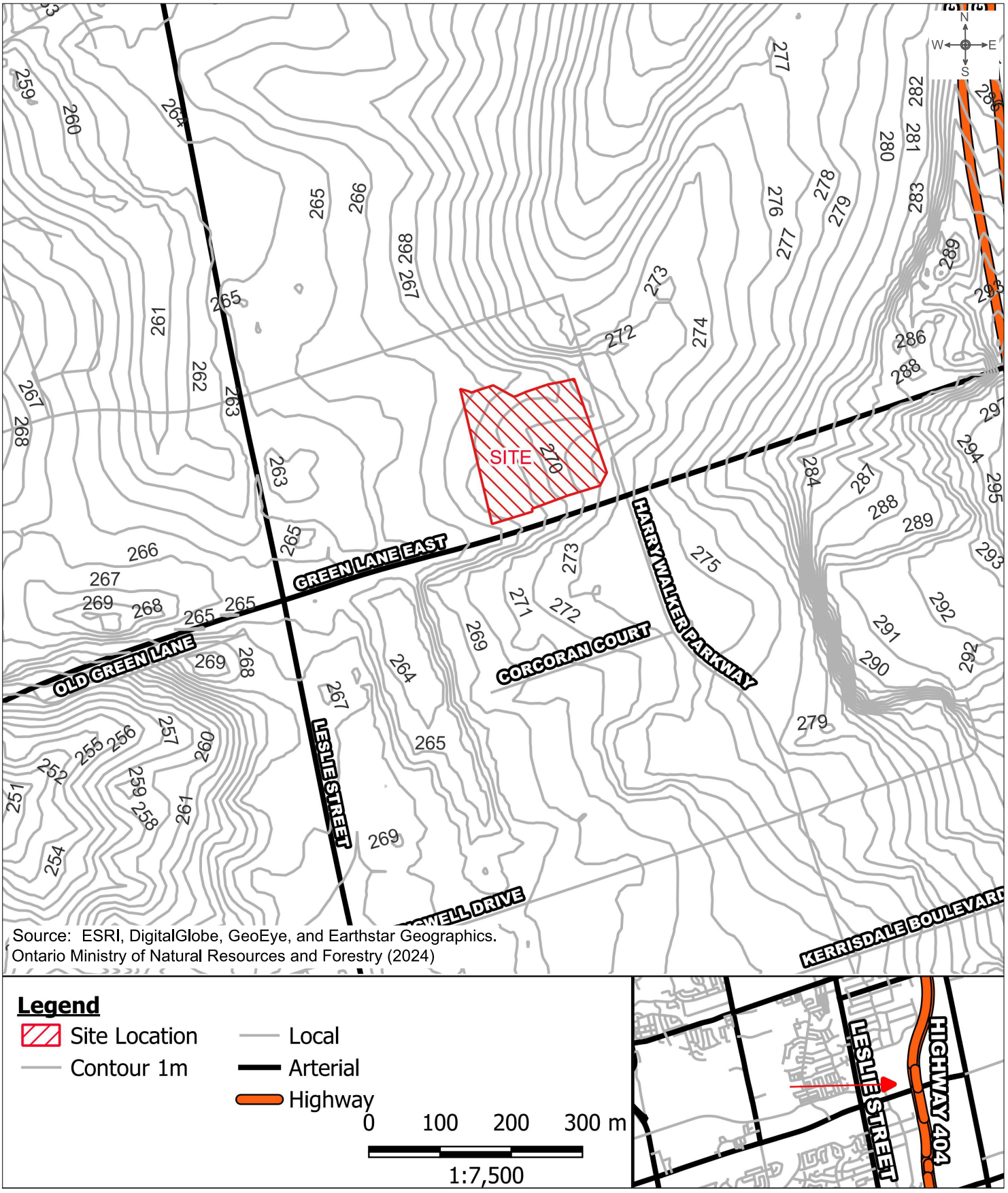
110 Konrad Crescent, Unit 16, Markham, Ontario L3R 9X2
Tel: 905-940 8509 Fax: 905-940 8192
Email : TIL@torontoinspection.com

TITLE:	Site Map		
LOCATION:	1656 Green Lane E, East Gwillimbury, Ontario		
PROJECT NO.: 2177-24-HM	DATE : October 2024	FIGURE NO. 1	



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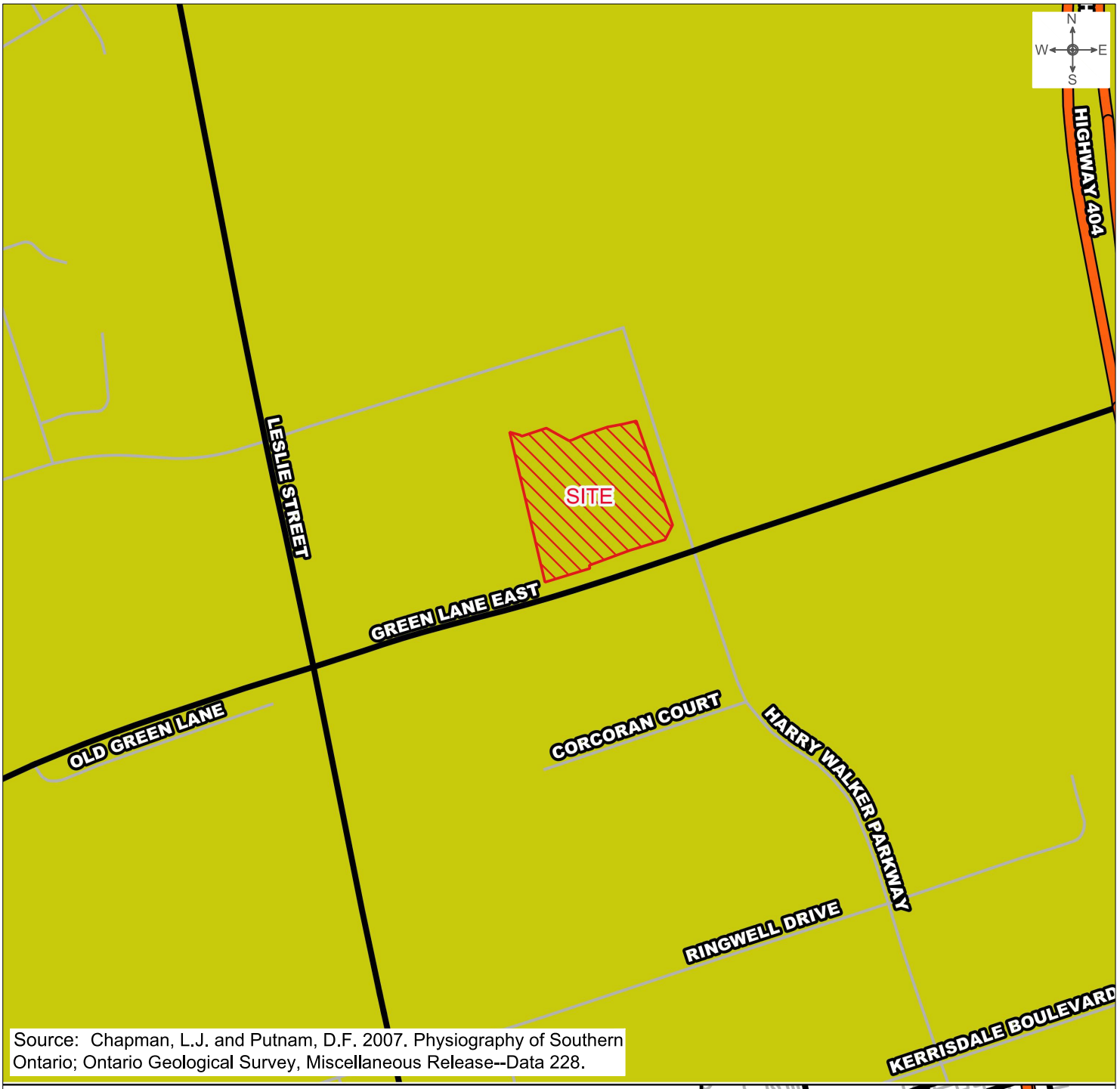
TITLE: Topography			
LOCATION: 1656 Green Lane E, East Gwillimbury, Ontario			
PROJECT NO.: 2177-24-HM	DATE : October 2024	FIGURE NO. 2	



Source: Chapman, L.J. and Putnam, D.F. 2007. Physiography of Southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 228.

Legend

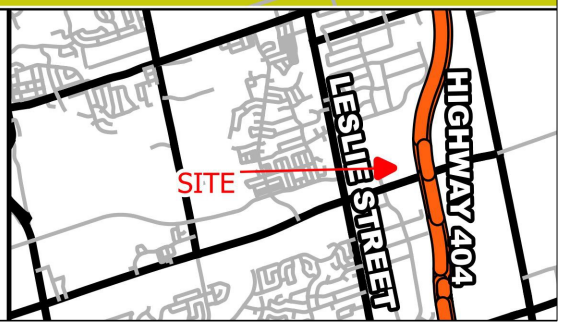
- Site Location
- Local
- Arterial
- Highway

Physiography

- Schomberg Clay Plains

0 100 200 300 m

1:7,500



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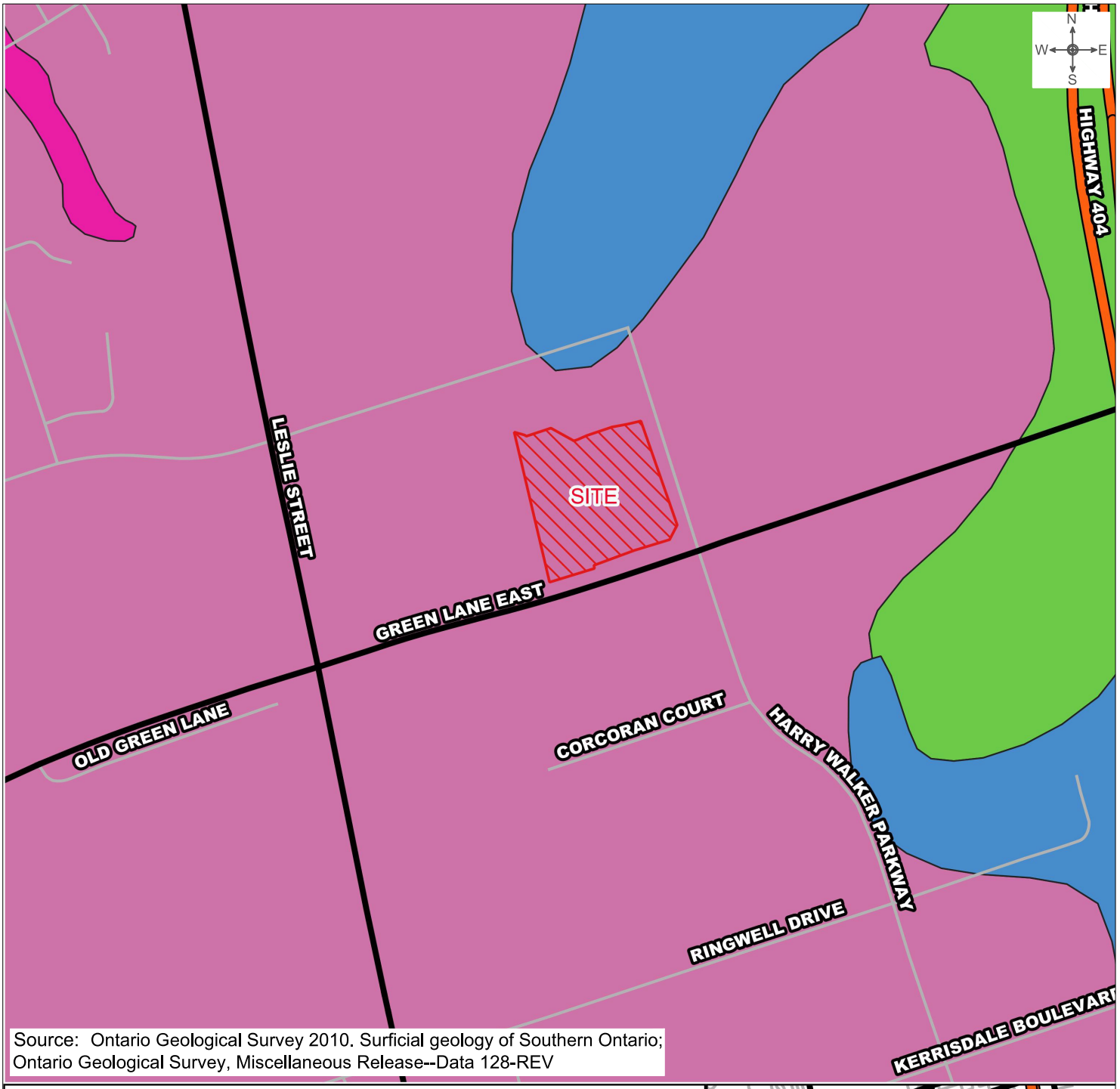
TITLE:	Physiography		
LOCATION:	1656 Green Lane E, East Gwillimbury, Ontario		
PROJECT NO.: 2177-24-HM	DATE : October 2024	FIGURE NO. 3	



Legend

Site Location

Local

Arterial

Highway

Surficial Geology

Stone-poor, carbonate-derived silty to sandy till

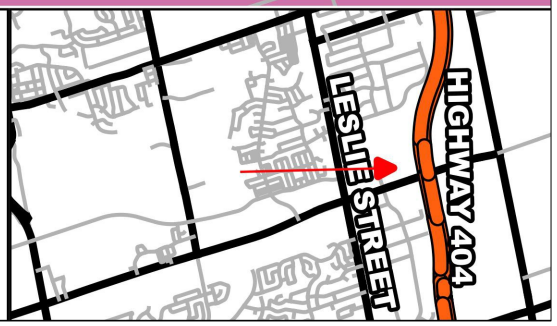
Fine-textured glaciolacustrine deposits (clay and silt, minor sand and gravel)

Coarse-textured glaciolacustrine deposits (sand, gravel, minor silt and clay)

Modern alluvial deposits

0 100 200 300 m

1:7,500



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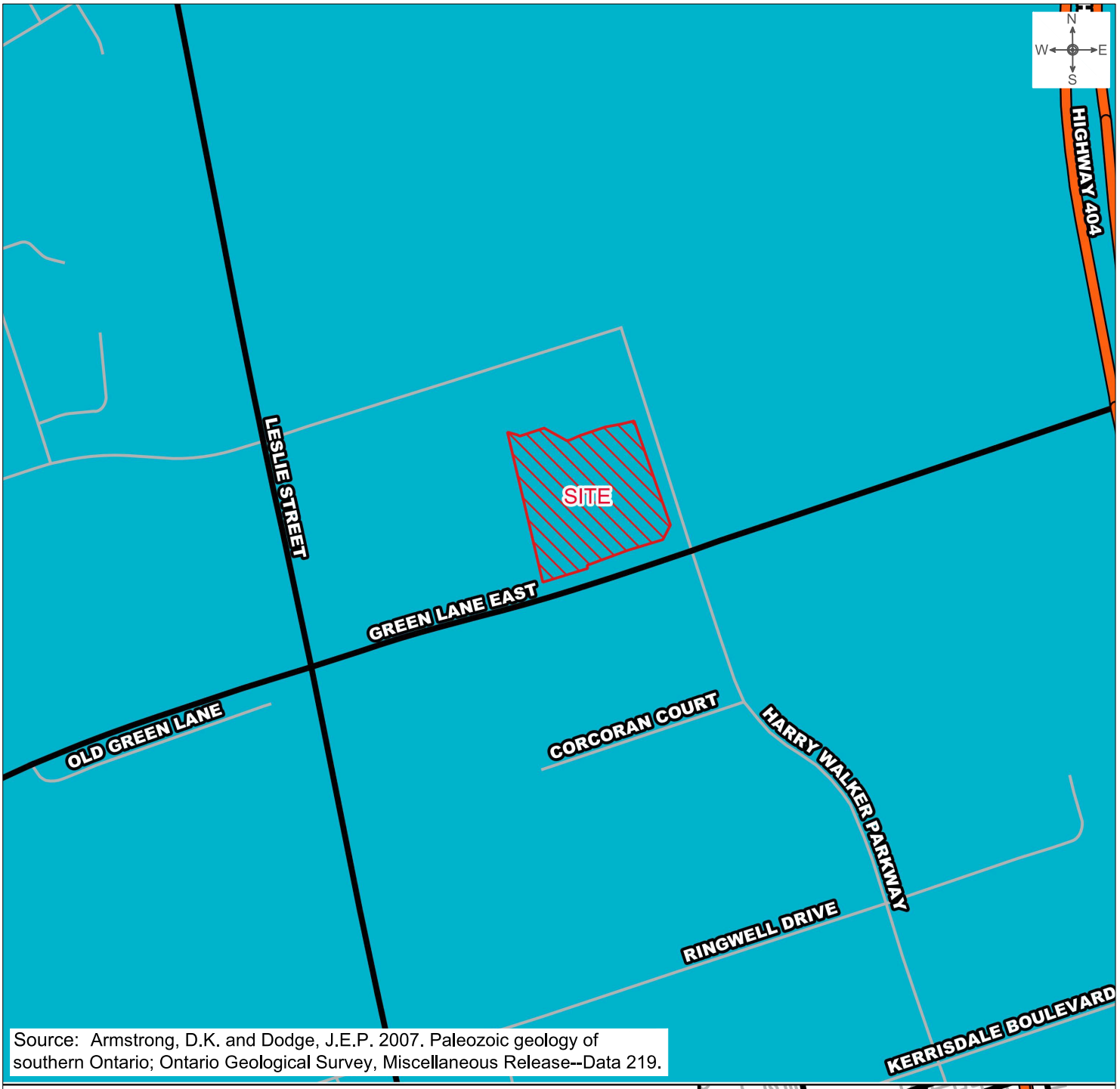
TITLE:	Surficial Geology		
LOCATION:	1656 Green Lane E, East Gwillimbury, Ontario		
PROJECT NO.: 2177-24-HM	DATE : October 2024	FIGURE NO. 4	



Legend

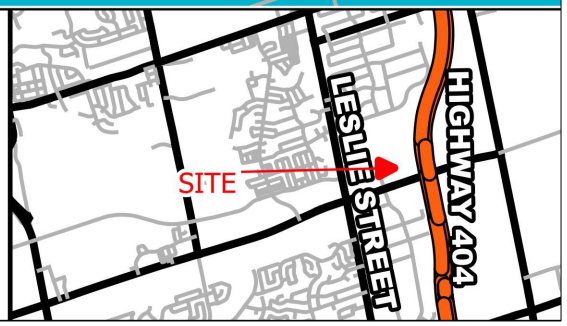
- Site Location
- Local
- Arterial
- Highway

Bedrock Geology

- Lindsay Formation

0 100 200 300 m

1:7,500



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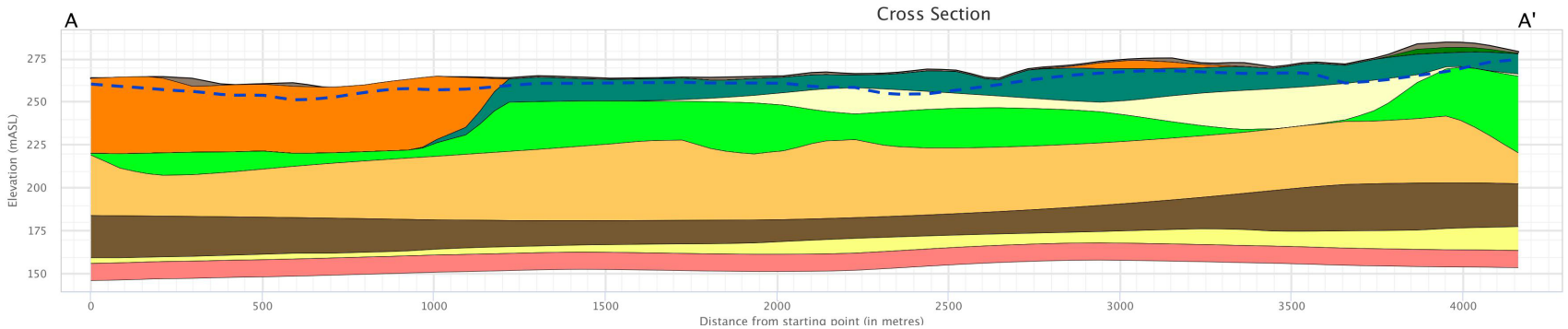
Email : TIL@torontoinspection.com

TITLE:	Bedrock Geology
LOCATION:	1656 Green Lane E, East Gwillimbury, Ontario
PROJECT NO.:	2177-24-HM
DATE :	October 2024
FIGURE NO.	5

Regional Hydrostratigraphic Cross-Section A-A'
(Leslie Street - from Mount Albert Road to Davis Drive)



- Ground Surface
- Water Table
- Undifferentiated Upper Sediments
- Halton Till (or equiv. upper till)
- Oak Ridges Moraine (or equiv. upper aquifer
- Channel Silt Aquitard
- Channel Sand Aquifer
- Upper Newmarket Till
- Inter-Newmarket Sediment
- Lower Newmarket Till
- Thorncliffe Fm.
- Sunnybrook Drift (or equiv. lower aquitard)
- Scarborough Fm. (or equiv. lower aquitard)
- Bedrock

Source: Oak Ridges Moraine Groundwater Program (ORMGP), 2021. Cross-Section Tool. https://partners.oakridgeswater.ca/CrossSection. Accessed October 2024.

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Unit 16
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L3R 9X2
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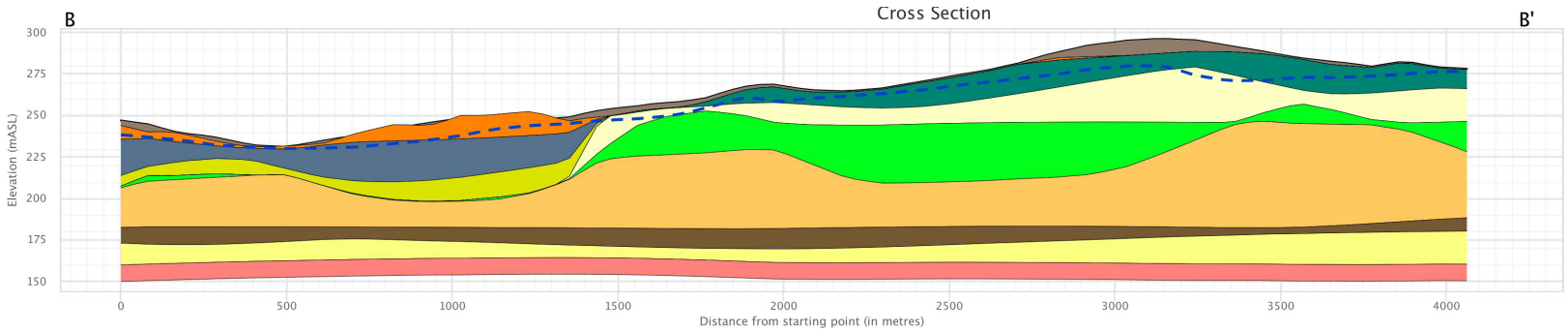
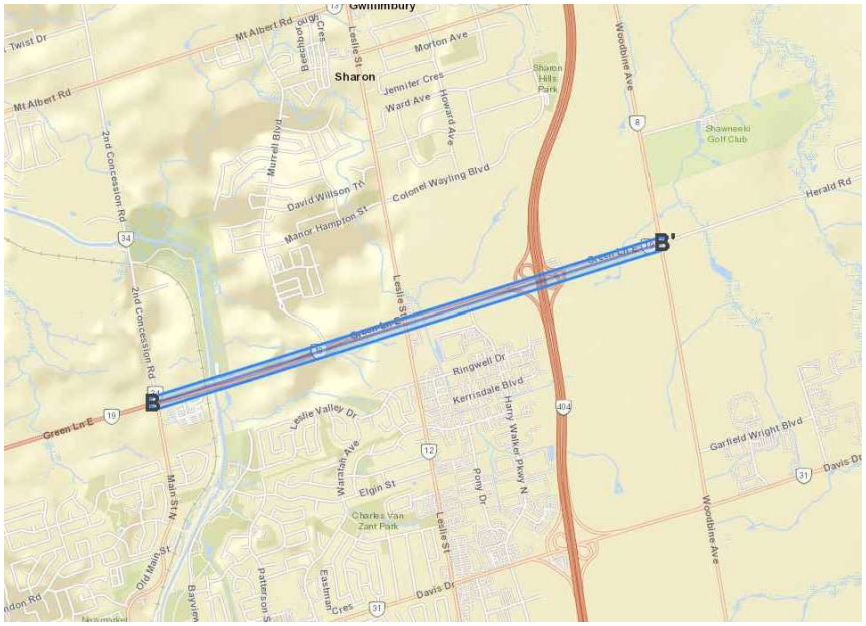
TITLE:	Regional Hydrostratigraphic Cross-Section A-A'
LOCATION:	1656 Green Lane E, East Gwillimbury, Ontario
PROJECT NO. 2177-24-HM	DATE : October 2024 / FIGURE NO. 6

Regional Hydrostratigraphic Cross-Section B-B'
(Green Lane East - from 2nd Concession Road to Woodbine Avenue)





- Ground Surface
- Water Table
- Undifferentiated Upper Sediments
- Halton Till (or equiv. upper till)
- Oak Ridges Moraine (or equiv. upper aquifer
- Channel Silt Aquitard
- Channel Sand Aquifer
- Upper Newmarket Till
- Inter-Newmarket Sediment
- Lower Newmarket Till
- Thorncliffe Fm.
- Sunnybrook Drift (or equiv. lower aquitard)
- Scarborough Fm. (or equiv. lower aquitard)
- Bedrock

Source: Oak Ridges Moraine Groundwater Program (ORMGP), 2021. Cross-Section Tool. https://partners.oakridgeswater.ca/CrossSection. Accessed October 2024

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Unit 16
Markham, Ontario
L3R 9X2
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TITLE:	Regional Hydrostratigraphic Cross-Section B-B'
LOCATION:	1656 Green Lane E, East Gwillimbury, Ontario
PROJECT NO. 2177-24-HM	DATE : October 2024 / FIGURE NO. 7

LEGEND:

Borehole and Monitoring Well Location

Site Boundary

NOT TO SCALE

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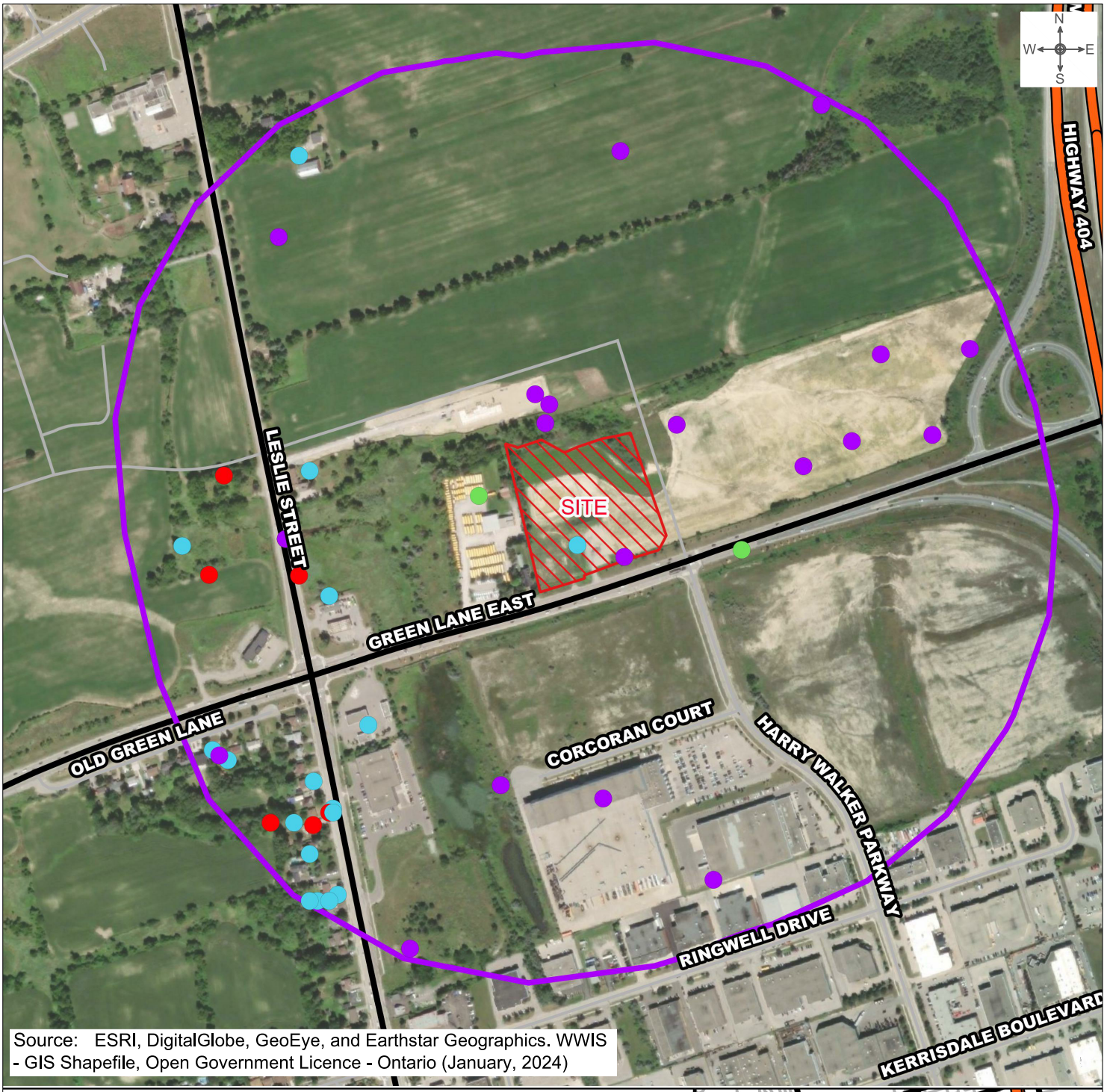
Tel: 905-940 8509 Fax: 905-940 8192
Email : TIL@torontoinspection.com

TITLE:	Borehole and Monitoring Well Location Plan
LOCATION:	1656 Green Lane E, East Gwillimbury, Ontario

PROJECT NO.:	DATE :	DRAWING NO.
2177-24-GL	September 2024	1



Legend

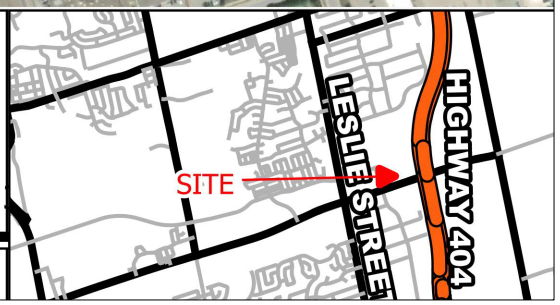
Wells in 500 m

- Water Supply
- Monitoring
- Abandoned
- Unknown

- 500 m Buffer
- Site Location
- Local
- Arterial
- Highway

0 100 200

1:7,500



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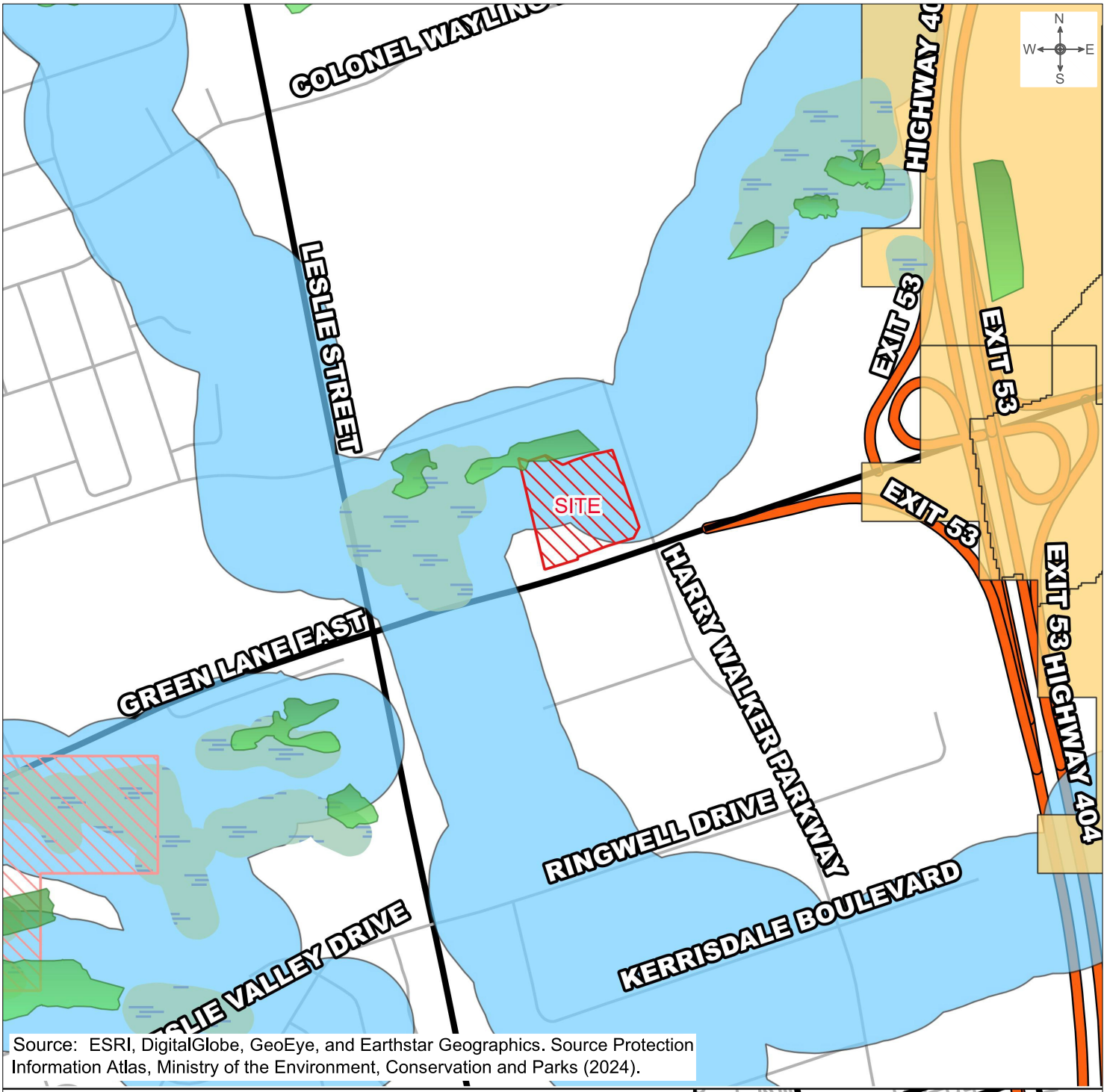
Tel: 905-940 8509 Fax: 905-940 8192
Email : TIL@torontoinspection.com

TITLE:	MECP Water Well Records		
LOCATION:	1656 Green Lane E, East Gwillimbury, Ontario		
PROJECT NO.: 2177-24-HM	DATE : October 2024	FIGURE NO. 9	



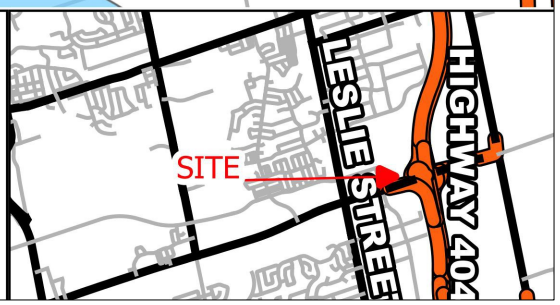
Source: ESRI, DigitalGlobe, GeoEye, and Earthstar Geographics. Source Protection Information Atlas, Ministry of the Environment, Conservation and Parks (2024).

Legend

- Site Location
- Local
- Arterial
- Highway
- Watercourse
- Intake Protection Zone 3
- Woodland
- Wetland
- HVA
- SGRA (LSRCA)

0 100 200 300 m

1:10,000



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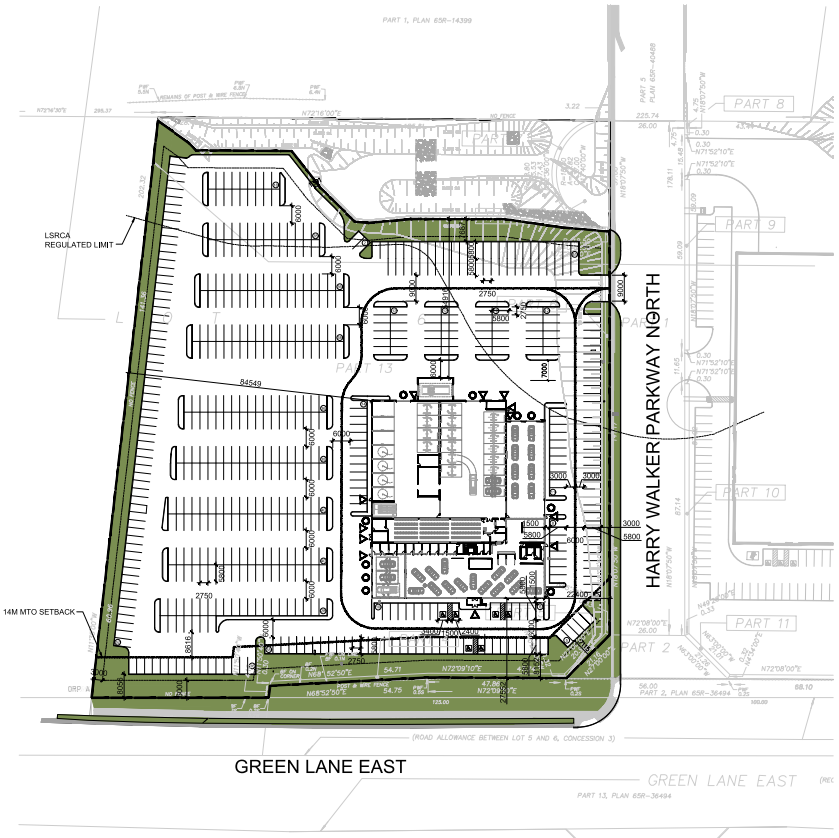
Tel: 905-940 8509 Fax: 905-940 8192
Email : TIL@torontoinspection.com

TITLE:	Environmental Features		
LOCATION:	1656 Green Lane E, East Gwillimbury, Ontario		
PROJECT NO.: 2177-24-HM	DATE : October 2024	FIGURE NO. 10	

APPENDIX A

Site Plan

CAUTION: IF THIS SHEET IS NOT 24"x36" IT IS A REDUCED PRINT



OVERALL SITE PLAN

SCALE: 1:800 (1) CONSTRUCTION NORTH TRUE NORTH

SITE STATISTICS / ZONING MATRIX
1656 GREEN LANE EAST

Zoning Category	***M2 - MZO O. Reg 451/20***	
Building Classification	*Group F2 (O.B.C. A- 3.1.2.1.(1))*	
EAST GWILLIMBURY ZONING BY-LAW 2018-043		
Proposed Use	*Motor Vehicle Sale / Rental Establishment*	
GROSS SITE AREA	**2.87 ha**	**28,661.26m²**
PROPOSED BUILDING AREA:		
TOTAL GFA	***44,519.53 SF***	**4,136.00m²**

OVERALL SITE REQUIREMENTS

Requirements	**Proposed**	**Required**
Min. Lot Area (Existing)	28,661.26m²	-
Min. Lot Frontage (m)	179.63 m	-
Maximum Building Height (m)	11.43 m	-
Min. Front Yard Building Setback (m)	27.55 m	6.00 m
Min. Ext. Side Yard Building Set back (m)	-	7.5 m
Min. Int. Side Yard Building Set back (m)	22.40 m	3.00 m
Min. Rear Yard Building Setback (m)	54.92 m	6.00 m
Min. Landscape Area (% of Lot Area) - Approx.	16.21%	10.00%
Min. Landscape Area (SM) - Approx.	*4,646.53m²*	*2,866.13m²*
Min. Front Landscape Buffer (m)	7.12 m	5.00 m
Min. Ext. Side Yard Landscape Buffer (m)	3.00 m	-
Min. Int. Side Yard Landscape Buffer (m)	3.00 m	-
Min. Rear Landscape Buffer (m)	93 m	-
Parking Area (sm)	20,092.41m²	-
Min. Landscape Area (% Parking Area) - Approx.	15.00%	5.00%
Min. Landscape Area (SM) - Approx.	*3,014.14m²*	*1,004.62m²*

	Proposed	**Required**
Standard Parking Spaces	**606**	**138**
Accessible Parking (Additional to standard parking spaces)	*6*	*6*
Parking Spaces in MTO Setback	*58*	-
TOTAL PERMANENT PARKING	**554**	**144**
Accessible Parking Requirements		
For >100 Required Spaces	*1 + 3% of spaces over 100*	
Parking Stall Dimensions	*STANDARD: 2.75m X 5.6m w/6m Aisle;* *ACCESSIBLE: Type-A 3.4m X 5.6m,* *Type-B 2.4 X 5.6m; w/ 1.5m access aisle*	

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a business name of WMA Inc.
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interiors
graphics
civil engineering
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vaughan, ontario. L4H 0R1
P 905.760.1221
F 905.760.1344

NEWMARKET TOYOTA
1656 GREEN LANE EAST
EAST GWILLIMBURY ONTARIO, CANADA

OVERALL SITE PLAN

	DATE	REMARKS
1.	2024-08-27	ISSUED FOR REVIEW
2.	2024-08-29	ISSUED FOR REVIEW

PA / PM:	JC
DRAWN BY:	AS
JOB NO.:	TOR24-0080-00

SHEET
A1.0

W:\TOR\24\0080\00\Architectural\Cad\SD\0080_A10.dwg

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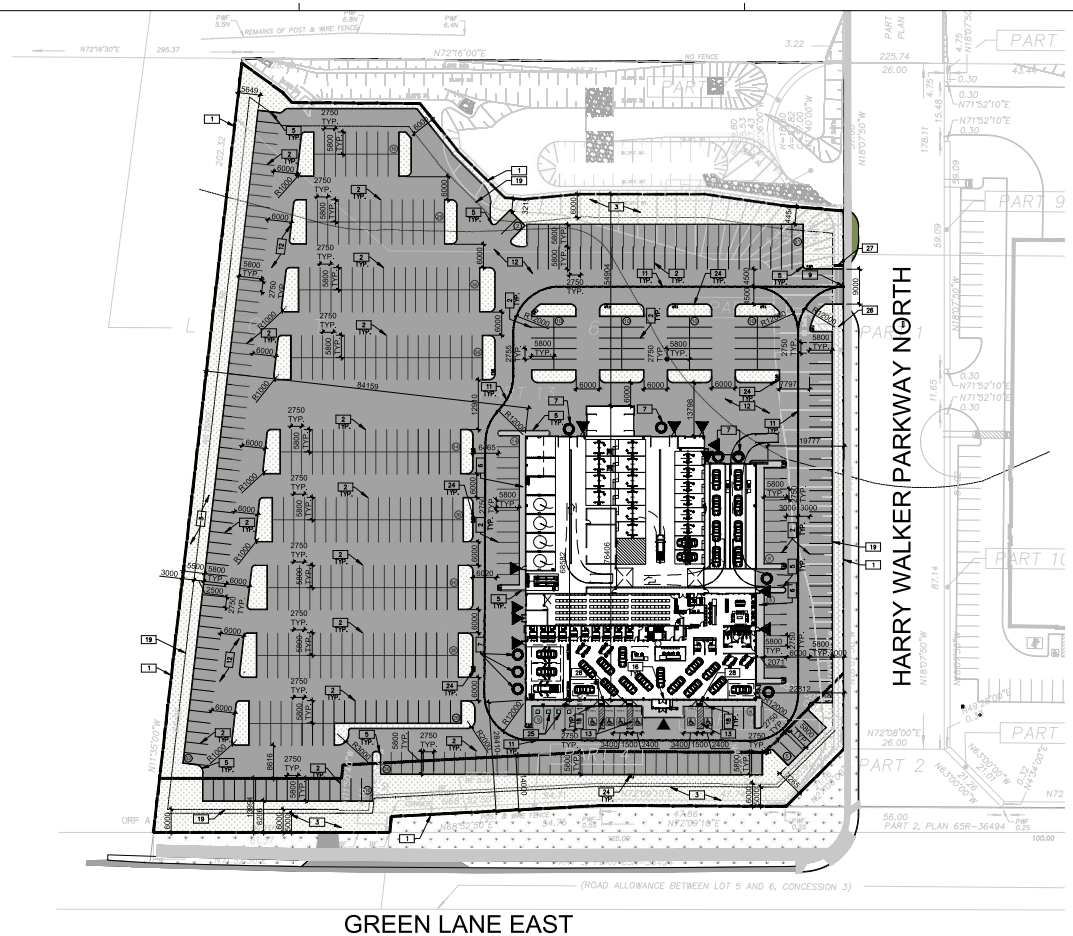


OVERALL SITE PLAN
SCALE: 1:600 CONSTRUCTION NORTH TRUE NORTH

Building Classification	*Group F2 (O.B.C. A- 3.1.2.1.(1))*	
EAST GWILLIMBURY ZONING BY-LAW 2018-043		
Proposed Use	*Motor Vehicle Sale / Rental Establishment*	
GROSS SITE AREA	***2.87 ha***	***28,661.26m²***
PROPOSED BUILDING AREA:		
TOTAL GFA	***49,754 SF***	***4,622.30m²***
OVERALL SITE REQUIREMENTS		
Requirements	**Proposed**	**Required**
Min. Lot Area (Existing)	*28,661.26m²*	-
Min. Lot Frontage (m)	179.63 m	-
Maximum Building Height (m)	11.43 m	-
Min. Front Yard Building Setback (m)	27.57 m	6.00 m
Min. Ext. Side Yard Building Set back (m)	-	7.5 m
Min. Int. Side Yard Building Set back (m)	22.40 m	3.00 m
Min. Rear Yard Building Setback (m)	54.92 m	6.00 m
Min. Landscape Area (% of Lot Area) - Approx.	13.87%	10.00%
Min. Landscape Area (SM) - Approx.	*3,975.12m²*	*2,866.13m²*
Min. Island Landscape (% of Lot Area) - Approx.	5.32%	5.00%
Min. Island Landscape Area (SM) - Approx.	*1,006.72m²*	*946.75m²*
Total Landscape Area (% of Lot Area) - Approx.	19.19%	15.00%
Total Landscape Area (SM) - Approx.	*4,981.84m²*	*3,812.88m²*
Min. Front Landscape Buffer (m)	1.40 m	5.00 m
Min. Ext. Side Yard Landscape Buffer (m)	3.00 m	-
Min. Int. Side Yard Landscape Buffer (m)	3.00 m	-
Min. Rear Landscape Buffer (m)	1.40 m	-
Parking Area (sm)	18,935.07m²	-
	Proposed	**Required**
Standard Required Parking Spaces	**155**	**155**
Outdoor Display & Sales Area Spaces	**348**	
Accessible Parking (Additional to standard parking spaces)	*6*	*6*
Parking Spaces in MTO Setback	*58*	-
TOTAL PERMANENT PARKING	**567**	**161**
Accessible Parking Requirements		
For 101-200 Required Spaces	***1 + 3% of spaces of the total number of parking spaces provided***	
	1+3%(155 Required Spaces) = 5.65 = 6 Total	
Parking Stall Dimensions	*STANDARD: 2.75m X 5.6m w/ 6m Aisle. ACCESSIBLE: Type-A 3.4m X 5.6m, Type-B 2.4 X 5.6m, w/ 1.5m access aisle*	

EV CHARGER:

IN ORDER TO FUTURE-PROOF YOUR FACILITY FOR LETRIC VEHICLE HCARGING READINESS, CONDUITS (AND CONCRETE PIER FOUNDATION WITH "J" BOLTS TO MOUNT DUAL HEADED CHARGERS) SHOULD BE PREPARED TO ACCOMODATE FOUR (4X) 228V EV CHARGERS UP TO A DC LEVEL 3 EV CHARGER.

NOTE:
THIS SITE SHALL PROTECT FOR POTENTIAL FUTURE VEHICULAR INTERCONNECTION THE ADJACENT PROPERTY SHOULD THE ADJACENT LANDS REDEVELOP WITH A FUTURE COMPATIBLE LAND-USE, LOCATION TO BE DETERMINED.

SITE PLAN NOTES

1. PROPERTY LINE
2. 2700x5800 PARKING STALL, PAINTED PARKING STRIPPING PER THE TOWN OF AURORA STANDARDS.
3. LANDSCAPING (SEE LANDSCAPING DWG.)
4. YELLOW PAINTED LINES FOR PEDESTRIAN ACCESS
5. 150mm WIDE CURB
6. MIN. 1500mm WIDE CONCRETE SIDEWALK TYPICAL U.N.O
7. HEATED CONCRETE PAD WITH PAINTED LINE TO INDICATE DOOR ACTIVATION
8. FIRE DEPARTMENT/SIAMESE CONNECTION
9. MUNICIPAL SIDEWALK & CURB ACROSS PROPOSED ACCESS TO BE HEAVY DUTY
10. DETECTIBLE TACTILE WARNING SURFACE, CONFORMING TO 2012 O.B.C.
11. FIRE ACCESS ROUTE. MIN 12.0M TURNING RADIUS
12. HATCHED AREA DENOTES HEAVY DUTY ASPHALT. TYPICAL FOR ALL AREAS REQUIRING TRACTOR TRUCK ACCESS.
13. TYPICAL SHARED ACCESSIBLE PARKING STALLS, PAINTED PARKING STRIPING PER MUNICIPAL STANDARDS. EACH PAIR OF SHARED STALLS TO PROVIDE A MINIMUM OF (1) TYPE A (3400 MIN WIDTH) & (1) TYPE B (2400 MIN WIDTH) STALL C/W A 1.5M PAINTED AISLE – REFER TO THE TOWN OF NEWMARKET ACCESSIBLE PARKING STANDARDS
14. PROPOSED LOCATION OF TRANSFORMER C/W CONCRETE PAD
15. ALL DRIVEWAYS TO BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH TOWN OF NEWMARKET STANDARD
16. PRINCIPLE ENTRY WITH POWER OPERATED AUTOMATIC DOOR OPENER AND FLUSH THRESHOLD. PROVIDE FROST SLAB BY STRUCTURAL.
17. PROPOSED BICYCLE PARKING SPACE
18. ACCESSIBLE PARKING SIGN INSTALLED PER MUNICIPAL STANDARDS
19. LIMIT OF LANDSCAPE BUFFER
20. SNOW STORAGE
21. EV CAR CHARGING STATION
22. PHASE 2 BUILDING OUTLINE SHOWN ON SITE FOR REFERENCE
23. FIRE HYDRANT. SEE CIVIL DRAWINGS.
24. FIRE ROUTE ACCESS SIGN SPACED MAX 22.86m
25. PROPOSED 220 V EV CHARGER ON 24" DIAMETER CONCRETE PIER WITH 100mm DIAMETER BOLLARDS
26. TOYOTA PYLON SIGNAGE
27. TOYOTA DIRECTIONAL SIGN
28. DEPRESSED CURB WITH TACTICLE INDICATOR

SITE LEGEND

- NEW HEAVY DUTY PAVEMENT (HATCHED)
- PAINTED DIAGONAL LINES WHERE INDICATED
- NEW LANDSCAPING AREA (HATCHED)
- FIRE ACCESS ROUTE MIN. 12.0M TURNING RADIUS
- PROPERTY LINE
- PARKING STALL COUNT TOTAL.
- MAIN ENTRANCE DOOR
- EXIT DOOR
- DRIVE IN DOOR
- BARRIER-FREE PARKING SPACE WITH SIGNAGE AT SIDEWALK
- D.C. DEPRESSED CURB FOR BARRIER-FREE ACCESS
- F.C. FLUSH CURB
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY MANHOLE
- PROPOSED STORM WATER MANHOLE
- FIRE DEPARTMENT CONNECTION
- FAR FIRE ACCESS ROUTE SIGN

VICINITY MAP

VICINITY MAP
SCALE: N.T.S.

WARE MALCOMB
ARCHITECTURE CIVIL ENGINEERING
PLANNING BRANDING
INTERIORS BUILDING MEASUREMENT
6220 Highway 7, Suite 300
Vaughan, ON L4H 0R1, Canada
P 905.760.1221

NewRoads Automotive Group
TOYOTA

TOYOTA - NEWMARKET
1171 DAVIS DR, NEWMARKET, ONTARIO L3Y 8R1, CANADA

SITE PLAN

	DATE	REMARKS
1.	08/29/2024	ISSUED FOR REVIEW
2.	09/12/2024	ISSUED FOR REVIEW
3.	09/12/2024	ISSUED FOR REVIEW
4.	09/19/2024	ISSUED FOR CONSULTANTS
5.	09/27/2024	ISSUED FOR SPA

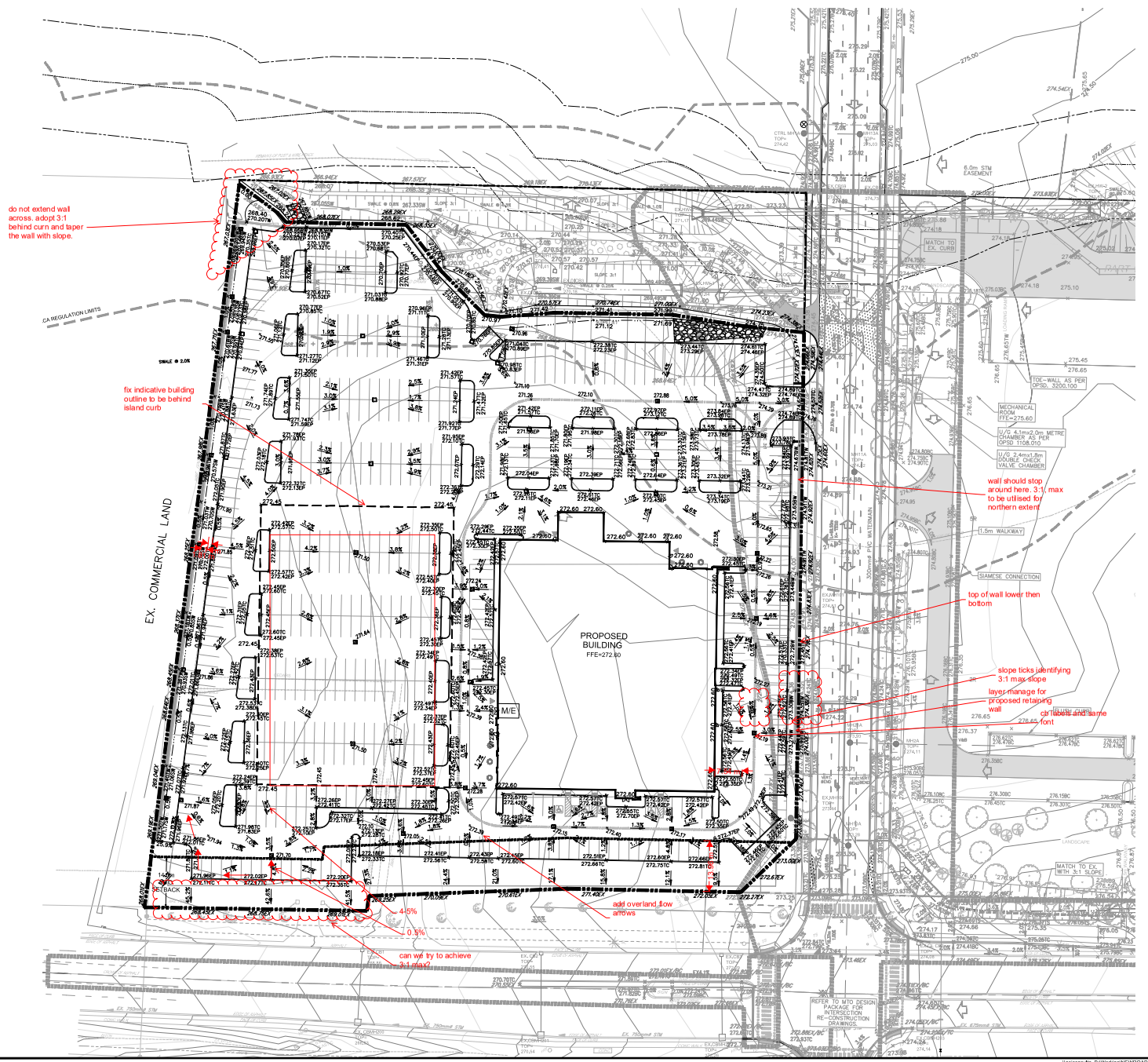
PA/PM:	J. COX
DRAWN BY.:	A.S.
JOB NO.:	TOR24-0080-00

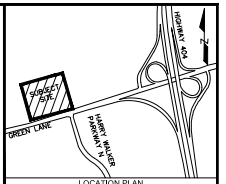
SHEET
A100

09/27/2024 - ISSUED FOR SPA

9/24/2024 12:13:03 PM

W:\TOR\24\0080\00\Architectural\Cad\SD\0080_A10.dwg





LOCATION PLAN
N.T.S.

LEGEND

LIST OF DRAWINGS

SG-01 - SITE GRADING PLAN
SP-01 - SITE SERVICING PLAN
EC-01 - EROSION AND SEDIMENT CONTROL PLAN
CMP-01 - CONSTRUCTION MANAGEMENT PLAN
XS-01 - CROSS SECTIONS
DD-01 - DETAIL DRAWING
DD-02 - DETAIL DRAWING
DD-03 - DETAIL DRAWING
DAP-01 - PRE-DEVELOPMENT DRAINAGE AREA PLAN
DAP-02 - POST-DEVELOPMENT AREA PLAN

SITE PLAN INFORMATION

TUNNEY FLEISCHER ARCHITECTS INC.
97 LESMILL ROAD
TORONTO, ON, M3B 2T9
PHONE: (416) 425-4222
EMAIL: tunney@tunneyfleischer.com

SURVEYOR INFORMATION

R.M. GARDINER LIMITED
ONTARIO LAND SURVEYOR
1300 JOSEPH D'ANGELO CIRCLE, UNIT 1,
NEWMARKET, ON, L3Y 8Z7
PHONE: (905) 895-8555
FAX: (905) 895-7107
WEBSITE: www.rmgardinerlimited.ca

BENCHMARK INFORMATION:
ELEVATIONS ARE GEODETIC AND ARE DERIVED FROM TOWN OF NEWMARKET BENCHMARK 1095 HAVING AN ELEVATION 273.31 METRES A.S.L.

No.	DATE	ISSUE/REVISION	INITIAL
6			
5			
4			
3			
2			
1	12/2/2024	ISSUED FOR 1st SPA SUBMISSION	TVL

NEW ROAD - TOYOTA
NEWROADS AUTOMOTIVE GROUP
1656 GREEN LANE EAST
TOWN OF EAST GWILLIMBURY, ONTARIO

SITE GRADING PLAN

GEI Consultants

DESIGNED BY: LV	DATE: AUGUST, 2024	CHECKED BY: TVL
DRAWN BY: LV	PROJECT No. 2406541	DRAWING No. SG-01
SCALE: 1:500		

1:500 (ANSI D) 5.0m 10.0m 15.0m 20.0m 25.0m 30.0m

\\geiconsult\a B:\Working\NEWROADS AUTOMOTIVE GROUP\2406541 1656 Green Lane East\EC\00_CAD\Design\Sheets\2406541 - SG-01.dwg - 10/4/2024

APPENDIX B

Borehole Logs

Project No. 2177-24-GL

Log of Borehole 24BH-1 (MW)

Dwg No. 2

Project: Geotechnical Investigation

Sheet No. 1 of 1

Location: 1656 Green Lane East, East Gwillimbury, Ontario

Date Drilled: 7/29/24

Drill Type: Track Mounted Drill Rig

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Headspace Reading (ppm)
Natural Moisture
Plastic and Liquid Limit
Unconfined Compression % Strain at Failure
Penetrometer

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH
		Ground Surface	269.92	0
		SILTY SAND TILL - compact to very dense - brown, grey below 4.5m - some gravel, some sandy silt - trace clayey silt - occasional cobbles - moist		1
			268.15	2
				3
				4
				5
			263.73	6
		END OF BOREHOLE **NOTE:** Upon completion of drilling: - no free water		

N Value: 20 40 60 80
Shear Strength: 100 200 kPa

33
53
64
50/100mm
50/125mm
50/125mm
50/100mm

Headspace Reading (ppm): 100 200 300
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30

Natural Unit Weight kN/m3

LGBE3 2177-24-GL.GPJ 10/4/24

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Toronto Inspection Ltd.

Time	Water Level (m)	Depth to Cave (m)
Sept. 25, 2024	1.77m	

Project No. 2177-24-GL

Log of Borehole 24BH-2

Dwg No. 3

Project: Geotechnical Investigation

Sheet No. 1 of 1

Location: 1656 Green Lane East, East Gwillimbury, Ontario

Date Drilled: 7/29/24

Drill Type: Track Mounted Drill Rig

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Headspace Reading (ppm)
Natural Moisture
Plastic and Liquid Limit
Unconfined Compression % Strain at Failure
Penetrometer

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH
		Ground Surface	269.70	0
		FILL (DISTURBED MATERIAL) - brown silty sand - some gravel, some sandy silt - thin layer of clayey silt - very moist to wet	268.48	1
▼		**SILTY SAND TILL** - dense to very dense - brown, grey below 2.3m - some gravel, some sandy silt - trace clayey silt - thin layers of sand below 4.5m - occasional cobbles- occasional cobbles - moist to very moist, wet pockets/ layers- moist to very moist, wet pockets/layers	268.18	2
			261.98	7
		END OF BOREHOLE **NOTE:** Upon completion of drilling: - water level at 1.52m - cave-in at 2.44m		

N Value: 20 40 60 80
Shear Strength: 100 200 kPa
Headspace Reading (ppm): 100 200 300
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30
Natural Unit Weight kN/m3

5
9
33
64
50/150mm
50/150mm
50/75mm
50/100mm

LGBE3 2177-24-GL.GPJ 10/4/24

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Toronto Inspection Ltd.

Time	Water Level (m)	Depth to Cave (m)

Project No. 2177-24-GL

Log of Borehole 24BH-3

Dwg No. 4

Project: Geotechnical Investigation

Sheet No. 1 of 1

Location: 1656 Green Lane East, East Gwillimbury, Ontario

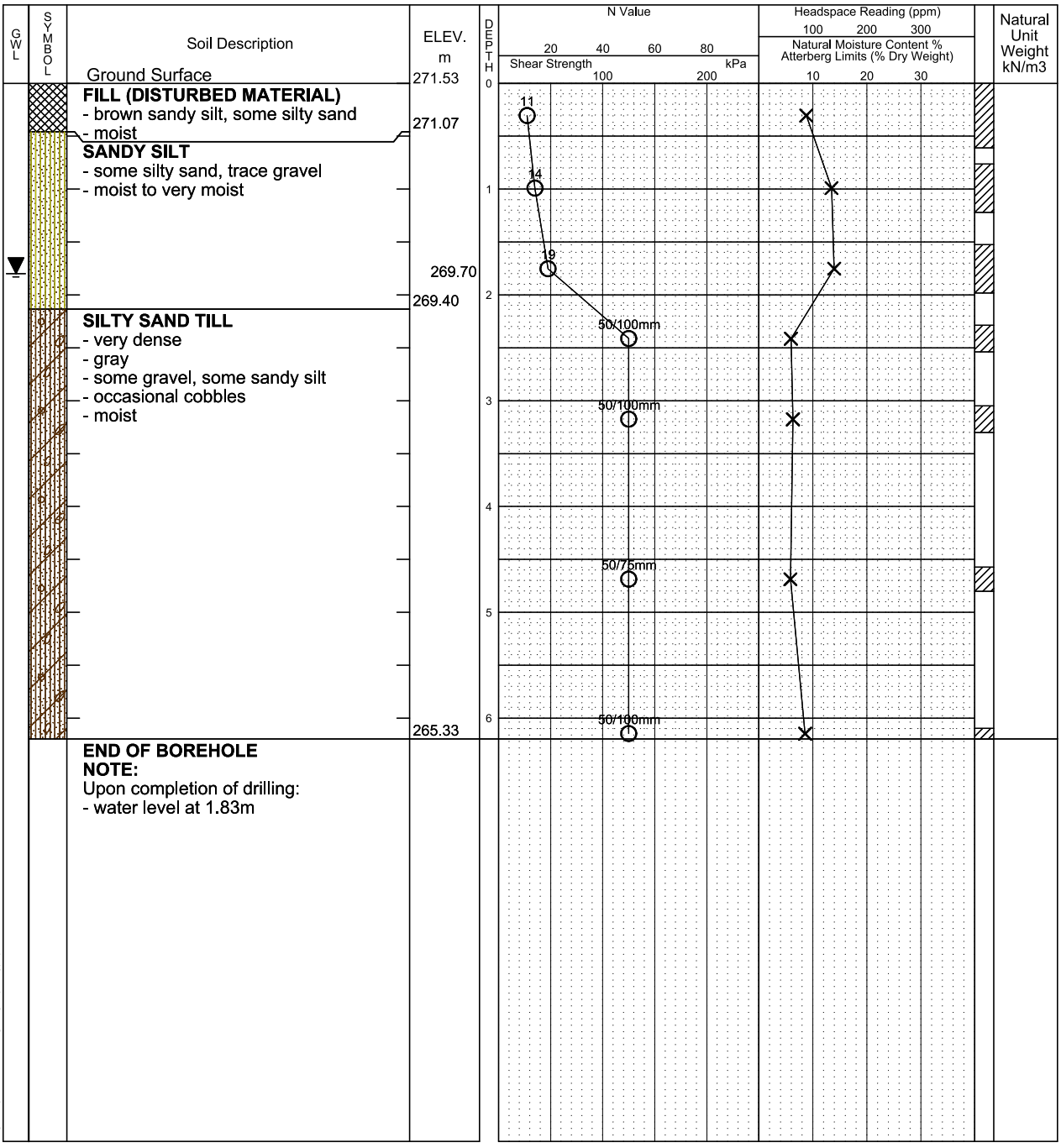
Date Drilled: 7/29/24

Drill Type: Track Mounted Drill Rig

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Headspace Reading (ppm)
Natural Moisture
Plastic and Liquid Limit
Unconfined Compression
% Strain at Failure
Penetrometer



LGBE3 2177-24-GL.GPJ 10/4/24

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Toronto Inspection Ltd.

Time	Water Level (m)	Depth to Cave (m)

Project No. 2177-24-GL

Log of Borehole 24BH-4 (MW)

Dwg No. 5

Project: Geotechnical Investigation

Sheet No. 1 of 1

Location: 1656 Green Lane East, East Gwillimbury, Ontario

Date Drilled: 9/11/24

Drill Type: Track Mounted Drill Rig

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Headspace Reading (ppm)
Natural Moisture
Plastic and Liquid Limit
Unconfined Compression
% Strain at Failure
Penetrometer

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH
		Ground Surface	270.53	0
		FILL (DISTURBED MATERIAL) - brown silty sand - some sandy silt, trace gravel - moist to very moist, wet at 1.5m	269.29	1
		SANDY SILT TILL / SILTY SAND TILL - compact, very dense below 3.0m - grey - some gravel, trace clayey silt - some silty sand till below 4.5m - a silty sand layer at 6.1m - moist to very moist, wet layer at 6.1m	268.25	2
				3
				4
				5
				6
			262.79	7
		END OF BOREHOLE **NOTE:** Upon completion of drilling: - water level at 2.13m - cave-in at 3.05m		

N Value: 20 40 60 80
Shear Strength: 100 200 kPa

16
18
2
13
66
92
50/100mm
50/125mm

Headspace Reading (ppm): 100 200 300
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30

Natural Unit Weight kN/m3

LGBE3 2177-24-GL.GPJ 10/4/24

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Toronto Inspection Ltd.

Time	Water Level (m)	Depth to Cave (m)
Sept. 25, 2024	1.24m	

Project No. 2177-24-GL

Log of Borehole 24BH-5 (MW)

Dwg No. 6

Project: Geotechnical Investigation

Sheet No. 1 of 1

Location: 1656 Green Lane East, East Gwillimbury, Ontario

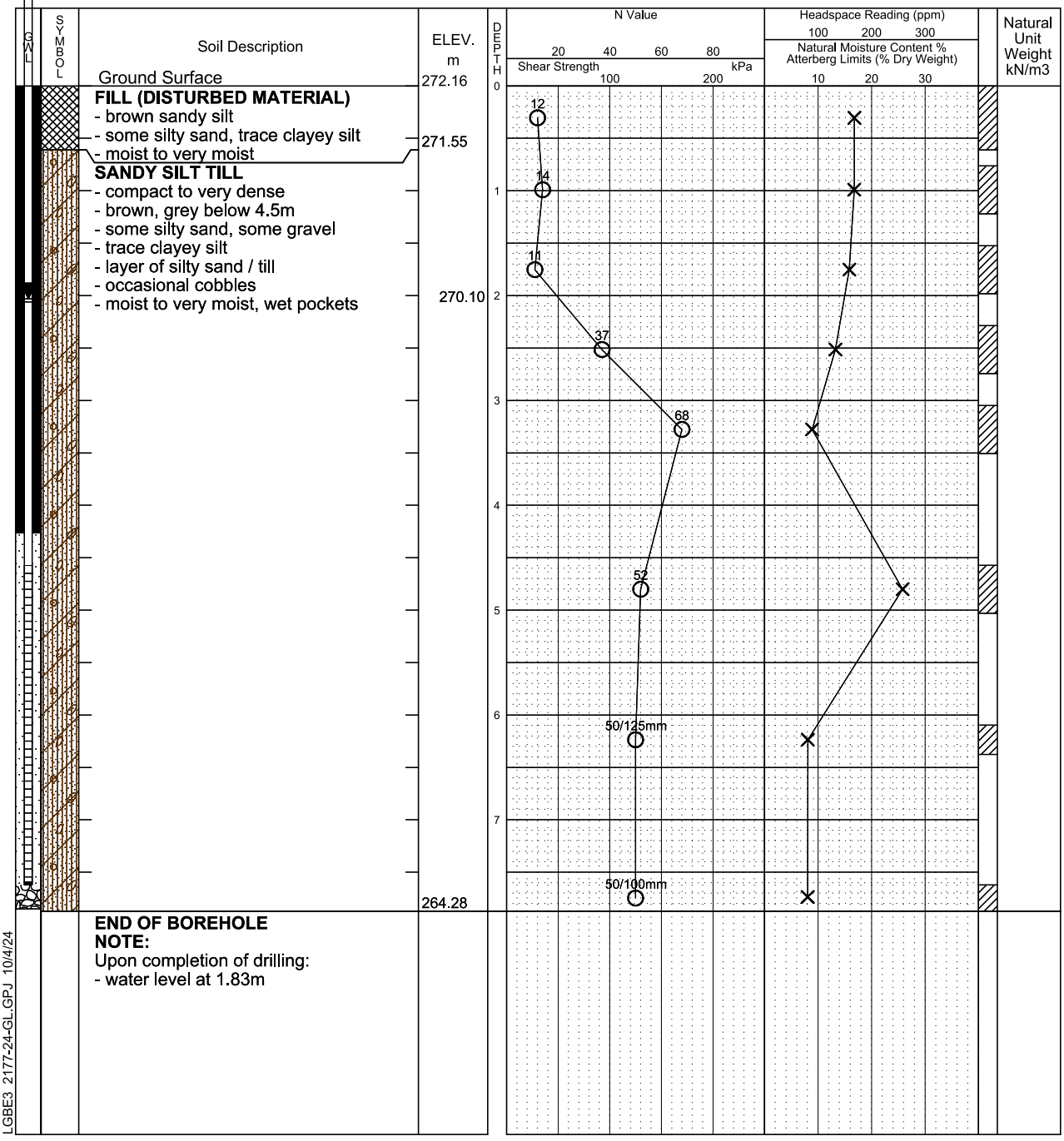
Date Drilled: 7/29/24

Drill Type: Track Mounted Drill Rig

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Headspace Reading (ppm)
Natural Moisture
Plastic and Liquid Limit
Unconfined Compression
% Strain at Failure
Penetrometer



LGBE3 2177-24-GL.GPJ 10/4/24

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Toronto Inspection Ltd.

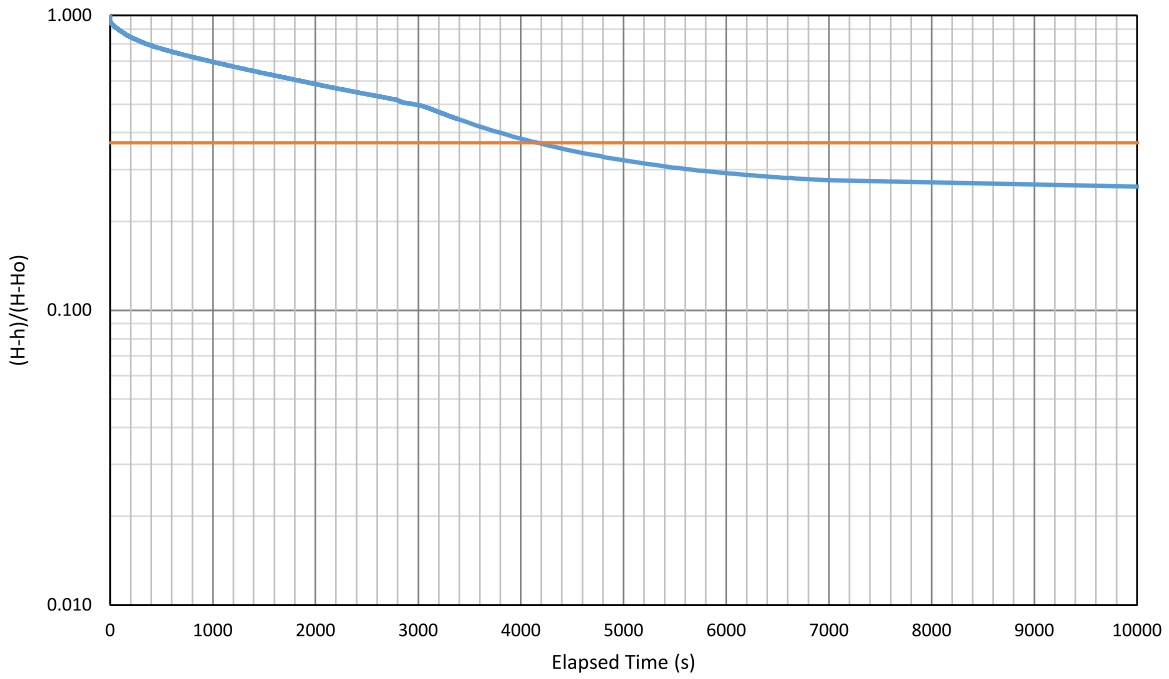
Time	Water Level (m)	Depth to Cave (m)
Sept. 25, 2024	2.06m	

APPENDIX C

Hydraulic Conductivity Analysis

In-Situ Hydraulic Conductivity Analyses: 24BH-1 (MW)

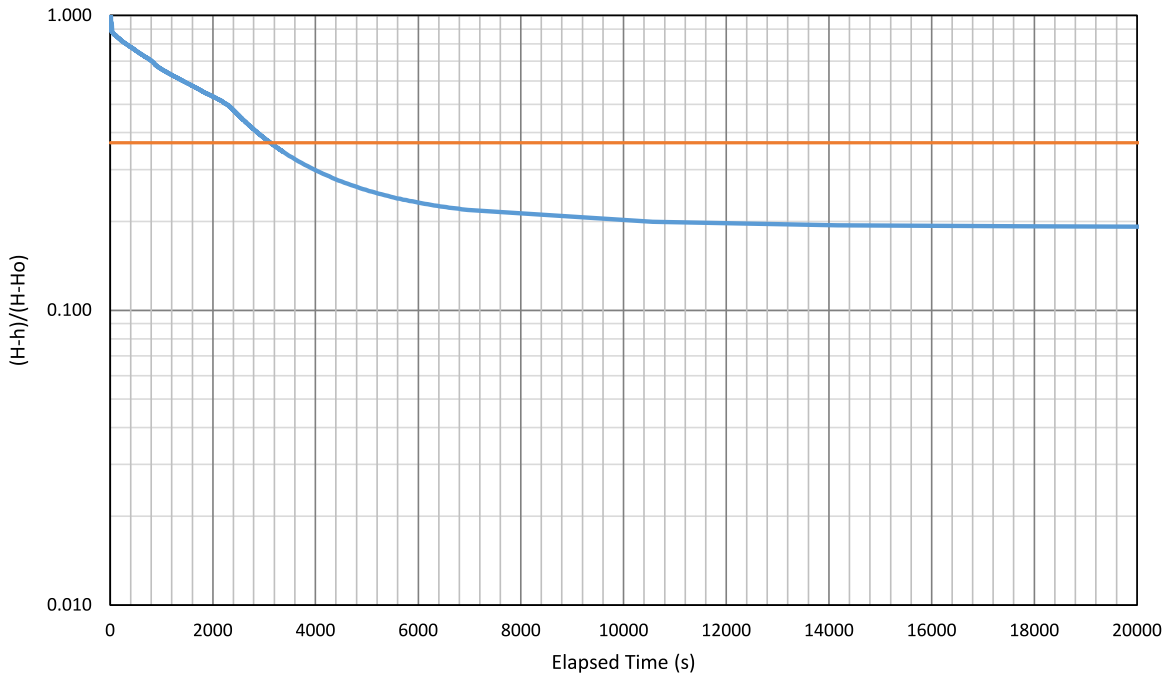
Company:	TIL
Client:	NewRoads Automotive Group
Project:	2177-24-HM
Location:	1656 Green Lane E, East Gwillimbury
Test Well:	24BH-1 (MW)
Test Date:	September 18, 2024
Test Conducted By:	CP
Test Analyzed By:	KN



Effective Well Depth (mbgs):	6.10	**Screened Unit:**	Silty Sand Till
Initial Water Level (mbgs) (H):	1.77	**Screen Length (m) (L_e):**	3.048
Available Drawdown (m):	4.33	**Head at Time = 0 (m) (H_o):**	4.41
Borehole Radius (m) (R_b):	0.0762	**Monitoring Well Radius (m) (R_c):**	0.026
Solution Method:	Hvorslev (1951)	**Recovery (%):**	100%
Early K (m/s)	NA	**Early To (s):**	NA
Mid K (m/s)	8.9E-08	**Mid To (s):**	4400
Late K (m/s)	NA	**Late To (s):**	NA

In-Situ Hydraulic Conductivity Analyses: 24BH-4 (MW)

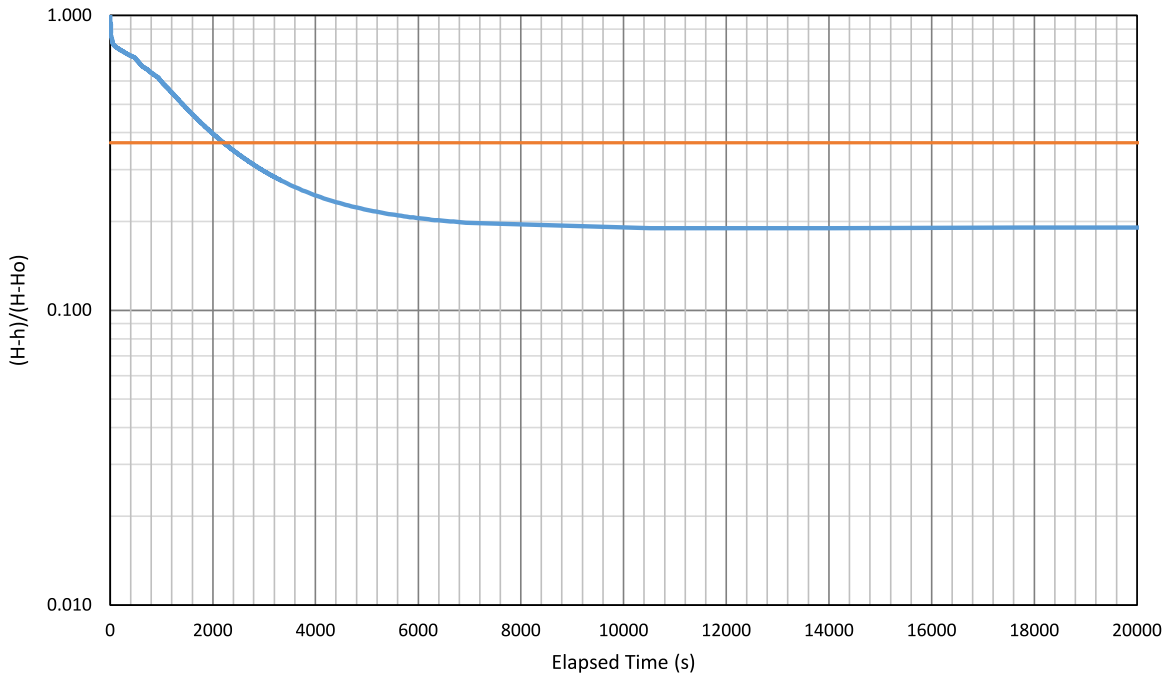
Company:	TIL
Client:	NewRoads Automotive Group
Project:	2177-24-HM
Location:	1656 Green Lane E, East Gwillimbury
Test Well:	24BH-4 (MW)
Test Date:	September 18, 2024
Test Conducted By:	CP
Test Analyzed By:	KN



Effective Well Depth (mbgs):	6.10	**Screened Unit:**	Sandy Silt Till / Silty Sand Till
Initial Water Level (mbgs) (H):	1.24	**Screen Length (m) (L_e):**	3.048
Available Drawdown (m):	4.86	**Head at Time = 0 (m) (H_o):**	5.09
Borehole Radius (m) (R_b):	0.0762	**Monitoring Well Radius (m) (R_c):**	0.026
Solution Method:	Hvorslev (1951)	**Recovery (%):**	100%
Early K (m/s)	NA	**Early To (s):**	NA
Mid K (m/s)	1.1E-07	**Mid To (s):**	3600
Late K (m/s)	NA	**Late To (s):**	NA

In-Situ Hydraulic Conductivity Analyses: 24BH-5 (MW)

Company:	TIL
Client:	NewRoads Automotive Group
Project:	2177-24-HM
Location:	1656 Green Lane E, East Gwilimbury
Test Well:	24BH-5 (MW)
Test Date:	September 18, 2024
Test Conducted By:	CP
Test Analyzed By:	KN



Effective Well Depth (mbgs):	7.62	**Screened Unit:**	Sandy Silt Till
Initial Water Level (mbgs) (H):	2.06	**Screen Length (m) (L_e):**	3.048
Available Drawdown (m):	5.56	**Head at Time = 0 (m) (H_o):**	5.74
Borehole Radius (m) (R_b):	0.0762	**Monitoring Well Radius (m) (R_c):**	0.026
Solution Method:	Hvorslev (1951)	**Recovery (%):**	100%
Early K (m/s)	NA	**Early To (s):**	NA
Mid K (m/s)	1.2E-07	**Mid To (s):**	3200
Late K (m/s)	NA	**Late To (s):**	NA

APPENDIX D

Groundwater Quality Certificate of Analysis

FINAL REPORT

CA40148-SEP24 R1

PN2177

Prepared for

Toronto Inspection Ltd.

FINAL REPORT

First Page

CLIENT DETAILS

Client	Toronto Inspection Ltd.
Address	110 Konrad Crescent, Unit 16 Markham, ON L3R 9X2. Canada
Contact	Yourong Li
Telephone	905-940-8509
Facsimile	905 940 8192
Email	lab@torontoinspection.com
Project	PN2177
Order Number	
Samples	Ground Water (1)

LABORATORY DETAILS

Project Specialist	Brad Moore Hon. B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2143
Facsimile	705-652-6365
Email	brad.moore@sgs.com
SGS Reference	CA40148-SEP24
Received	09/19/2024
Approved	09/26/2024
Report Number	CA40148-SEP24 R1
Date Reported	09/26/2024

COMMENTS

RL - SGS Reporting Limit

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

Temperature of Sample upon Receipt: 6 degrees C
Cooling Agent Present: yes
Custody Seal Present: yes

Chain of Custody Number: 034604

SIGNATORIES

Brad Moore Hon. B.Sc

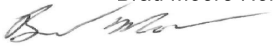


TABLE OF CONTENTS

Client: Toronto Inspection Ltd.
Project: PN2177
Project Manager: Yourong Li
Samplers: ,

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	24BH-4(MW)
Sample Matrix	Ground Water
Sample Date	18/09/2024

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	24
Total Kjeldahl Nitrogen	as N mg/L	0.5	100	1	< 0.5
Metals and Inorganics					
Sulphate	mg/L	2	1500		42
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01
Fluoride	mg/L	0.06	10		0.14
Aluminum (total)	mg/L	0.001	50		0.367
Antimony (total)	mg/L	0.0009	5		< 0.0009
Arsenic (total)	mg/L	0.0002	1	0.02	0.0017
Cadmium (total)	mg/L	0.000003	0.7	0.008	0.000004
Chromium (total)	mg/L	0.00008	2	0.08	0.00061
Cobalt (total)	mg/L	0.000004	5		0.000334
Copper (total)	mg/L	0.001	3	0.05	< 0.001
Lead (total)	mg/L	0.00009	1	0.12	0.00032
Manganese (total)	mg/L	0.00001	5	0.15	0.0403
Molybdenum (total)	mg/L	0.0004	5		0.0015
Nickel (total)	mg/L	0.0001	2	0.08	0.0008
Phosphorus (total)	mg/L	0.003	10	0.4	0.026
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		0.00013

Client: Toronto Inspection Ltd.
Project: PN2177
Project Manager: Yourong Li
Samplers: ,

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	24BH-4(MW)
Sample Matrix	Ground Water
Sample Date	18/09/2024

Parameter	Units	RL	L1	L2	Result
Metals and Inorganics (continued)					
Titanium (total)	mg/L	0.0001	5		0.0178
Zinc (total)	mg/L	0.002	2	0.04	0.016
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	7.53
Mercury (total)	mg/L	0.00001	0.01	0.0004	< 0.00001

Client: Toronto Inspection Ltd.
Project: PN2177
Project Manager: Yourong Li
Samplers: ,

MATRIX: WATER

Sample Number 8
Sample Name 24BH-4(MW)
Sample Matrix Ground Water
Sample Date 18/09/2024

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: Toronto Inspection Ltd.
Project: PN2177
Project Manager: Yourong Li
Samplers: ,

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	24BH-4(MW)
Sample Matrix	Ground Water
Sample Date	18/09/2024

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	0.0007
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
24BH-4(MW)					
Total Suspended Solids	SM 2540D	mg/L	24		15

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 375.4 | Internal ref.: ME-CA-[ENVIEWL-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	DIO5015-SEP24	mg/L	2	<2	ND	20	101	80	120	99	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENVIEWL-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)	BOD0037-SEP24	mg/L	2	< 2	12	30	110	70	130	111	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENVISFA-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)	SKA0205-SEP24	mg/L	0.01	<0.01	ND	10	93	90	110	101	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0437-SEP24	mg/L	0.06	<0.06	0	10	99	90	110	98	75	125

Mercury by CVAAS

Method: EPA 7471A/SM 3112B I Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0038-SEP24	mg/L	0.00001	< 0.00001	ND	20	112	80	120	80	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 I 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)	EMS0221-SEP24	mg/L	0.00005	<0.00005	ND	20	95	90	110	104	70	130
Aluminum (total)	EMS0221-SEP24	mg/L	0.001	<0.001	19	20	107	90	110	120	70	130
Arsenic (total)	EMS0221-SEP24	mg/L	0.0002	<0.0002	3	20	97	90	110	107	70	130
Cadmium (total)	EMS0221-SEP24	mg/L	0.000003	<0.000003	ND	20	96	90	110	108	70	130
Cobalt (total)	EMS0221-SEP24	mg/L	0.000004	<0.000004	0	20	93	90	110	100	70	130
Chromium (total)	EMS0221-SEP24	mg/L	0.00008	<0.00008	11	20	100	90	110	110	70	130
Copper (total)	EMS0221-SEP24	mg/L	0.001	<0.001	ND	20	95	90	110	108	70	130
Manganese (total)	EMS0221-SEP24	mg/L	0.00001	<0.00001	5	20	97	90	110	100	70	130
Molybdenum (total)	EMS0221-SEP24	mg/L	0.0004	<0.0004	3	20	98	90	110	103	70	130
Nickel (total)	EMS0221-SEP24	mg/L	0.0001	<0.0001	4	20	98	90	110	96	70	130
Lead (total)	EMS0221-SEP24	mg/L	0.00009	<0.00009	10	20	98	90	110	94	70	130
Phosphorus (total)	EMS0221-SEP24	mg/L	0.003	<0.003	4	20	106	90	110	NV	70	130
Antimony (total)	EMS0221-SEP24	mg/L	0.0009	<0.0009	ND	20	102	90	110	104	70	130
Selenium (total)	EMS0221-SEP24	mg/L	0.00004	<0.00004	ND	20	99	90	110	99	70	130
Tin (total)	EMS0221-SEP24	mg/L	0.00006	<0.00006	ND	20	98	90	110	NV	70	130
Titanium (total)	EMS0221-SEP24	mg/L	0.0001	<0.0001	4	20	97	90	110	NV	70	130
Zinc (total)	EMS0221-SEP24	mg/L	0.002	<0.002	13	20	91	90	110	102	70	130

QC SUMMARY

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-[ENV]GC-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	GCM0318-SEP24	mg/L	0.01	<0.01			93	55	120			
Nonylphenol monoethoxylate	GCM0318-SEP24	mg/L	0.01	<0.01			86	55	120			
Nonylphenol	GCM0318-SEP24	mg/L	0.001	<0.001			74	55	120			

Oil & Grease

Method: MOE E3401 | 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 (total)	GCM0334-SEP24	mg/L	2	<2	NSS	20	105	75	125			

QC SUMMARY

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM0334-SEP24	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0334-SEP24	mg/L	4	< 4	NSS	20	NA	70	130			

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0448-SEP24	No unit	0.05	NA	0		100			NA		

Phenols by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0196-SEP24	mg/L	0.002	<0.002	ND	10	100	80	120	95	75	125

QC SUMMARY

Polychlorinated Biphenyls

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0307-SEP24	mg/L	0.0001	<0.0001	NSS	30	88	60	140	NSS	60	140

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0347-SEP24	mg/L	0.002	< 0.002	NSS	30	104	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0347-SEP24	mg/L	0.002	< 0.002	NSS	30	105	50	140	NSS	50	140

QC SUMMARY

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0451-SEP24	mg/L	2	< 2	9	10	97	90	110	NA		

Total Nitrogen

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0202-SEP24	as N mg/L	0.5	<0.5	2	10	100	90	110	107	75	125

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-IENVIGC-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	GCM0312-SEP24	mg/L	0.0005	<0.0005	ND	30	104	60	130	106	50	140
1,2-Dichlorobenzene	GCM0312-SEP24	mg/L	0.0005	<0.0005	ND	30	103	60	130	103	50	140
1,4-Dichlorobenzene	GCM0312-SEP24	mg/L	0.0005	<0.0005	ND	30	104	60	130	101	50	140
Benzene	GCM0312-SEP24	mg/L	0.0005	<0.0005	ND	30	102	60	130	101	50	140
Chloroform	GCM0312-SEP24	mg/L	0.0005	<0.0005	ND	30	102	60	130	98	50	140
cis-1,2-Dichloroethylene	GCM0312-SEP24	mg/L	0.0005	<0.0005	ND	30	103	60	130	98	50	140
Ethylbenzene	GCM0312-SEP24	mg/L	0.0005	<0.0005	ND	30	104	60	130	103	50	140
m-p-xylene	GCM0312-SEP24	mg/L	0.0005	<0.0005	ND	30	104	60	130	102	50	140
Methyl ethyl ketone	GCM0312-SEP24	mg/L	0.02	<0.02	ND	30	104	50	140	98	50	140
Methylene Chloride	GCM0312-SEP24	mg/L	0.0005	<0.0005	ND	30	99	60	130	96	50	140
o-xylene	GCM0312-SEP24	mg/L	0.0005	<0.0005	ND	30	106	60	130	101	50	140
Styrene	GCM0312-SEP24	mg/L	0.0005	<0.0005	ND	30	105	60	130	102	50	140
Tetrachloroethylene (perchloroethylene)	GCM0312-SEP24	mg/L	0.0005	<0.0005	ND	30	106	60	130	102	50	140
Toluene	GCM0312-SEP24	mg/L	0.0005	<0.0005	ND	30	101	60	130	100	50	140
trans-1,3-Dichloropropene	GCM0312-SEP24	mg/L	0.0005	<0.0005	ND	30	109	60	130	94	50	140
Trichloroethylene	GCM0312-SEP24	mg/L	0.0005	<0.0005	ND	30	103	60	130	99	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.

This report supersedes all previous versions.

-- End of Analytical Report --

APPENDIX E

Dewatering Analysis

Details of Excavation

	Parameter	Value	Units
GS = Ground Surface (masl)	**GS**	272.60	**masl**
WL = Assumed Depth of Groundwater (m/masl)	**WL**	1.50	**m**
		271.10	**masl**
a = Length of excavation (m)	**a**	71	**m**
b = Width of excavation (m)	**b**	62	**m**
D = Depth of Excavation (m/masl)	**D**	1.00	**m**
		271.60	**masl**

Project Details

Location: 1636 Green Lane E, East Gwilimbury, ON
Project No.: 2177-24-HM
Date: September 26, 2024
Prepared By: KN
Checked By: CH

Radius of Influence Formula (Cashman, P. and Preene, M., 2013):

$$R_{01} = 2.45\sqrt{\frac{HK}{S_y}}t$$

Where:

R01 = Radius of Influence beyond which there is negligible drawdown (m)
H = Distance from initial static water level to bottom of saturated aquifer (m)
K = Hydraulic conductivity (m/s)
S_y = Specific yield of the aquifer formation [-]
t = Time (s) required to draw the static groundwater level to the desired level (assumed to be equivalent to 14 days)

Parameter	Value	Units	
R01	7	**m**	
H	10	**m**	
K	1.1E-07	**m/s**	
S_y	0.20	**[-]**	(Morris and Johnson, 1967)
t	1,209,600	**s**	

Dewatering Rate Formula for Radial Flow to an Excavation in Unconfined Aquifer (Powers et al., 2007):

$$Q = \frac{\pi K(H^2 - h^2)}{\ln(R_{02}/r_e)}$$

Where:

Q = Anticipated unfactored pumping rate (m^3/day)

K = Hydraulic Conductivity (m/day)
H = Distance from initial static water level to bottom of the saturated aquifer (m)
h = Depth of water in the well while pumping (m)
R02 = Radius of Influence beyond which there is negligible drawdown (m)
a = Length (m)
b = Width (m)

Parameter	Value	Units
Q	1.77	**m^3/day**
	0.020	**L/s**
K	9.2E-03	**m/day**
H	10	**m**
h	9	**m**
R02	50	**m**
a	71	**m**
b	62	**m**

Incident Precipitation		
Design Event =	27	mm in 24-hours
Area =	4,402	m^2
Volume =	118.900	m^3/day
	118,900	L/day

* 27 mm/24-hr =99% Percentile Accumulation

Summary

Summary	Short-Term Pumping Rate Q		
	m^3/day	**L/day**	**L/s**
Groundwater	3.500	3,500	0.04
Precipitation	118.900	118,900	1.38
Total	122.400	122,400	1.42

Notes:

1. Considering a groundwater factor of safety of: **2**
2. Long-term pumping rate approximately 1/3rd short-term groundwater rate. Does not include infiltration from rain.
3. Rates rounded to the nearest 100L

APPENDIX F

Water Well Records

MECP WATER WELL RECORDS WITHIN 500M OF SITE

Notes:

UTM: UTM in Zone, Easting, Northing and Datum is NAD83; L: UTM estimated from Centroid of Lot; W: UTM not from Lot Centroid
DATE CNTR: Date Work Completed and Well Contractor Licence Number
CASING DIA: .Casing diameter in inches
WATER: Unit of Depth in Feet. See Table 4 for Meaning of Code
PUMP TEST: Static Water Level in Feet / Water Level After Pumping in Feet / Pump Test Rate in GPM / Pump Test Duration in Hour : Minutes
WELL USE: See Table 3 for Meaning of Code
SCREEN: Screen Depth and Length in feet
WELL: WEL (AUDIT #) Well Tag. A : Abandonment; P: Partial Data Entry Only
FORMATION: See Table 1 and 2 for Meaning of Code

Table 1. Core Material and Descr

Code	Description
BLDR	BOULDERS
BSLT	BASALT
CGRD	COARSE-GRAINED
CGVL	COARSE GRAVEL
CHRT	CHERT
CLAY	CLAY
CLN	CLEAN
CLYY	CLAYEY
CMTD	CEMENTED
CONG	CONGLOMERATE
CRYS	CRYSTALLINE
CSND	COARSE SAND
DKCL	DARK-COLOURED
DLMT	DOLOMITE
DNSE	DENSE
DRTY	DIRTY
DRY	DRY
FCRD	FRACTURED
FGRD	FINE-GRAINED
FGVL	FINE GRAVEL
FILL	FILL
FLDS	FELDSPAR
FLNT	FLINT
FOSS	FOSILIFEROUS
GNIS	GNEISS
GRNT	GRANITE

Code	Description
GRSN	GREENSTONE
GRVL	GRAVEL
GRWK	GREYWACKE
GVLY	GRAVELLY
GYPS	GYPSUM
HARD	HARD
HPAN	HARDPAN
IRFM	IRON FORMATION
LIMY	LIMY
LMSN	LIMESTONE
LOAM	TOPSOIL
LOOS	LOOSE
LTCL	LIGHT-COLOURED
LYRD	LAYERED
MARL	MARL
MGRD	MEDIUM-GRAINED
MGVL	MEDIUM GRAVEL
MRBL	MARBLE
MSND	MEDIUM SAND
MUCK	MUCK
OBDN	OVERBURDEN
PCKD	PACKED
PEAT	PEAT
PGVL	PEA GRAVEL
PORS	POROUS
PRDG	PREVIOUSLY DUG

Code	Description
PRDR	PREV. DRILLED
QRTZ	QUARTZITE
QTZ	QUARTZ
ROCK	ROCK
SAND	SAND
SHLE	SHALE
SHLY	SHALY
SHRP	SHARP
SHST	SCHIST
SILT	SILT
SLTE	SLATE
SLTY	SILTY
SNDS	SANDSTONE
SNDY	SANDYSOAPSTONE
SOFT	SOFT
SPST	SOAPSTONE
STKY	STICKY
STNS	STONES
STNY	STONEY
THIK	THICK
THIN	THIN
TILL	TILL
UNKN	UNKNOWN
VERY	VERY
WBRG	WATER-BEARING
WDFR	WOOD

Code	Description
WTHD	WEATHERED

Notes (Cont'd):

Table 2. Core Colour

Code	Description
WHIT	WHITE
GREY	GREY
BLUE	BLUE
GREN	GREEN
YLLW	YELLOW
BRWN	BROWN
RED	RED
BLCK	BLACK
BLGY	BLUE-GREY

Table 3. Well Use

Code	Description
DO	Domestic
ST	Livestock
IR	Irrigation
IN	Industrial
CO	Commercial
MN	Municipal
PS	Public
AC	Cooling and A/C
NU	Not Used
OT	Other
TH	Test Hole
DE	Dewatering
MO	Monitoring
MT	Monitoring TestHole

Table 4. Water Detail

Code	Description
FR	Fresh
SA	Salty
SU	Sulphur
MN	Mineral
Uk	Unknown
GS	Gas
IR	Iron

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
EAST GWILLIMBURY TOW 02 102	17 625036 4882540 W	2007-05 4102						7045978 (Z56399) A	
EAST GWILLIMBURY TOW CON 02 005	17 625195 4882241 W	1961-12 2310	4	FR 0088	35/40/4/3:0	DO	0088 4	6900075 ()	LOAM 0002 BLUE CLAY 0088 MSND STNS 0092
EAST GWILLIMBURY TOW CON 02 005	17 625201 4882131 W	1961-04 2310	2	FR 0157	30//7/2:0	DO	0159 4	6900076 ()	PRDG 0030 CLAY 0050 MSND CLAY 0090 CLAY 0157 MSND GRVL 0163
EAST GWILLIMBURY TOW CON 02 005	17 625170 4882276 W	1961-12 2310	4	FR 0114	35/100/2/2:0	DO	0114 4	6900077 ()	LOAM 0002 BLUE CLAY 0090 BLUE CLAY STNS 0114 MSND STNS 0118
EAST GWILLIMBURY TOW CON 02 005	17 625190 4882236 W	1962-01 1413	5	FR 0088	23/80/3/:	NU		6900078 () A	BRWN CLAY STNS 0020 BLUE CLAY SILT 0084 CLAY GRVL 0088
EAST GWILLIMBURY TOW CON 02 005	17 625195 4882236 W	1962-03 2310	4	FR 0100	20/95/4/5:0	DO		6900079 ()	LOAM 0002 GREY CLAY 0010 BLUE CLAY 0083 CLAY MSND 0099 MSND GRVL 0101
EAST GWILLIMBURY TOW CON 02 006	17 625002 4882577 W	1950-02 2310	2	FR 0108	20//5/5:0	ST	0108 8	6900080 ()	LOAM 0010 BLUE CLAY 0085 CLAY STNS 0108 FSND 0116
EAST GWILLIMBURY TOW CON 03 005	17 625240 4882348 W	1964-04 3109	30	FR 0036	12//1/:	DO		6900206 ()	LOAM 0001 BLUE CLAY 0040
EAST GWILLIMBURY TOW CON 03 006	17 625190 4882513 W	1965-09 3109	30	FR 0025	8//2/:	DO		6900209 ()	LOAM 0002 CLAY 0023 MSND 0025 CLAY 0027
EAST GWILLIMBURY TOW CON 02 005	17 625165 4882183 W	1968-08 3109	30	FR 0042	14//1/:	DO		6908964 ()	LOAM 0002 BRWN CLAY 0024 BLUE CLAY 0046
EAST GWILLIMBURY TOW CON 02 005	17 625175 4882123 W	1971-10 4231	30	FR 0030	58///:	DO		6910578 ()	BRWN CLAY 0030 BLUE CLAY SILT 0055 BLUE CLAY 0062
EAST GWILLIMBURY TOW CON 02 005	17 625145 4882223 W	1971-07 3109	30	FR 0045	27///:	DO		6910629 ()	LOAM 0002 BRWN CLAY 0018 BLUE CLAY SILT 0050
EAST GWILLIMBURY TOW CON 02 005	17 625190 4882123 W	1972-01 2407	5	UK 0155	65/120/10/5:20	DO	0155 3	6911053 ()	PRDG 0040 BLUE CLAY SAND 0134 BLUE CLAY 0155 BLCK CSND 0168
EAST GWILLIMBURY TOW CON 03 006	17 625165 4882673 W	1972-12 2310	5	FR 0203	35/170/7/2:0	DO	0204 4	6911255 ()	GREY CLAY 0015 BLUE CLAY 0107 BLUE CLAY SAND 0142 BLUE CLAY GRVL 0172 BLUE CLAY 0203 GREY FSND 0208
EAST GWILLIMBURY TOW CON 02 005	17 625041 4882316 W	1973-04 4102	30 30 24	FR 0038	22///:	DO		6911689 ()	LOAM 0002 BRWN CLAY 0012 BLUE CLAY 0040 BLUE CLAY STNS 0080
EAST GWILLIMBURY TOW CON 02 004	17 625165 4882123 W	1978-11 1350	6	FR 0140	42/97/5/72:0	DO		6914826 ()	GREY CLAY 0040 GREY SILT CLAY 0112 GREY CLAY STNS 0135 GREY CLAY 0139 GREY GRVL SAND 0142
EAST GWILLIMBURY TOW CON 02 005	17 625115 4882223 W	1984-07 3108	6	UK 0175 UK 0235		DO		6917186 ()	BRWN CLAY 0020 BLUE CLAY 0047 BLUE CLAY SNDY 0085 BRWN SAND GRVL CLAY 0094 BLUE GRVL CLAY SNDY 0155 FGVL 0157 GREN CLAY SNDY 0165 BRWN FSND 0171 BLUE CLAY 0174 BRWN
EAST GWILLIMBURY TOW CON 02 005	17 625060 4882303 W	1987-11 3108	6	FR 0091	11/90/3/3:0	DO	0091 3	6919140 (13879)	FILL 0012 BLUE CLAY SNDY 0051 SAND GRVL 0052 BLUE CLAY SNDY 0091 SAND GRVL 0097 BLUE CLAY 0100 FSND 0104 BLUE CLAY 0120
EAST GWILLIMBURY TOW 03 006	17 625507 4882578 W	1988-06 1350	6	FR 0068	16/65/4/2:0	DO	0068 4	6919711 (13531)	GREY CLAY 0030 GREY CLAY GRVL 0068 BRWN SAND GRVL 0072
EAST GWILLIMBURY TOW CON 02 008	17 625134 4882586 W	1990-04 5459				DO		6920935 (58492) A	LOAM 0002 BRWN CLAY SNDY 0015 GREY CLAY SAND STNS 0190
EAST GWILLIMBURY TOW CON 02 008	17 625134 4882586 W	1990-04 5459		UK				6920936 (58490)	BRWN CLAY 0016 GREY CLAY 0102 GREY CLAY STNS 0152 GREY CLAY 0320 GRVL CMTD 0329 FSND CMTD 0336 GREY CLAY 0340 BLCK SHLE 0345
EAST GWILLIMBURY TOW CON 03 007	17 625151 4883076 W	1996-11 1413	6	FR 0139	58/300/6/12:0	DO		6923755 (166643)	BRWN CLAY DNSE 0030 GREY CLAY HARD 0129 GREY GRVL CGRD 0130 GREY CLAY HARD 0217 GREY SILT SOFT 0280 GREY CLAY HARD 0335 GREY SHLE LOOS 0339 BLCK SHLE HARD 0356
EAST GWILLIMBURY TOW	17 625381 4882641 W	2006-03 7215	2			NU	0005 5	6930000 (Z43657) A031358	
EAST GWILLIMBURY TOW 02 102	17 625055 4882667 W	2007-04 4102						7043518 (Z56396) A	
EAST GWILLIMBURY TOW CON 02 005	17 625169 4882220 W	2011-11 1413	36		4///:			7174269 (Z140781) A	
EAST GWILLIMBURY TOW	17 625151 4882539 W	2013-11 7201	2					7212751 (Z181968) A	
NEWMARKET TOWN (EAST	17 625293 4882062 W	2014-07 7421				MO		7223345 (Z163539) _NO_TAG	

EAST GWILLIMBURY TOW CON 02 006	17 625049 4882309 W	2014-10 4102						7232538 (Z154861) A	
EAST GWILLIMBURY TOW	17 625409 4882271 W	6946						7323282 (C39191) A233585 P	
EAST GWILLIMBURY TOW	17 625453 4882771 W	2020-04 7472						7363958 (Z338468) A285567 P	
EAST GWILLIMBURY TOW	17 625466 4882734 W	2020-04 7472						7363959 (Z338467) A285566 P	
EAST GWILLIMBURY TOW	17 625471 4882758 W	2020-04 7472						7363960 (Z338466) A285565 P	
EAST GWILLIMBURY TOW	17 625819 4883141 W	2021-03 7230						7389047 (Z349987) A316516 P	
EAST GWILLIMBURY TOW	17 625562 4883082 W	2021-03 7230						7389049 (Z349985) A316515 P	
EAST GWILLIMBURY TOW	17 625125 4882972 W	2021-03 7230						7389050 (Z349984) A316514 P	
EAST GWILLIMBURY TOW	17 625540 4882254 W	2021-07 7644						7395476 (Z367799)	
EAST GWILLIMBURY TOW CON 03 006	17 625895 4882822 W	2021-06 7744						7397423 (Z330104)	
EAST GWILLIMBURY TOW CON 03 006	17 626009 4882829 W	2021-06 7744						7397424 (Z330105)	
EAST GWILLIMBURY TOW CON 03 006	17 625634 4882732 W	2021-06 7744						7397425 (Z330102) A321160 P	
EAST GWILLIMBURY TOW CON 03 006	17 625796 4882679 W	2021-06 7744						7397426 (Z330103)	
EAST GWILLIMBURY TOW CON 03 006	17 625961 4882719 W	2021-06 7744						7397427 (Z330107)	
EAST GWILLIMBURY TOW CON 03 006	17 625567 4882563 W	2021-06 7744						7397428 (Z330101)	
EAST GWILLIMBURY TOW	17 625681 4882150 W	2021-10 7241						7404752 (Z348246) A335987 P	
EAST GWILLIMBURY TOW CON 03 005	17 625717 4882572 W	2021-11 7744	2	UT 0012	///:	MT	0010 5	7405140 (6ME2TCO5)	BLCK 0001 BRWN SAND GRVL FILL 0005 BRWN CLAY SILT DNSE 0010 GREY SILT CLYY HARD 0015
EAST GWILLIMBURY TOW	17 625858 4882711 W	2022-01 1413						7414235 (Z378520)	

31034.

GROUND WATER BRANCH
69 No. 75
JAN 25 1962
ONTARIO WATER RESOURCES COMMISSION

UTM 17Z 621511410E
5R 4881210214N

Elev. 5R 08715

The Ontario Water Resources Commission Act

WATER WELL RECORD

Basin 22 York

County or District York

Township, Village, Town or City E. G. T. (EAST GWILLIMBURY)

Con. 2 Lot PART 5

Date completed 7 (day) DEC. (month) 1961 (year)

Address NEWMARKET

Casing and Screen Record

Inside diameter of casing 4"

Total length of casing 88'

Type of screen Cook

Length of screen 4' + 3' neck

Depth to top of screen 85'

Diameter of finished hole 4"

Pumping Test

Static level 35'

Test-pumping rate [redacted].4 G.P.M.

Pumping level

Duration of test pumping 3 HR.

Water clear or cloudy at end of test CLEAR

Recommended pumping rate 4 G.P.M.

with pump setting of 84' feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Top Soil	0	2	88'	Fresh
Blue Clay	2	88		
Sand & Stones	88	92		
remove locker with 2" top				
LOCKER				
SCREEN				
remove screen with 3" top				

For what purpose(s) is the water to be used? Household

Is well on upland, in valley, or on hillside? Upland

Drilling or Boring Firm W. F. Gartshore

Address Sharon Ontario

Licence Number 78

Name of Driller or Borer W. F. Gartshore

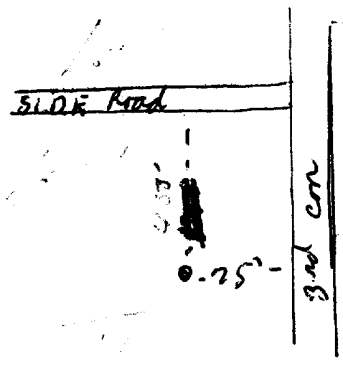
Address Sharon Ontario

Date Dec 7/61

W. F. Gartshore
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Form 7 15M Sets 60-5930

WRC COPY

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3103d

UTM 17 Z 6 2 5 1 4 3 E

5 R 4 8 8 1 9 0 4 N

Elev. 5 R 0 8 7 5

The Ontario Water Resources Commission Act

WATER WELL RECORD

69 № 76

Basin 2 1 — County or District YORK — Township, Village, Town or City E. GWILL TWP

Date completed 12 (day) APRIL (month) 1961 (year)

[redacted] dress NEW MARKET

Casing and Screen Record

Inside diameter of casing 2"

Total length of casing 157'

Type of screen CLAYTON MARK

Length of screen 4'

Depth to top of screen 155

Diameter of finished hole 2"

Pumping Test

Static level 30'

Test-pumping rate 7 G.P.M.

Pumping level not known

Duration of test pumping 2 HR

Water clear or cloudy at end of test CLEAR

Recommended pumping rate 7 G.P.M.

with pump setting of 140 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
DUG WELL	0	30	157	fresh
SOFT CLAY	30	50		
SAND + CLAY	50	90		
CLAY	90	157		
[illegible]	157	163		

For what purpose(s) is the water to be used? HOUSEHOLD

Is well on upland, in valley, or on hillside? UPLAND

Drilling or Boring Firm W F Gartshore

Address Sharon

Licence Number 78

Name of Driller or Borer J Diceman

Address Sharon

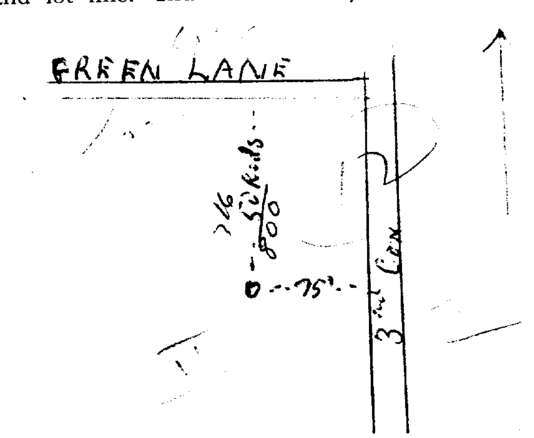
Date April 12 61

W. F. Gartshore

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Form 7 15M Sets 60-5930

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OWRC COPY

3103d

GROUND WATER BRANCH
69 2N 9552
ONTARIO WATER RESOURCES COMMISSION
EAST GWILLIMBURY

UTM 17 6251113 E
17R 4818210 7120 N

Elev. 17R 08715

Basin 22 YORK County or District

Con 2 REAR Lot PART 5

[redacted]

The Ontario Water Resources Commission Act

WATER WELL RECORD

Township, Village, Town or City ~~E G T~~

Date completed 18 (day) DEC (month) 1961 (year)

Address NEWMARKET

Casing and Screen Record

Inside diameter of casing 4"

Total length of casing 114

Type of screen COOK

Length of screen 4' PLUS 3' NECK

Depth to top of screen 109

Diameter of finished hole 4"

Pumping Test

Static level 35'

Test-pumping rate ~~1 HR~~ 2 1/2 G.P.M.

Pumping level

Duration of test pumping 2 HR

Water clear or cloudy at end of test clear

Recommended pumping rate 2 1/2 G.P.M.

with pump setting of 105 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
top soil	0	2	114	fresh
blue clay	2	90		
blue clay an stones	90	114		
sand an stones	114	118		
remove locker with 2" tap				
remove screen with 3" tap				

For what purpose(s) is the water to be used?

household

Is well on upland, in valley, or on hillside? upland

Drilling or Boring Firm

W. F. Bartshore

Address Sharon

Licence Number 78

Name of Driller or Borer

Address James D iceman

Date Sharon Dec 18/61

W. F. Bartshore

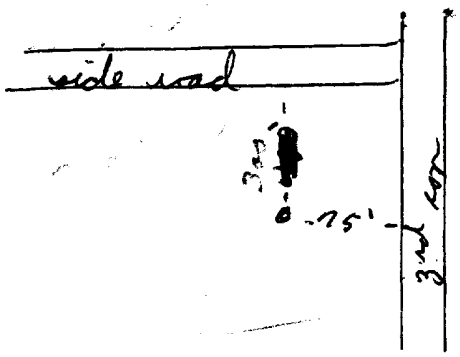
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M Sets 60-5930

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



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31034

GROUND WATER BRANCH
No. 69
JUL 3 1962
ONTARIO WATER RESOURCES COMMISSION

79

UTM 17 | 6251410 E
5481820 | 14 N

The Ontario Water Resources Commission Act

WATER WELL RECORD

Elev. +5 | 08 | 75

Basin 24 | YORK

County or District ... Township, Village, Town or City EAST GWILLIMBURY

Con 2 PLAN 374 Lot 75 Date completed 2 (day) MARCH (month) 1962 (year)

[redacted] dress NEWMARKET

Casing and Screen Record

Inside diameter of casing 4"

Total length of casing 100'

Type of screen NONE

Length of screen

Depth to top of screen

Diameter of finished hole 4"

Pumping Test

Static level 20'

Test-pumping rate 4 G.P.M.

Pumping level 95'

Duration of test pumping 5 HR

Water clear or cloudy at end of test CLEAR

Recommended pumping rate 3½ G.P.M.

with pump setting of 90 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
TOP SOIL	0	2		
grey clay	2	10		
blue clay	10	83		
sandy clay	83	99		
sand an gravel	99	101	100'	FRESH

For what purpose(s) is the water to be used? household

Is well on upland, in valley, or on hillside? upland

Drilling or Boring Firm W F Gastmore

Address Sharon

Licence Number 525

Name of Driller or Borer J D Iceman

Address Sharon

Date April 2 1962

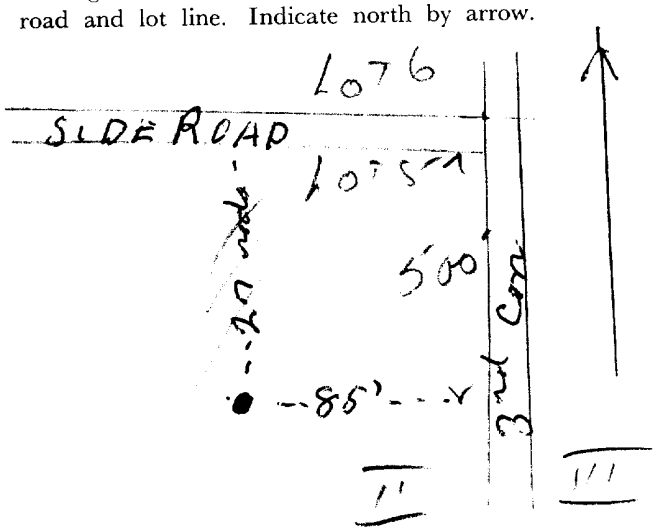
W F Gastmore
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M Sets 60-5930

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS.S8

3103d.

23

69 No 80

UTM 17 621941 42 E
9 R 4818237 2 N

Elev. 9 R 0817 5

Basin 22

ONTARIO

The Well Drillers Act

Department of Mines, Province of Ontario

Water Well Record

[redacted] Con. 2 Lot 6 Pt. Lot

unmarked Acres 120

Date Completed Feb 11/52 Cost of Well (not including pump)

Pipe and Casing Record

Casing diameter(s) 2"
Length(s) of casing(s) 20'
Length of screen 4' screens
Type of screen 2 Johnson Beatty Peterson
Type of pump
Capacity of pump 3 gal per
Depth of pump setting 100'

Pumping Test

Date Feb 11
Developed Capacity 5 gal per
Duration of Test 5 hrs
Pumping Rate 5 gal
Drawdown not known
Static level of completed well 20' approx
Is well a gravel-wall type?

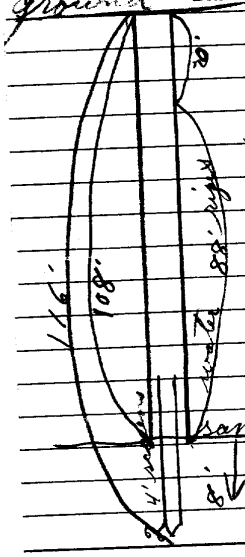
Water Record

Kind (fresh or mineral) fresh
Quality (hard, soft, contains iron, sulphur etc.) soft
Appearance (clear, cloudy, coloured) clear
For what purpose(s) is the water to be used? stock
How far is well from possible source of contamination? safe
What is source of contamination? none
Enclose a copy of any mineral analysis that has been made of water

Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
		88

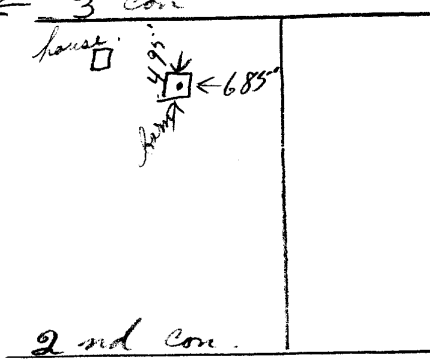
Well Log

Drift and Bedrock Record	From O ft.	To ft.
ground		
loam dark soil		10'
blue clay	10	85'
hard clay small stone	85	108
fine sand	108	116



Location of Well

In diagram below show distances of well from road and lot line



Situation: Is well on upland, in valley, or on hillside? upland

Drilling Firm W. F. Gartshore

Address Sharon Ont. Address Sharon Ont.

Recorded by W. F. Gartshore

Date April 3 Licence Number 351 CSS.S8

S 78 Not Plotted

UTM Z E

Cod R 11 N

Elev. 5 R

Basin 2 2

31D3d.

69 No. 206

JUL 14 1964

ONTARIO WATER RESOURCES COMMISSION

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District York North Township, Village, Town or City East Gwillimbury

Con. 3 Lot Pt 5 Date completed 24 (day) April (month) 1964 (year)

Owner [redacted] Address R. R. #1, Newmarket

Casing and Screen Record

Inside diameter of casing 30 inches

Total length of casing 40 ft.

Type of screen

Length of screen

Depth to top of screen

Diameter of finished hole 30 inches

Pumping Test

Static level 12

Test-pumping rate 1 G.P.M.

Pumping level

Duration of test pumping

Water clear or cloudy at end of test clear

Recommended pumping rate 1 G.P.M.

with pump setting of 30' feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Top soil	0	1	36ft.	fresh.
Clay	1	12		
Blue clay	12	40		

For what purpose(s) is the water to be used? House

Is well on upland, in valley, or on hillside? upland

~~Drilling~~ or Boring Firm J. D. Hutchins & Son Ltd.

Address Holland Landing

Licence Number 57

Name of ~~Driller~~ or Borer Grant Hutchins

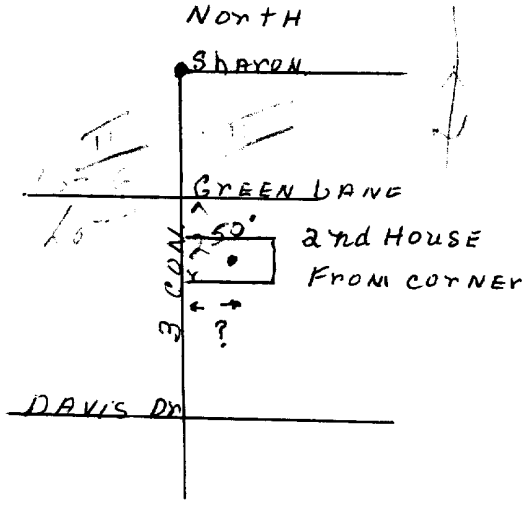
Address Sharon Ont.

Date May 30, 1964

Grant Hutchins
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Form 7 15M-60-4138

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181

31D3d

UTM 17 Z 625476 E

Co. 5 R 4882327 N

Elev. 5 R 0880

Basin 22

The Ontario Water Resources Commission Act

WATER WELL RECORD

WATER RESOURCES DIVISION
69 No. 209
FEB 24 1966
ONTARIO WATER RESOURCES COMMISSION

County or District York. Township, Village, Town or City East Gwillimbury

Con. XI Lot 6 Date completed 21 (day) Sept. (month) 1965 (year)

[redacted] ress R.R. # 3 Newmarket

Casing and Screen Record

Inside diameter of casing 30 inches

Total length of casing 27 ft.

Type of screen

Length of screen

Depth to top of screen

Diameter of finished hole 30 inches

Pumping Test

Static level 8 ft

Test-pumping rate 2 G.P.M.

Pumping level

Duration of test pumping

Water clear or cloudy at end of test clear

Recommended pumping rate 2 G.P.M.

with pump setting of 25 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Top soil	0	2	25	fresh.
Clay	2	23		
Sand	23	25		
Clay.	25	27		

For what purpose(s) is the water to be used? house

Is well on upland, in valley, or on hillside? upland

Drilling or Boring Firm J. F. Ritchie & Son Ltd.

Address Holland Landing Box 20. Ont.

Licence Number 77

Name of Driller or Borer Dave Draper

Address Beeton, Ont.

Date Oct 4 1965

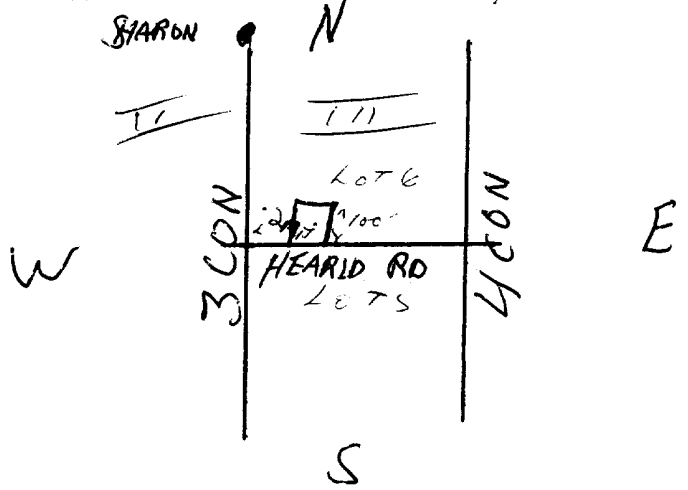
Jean Ritchie
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



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J. B.

6908964

IM 17 2 625 1 50 — Con II Lot 5 — CODED

4 R4 2 4 8 8 1 9 6 1 0

Elev. 6 R 0 9 2 5 T — 31D3d

Basin 12 12

The Ontario Water Resources Commission Act

WATER WELL RECORD

DIVISION OF WATER RESOURCES
FEB 3 1969
ONTARIO WATER RESOURCES COMMISSION

County or ~~District~~ York Township, ~~Village, Town~~ or City [illegible]imbury

Con 2 Lot ~~17~~ 5 Date completed 21 (day) Aug. (month) 1968 (year)

[redacted]ress R. R. # 3, Newmarket, Ont.

Casing and Screen Record

Inside diameter of casing 30 inches

Total length of casing 46 ft.

Type of screen —

Length of screen —

Depth to top of screen —

Diameter of finished hole 30 inches

Pumping Test

Static level 14 ft.

Test-pumping rate 1 G.P.M.

Pumping level —

Duration of test pumping —

Water clear or cloudy at end of test clear

Recommended pumping rate 1 G.P.M.

with pump setting of 44 feet below ground surface

Well Log / Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
top soil	0	2	42	fresh
brown clay	2	24		
blue clay	24	46		

For what purpose(s) is the water to be used? house

Is well on upland, in valley, or on hillside? upland

Drilling or Boring Firm J. F. Kitching & Son Ltd.,

Address Holland Landing, Ont.

Licence Number 140

Name of Driller or Borer Dave Draper,

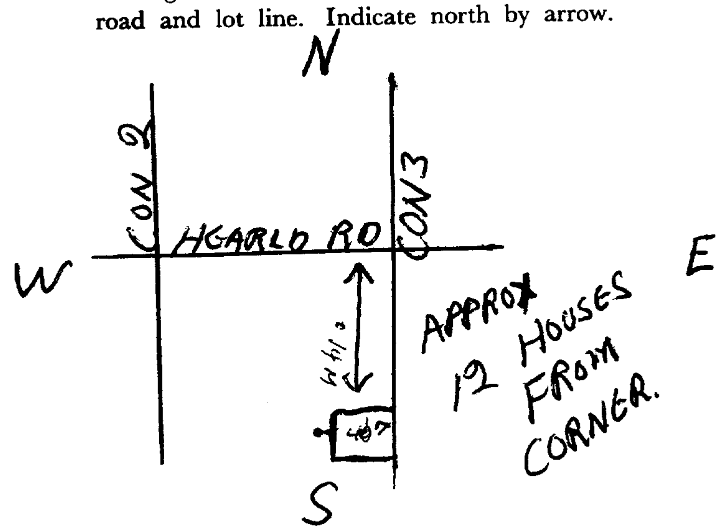
Address Keswick, Ont.

Date Sept. 30, 1968

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Form 7
OWRC COPY

CSS.S8

The Ontario Water Resources Commission Act

WATER WELL RECORD

310/3WXD

Water management in Ontario

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 6910578 | MUNICIP. 69003 | CON. CON | 02

COUNTY OR ~~DISTRICT~~: YORK
TOWNSHIP, ~~BOROUGH, CITY, TOWN, VILLAGE~~: EAST GWILLIMBURY
CON., ~~BLOCK, TRACT, SURVEY, ETC.~~: 3 II
LOT: ~~PT.~~ 5 2005
DATE COMPLETED: DAY 20 MO. 10 YR. 71
[redacted] KH3 NEWMARKET - ONTARIO
ELEVATION: 0875 | BASIN CODE: 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH – FEET FROM	DEPTH – FEET TO
BROWN		CLAY		0	25
BROWN		GUMBO CLAY		25	30
BLUE		SILTY CLAY		30	55
HARD	BLUE	CLAY		55	62½

31: 0030605 | 0055305 06 | 0062305
32:

41 WATER RECORD

WATER FOUND AT – FEET	KIND OF WATER
0030	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
~~30-55~~	
15-18	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
20-23	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
25-28	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
30-33	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH – FEET FROM	DEPTH – FEET TO
30	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☒ CONCRETE 4 ☐ OPEN HOLE	.3"	0	~~55~~ 62½ 0062
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN FEET	

61 PLUGGING & SEALING RECORD

DEPTH SET AT – FEET FROM	DEPTH SET AT – FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
10-13	14-17	
18-21	22-25	
26-29	30-33	

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☐ BAILER
PUMPING RATE: GPM.
DURATION OF PUMPING: HOURS MINS.

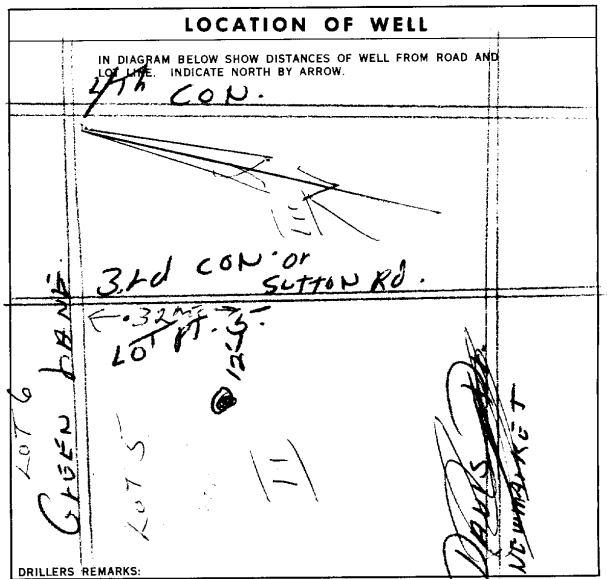
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
058	55 FT				
FEET	FEET	FEET	FEET	FEET	FEET

1 ☐ PUMPING 2 ☒ ~~RECOVERY~~

IF FLOWING, GIVE RATE: GPM.
PUMP INTAKE SET AT: FEET
WATER AT END OF TEST: 1 ☐ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP
RECOMMENDED PUMP SETTING: ~~N.W.~~ FEET
RECOMMENDED PUMPING RATE: ~~N.W.~~ GPM.
GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL (54)
1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED

WATER USE (55-56) 01
1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING ☐ OTHER 9 ☐ NOT USED

METHOD OF DRILLING (57)
1 ☐ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☒ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: PIKE'S WELL DRILLING — LICENCE NUMBER: 4231
ADDRESS: 10 Howard Rd. NWKT.
NAME OF DRILLER OR BORER: G. PIKE — LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: — SUBMISSION DATE: DAY 17 MO. 11 YR. 71

OFFICE USE ONLY

DATA SOURCE (58): 1 — CONTRACTOR (59-62): 4231 — DATE RECEIVED (63-68): 171171
DATE OF INSPECTION: MAR 27/72 — INSPECTOR: J.B.
REMARKS: CSS.S8 — P/J.B. — WI

OWRC COPY

The Ontario Water Resources Commission Act

WATER WELL RECORD

310/13aXD

656

Water management in Ontario

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 6910629 | MUNICIP. 6900 3 | CON. C&N 02

COUNTY OR ~~DISTRICT~~	TOWNSHIP, ~~BOROUGH, CITY, TOWN, VILLAGE~~	CON., ~~BLOCK, TRACT, SURVEY, ETC.~~	LOT
YORK	EAST GWILLIMBURY	2 E.pt	~~B~~ 005

[redacted] | ~~SS~~ 61 Christie St. Apt. 104, TORONTO | DATE COMPLETED DAY 07 MO. ~~July~~ YR. 71

THING 1882000 | RC. 4 | ELEVATION 0875 | RC. 5 | BASIN CODE 22 | II | III | IV

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH – FEET FROM	DEPTH – FEET TO
	top soil			0	2
	brown clay			2	18
	blue silty clay			18	50

31 0002 02 | 0018 005 | 0050 3050 06

32

41 WATER RECORD

WATER FOUND AT – FEET	KIND OF WATER
0045	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH – FEET FROM	DEPTH – FEET TO
30	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☒ CONCRETE 4 ☐ OPEN HOLE	3	0	0050
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET

MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT – FEET FROM	DEPTH SET AT – FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☐ BAILER | PUMPING RATE GPM. | DURATION OF PUMPING HOURS MINS.

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☒ RECOVERY			
		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
027 FEET	FEET	6 ft.		24 hrs	FEET

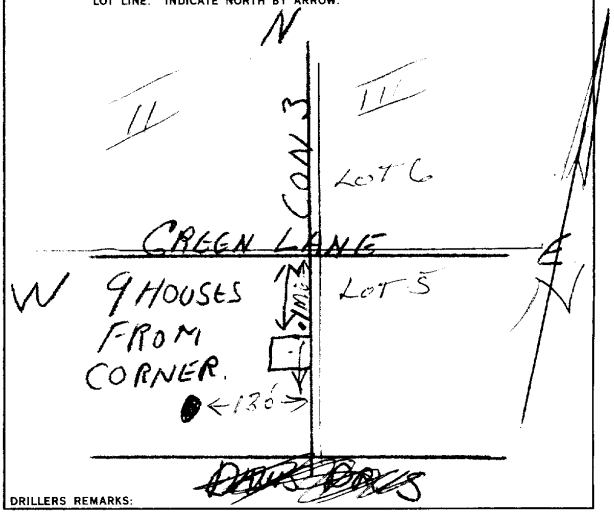
IF FLOWING, GIVE RATE GPM. | PUMP INTAKE SET AT FEET | WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP | RECOMMENDED PUMP SETTING 048 FEET | RECOMMENDED PUMPING RATE 0001 GPM.

GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL

1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED

WATER USE 01

1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF DRILLING

1 ☐ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☒ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: J. F. KITCHING & SON LTD. | LICENCE NUMBER: 3109

ADDRESS: BOX 20, HOLLAND LANDING, ONT.

NAME OF DRILLER OR BORER: D. DRAPER, | LICENCE NUMBER:

SIGNATURE OF CONTRACTOR: [signature] | SUBMISSION DATE DAY 23 MO. July YR. 71

OFFICE USE ONLY

DATA SOURCE 1 | CONTRACTOR 3109 | DATE RECEIVED 13 12 71

DATE OF INSPECTION MAR. 27/72 | INSPECTOR J.B.

REMARKS: CSS.S8

OWRC COPY

ONTARIO

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

31D/3W

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11 | 6911255 | MUNICIP. 69.003 | CON. C&N | 03

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
YORK	EAST GWILLIMBURY	E III	006

[redacted] NEWMARKET R.R.3. ONTARIO

DATE COMPLETED: DAY 11 MO. 12 YR 72

UTM 82450 | RC 4 | ELEVATION 0860 | RC 5 | BASIN CODE 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
grey	clay			0	15
blue	clay			15	107
blue	clay	sand		107	142
blue	clay	gravel		142	172
blue	clay			172	203
grey	sand		fine	203	208

31 | 0015205 | 0107305 | 0142305|28 | 0172305|11 | 0203305 | 0208208

32

41 WATER RECORD

WATER FOUND AT FEET	KIND OF WATER
0203	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
05	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.244	0	~~204~~ 0204
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
006	05.000	04

MATERIAL AND TYPE: ~~stainless steel~~ | DEPTH TO TOP OF SCREEN: ~~204~~ 0204 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

METHOD	PUMPING RATE GPM	DURATION OF PUMPING HOURS	MINS
1 ☐ PUMP 2 ☒ BAILER	0007	02	00

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
035 FEET	170 FEET	1 ☐ PUMPING 2 ☒ RECOVERY	035 FEET	035 FEET	035 FEET	035 FEET

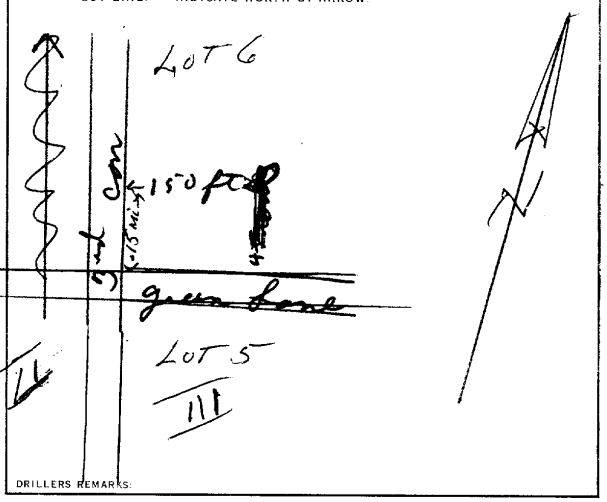
IF FLOWING GIVE RATE: GPM | PUMP INTAKE SET AT: FEET | WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP | RECOMMENDED PUMP SETTING: 204 FEET | RECOMMENDED PUMPING RATE: 0007 GPM

000.1 GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL (54): 1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED

WATER USE (55-56) 01: 1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF DRILLING (57): 1 ☒ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: W.F. Garthore | LICENCE NUMBER:
ADDRESS: Sharon
NAME OF DRILLER OR BORER: J. Dicenman | LICENCE NUMBER: 1711
SIGNATURE OF CONTRACTOR: Fred Garthore | SUBMISSION DATE: DAY 04 MO. 01 YR 73

OFFICE USE ONLY

DATA SOURCE 1 (58) | CONTRACTOR 2310 (59-62) | DATE RECEIVED 150173 (63-68)
DATE OF INSPECTION Feb 14/73 | INSPECTOR J.B.
REMARKS: CSS.S8 | P/J.B. | WI/J.B.

MINISTRY OF THE ENVIRONMENT COPY

FORM 7 07-091

MINISTRY OF THE ENVIRONMENT

The Ontario Water Resources Act

WATER WELL RECORD

Ontario

31D/3W

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11 | 6911689 | MUNICIP. 69003 | CON. CON | 02

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON.	BLOCK, TRACT, SURVEY, ETC.	LOT
YORK	EAST GWILLIMBURY	II		005

[redacted] #3 NEWMARKET, ONT. — DATE COMPLETED: DAY 10 MO 04 YR 73

ING | RC. | ELEVATION | RC. | BASIN CODE | II | III | IV

4882093 | 4 | 875 | 5 | 22 | JUN 18, 1976 | 181

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
	TOP SOIL			0	2
BROWN	CLAY		LOOSE	2	12
BLUE	CLAY		LOOSE	12	40
BLUE	CLAY	SOME STONES	DENSE	40	80

OWRC P.7

OWRC

31 | 0002 02 | 0011 2605 | 0041 0305 | 0081 2205 1 2

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0038 (38)	1 ☑ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
15-18	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
20-23	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
25-28	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
30-33	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
30	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☑ CONCRETE 4 ☐ OPEN HOLE	3	0	0010 (10)
30	1 ☐ STEEL 2 ☑ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE		10	0040 (40)
24	1 ☐ STEEL 2 ☑ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE		40	0080 (80)

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN FEET	

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.)
10-13	14-17	
18-21	22-25	
26-29	30-33	

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☐ BAILER — PUMPING RATE: GPM — DURATION OF PUMPING: HOURS MINS

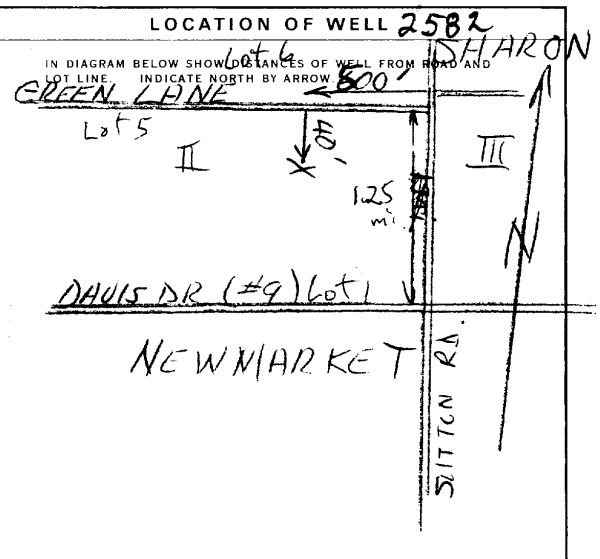
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☐	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
022 (22) FEET	FEET		FEET	FEET	FEET	FEET

IF FLOWING, GIVE RATE: GPM — PUMP INTAKE SET AT: FEET — WATER AT END OF TEST: 1 ☐ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☑ DEEP — RECOMMENDED PUMP SETTING: 073 FEET — RECOMMENDED PUMP RATE: 0004 GPM

LOCATION OF WELL 2582

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL 1

1 ☑ WATER SUPPLY; 2 ☐ OBSERVATION WELL; 3 ☐ TEST HOLE; 4 ☐ RECHARGE WELL; 5 ☐ ABANDONED, INSUFFICIENT SUPPLY; 6 ☐ ABANDONED, POOR QUALITY; 7 ☐ UNFINISHED

WATER USE 01

1 ☑ DOMESTIC; 2 ☐ STOCK; 3 ☐ IRRIGATION; 4 ☐ INDUSTRIAL; 5 ☐ COMMERCIAL; 6 ☐ MUNICIPAL; 7 ☐ PUBLIC SUPPLY; 8 ☐ COOLING OR AIR CONDITIONING; 9 ☐ NOT USED; ☐ OTHER

METHOD OF DRILLING 6

1 ☐ CABLE TOOL; 2 ☐ ROTARY (CONVENTIONAL); 3 ☐ ROTARY (REVERSE); 4 ☐ ROTARY (AIR); 5 ☐ AIR PERCUSSION; 6 ☑ BORING; 7 ☐ DIAMOND; 8 ☐ JETTING; 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: ONTARIO WELL DRILLING — LICENCE NUMBER: 4102

ADDRESS: 637 CORHAM ST. NEWMARKET

NAME OF DRILLER OR BORER: DALE MOORE — LICENCE NUMBER: 4102

SIGNATURE OF CONTRACTOR: Dale Moore — SUBMISSION DATE: DAY 11 MO. 5 YR. 73

OFFICE USE ONLY

DATA SOURCE: 1 — CONTRACTOR: 4102 — DATE RECEIVED: 240573

DATE OF INSPECTION: 06 28 | 75 — INSPECTOR: J.B.

REMARKS: P/JD

CSS.S8

MINISTRY OF THE ENVIRONMENT COPY

FORM 7 07-091

Ontario (https://www.ontario.ca/page/government-ontario)

Map: Well records

This map allows you to search and view well record information from reported wells in Ontario.

Full dataset is available in the Open Data catalogue (https://data.ontario.ca/dataset/well-records) .

Go Back to Map

Well ID

Well ID Number: 6914826
Well Audit Number:
Well Tag Number:
This table contains information from the original well record and any subsequent updates.

Well Location

Address of Well Location	
Township	EAST GWILLIMBURY TOWNSHIP
Lot	004

Concession	CON 02
County/District/Municipality	YORK
City/Town/Village	
Province	ON
Postal Code	n/a
UTM Coordinates	NAD83 — Zone 17 Easting: 625164.60 Northing: 4882123.00
Municipal Plan and Sublot Number	
Other	

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
GREY	CLAY			0 ft	40 ft

GREY	SILT	CLAY		40 ft	112 ft
GREY	CLAY	STNS		112 ft	135 ft
GREY	CLAY			135 ft	139 ft
GREY	GRVL	SAND		139 ft	142 ft

Annular Space/Abandonment Sealing Record

Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed	

Method of Construction & Well Use

Method of Construction	Well Use	
Cable Tool		
	Domestic	

Status of Well

Water Supply

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To
6 inch	STEEL		142 ft

Construction Record - Screen

Outside Diameter	Material	Depth From	Depth To

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 1350

Results of Well Yield Testing

After test of well yield, water was	CLEAR

If pumping discontinued, give reason	
Pump intake set at	
Pumping Rate	5 GPM
Duration of Pumping	72 h:0 m
Final water level	97 ft
If flowing give rate	
Recommended pump depth	
Recommended pump rate	
Well Production	PUMP
Disinfected?	

Draw Down & Recovery

Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
SWL	42 ft		
1		1	

2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
45		45	
50		50	
60		60	

Water Details

Water Found at Depth	Kind
140 ft	Fresh

Hole Diameter

Depth From	Depth To	Diameter

Audit Number:

Date Well Completed: November 06, 1978

Date Well Record Received by MOE: January 05, 1979

Related

How to use a Ministry of the Environment map (https://www.ontario.ca/page/how-use-ministry-environment-map#wells)

Technical documentation: Metadata record (https://data.ontario.ca/dataset/well-records/resource/3031344e-e3f2-48d5-888c-c1deadfd2f77)

Updated: January 10, 2024
Published: March 20, 2014