

Prepared for: bcIMC Realty Corporation o/a Georgian Court Estates c/o Realstar Management

HYDROGEOLOGICAL INVESTIGATION REPORT

PROPOSED RESIDENTIAL REDEVELOPMENT AT 611-633 AND 645 SURREY LANE, 610-740 SURREY LANE, 858-916 WARWICK ROAD, 615-693 AND 699 MARLEY ROAD, AND 847-937 WARWICK ROAD

BURLINGTON, ON

January 2017

WSP | MMM GROUP

Hydrogeological Investigation Report

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WSP Group / MMM Group Limited
January 2017

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1.0 INTRODUCTION

bcIMC Realty Corporation operating as (o/a) Georgian Court Estates care of (c/o) Realstar Management has retained WSP to undertake the geotechnical and hydrogeological investigations for the proposed residential redevelopment at 611 - 633 and 645 Surrey Lane, 610 - 740 Surrey Lane, 858 - 916 Warwick Road, 615 -693 and 699 Marley Road, and 847 - 937 Warwick Road, in Burlington, Ontario.

For the purposes of this study, a 500 m Study Area was added around the project limits, as shown on Figure 1.

1.1 GEOTECHNICAL INVESTIGATION

A geotechnical investigation was carried out by WSP (2017) for the proposed redevelopment at the project site. Eighteen (18) boreholes were advanced across the project site, with seven (7) boreholes completed as monitoring wells. The geotechnical report is presented in Appendix A.

1.2 PROJECT BACKGROUND

The objective of the Hydrogeological Assessment is to broadly characterize the local hydrogeological conditions within the Study Area and provide technical hydrogeological input into the potential dewatering requirements.

This study discusses potential impacts resulting from the proposed Georgian Court Redevelopment construction in the context of the following:

- Potential impacts to municipal, commercial and private water wells;
- Existing source water protection areas;
- Likelihood of release of contaminants; and
- Impacts to groundwater and surface water from construction activities.

Scope of Work

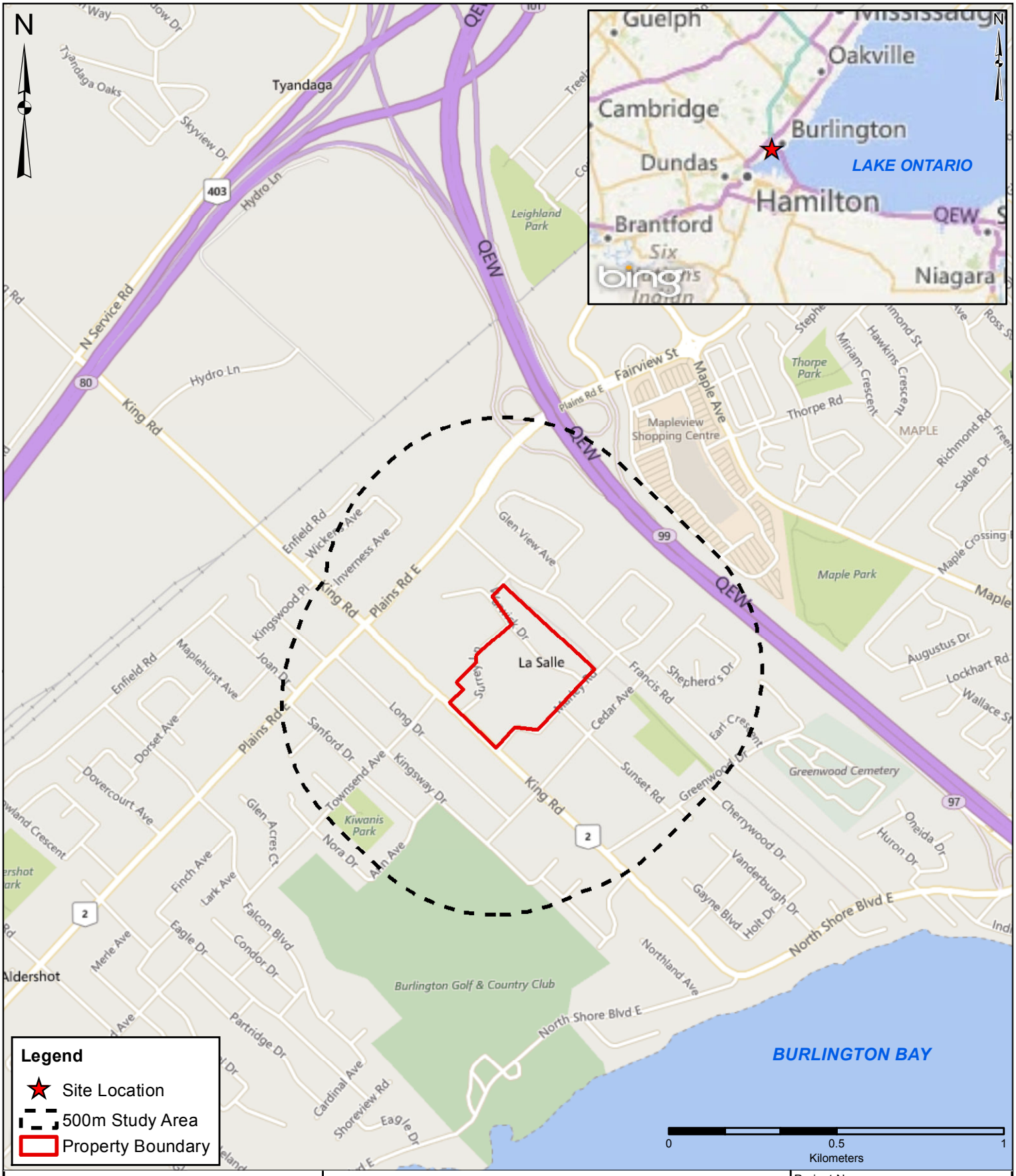
The Scope of Work undertaken in this hydrogeological assessment includes the following tasks:

- Review of Available Physiographic, Geological, Geotechnical, and Hydrogeological Maps and Reports – to help characterize the general physiography, geology and hydrogeology within and surrounding the Study Area, in an effort to understand the general groundwater flow system(s);

- Review of the Ontario Ministry of Environment and Climate Change (MOECC) Water Well Records, to provide any relevant information on the construction of wells, well depth, location, static water levels, stratigraphy and pumping rates; and,

- Review of Permits to Take Water (PTTWs) - to identify existing heavy water users within and adjacent to the Study Area.

If there are any questions regarding this report, please contact Peter Hayes, P. Geo. of WSP/MMM Group Limited (MMM) at (519) 743-8777 Ext. 2267



WSP	Client: bcIMC Realty Corp. o/a Georgian Court Estates	Project No.: 161-15952-00	
	Title: Site Location	Drawn: JS	Approved: PH
	Project: Hydrogeological Assessment Georgian Court Redevelopment	Date: January 2017	Scale: As Shown
	Discipline: ENVIRONMENT	Original Size: Letter	Figure: 1

2.0 STUDY AREA DESCRIPTION AND SETTING

2.1 DESCRIPTION OF THE STUDY AREA

The Study Area includes a 500 m area around the redevelopment extent within the City of Burlington, Ontario. The Study Area boundary is shown on **Figure 1**.

The project site is located within an urban section of the City of Burlington, surrounded by primarily residential and commercial land uses. The area is municipally serviced (water and sanitary sewer).

2.2 CURRENT LAND USE

The land use within the Study Area is primarily residential, with commercial properties on Plains Road, located 300 m east of the site, a golf course located 200 m south, and the Queen Elizabeth Way (QEW) located approximately 400 m north of the site.

2.3 PHYSIOGRAPHY

As shown on **Figure 2**, the project site lies within the Iroquois Plain, a physiographic region that extends around the shore of Lake Ontario and is characterized by fine silty sands overlying Halton Till, which in turn overlies Queenston shale bedrock.

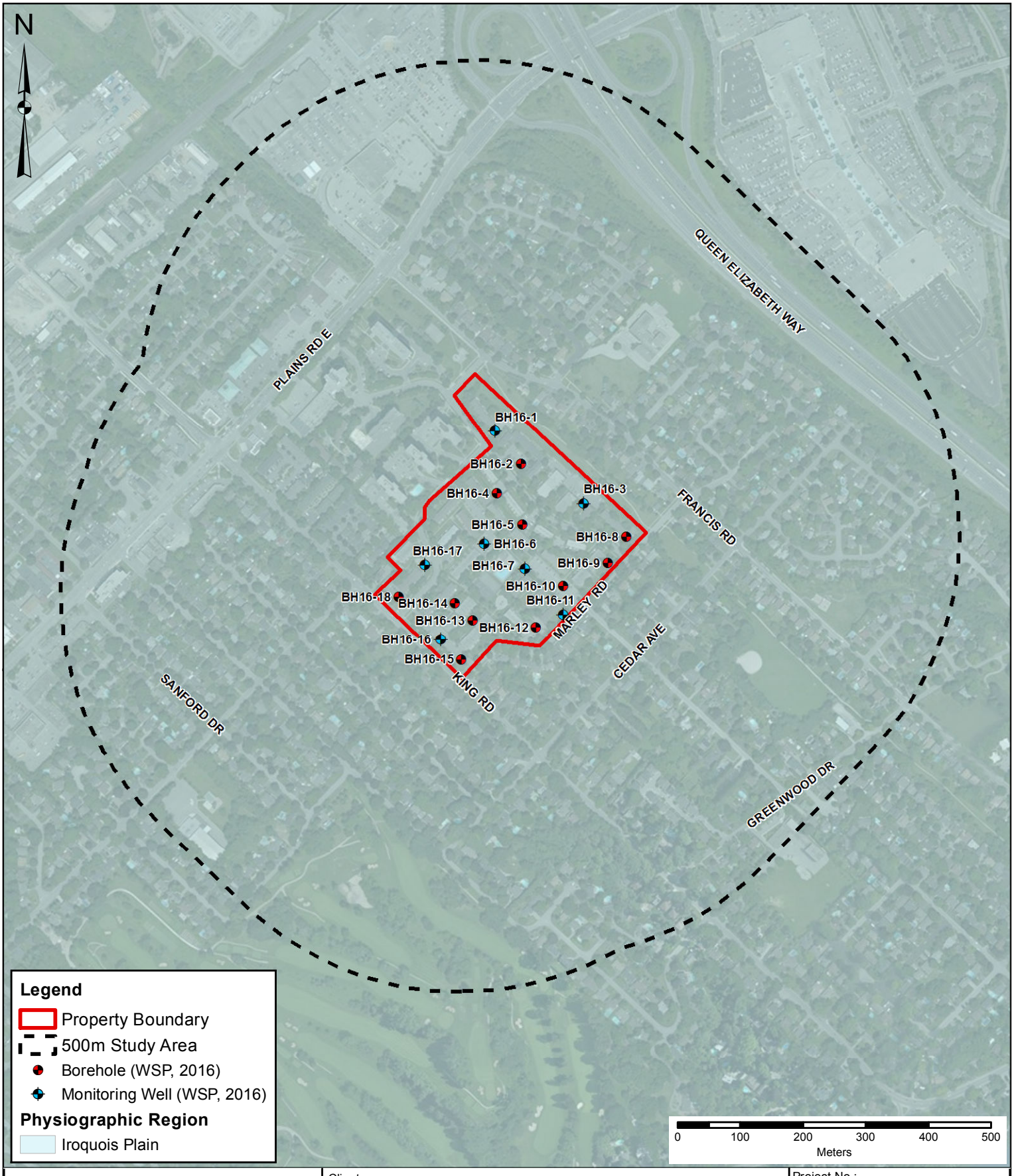
2.4 TOPOGRAPHY, DRAINAGE AND NATURAL FEATURES

The ground surface elevation dips from 95 meters above sea level (masl) north and west of the site to approximately 90 masl south and east of the site. The ground surface progressively declines to 75 masl at the shore of Lake Ontario, located approximately 1 km south of the project site.

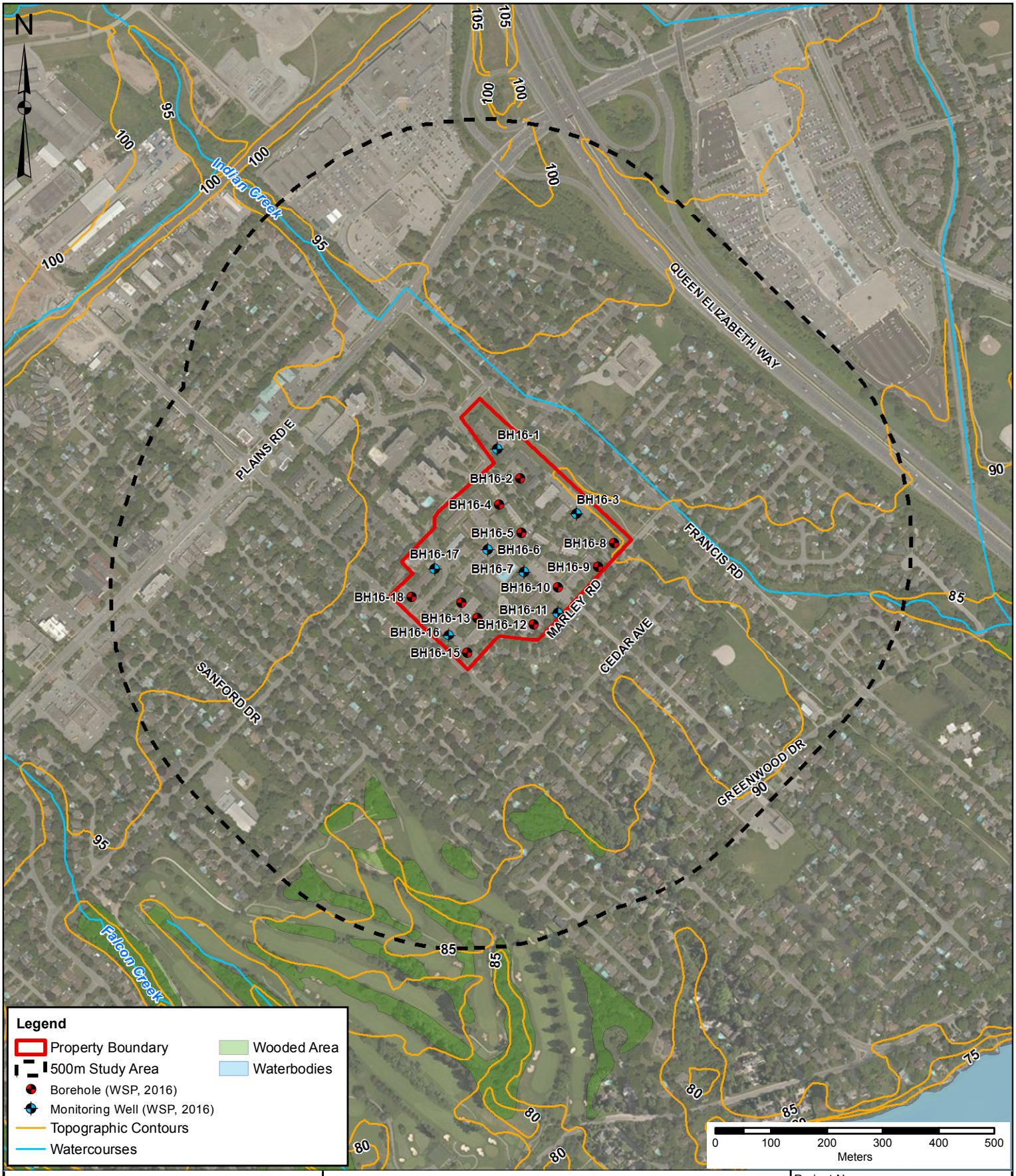
Much of the Study Area is covered by impermeable surfaces as a result of urban development. Native soils are well drained, which allows groundwater infiltration. Surface water runoff that does not infiltrate into the subsurface is directed into storm sewers which are interpreted to discharge into Indian Creek north and east of the site, and Stillwater, Edgewater and Falcon Creeks, south-southwest of the site, which all discharge into Lake Ontario.

A review of the Ontario Ministry of Natural Resources and Forestry (OMNRF) – Natural Heritage Areas map confirmed that there are no designated areas within 500 m of the project site, including Environmentally Significant Policy Areas, Areas of Natural and Scientific Interest or Provincially Significant Wetlands.

The topography, drainage and location of natural features is shown on **Figure 3**.



Client: bcIMC Realty Corp. o/a Georgian Court Estates		Project No.: 161-15952-00	
Title: Physiography		Drawn: JS	Approved: PH
Project: Hydrogeological Assessment Georgian Court Redevelopment		Date: January 2017	Scale: As Shown
Discipline: ENVIRONMENT		Original Size: Letter	Figure: 2



WSP	Client: bcIMC Realty Corp. o/a Georgian Court Estates	Project No.: 161-15952-00	
	Title: Topography and Natural Features	Drawn: JS	Approved: PH
	Project: Hydrogeological Assessment Georgian Court Redevelopment	Date: January 2017	Scale: As Shown
	Discipline: ENVIRONMENT	Original Size: Letter	Figure: 3

2.5 QUATERNARY GEOLOGY

The surficial geology of the Study Area is shown on **Figure 4**, and consists of Late Wisconsinan lacustrine and outwash sand overlying silty-clay Halton Till. The Halton Till grades downward into the bedrock which consists of soft red-brown shale (Queenston Shale).

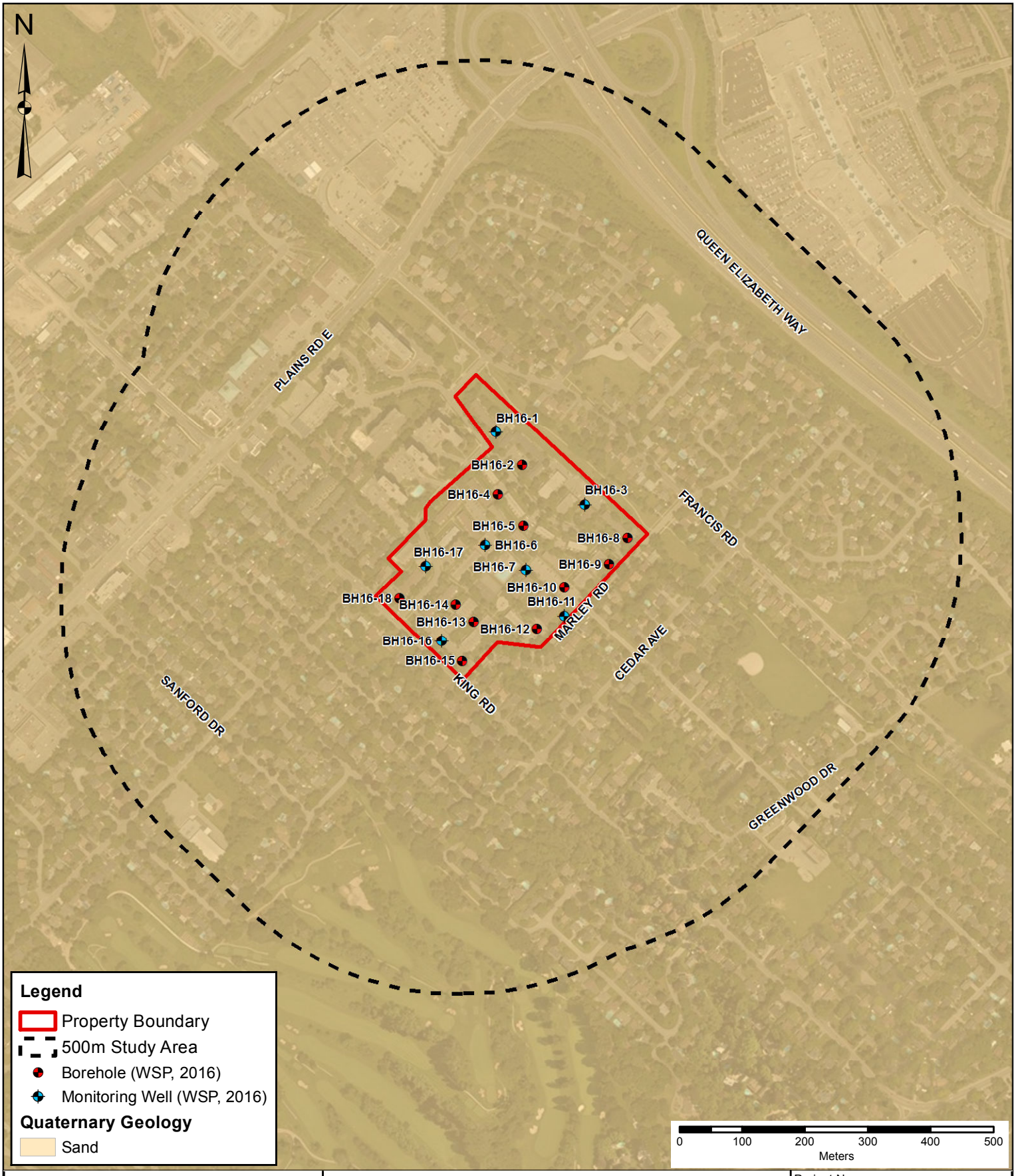
2.6 BEDROCK GEOLOGY

The Queenston Formation is the uppermost bedrock formation within the Study Area. The Queenston Shale bedrock consists of reddish brown and thinly bedded shale with frequent hard grey limestone layers with occasional siltstone and some clay seams (Holysh, 1995). The limestone beds are typically more competent in comparison to the shale. The Queenston Formation is regionally extensive, found as the uppermost bedrock formation in most areas of Halton Region which are below the Niagara Escarpment.

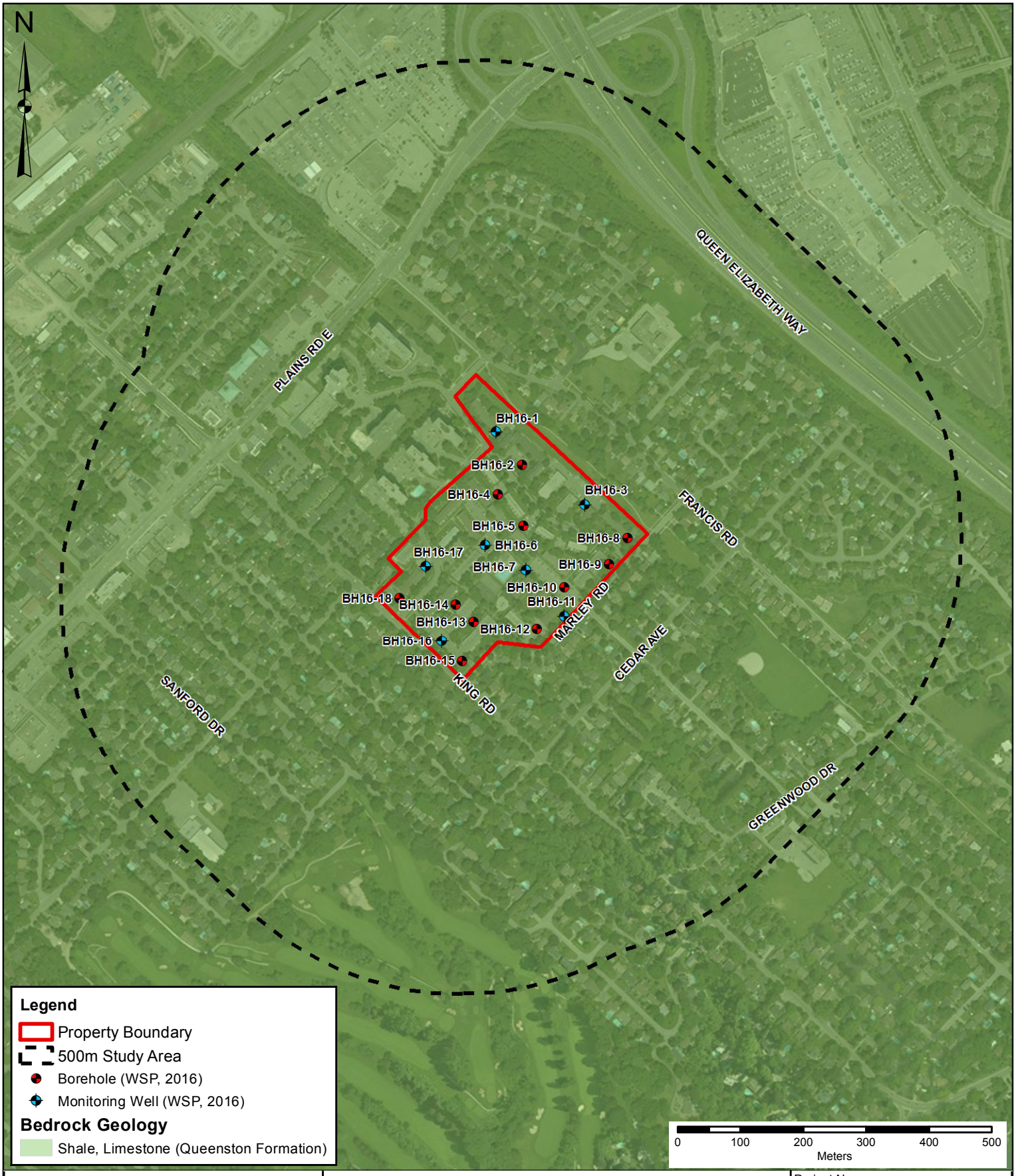
The bedrock geology within the Study Area is shown on **Figure 5**.

2.7 SURFACE WATER

The project site is located within the Indian Creek watershed. Indian Creek exists as a buried channel immediately north and west of the project site and emerges further west, running parallel to the QEW. South-southwest of the Study Area are Stillwater Creek (inferred as buried), Edgewater Creek (inferred as buried) and Falcon Creek (Conservation Halton, 2012), all part of the Falcon Creek watershed. All of these creeks flow towards Lake Ontario, located approximately 1 km south-southeast of the site.



WSP	Client: bcIMC Realty Corp. o/a Georgian Court Estates	Project No.: 161-15952-00	
	Title: Quaternary Geology	Drawn: JS	Approved: PH
	Project: Hydrogeological Assessment Georgian Court Redevelopment	Date: January 2017	Scale: As Shown
	Discipline: ENVIRONMENT	Original Size: Letter	Figure: 4



WSP	Client: bcIMC Realty Corp. o/a Georgian Court Estates	Project No.: 161-15952-00	
	Title: Bedrock Geology	Drawn: JS	Approved: PH
	Project: Hydrogeological Assessment Georgian Court Redevelopment	Date: January 2017	Scale: As Shown
	Discipline: ENVIRONMENT	Original Size: Letter	Figure: 5

3.0 GROUNDWATER RESOURCES

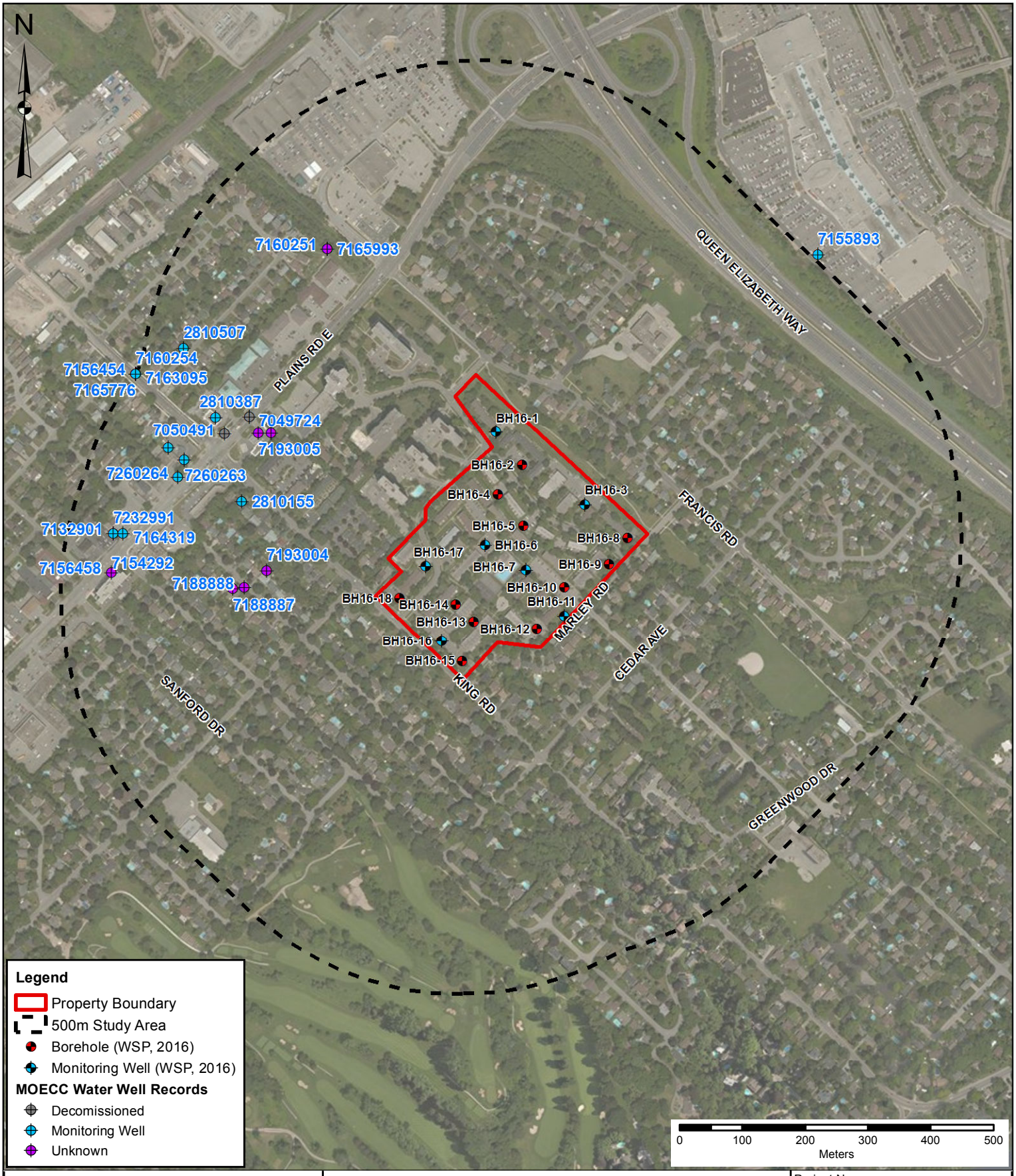
3.1 WATER WELL RECORDS

The Ministry of the Environment and Climate Change's (MOECC) Water Well Information System (WWIS) is a compilation of records for water wells drilled in the Province of Ontario for the purpose of human, agricultural and industrial consumption. Pursuant to the Ontario Water Resources Act (1990), any well drilled for these purposes must be drilled by a MOECC licensed well drilling contractor and documented on a water well record. The record is then filed with the MOECC. Examples of data recorded on a water well record include: well location, date drilled, depth to where water is found, static water level and subsurface stratigraphy. Given that well records have been completed by many different drillers during the past 50 years, data accuracy and consistency is variable, and the measurement accuracy for older well records is often approximate. The information in the records cannot always be taken as precise and must be interpreted in the context of the overall regional setting, and geological conditions.

As per information available on the MOECC website (accessed January, 2017), there are 29 Water Well Records (WWRs) within 500 m of the Project Site. The well records are shown on **Figure 6** and are summarized below:

1) 14 records are for monitoring wells,
2) Ten records have incomplete/inconclusive information,
3) Three (3) records are for well abandonment,
4) Two (2) records are for monitoring well clusters.

The project site is located within an urban setting which is municipally serviced. Upon review of the MOECC well records, it has been inferred that there are no water wells currently in use within 500 m of the project site.



Client: bcIMC Realty Corp. o/a Georgian Court Estates		Project No.: 161-15952-00	
Title: MOECC Water Well Records		Drawn: JS	Approved: PH
Project: Hydrogeological Assessment Georgian Court Redevelopment		Date: January 2017	Scale: As Shown
Discipline: ENVIRONMENT		Original Size: Letter	Figure: 6

3.2 PERMIT TO TAKE WATER RECORDS

Under Section 34 of the Ontario Water Resources Act, the MOECC requires ground and/or surface water users who require higher volumes of water (>50,000 L/day) to obtain a Permit to Take Water (PTTW). As per information available on the MOECC website (accessed January 2017), there are three (3) active PTTWs within 2 km of the project site, as summarized below:

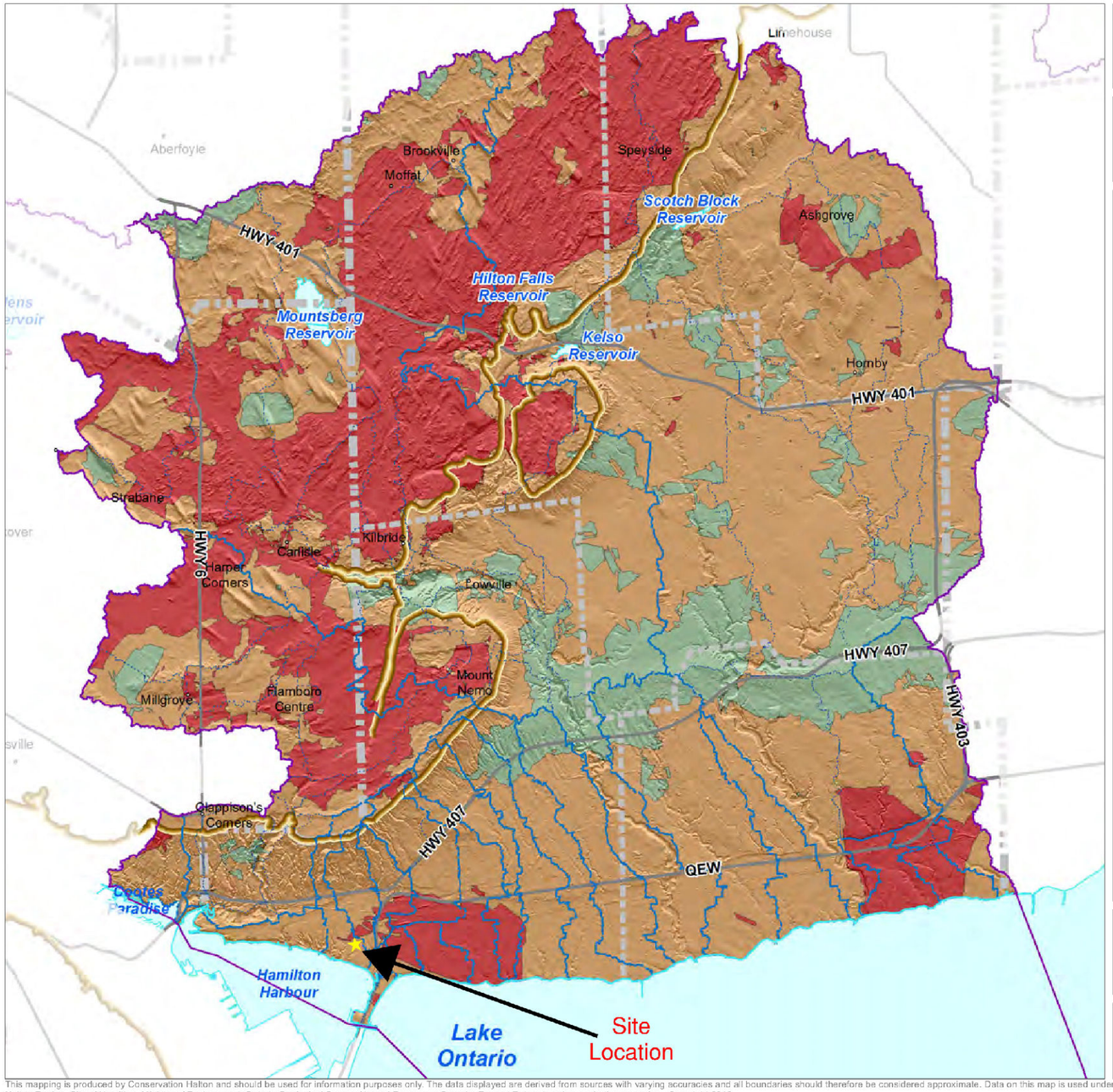
Table 1: Active PTTWs within 2 km of the construction alignment

Permit Number	Permit Holder Name	Purpose	Specific Purpose	Maximum (L/day)	Source Type	Distance to Project
1268-8YWQLE	Burlington Golf and Country Club Limited	Commercial	Golf Course Irrigation	1,726,142	Surface Water	1 km to the South, and topographically lower
8173-A8JGEK	The Regional Municipality of Halton	Dewatering Construction	Construction	500,000	Ground Water	1.8 km to the East, and topographically lower
6752-9YGPH3	Ellis-Don Design Build Inc.	Dewatering Construction	Construction	1,500,000	Ground Water	1.9 km to the East, and topographically lower

These ongoing water takings are located far away from the project site and will not likely be affected by construction dewatering for this project.

3.3 SOURCE PROTECTION AREA

As per the Halton Region Source Protection Area Assessment Report (2015), the Project Site is not located within a Significant Groundwater Recharge Area, but is located within an area of medium to high intrinsic groundwater susceptibility, as shown on **Figure 7**, and is adjacent to a highly vulnerable aquifer, as shown on **Figure 8**.



DRINKING WATER SOURCE PROTECTION
ACT FOR CLEAN WATER

Figure 6.9

Intrinsic Groundwater Susceptibility

Legend

- Source Protection Area
- Watersheds
- Subwatersheds
- Upper Tier Municipality
- Lower Tier Municipality
- Niagara Escarpment
- Highway
- Waterbody

Intrinsic Susceptibility Index (ISI)

- High
- Medium
- Low

Source : Conservation Halton / Ontario Geological Survey, Groundwater Resources Improvement Project (2006).

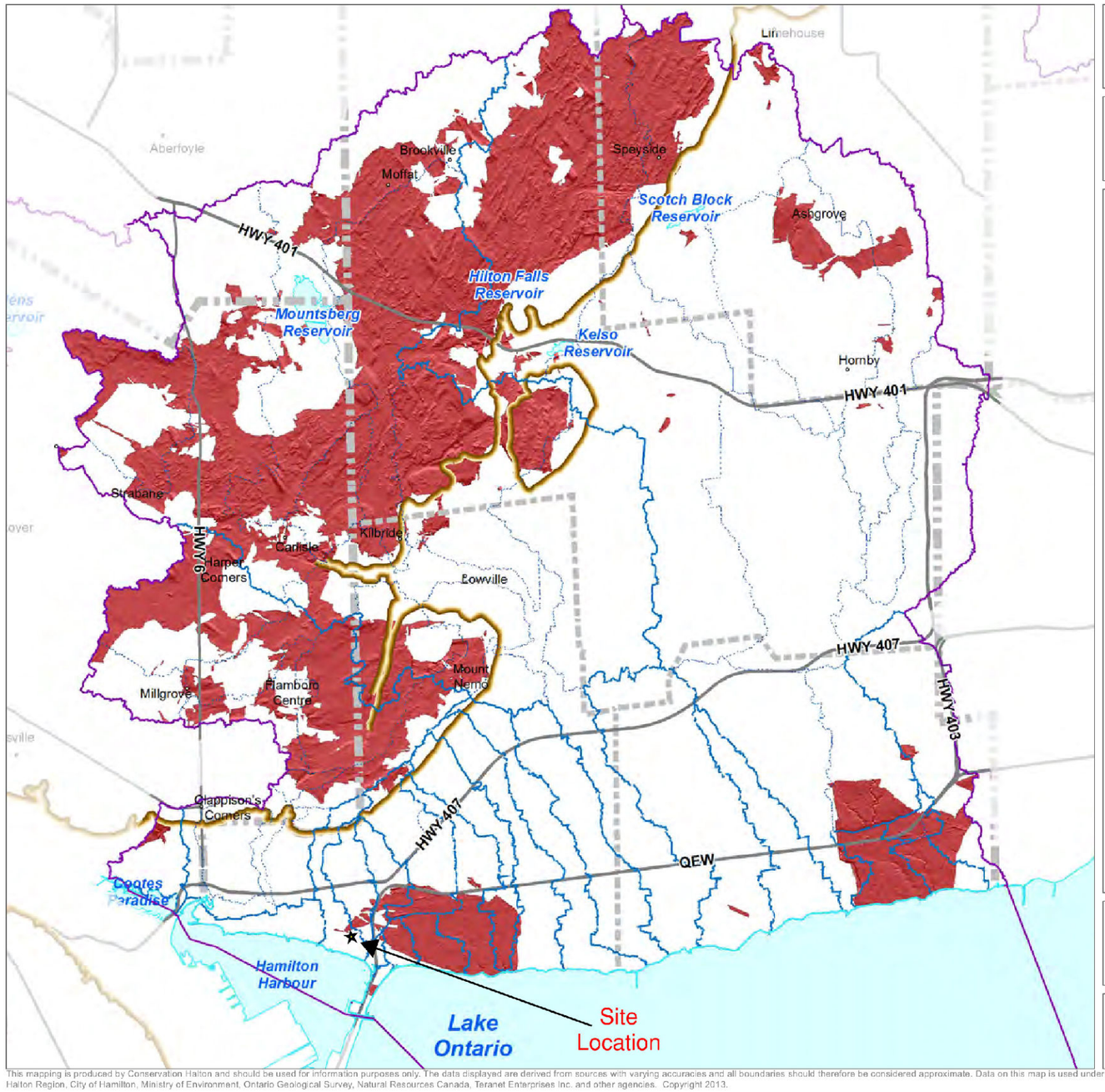
Projection : UTM NAD 83 Zone 17

Date : November 2014

0 1 2 4 6
Kilometers
1:200,000

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Client:	bcIMC Realty Corp. o/a Georgian Court Estates			Project No.: 161-15952-00	Figure: 7
Drawn: JS		Approved: PH		Title: INTRINSIC GROUNDWATER SUSCEPTIBILITY	
Date: January 2017		Scale: As Shown		Project: HYDROGEOLOGICAL ASSESSMENT GEORGIAN COURT REDEVELOPMENT	
Original Size: Tabloid		Rev: 0		WSP	



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DRINKING WATER SOURCE PROTECTION
ACT FOR CLEAN WATER

Figure 6.10

Highly Vulnerable Aquifers (HVA)

Legend

- Source Protection Area
- Watersheds
- Subwatersheds
- Upper Tier Municipality
- Lower Tier Municipality
- Niagara Escarpment
- Highway
- Waterbody
- Highly Vulnerable Aquifer (Vulnerability = 6)

Source : Conservation Halton / Ontario Geological Survey, Groundwater Resources Improvement Project (2006).
Projection : UTM NAD 83 Zone 17
Date : November 2014

0 1 2 4 6
Kilometers
1:200,000

Conservation Halton | Hamilton Conservation Authority | Ontario

Client: bcIMC Realty Corp. o/a Georgian Court Estates		Project No.: 161-15952-00	Figure: 8
Drawn: JS	Approved: PH	Title: HIGHLY VULNERABLE AQUIFERS	
Date: January 2017	Scale: As Shown	Project: HYDROGEOLOGICAL ASSESSMENT GEORGIAN COURT REDEVELOPMENT	
Original Size: Tabloid	Rev: 0	WSP	

3.4 HYDROGEOLOGY

3.4.1 Regional Hydrogeology

Within the greater site vicinity, there are two main aquifers; the overburden sand aquifer and the Queenston Shale bedrock aquifer. Groundwater flow in both aquifers is to the south-southeast, towards Lake Ontario. However, on a local scale, smaller creeks are discharge points for the aquifers.

3.4.2 Site-Specific Hydrogeology

The boreholes advanced east of Warwick Drive (BH16-1 to BH16-3 and BH16-8) encountered fill overlying clayey-silt/clayey-silt till (Halton Till) overlying bedrock. BH16-1, encountered a 0.6 m thick unit of sand below fill.

In general, the boreholes advanced west of Warwick Drive (BH16-4 to BH16-7 and BH16-9 to BH16-18) encountered fill overlying sand, clayey-silt/clayey-silt Halton Till and bedrock. The thickness of the sand unit in these boreholes is approximately 3 m at the south and central site area and increases to 6 m at the east project extent.

Seven boreholes (BH16-1 to BH16-7) were advanced into the Queenston Shale bedrock. The depth to bedrock to the east of Warwick Drive is between 10.6 and 11.3 m, while the depth to bedrock increases from 11.6 to 15.2 m west of Warwick Drive.

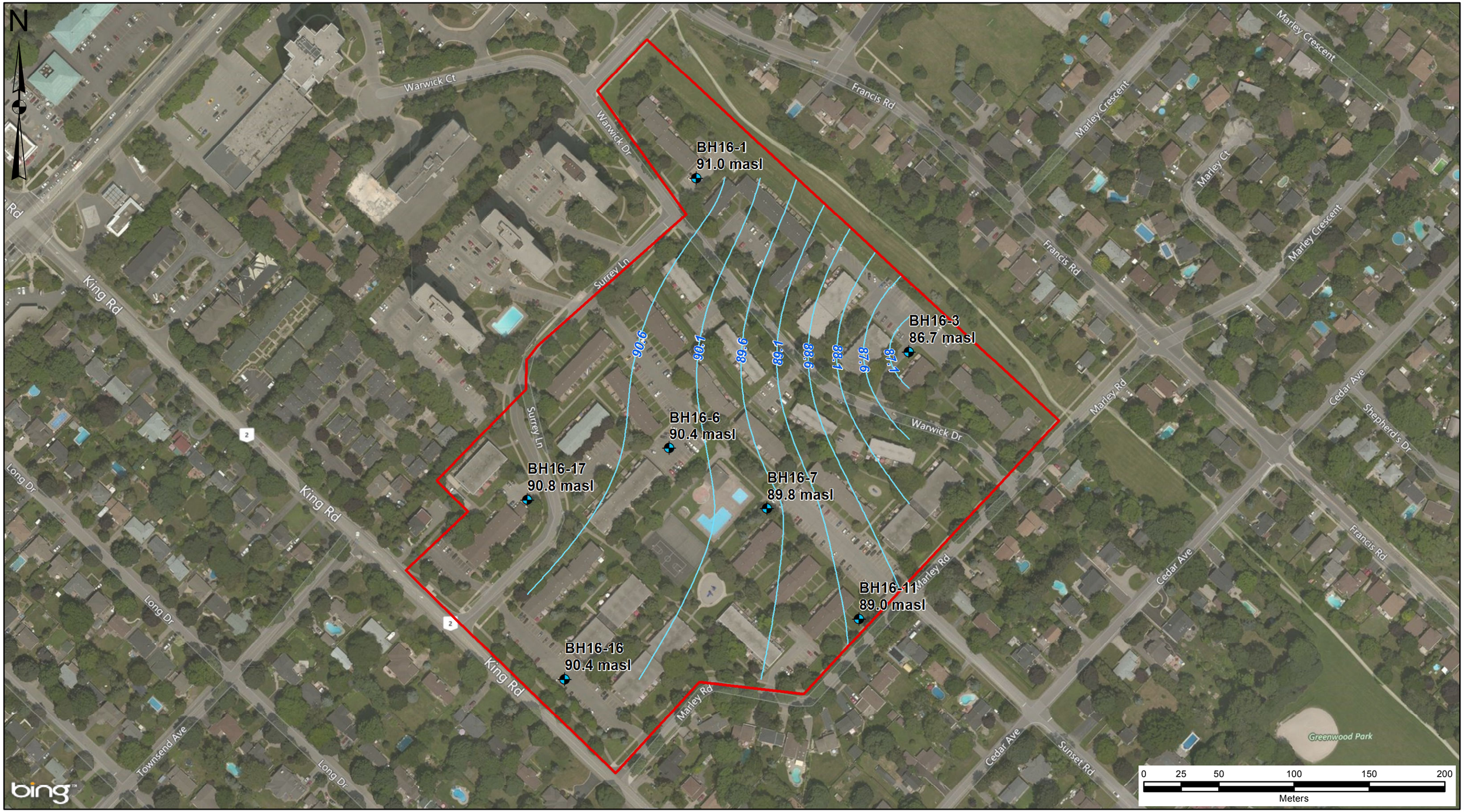
The groundwater elevation at the site is highest in the north and east (approximately 91 meters above sea level (masl)) and declines toward the south (89 masl) and west (86.7 masl). The groundwater flow direction at the site is consistent with the regional groundwater flow regime, such that groundwater flows towards and discharges into Lake Ontario, located south-southeast of the project site. The groundwater elevations across the project site are shown on Figure 9.

The borehole logs are summarized in Table 2.

Table 2: Summary of the Borehole Logs

Borehole ID	Monitoring Well Installed? (Y/N)	Ground Surface Elevation (masl)	Thickness of Overburden Sand Unit (m)	Thickness of Halton Till (m)	Depth to Bedrock (mbgs)	Groundwater Elevation in Monitoring Well or Groundwater Elevation in Open Borehole (masl)
BH16-1	Y	91.2	0.6	4.9	11.0	91.0
BH16-2	N	90.7	-	9.0	11.3	83.5*
BH16-3	Y	89.5	-	9.9	12.2	86.7
BH16-4	N	91.9	2.8	8.9	11.9	88.2*
BH16-5	N	91.8	2.8	8.2	11.6	87.5*
BH16-6	Y	94.7	5.9	7.1	15.2	90.4
BH16-7	Y	92.6	4.1	7.9	12.5	89.8
BH16-8	N	89.6	-	4.2	N/A	Dry
BH16-9	N	90.6	2.7	3.6	N/A	Dry
BH16-10	N	91.1	4.4	1.6	N/A	89.0*
BH16-11	Y	91.6	4.5	2	N/A	89.0
BH16-12	N	91.6	4.4	2	N/A	89.3*
BH16-13	N	93.0	3.7	2.1	N/A	90.4*
BH16-14	N	93.1	4.0	2	N/A	Dry
BH16-15	N	92.8	4.4	1.8	N/A	90.2
BH16-16	Y	92.8	4.4	0.5	N/A	90.3
BH16-17	Y	94.2	5.9	0.5	N/A	90.8
BH16-18	N	93.9	5.6	0.5	N/A	90.8*

* Elevation of groundwater found in open borehole.



Legend

- Property Boundary
- Inferred Groundwater Elevations - 0.5m Interval
- Monitoring Well (WSP, 2016)

Client:	bcIMC Realty Corp. o/a Georgian Court Estates			Project No.: 161-15952-00	Figure: 9
Drawn: JS		Approved: PH		Title: GROUNDWATER CONTOURS ACROSS THE PROJECT SITE	
Date: January 2017		Scale: As Shown		Project: HYDROGEOLOGICAL ASSESSMENT GEORGIAN COURT REDEVELOPMENT	
Original Size: Tabloid		Rev: 0		WSP	

WSP (2017) performed grain size analyses on 16 soil samples (two analyses per borehole), which are provided in the Geotechnical Report (**Appendix A**). Two methods were utilized, as applicable, to calculate hydraulic conductivity values namely, the Hazen approximation (Fetter, 2001) and Puckett et al. (Bradbury and Muldoon, 1990) method. The following provides an explanation of each method.

Hazen Approximation Method: $K = C (D_{10})^2$

Where:

- D_{10} refers to the diameter of the 10th percentile grain size of the material
- C refers to Hazen's empirical coefficient (ranging from 40 to 150), based on the following deductions:
  - Very fine, poorly sorted sand has a C value of 40;
  - Fine sand has a C value ranging from 40 to 80;
  - Medium-sized, well sorted sand has a C value ranging from 80 to 100;
  - Coarse, poorly sorted sand has a C value ranging from 100 to 120; and
  - Coarse, well sorted sand (to gravel) has a C value ranging from 120 to 150.

Puckett Method: $K = (4.36 \times 10^{-5}) (e^{(-0.1975 \times \%clay)})$

Where:

- % clay refers to the percentage of clay (< 0.002 mm) in the soil sample.

The Hazen method was applied to all the samples where a 10th percentile grain size value was available. The hydraulic conductivity values identified by the Hazen method ranged from 2.4E-08 m/s to 6.0E-07 m/s.

The Puckett method was applied to all the samples which contained a minimum of 10% clay. The hydraulic conductivity values identified by the Puckett method ranged from 6.0E-06 m/s to 2.1E-07 m/s.

The geometric mean hydraulic conductivity estimated by both methods is **8.3E-07 m/s**. This hydraulic conductivity value will be used in the dewatering calculations.

The hydraulic conductivity estimations for both the Hazen and Puckett methods are provided in **Appendix B**.

3.5 CONTAMINANT INVENTORY

3.5.1 Ecolog ERIS Database

A comprehensive environmental database search (Ecolog ERIS) was procured in order to identify possible environmental concerns within a 500 m radius of the project. The Ecolog Environmental Risk Information Service (ERIS) is a national database service, which compiles records of environmental risks, historical incidents, and environmental permits and authorizations, as could relate to air, water, and soil quality. The database query contains Government of Ontario, Government of Canada and Environment Canada public

records, and private sector records, which provide information pertaining to environmental liabilities associated with the property in question and surrounding area. The report includes site diagrams with locations of the database search results.

The Ecolog ERIS report for the Study Area, dated January 3, 2017, is provided in Appendix C and the Ecolog map is shown in Figure 10. The search identified two hundred and nineteen (219) records in 20 different database categories. A review of the Ecolog ERIS database records is summarized in Table 3.

The pertinent risks identified in the Ecolog ERIS database are as follows:

1. The presence of several active and former gas stations on Plains Road with associated fuel storage tanks.

2. Presence of Waste Generators with wastes including PCBs, oil skimmings and sludges, light fuels, pathological wastes, pharmaceuticals, photo-processing wastes, petroleum distillates,

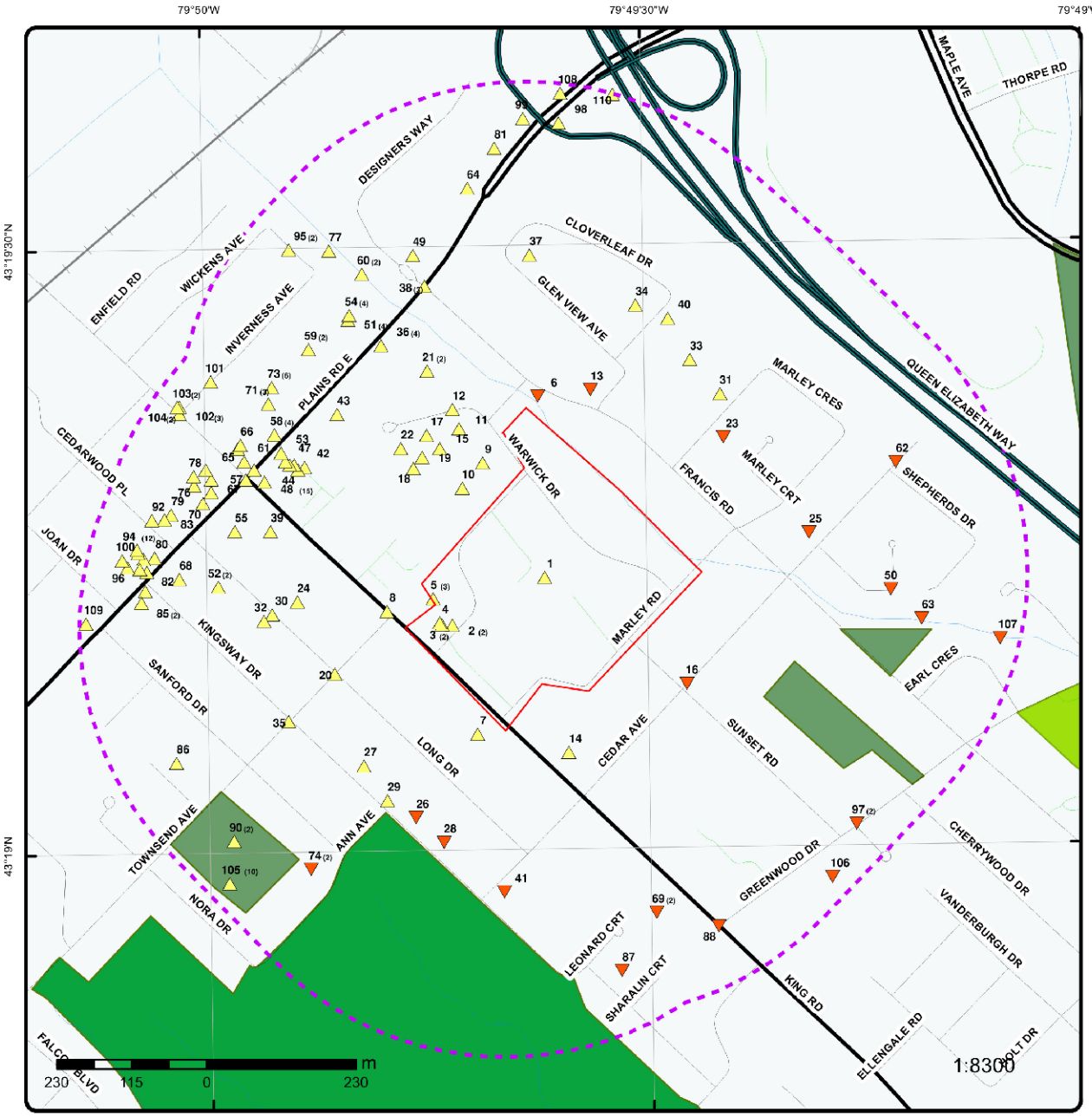
3. Multiple historic spills particularly on Plains Road and on Highway QEW.

The environmental risk associated with adjacent property uses, implies that soil or groundwater contamination may be present and will need to be managed and/or treated during construction dewatering, if encountered. Contamination migration flow paths may potentially be modified during groundwater pumping. In addition, any unused wells found associated with historical land uses should be decommissioned as per O. Reg. 903 as amended, to eliminate preferential pathways for contamination to enter deeper aquifers.

A recommended monitoring program is described in Section 6.0 of this report.

Table 3: Summary of the Ecolog ERIS Database Search

Database Acronym	Database Name	Number of Records within 500 m
BORE	Borehole	22
CA	Certificates of Approval	15
CFOT	Commercial Fuel Oil Tanks	2
EASR	Environmental Activity and Sector Registry	2
EBR	Environmental Registry	1
ECA	Environmental Compliance Approval	2
EXP	List of TSSA Expired Facilities	29
FST	Fuel Storage Tank	9
FSTH	Fuel Storage Tank – Historic	4
GEN	O. Reg. 347 Waste Generators Summary	51
HINC	TSSA Historic Incidents	4
INC	TSSA Incidents	4
PINC	TSSA Pipeline Incidents	4
PRT	Private and Retail Fuel Storage Tanks	4
REC	O. Reg. 347 Waste Receivers Summary	2
RSC	Record of Site Condition	1
RST	Retail Fuel Storage Tanks	4
SCT	Scott's Manufacturing Directory	5
SPL	Ontario Spills	14
TANK	Anderson's Storage Tanks	0
WWIS	Water Well Information System	27



Map : 0.5 Kilometer Radius

Order No: 20161222109

Address: King Road And Surrey Lane, Burlington, ON

ERIS ENVIRONMENTAL RISK INFORMATION SERVICES

- Project Property
- Buffer Outline
- Eris Sites with Higher Elevation
- Eris Sites with Same Elevation
- Eris Sites with Lower Elevation
- Eris Sites with Unknown Elevation
- Expressway
- Principal Highway
- Secondary Highway
- Major Road
- Local road
- Trail
- Proposed Road
- Ferry Route/Ice Road
- Industrial and Resource - Regions
- Main Line
- Sidetrack
- Transit Line
- Abandoned Line
- National Park
- Provincial or Territorial Park
- Other Park
- Golf Course or Driving Range
- Park or Sports Field
- Other Recreation Area

Source: © 2015 DMTI Spatial Inc.

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WSP

Client: **bcIMC Realty Corp. o/a Georgian Court Estates**		Project No.: **161-15952-00**	
Title: **Ecolog ERIS**		Drawn: **JS**	Approved: **PH**
Project: **Hydrogeological Assessment Georgian Court Redevelopment**		Date: **January 2017**	Scale: **As Shown**
Discipline: **ENVIRONMENT**		Original Size: **Letter**	Figure: **10**

3.5.2 Groundwater Quality

Groundwater samples were collected on December 16, 2016 from all seven (7) monitoring wells (BH16-1, BH16-3, BH16-6, BH16-7, BH16-11, BH16-16 and BH16-11), and were analyzed for Inorganic Parameters, Total Metals, Dissolved Metals (Field Filtered), Volatile Organic Compounds (VOCs), Petroleum Hydrocarbons (PHCs) in the F1-F4 ranges, Mineral Oil and Grease. Groundwater samples from three wells (BH16-1, BH16-11 and BH16-17) were also analysed for Polycyclic Aromatic Hydrocarbons (PAHs). The sample results were compared to the following criteria:

1) Provincial Water Quality Objectives (PWQO);

2) O. Reg. 153/04 (as amended) Table 2 (coarse grained);

3) Halton Region Storm Sewer-Use; and,

4) Halton Region Sanitary Sewer-Use.

The Certificate of Analysis is provided in **Appendix D** and the analytical results are summarized in **Table A** (presented after the text report).

The groundwater analytical results indicate that several dissolved metals namely Boron, Cobalt, Molybdenum, Uranium and Vanadium, along with un-ionized Ammonia and Total Phosphorus exceed the PWQO criteria. Sodium and Chloride exceed the O. Reg. 153/04 (as amended) Table 2 criteria. VOCs, PHCs, PAHs and Mineral Oil/Grease were all below the PWQO guideline.

Upon the Contractor applying for and receiving Sewer Use discharge approval, the dewatering discharge needs to be filtered (eg. Fractionation tank, filter bags) prior to being discharged into the Halton Region Storm Sewer or Sanitary Sewer.

Dewatering for the construction of the foundations may alter groundwater and contaminant flow paths. Dewatering discharge quality will have to be monitored on a regular basis to ensure that the discharge meets the Sanitary Sewer-Use Criteria.

4.0 DEWATERING REQUIREMENTS

The below-grade construction elements for this project include excavations for the construction of the buildings and townhouse complex foundations. For sections where the water table is above the excavation depth, it is assumed no dewatering will be required.

4.1 GROUNDWATER CONTRIBUTIONS

Groundwater dewatering rates have been calculated using the method of Powers et al. (2007) for dewatering of a large cylindrical excavation into an unconfined aquifer. Even though the excavation is roughly square in shape, this equation will provide a reasonably accurate calculation of construction dewatering rates if the area (and radius) of the circle excavation is the same as the actual area covered by the planned excavation in a square shape. The dewatering worksheets are provided in **Appendix E**.

Assumptions made during these calculations are as follows:

- The depth to groundwater along the different construction alignments is based on the water levels as reported by WSP (2017);
- The aquifer is unconfined, with a uniform hydraulic conductivity, is infinite in lateral extent, and the aquifer base elevation is identified as the lowest elevation where the specific aquifer unit was encountered in the geotechnical boreholes advanced by WSP (2017).
- Hydraulic conductivity values used in these calculations were calculated from the grain size analyses by using the Hazen and Puckett analytical methods.
- The calculated dewatering rate for the **Anticipated Case Scenario** is based on the highest hydraulic conductivity value identified from grain size analyses.
- The **Worst Case Scenario** calculated dewatering rate is based on **an order of magnitude increase** in the Anticipated Case Scenario's hydraulic conductivity value.
- The **Worst Rate Scenario** calculated dewatering rate **with a 2:1 Factor of Safety** is based on the Worst Case Scenario calculated dewatering rate multiplied by 2;

For this hydrogeological assessment, dewatering requirements were estimated for four (4) specific construction elements, as illustrated in **Table 4**. Each of these segments will be built below the water table into saturated units where construction dewatering will or may be required.

Table 4: Dewatering Source Description

Location ID	Description of Construction Element	Water Source
1	Building Tower Foundation (BH16-1 to BH16-3)	Groundwater
2	Building Tower Foundation (BH16-4 to BH16-7)	Groundwater
3	Townhouse Complex Foundation (BH16-8 to BH16-12)	Groundwater
4	Townhouse Complex Foundation (BH16-13 to BH16-18)	Groundwater

The maximum calculated dewatering rates, as calculated in this hydrogeological assessment and listed in Table 5, will provide the contractor with the flexibility to address more difficult dewatering conditions which may be encountered.

Table 5: Dewatering Requirements

Location ID	Calculated Anticipated Dewatering Rates (L/day)	Calculated Worst Case Dewatering Rates (L/day)	Calculated Worst Case (with 2:1 safety factor) Dewatering Rates (L/day)
1	116,793	449,888	899,775
2	130,998	501,254	1,002,509
3	56,135	194,873	389,745
4	49,572	172,666	345,332

The Zone of Influence (ZOI) represents the area where groundwater levels may be temporarily affected by dewatering activities as a result of groundwater withdrawal. The ZOI is dependent on the hydraulic conductivity, the type of aquifer and the amount by which the water level is to be lowered (Powers et al., 2007). The ZOI for the anticipated and worst case scenarios are presented in Table 6.

Table 6: Zone of Influence of Groundwater Dewatering

Location ID	ZOI under Anticipated Dewatering (m)	ZOI under Worst Case Dewatering (m)	ZOI under Worst Case (with 2:1 safety factor) Dewatering (m)
1	132.37	191.47	277.90
2	143.02	204.48	294.36
3	119.16	142.80	177.37
4	109.06	131.52	164.36

4.2 EASR AND MOECC CATEGORY 3 PERMIT TO TAKE WATER APPLICATION REQUIREMENTS

The construction staging plan will determine whether an Environmental Activity and Sector Registry (EASR) and/ or Category 3 Permit to Take Water (PTTW) will be required. An EASR will be required if dewatering rates are less than 400,000 L/day, while a Category 3 PTTW will be required in dewatering rates are greater than 400,000 L/day.

The dewatering rates to be requested in the PTTW application(s) will be based on Worst Case (2:1 Safety Factor) dewatering rates listed in Table 5. Four dewatering locations have been identified which correspond with the dewatering calculation sheets provided in Appendix E.

4.3 DEWATERING/TREATMENT METHODS AND DISCHARGE MANAGEMENT

The task of determining dewatering/treatment methods and discharge management is the responsibility of the contractor. An environmental management plan will be established and implemented, as per Section 6.0 of this report, in order to ensure that surrounding properties and municipal infrastructure are protected.

Depending on the conditions encountered along particular lengths of these excavations, sumps and filtered pumps may be a suitable methodology to remove water from the trenches where low infiltration rates are encountered. However, saturated silty-sand deposits are anticipated at these excavations and active dewatering methods (e.g., well points) may be more appropriate to lower the water table below the excavation base. The dewatering system configuration (pump type, treatment, discharge locations, etc.) is the responsibility of the contractor. Surface water run-off should be diverted away from the excavations to minimize dewatering requirements.

Upon the Contractor applying for and receiving Sewer Use discharge approval, the dewatering discharge will require treatment to meet Halton Region Sanitary Sewer-Use Criteria.

5.0 IMPACTS ON RECEPTORS

5.1 POTENTIAL WATER WELL IMPACTS

Given the urban setting of the project area and based on a review of MOECC water well records, there are no confirmed water supply wells owned by others that are active and within 500 meters of any of the proposed works. Therefore no groundwater impacts or instances of interference are anticipated as a result of construction dewatering.

5.2 RELEASE OF CONTAMINANTS

During any phase of the construction activities, due care should be exercised to avoid fuel, lubricant and fluid spills. Spill and contamination prevention practices should be implemented to avoid potential environmental impacts and costly clean-ups. Where practical, activities such as refuelling should not be undertaken in areas with high susceptibility to groundwater contamination, such as within 30 m of watercourses, as well as ditches and storm sewers, unless appropriate best management practices are used.

6.0 IMPACT MITIGATION

Construction source locations and corresponding dewatering rates are indicated in **Table 5**.

During this construction phase, the following monitoring and mitigation plan will be implemented:

6.1 ADAPTIVE MONITORING, INSPECTION AND MITIGATION PROGRAM

Environmental monitoring and mitigation measures will be conducted as summarized in the following:

1. Work within or immediately adjacent to any body of water or regulated area, including construction dewatering, will occur in accordance to any applicable permits as administered by regulatory agencies, including Conservation Halton, Federal Department of Fisheries and Oceans, Parks Canada, MOECC, and the Ontario Ministry of Natural Resources and Forestry.

2. Daily dewatering flow rates and volumes are to be monitored and reported as per the requirements of O. Reg. 387/04. The methodology of determining dewatering flow rates and volumes will be the responsibility of the contractor. Construction dewatering rates shall be measured by a flow meter or calculated using a method acceptable to the MOECC (calculated or measured);

3. The presence of turbid water, oily sheen, precipitates/solids or other visible contamination of any dewatering discharge water released from the site is to be visually checked and observations recorded, twice daily;

4. Daily inspection of the discharge system will be carried out at each discharge location to verify the dewatering discharge system is functioning as designed;

5. Erosion and Sediment Control (ESC) measures will be implemented and maintained during the construction, clean-up, and restoration phases of work to prevent sediment-laden runoff from leaving the work area. Construction zones will be isolated using standard perimeter silt fencing and additional erosion and sediment controls as required. ESC controls will be inspected regularly and maintained by the contractor. The contractor shall prepare and submit an Erosion and Sediment Control plan prior to starting work;

6. A suitable Soil Management Plan will have to be developed to handle soil that is excavated.

7. Halton Region Sewer-Use approvals are required prior to dewatering discharge into the storm or sanitary sewer.

    - The contractor is to apply for the Sewer-Use Permit and pay all applicable Sewer-Use fees.

    - Any water released to a sanitary sewer shall need to be treated to meet **Sanitary Sewer-Use Criteria** as stipulated by Halton Region By-law No. 2-03;

- Any water released to a storm sewer shall need to be treated to meet **Storm Sewer-Use Criteria** as stipulated by Halton Region By-Law No. 2-03. PWQO Criteria will apply for parameters where no Storm Sewer-Use Criteria is stipulated;
- As a minimum, all dewatering discharge will be laminar and directed through energy dissipating/settling/filtration systems (e.g. filter bag, fractionation tank) prior to discharge to the sewer.
- If dewatering discharge cannot be treated to meet Sewer-Use criteria, it will be further treated or contained and taken to an appropriate MOECC-licensed facility for treatment and disposal, as appropriate.

8. During dewatering, dewatering discharge water samples (post-treatment) will be collected for confirmatory water quality analyses as follows: Within 1 hour of start-up, weekly for the first three weeks upon start-up in any new areas, and monthly thereafter in the same area until dewatering is no longer required. These water samples are to be analysed for total suspended solids (TSS), field chemistry (pH, Temperature and Electrical Conductivity), inorganic parameters, total metals, VOCs, PHCs, PAHs, mineral oil and grease, and additional parameters as deemed necessary, to meet sewer-use provisions. Samples shall be analysed on rush turnaround time at a CALA accredited analytical laboratory and the results will be used to affirm water quality compliance to the appropriate Halton Region Sewer-Use Criteria. If dewatering discharge samples exceed the Sewer-Use guideline, treatment improvements will need to be made, and the sampling frequency will return to weekly intervals.

6.2 PROPOSED CONTINGENCY PLAN

In the event that an adverse impact is observed through the monitoring program, a spill occurs, a complaint is received, or if the MOECC determines that unacceptable interference is occurring, the following response will be initiated:

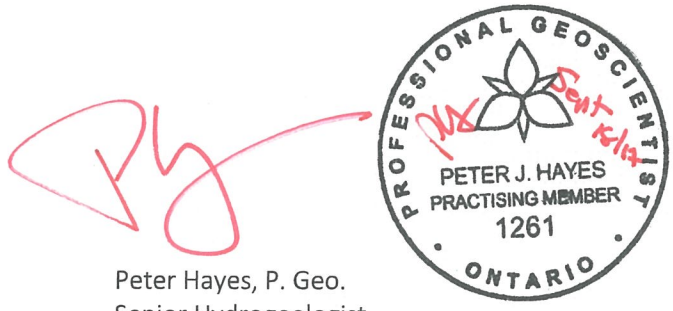
- All appropriate stakeholders and regulatory agencies will be notified as required, including the construction manager responsible for onsite activities, the Halton Region Sewer-Use Authority and the MOECC;
- Additional treatment of dewatering discharge may be required to meet Sewer-Use permit rate and quality thresholds.
- Water taking/construction will be stopped until the problem is fixed, as circumstances allow;

7.0 STANDARD LIMITATIONS

Standard conditions and limitations are presented in **Appendix F** as they apply to this report.

All of which is respectfully submitted.

MMM Group Limited, a member of WSP Group.



Lionel Sequeira, M. Sc.
Environmental Scientist

Peter Hayes, P. Geo.
Senior Hydrogeologist

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WSP (2017) Report on Geotechnical Investigation, Georgian Court, Burlington Ontario

Table A

Georgian Court Redevelopment
Burlington ON
3316497

Parameter	Unit	PWQO	Halton Sewer Use By-Law 2-03		O. Reg. 153/04 (as amended)	BH16-1	BH16-3	BH16-6	BH16-7	BH16-11	BH16-16	BH16-17	Trip Blank
			Sanitary & Combined	Storm	Table 2	12/16/2016	12/16/2016	12/16/2016	12/16/2016	12/16/2016	12/16/2016	12/16/2016	12/16/2016
General Chemistry													
Electrical Conductivity	µS/cm	-	-	-	-	8,920	11,800	3,680	2,170	2,160	2,070	2,220	-
pH	pH Units	6.5-8.5	6.0-10.0	6.5-8.5	-	7.26	7.66	8.08	7.88	7.97	7.93	7.93	-
Saturation pH	-	-	-	-	-	6.97	6.52	6.63	6.74	6.71	6.62	6.65	-
Langelier Index	-	-	-	-	-	0.29	1.14	1.45	1.14	1.26	1.31	1.28	-
Total Hardness (as CaCO3)	mg/L	-	-	-	-	1,550	2,610	463	522	487	576	521	-
Total Dissolved Solids	mg/L	-	-	-	-	5,280	7,330	2,040	1,340	1,260	1,240	1,270	-
Alkalinity (as CaCO3)	mg/L	-	-	-	-	55	93	406	274	321	334	342	-
Bicarbonate (as CaCO3)	mg/L	-	-	-	-	55	93	406	274	321	334	342	-
Carbonate (as CaCO3)	mg/L	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	-
Hydroxide (as CaCO3)	mg/L	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	-
Fluoride	mg/L	-	10	-	-	<5	<5	<2.5	<1.0	<0.5	<0.5	<1.0	-
Chloride	mg/L	-	-	-	790	3,260	4,560	963	531	508	448	477	-
Nitrate as N	mg/L	-	-	-	-	<5	<5	5.7	2.1	7.7	7.5	6.4	-
Nitrite as N	mg/L	-	-	-	-	<5	<5	<2.5	<1.0	<0.5	<0.5	<1.0	-
Bromide	mg/L	-	-	-	-	62	135	<2.5	<1.0	<0.5	<0.5	<1.0	-
Sulphate	mg/L	-	1500	-	-	65	19	134	67.0	59.1	94.8	111	-
Ortho Phosphate as P	mg/L	-	-	-	-	<10	<10	<5.0	<2.0	<1.0	<1.0	<2.0	-
Reactive Silica	mg/L	-	-	-	-	8.27	9.57	16.4	12.7	15.4	16.8	15.6	-
Ammonia as N	mg/L	-	-	-	-	2.47	4.7	0.40	0.33	0.04	0.09	<0.02	-
Ammonia-Un-ionized	mg/L	0.02	-	*	-	0.022	0.11	0.024	0.013	0.002	0.0042	NR	-
Total Phosphorus	mg/L	0.03	10	*	-	0.15	0.12	1.67	0.10	0.84	0.12	1.03	-
Total Organic Carbon	mg/L	-	-	-	-	4.4	3.3	3.1	2.3	2.8	2.8	2.9	-
Colour	TCU	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	-
Turbidity	NTU	-	-	-	-	154	221	6,750	1,550	5,910	273	6,390	-
Calcium	mg/L	-	-	-	-	352	586	148	148	163	179	169	-
Magnesium	mg/L	-	-	-	-	163	278	22.8	37.0	19.4	31.4	24.1	-
Sodium	mg/L	-	-	-	490	1,240	1,380	602	218	250	196	277	-
Potassium	mg/L	-	-	-	-	28.9	93.9	8.08	24.4	11.8	9.08	12.4	-
Aluminum (dissolved)	mg/L	0.075	-	*	-	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	-
Mercury (dissolved)	mg/L	0.0002	-	*	0.00029	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Total Metals													
Antimony	mg/L	0.02	5	*	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	-
Arsenic	mg/L	0.1	1	*	-	<0.003	<0.003	0.016	<0.003	0.007	<0.003	0.009	-
Barium	mg/L	-	-	-	-	0.344	9.51	0.355	0.373	0.315	0.280	0.252	-
Beryllium	mg/L	0.011	5	*	-	<0.001	<0.001	0.002	<0.001	0.001	<0.001	0.001	-
Boron	mg/L	0.2	-	*	-	2.03	3.18	0.203	0.186	0.067	0.114	0.096	-
Cadmium	mg/L	0.0002	1	*	-	<0.0001	0.0001	0.0006	<0.0001	0.0003	<0.0001	0.0006	-
Chromium	mg/L	-	3	-	-	<0.003	<0.003	0.017	0.005	0.010	0.004	0.015	-
Cobalt	mg/L	0.0009	5	*	-	0.0011	0.0024	0.0203	0.0016	0.0119	0.0017	0.0270	-
Copper	mg/L	0.005	3	*	-	0.002	0.004	0.086	0.010	0.045	0.007	0.066	-
Iron	mg/L	0.3	50	*	-	0.79	0.96	28.4	2.02	10.9	1.43	17.0	-
Lead	mg/L	0.005	3	*	-	<0.001	0.001	0.043	0.004	0.024	0.003	0.035	-
Manganese	mg/L	-	5	-	-	0.254	0.401	3.94	0.229	2.15	0.387	4.33	-
Molybdenum	mg/L	0.04	5	*	-	0.010	0.016	0.025	0.004	<0.002	<0.002	<0.002	-
Nickel	mg/L	0.025	3	*	-	<0.003	<0.003	0.018	0.005	0.012	0.003	0.017	-
Selenium	mg/L	0.1	5	*	-	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	-
Silver	mg/L	0.0001	5	*	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Strontium	mg/L	-	-	-	-	26.8	79.2	1.64	1.97	1.35	1.08	1.58	-
Thallium	mg/L	0.0003	-	*	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	-
Tin	mg/L	-	5	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-
Titanium	mg/L	-	5	-	-	0.017	0.015	0.048	0.022	0.084	0.022	0.075	-
Tungsten	mg/L	0.03	-	*	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-
Uranium	mg/L	0.005	-	*	-	<0.002	0.002	0.011	<0.002	0.004	<0.002	0.005	-
Vanadium	mg/L	0.006	-	*	-	<0.002	<0.002	0.034	0.004	0.021	0.003	0.046	-
Zinc	mg/L	0.02	3	*	-	0.007	0.008	0.080	0.013	0.044	0.007	0.056	-
Zirconium	mg/L	0.004	-	*	-	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	-
Cation Sum	meq/L	-	-	-	-	85.8	115	35.7	20.6	20.9	20.3	22.8	-
Anion Sum	meq/L	-	-	-	-	94.4	131	38.5	22.0	22.5	21.8	23.1	-
% Difference/ Ion Balance	%	-	-	-	-	4.79	6.54	3.78	3.39	3.72	3.66	0.604	-
Dissolved Metals													
Aluminum	mg/L	-	-	-	-	0.006	0.007	<0.004	0.009	<0.004	<0.004	<0.004	-
Antimony	mg/L	0.02	-	*	0.006	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	-
Arsenic	mg/L	0.1	-	*	0.025	0.005	0.009	0.003	<0.003	<0.003	<0.003	<0.003	-
Barium	mg/L	-	-	-	1	0.370	9.83	0.196	0.449	0.171	0.262	0.088	-
Beryllium	mg/L	0.011	-	*	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Boron	mg/L	0.2	-	*	5	2.11	3.26	0.18	0.22	0.06	0.10	0.09	-
Cadmium	mg/L	0.0002	-	*	0.0027	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Chromium	mg/L	-	-	-	0.05	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	-
Cobalt	mg/L	0.0009	-	*	0.0038	0.0006	0.0020	0.0010	<0.0005	0.0005	0.0005	0.0009	-
Copper	mg/L	0.005	-	*	0.087	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	-
Iron	mg/L	0.3	-	*	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Lead	mg/L	0.005	-	*	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Manganese	mg/L	-	-	-	-	0.193	0.250	0.165	0.054	0.061	0.183	0.103	-
Molybdenum	mg/L	0.04	-	*	0.07	0.011	0.017	0.041	0.007	0.002	<0.002	<0.002	-
Nickel	mg/L	0.025	-	*	0.1	<0.003	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	-
Selenium	mg/L	0.1	-	*	0.01	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	-
Silver	mg/L	0.0001	-	*	0.0015	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Strontium	mg/L	-	-	-	-	25.4	79.3	0.757	2.35	0.788	1.01	0.517	-
Thallium	mg/L	0.0003	-	*	0.002	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	-
Titanium	mg/L	-	-	-	-	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-
Tungsten	mg/L	0.03	-	*	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-
Uranium	mg/L	0.005	-	*	0.02	<0.002	0.002	0.008	0.002	0.002	<0.002	<0.002	-
Vanadium	mg/L	0.006	-	*	0.0062	<0.002	0.016	<0.002	<0.002	<0.002	<0.002	<0.002	-
Zinc	mg/L	0.02	-	*	1	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	-
Zirconium	mg/L	0.004	-	*	-	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	-

Notes:

* The associated PWQO criteria applies for these parameters as per Section 5: 1(e) of The Regional Municipalty of Halton By-Law 2-03 (2003)

PWQO: Water Management Policies, Guidelines, Provincial Water Quality Objectives of the Ontario Ministry of Environment and Energy, July 1994, Reprinted 1999.

Halton Sewer Use By-Law 2-03: The Regional Municipality of Halton By-Law 2-03 (2003)

O. Reg. 153/04 (as amended) Table 2: Ontario Regulation 153/04 (as amended) Table 2: Potable Groundwater All Types of Property Use Coarse Grained.

mg/L: Milligrams per liter

µS/cm: Microsiemens per centimeter

TCU: True Colour Units.

NTU: Nephelometric Turbidity Units

meq/L: Milliequivalents per litre.

3,260 O. Reg. 153/04 (as amended) Table 2 Exceedance

0.022 PWQO Exceedance

Table A

Georgian Court Redevelopment
Burlington ON
3316497

Parameter	Unit	PWQO	Halton Sewer Use By-Law 2-03		O. Reg. 153/04 (as amended)	BH16-1	BH16-3	BH16-6	BH16-7	BH16-11	BH16-16	BH16-17	Trip Blank
			Sanitary & Combined	Storm	Table 2	12/16/2016	12/16/2016	12/16/2016	12/16/2016	12/16/2016	12/16/2016	12/16/2016	12/16/2016
Polyaromatic Hydrocarbons													
Naphthalene	µg/L	7	140	*	11	<0.20	-	-	-	<0.20	-	<0.20	-
Acenaphthylene	µg/L	-	-	-	1	<0.20	-	-	-	<0.20	-	<0.20	-
Acenaphthene	µg/L	-	-	-	4.1	<0.20	-	-	-	<0.20	-	<0.20	-
Fluorene	µg/L	0.2	-	*	120	<0.20	-	-	-	<0.20	-	<0.20	-
Phenanthrene	µg/L	0.03	-	*	1	<0.10	-	-	-	<0.10	-	<0.10	-
Anthracene	µg/L	0.0008	-	*	2.4	<0.10	-	-	-	<0.10	-	<0.10	-
Fluoranthene	µg/L	0.0008	-	*	0.41	<0.20	-	-	-	<0.20	-	<0.20	-
Pyrene	µg/L	-	-	-	4.1	<0.20	-	-	-	<0.20	-	<0.20	-
Benz(a)anthracene	µg/L	0.0004	-	*	1	<0.20	-	-	-	<0.20	-	<0.20	-
Chrysene	µg/L	0.0001	-	*	0.1	<0.10	-	-	-	<0.10	-	<0.10	-
Benzo(b)fluoranthene	µg/L	-	-	-	0.1	<0.10	-	-	-	<0.10	-	<0.10	-
Benzo(k)fluoranthene	µg/L	0.0002	-	*	0.1	<0.10	-	-	-	<0.10	-	<0.10	-
Benzo(a)pyrene	µg/L	-	-	-	0.01	<0.01	-	-	-	<0.01	-	<0.01	-
Indeno(1,2,3-cd)pyrene	µg/L	-	-	-	0.2	<0.20	-	-	-	<0.20	-	<0.20	-
Dibenz(a,h)anthracene	µg/L	0.002	-	*	0.2	<0.20	-	-	-	<0.20	-	<0.20	-
Benzo(g,h,i)perylene	µg/L	0.00002	-	*	0.2	<0.20	-	-	-	<0.20	-	<0.20	-
2-and 1-methyl Naphthalene	µg/L	2	-	*	3.2	<0.20	-	-	-	<0.20	-	<0.20	-
Chrysene-d12	%	-	-	-	-	75	-	-	-	77	-	75	-
Volatile Organic Compounds													
1,1 Dichloroethylene	µg/L	40	-	*	1.6	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
1,1,1,2-Tetrachloroethane	µg/L	20	-	*	1.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,1,1-Trichloroethane	µg/L	10	-	*	200	<0.30	0.41	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
1,1,2,2-Tetrachloroethane	µg/L	70	-	*	1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,1,2-Trichloroethane	µg/L	800	-	*	4.7	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	µg/L	200	-	*	5	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
1,2 - Dichloroethane	µg/L	100	-	*	1.6	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trichlorobenzene	µg/L	0.5	-	*	-	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
1,2-Dichlorobenzene	µg/L	2.5	-	*	3	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,2-Dichloropropane	µg/L	0.7	-	*	5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,3-Dichlorobenzene	µg/L	2.5	-	*	59	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,3-Dichloropropene (Cis + Trans)	µg/L	-	-	-	0.5	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
1,4-Dichlorobenzene	µg/L	4	80	*	1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
2-Hexanone	µg/L	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acetone	µg/L	-	-	-	2700	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	µg/L	100	10	*	5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	µg/L	200	-	*	16	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	60	-	*	25	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bromomethane	µg/L	0.9	-	*	0.89	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Carbon Tetrachloride	µg/L	-	-	-	0.79	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	15	-	*	30	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloroethane	µg/L	-	-	-	30	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	µg/L	-	40	-	2.4	<0.20	<0.20	<0.20	28	<0.20	<0.20	<0.20	<0.20
Chloromethane	µg/L	700	-	*	-	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
cis- 1,2-Dichloroethylene	µg/L	200	-	*	1.6	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	-	-	-	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	40	-	*	25	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dichlorodifluoromethane	µg/L	-	-	-	590	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	8	160	*	2.4	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Ethylene Dibromide	µg/L	5	-	*	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
m & p-Xylene	µg/L	32	-	*	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methyl Ethyl Ketone	µg/L	400	-	*	1800	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl Isobutyl Ketone	µg/L	-	-	-	640	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl tert-butyl ether	µg/L	200	-	*	15	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methylene Chloride	µg/L	100	2000	*	50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
n-Hexane	µg/L	-	-	-	51	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	40	-	*	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Styrene	µg/L	4	-	*	5.4	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tetrachloroethylene	µg/L	50	1000	*	1.6	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	0.8	16	*	24	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.31	<0.20
trans- 1,2-dichloroethylene	µg/L	200	-	*	1.6	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
trans-1,3-Dichloropropene	µg/L	7	-	*	0.5	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Trichloroethylene	µg/L	20	400	*	1.6	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L	-	-	-	150	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Vinyl Chloride	µg/L	600	-	*	0.5	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Xylene Mixture (Total)	µg/L	-	-	-	300	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene-d8	% Recovery	-	-	-	-	100	101	101	103	107	103	101	102
4-Bromofluorobenzene	% Recovery	-	-	-	-	83	81	84	81	76	75	80	114
Petroleum Hydrocarbons													
Oil and Grease (animal/vegetable)	mg/L	NA	150	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
Oil and Grease (mineral) in water	mg/L	NA	15	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
Oil and Grease (Total) in water	mg/L	NA	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
F1 (C6 to C10)	µg/L	NA	NA	NA	750	<25	<25	<25	<25	<25	<25	<25	-
F1 (C6 to C10) minus BTEX	µg/L	NA	NA	NA	750	<25	<25	<25	<25	<25	<25	<25	-
F2 (C10 to C16)	µg/L	NA	NA	NA	150	<100	<100	<100	<100	<100	<100	<100	-
F2 (C10 to C16) minus Naphthalene	µg/L	NA	NA	NA	-	<100	-	-	-	<100	-	<100	-
F3 (C16 to C34)	µg/L	NA	NA	NA	500	<100	<100	100	<100	<100	<100	<100	-
F3 (C16 to C34) minus PAHs	µg/L	NA	NA	NA	-	<100	-	-	-	<100	-	<100	-
F4 (C34 to C50)	µg/L	NA	NA	NA	500	<100	<100	<100	<100	<100	<100	<100	-
Gravimetric Heavy Hydrocarbons	µg/L	NA	-	-	500	NA	NA	NA	NA	NA	NA	NA	-
Terphenyl	%	-	-	-	-	65	91	86	68	67	68	70	-

Notes:

* The associated PWQO criteria applies for these parameters as per Section 5: 1(e) of The Regional Municipalty of Halton By-Law 2-03 (2003)

PWQO: Water Management Policies, Guidelines, Provincial Water Quality Objectives of the Ontario Ministry of Environment and Energy, July 1994, Reprinted 1999.

Halton Sewer Use By-Law 2-03: The Regional Municipality of Halton By-Law 2-03 (2003)

O. Reg. 153/04 (as amended) Table 2: Ontario Regulation 153/04 (as amended) Table 2: Potable Groundwater All Types of Property Use Coarse Grained.

mg/L: Milligrams per liter

µg/L: Micrograms per liter

NA: Not Available

28 O. Reg. 153/04 (as amended) Table 2 Exceedance

WSP | MMM GROUP

APPENDIX A – WSP (2017) GEOTECHNICAL INVESTIGATION REPORT

REPORT ON GEOTECHNICAL INVESTIGATION GEORGIAN COURT BURLINGTON, ONTARIO

bcIMC Realty Corp.
o/a Georgian Court Estates

Project n^{o} : 161-15952-00
Date: January 5, 2017

WSP Canada Inc.
180 Shearson Crescent, Unit 1 & 2
Cambridge, ON N1T 1P4 Canada

Phone: +1 519-740-0065
Fax: +1 519-740-0045
www.wspgroup.com

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1 INTRODUCTION

WSP Canada Inc. (WSP) was retained by bcIMC Realty Corporation o/a Georgian Court Estates to undertake a preliminary geotechnical investigation for the proposed redevelopment at 611-633 & 645 Surrey Lane, 610-740 Surrey Lane, 858-916 Warwick Road, 615-693 & 699 Marley Road, and 847-937 Warwick Road in Burlington, Ontario.

We understand that preliminary Geotechnical and Hydrogeological Investigations are required as part of a redevelopment/official plan amendment application and development feasibility study. It is understood that the proposed residential development will consist of mid- to high-rise (6 to 18-storey) apartment buildings with 3 underground basement levels, as well as townhouse units.

This report deals with the geotechnical aspects of the site. Hydrogeological aspects will be discussed in a separate report.

The purpose of this geotechnical investigation is to determine the subsurface conditions at eighteen (18) borehole locations and from the findings in the boreholes make preliminary engineering recommendations for the following:

1. Foundations
2. Floor slabs and permanent drainage
3. Excavations and Backfill
4. Earth pressures
5. Earthquake considerations
6. Temporary Shoring

This report is provided on the basis of the terms of reference presented above and on the assumption that the design will be in accordance with the applicable codes and standards. If there are any changes in the design features relevant to the geotechnical analyses, or if any questions arise concerning the geotechnical aspects of the codes and standards, this office should be contacted to review the design. It may then be necessary to carry out additional borings and reporting before the recommendations of this office can be relied upon.

The site investigation and recommendations follow generally accepted practice for geotechnical consultants in Ontario. The format and contents are guided by client specific needs and economics and do not conform to generalized standards for services. Laboratory testing for most part follows ASTM or CSA Standards or modifications of these standards that have become standard practice.

This report has been prepared for bcIMC Realty Corporation o/a Georgian Court Estates and its architect and designers. Third party use of this report without WSP consent is prohibited. The limitation conditions presented in this report form an integral part of the report and they must be considered in conjunction with this report.

2 FIELD AND LABORATORY WORK

Eighteen boreholes (BH16-1 through BH16-18) were drilled at the subject site to depths ranging from 6.2 to 15.5m.

The boreholes were drilled with hollow stem augers under the direction and supervision of WSP personnel. Samples were retrieved at regular intervals with a 50 mm O.D. split-barrel sampler driven with a hammer weighing 624 N and dropping 760 mm in accordance with the Standard Penetration Test (SPT) method. The samples were logged in the field and returned to the WSP laboratory for detailed examination by the project engineer who assigned geotechnical laboratory testing.

As well as visual examination in the laboratory, all soil samples were tested for moisture contents. Grain size distribution testing is conducted for selected soil samples. Selected soil samples were subjected to Atterberg Limits Tests and results are presented on the respective borehole logs. The gradation curves for the grain size analyses and the Plasticity Chart are presented in **Appendix B**.

Water level observations were made during drilling and in open boreholes upon completion of the drilling operations. For the monitoring of the long-term groundwater levels, seven (7) monitoring wells of 50mm dia. were installed in boreholes BH16-1, BH16-3, BH16-6, BH16-7, BH16-11, BH16-16, and BH16-17.

The surface elevations at the borehole locations were surveyed by WSP and were referenced to a geodetic benchmark.

3 SITE AND SUBSURFACE CONDITIONS

The Borehole locations are shown on **Drawing 1**. Generalized subsurface profile is attached in **Drawings 2 and 3**. The subsurface conditions in the boreholes are presented in the individual borehole logs in **Appendix A** and are summarized in the following paragraphs.

3.1 SOIL CONDITIONS

TOPSOIL/ASPHALTIC CONCRETE/FILL MATERIAL

A surficial topsoil layer varying from 200 to 600mm in thickness was found in Boreholes BH16-7, BH16-9, BH16-11, and BH16-14. It should be noted that the thickness of the topsoil explored at the borehole locations may not be representative for the site and should not be relied on to calculate the amount of topsoil at the site.

At the remaining borehole locations, a pavement structure consisting of asphaltic concrete varying from 35 to 150mm underlain by granular base/subbase materials of 75 to 475 mm in thickness was contacted at the surface.

Along the north-east side of the site, fill material consisting of sand to silt with some sand and gravel was found in boreholes BH16-1, BH16-2, BH16-3, and BH16-8 extending to depths varying from 0.9 to 2.3m below ground surface. The fill material was found to be in a very loose to compact state with measured SPT ‘N’ values ranging from 3 to 16 blows per 300mm penetration.

UPPER COHESIONLESS DEPOSITS: SAND TO SILTY SAND

An upper layer of cohesionless deposits of sand, some silt to silty sand with trace to some clay was encountered in most boreholes and was found to be in a very loose to compact state, with measured SPT

'N' values of 1 to 26 blows per 300mm penetration. These deposits were found to be saturated below the depths ranging from 1.5 to 4.5m below ground surface.

Grain size analysis of four samples from the sand to silty sand deposits (BH16-6/SS6, BH16-11/SS5, BH16-16/SS6, and BH16-17/SS6) were conducted and the results are presented in **Figure 1 in Appendix B**, with the following fractions:

Clay: 6 to 18%
Silt: 19 to 28%
Sand: 53 to 73%
Gravel: 1 to 2%

CLAYEY DEPOSITS

Cohesive deposits of clayey silt to silty clay were encountered below the upper cohesionless deposits and/or interbedded with the lower glacial till deposits in BH16-1 through BH16-3, and BH16-5, BH16-6, BH16-9, BH16-13, BH16-14, and BH16-17.

These deposits were found to be in a firm to hard consistency with measured SPT 'N' values ranging from 5 to 41 per 300mm penetration.

Grain size analysis of one sample from the clayey deposits (BH16-1/SS9) was conducted and the results are presented in **Figure 3 in Appendix B**, with the following fractions:

Clay: 29%
Silt: 62%
Sand: 9%
Gravel: -

One sample from the clayey deposits was subjected to Atterberg Limits Testing (BH16-1/SS9). The results are shown on the respective borehole log and on the Plasticity Chart on Figure 4 in Appendix B and are summarized as follows:

Liquid limit (W_L): 31%
Plastic limit (W_P): 18%
Plasticity index (PI): 13%

These values are characteristic of clays of low plasticity.

GLACIAL TILL DEPOSITS

Glacial till deposits consisting of clayey silt to silty clay till, sandy silt to silt to silty sand till were encountered in most boreholes and were found to be in a very stiff to hard consistency or compact to very dense state with measured SPT 'N' values of 15 to more than 50 blows per 300mm penetration.

Grain size analysis of two samples from the till deposits (BH16-3/SS10, BH16-7/SS6) were conducted and the results are presented in **Figure 2 in Appendix B**, with the following fractions:

Clay: 10 to 19%
Silt: 26 to 48%
Sand: 23 to 53%
Gravel: 10 to 11%

Two samples from the glacial till deposits were subjected to Atterberg Limits Testing (BH16-3/SS10, BH16-7/SS6). The results are shown on the respective borehole logs and on the Plasticity Chart on Figure 4 in Appendix B and are summarized as follows:

Liquid limit (W_L): 21 to 24%
Plastic limit (W_P): 15 to 18%
Plasticity index (PI): 6%

These values are characteristic of clayey silts of low plasticity.

TILL/SHALE COMPLEX

Below the glacial till deposits, a clayey silt to silt to silty sand till/shale complex deposit was encountered in BH16-1 through BH16-3 and BH16-6. The till/shale complex consists of a mixture of clayey silt to silt to sandy silt till and highly/completely weathered shale. The consistency/relative density of the till/shale complex was hard/dense to very dense with measured SPT 'N' values of 33 to more than 50 blows per 300 mm penetration. Water contents measured in test samples ranged from 9% to 12%. There is a gradual transition from this till/shale complex into shale bedrock and the shale bedrock surface may vary and can be higher. Some of the contractors may assume the till/shale complex as shale bedrock. The till/shale complex may also contain limestone seams/layers.

INFERRED SHALE BEDROCK

Shale bedrock of the Queenston Formation was encountered in BH16-1 through BH16-7. The inferred top of bedrock level varies from Elev. 77.3m to 80.2m as summarized in Table 3.1. Shale bedrock was not proven by bedrock coring. It is noted that variations in the bedrock surface should be expected. It is often difficult to distinguish where shale/till complex ends and bedrock begins, particularly where the bedrock surface is weathered. As such, the inferred bedrock surface level should not be considered accurate to better than ±1m.

Table 3.1: Approximate Depth and Elevation of Shale Bedrock Surface

BOREHOLE NO.	APPROXIMATE DEPTH OF SHALE BEDROCK SURFACE (m)	APPROXIMATE ELEVATION OF SHALE BEDROCK SURFACE (ASSUMED) (m)	NOTES
BH16-1	11.0	80.2	Hard augering at inferred bedrock surface
BH16-2	11.3	79.4	Hard augering at inferred bedrock surface
BH16-3	12.2	77.3	Sampler refusal at inferred bedrock surface

BOREHOLE NO.	APPROXIMATE DEPTH OF SHALE BEDROCK SURFACE (m)	APPROXIMATE ELEVATION OF SHALE BEDROCK SURFACE (ASSUMED) (m)	NOTES
BH16-4	11.9	80.0	Hard augering at inferred bedrock surface
BH16-5	11.6	80.2	Hard augering at inferred bedrock surface
BH16-6	15.2	79.5	Hard augering/Sampler refusal at inferred bedrock surface
BH16-7	12.5	80.1	Hard augering at inferred bedrock surface

The shale bedrock generally contains layers of sandstone, limestone and dolostone. Typically the hard layers comprise about 15 to 20 percent of the unit. However, higher concentrations of hard layers can be present. The hard layers are usually less than 200 mm thick but some layers are much thicker. The thicker layers have been observed to be as much as 750 to 900 mm at other sites. The layers are actually lenses and they can vary significantly in thickness over short distance.

Methane gas is anticipated in the bedrock. Appropriate care and monitoring is essential in all confined bedrock excavations, particularly for caissons. Stress relief features such as folds and faults are common in the shale bedrock. Appendix C presents more details and general comments about the shale bedrock.

3.2 GROUNDWATER CONDITIONS

During drilling, groundwater was found in the open boreholes at depths ranging from 5.6 to 7.6m below ground surface. The groundwater table observed in the monitoring wells on December 12 and 16, 2016 was reported to be at depths ranging from 4.3 to 10.6m, corresponding to elevations ranging from 171.2 to 177.2m, as listed on Table 3.2.

Table 3.2 - Groundwater Levels Observed in Open Boreholes and Monitoring Wells

BH NO.	GROUND SURFACE ELEV. (m)	SOIL TYPE AT SCREEN LOCATION (DEPTH, m)	DEPTH / WATER LEVEL ELEVATION (M)			NOTES
			ON COMPLETION	DEC. 12, 2016	DEC. 16, 2016	
BH16-1	91.2	Silty Clay (7.6 – 9.1)	-	0.2 / 91.0	0.2 / 91.0	50mm dia. monitoring well
BH16-2	90.7	N/A	7.2 / 83.5	N/A	N/A	-
BH16-3	89.5	Silty Sand Till/Shale Complex (10.6 – 12.1)	-	2.8 / 86.7	2.8 / 86.7	50mm dia. monitoring well
BH16-4	91.9	N/A	3.7 / 88.2	N/A	N/A	-
BH16-5	91.8	N/A	4.3 / 87.5	N/A	N/A	-
BH16-6	94.7	Silty Sand (3.1 – 6.1)	-	4.4 / 90.3	4.3 / 90.4	50mm dia. monitoring well

BH NO.	GROUND SURFACE ELEV. (m)	SOIL TYPE AT SCREEN LOCATION (DEPTH, m)	DEPTH / WATER LEVEL ELEVATION (M)			NOTES
			ON COMPLETION	DEC. 12, 2016	DEC. 16, 2016	
BH16-7	92.6	Silt Till (4.6 – 6.1)	-	2.9 / 89.7	2.8 / 89.8	50mm dia. monitoring well
BH16-8	89.6	N/A	1.5 / 88.1	N/A	N/A	Saturated soils at 1.5 m depth
BH16-9	90.6	N/A	2.4 / 88.2	N/A	N/A	Saturated soils at 2.4 m depth
BH16-10	91.1	N/A	2.1 / 89.0	N/A	N/A	-
BH16-11	91.6	Sand/Silty Clay Till (3.1 – 6.1)	-	2.6 / 89.0	2.6 / 89.0	50mm dia. monitoring well
BH16-12	91.6	N/A	2.3 / 89.3	N/A	N/A	-
BH16-13	93.0	N/A	2.6 / 90.4	N/A	N/A	-
BH16-14	93.1	N/A	2.4 / 90.7	N/A	N/A	Saturated soils at 2.4 m depth
BH16-15	92.8	N/A	2.6 / 90.2	N/A	N/A	-
BH16-16	92.8	Silty Sand (4.6 – 6.1)	-	2.5 / 90.3	2.5 / 90.3	50mm dia. monitoring well
BH16-17	94.2	Silty Sand (3.1 – 6.1)	-	3.4 / 90.3	3.4 / 90.8	50mm dia. monitoring well
BH16-18	93.9	N/A	3.1 / 90.8	N/A	N/A	-

It should be noted that the groundwater levels can vary and are subject to seasonal fluctuations in response to major weather events.

The groundwater elevation at the site is highest in the north and east (approximately 91 meters above sea level (masl)) and declines toward the south (89 masl) and west (86.7 masl). The groundwater flow direction at the site is consistent with the regional groundwater flow regime, such that groundwater flows towards and discharges into Lake Ontario, located south of the project site.

Grain size analyses were performed on soil samples from seven boreholes. Hydraulic Conductivity was estimated using the Hazen Method for sandy soils and the Puckett et al Method for fine grained soil and the combined results are summarized below:

Geometric Mean K	6.2E-07 m/s
Highest K	5.0E-06 m/s
Lowest K	2.4E-08 m/s

4 FOUNDATIONS

It is understood that the proposed residential development will consist of mid- to high-rise (6 to 18-storey) apartment buildings with 3 underground basement levels in the areas of BH16-1 through BH16-7, as well as townhouse units in the areas of the remaining boreholes.

The basement floor elevations are not known to us at the time of writing this report. The basement floor of P3 will be about 9m below ground surface. The footings are expected to be about 1 to 2m below the P3 basement floor slab. For townhouses with 1 level of basement, the footings are expected to be around 3m below ground surface.

At the anticipated footing levels, the proposed mid to high-rise buildings with 3-level basement can be supported by spread and strip footings/raft foundations founded on the undisturbed hard/very dense till/shale complex for a bearing capacity value of 300 to 400 kPa at SLS (Serviceability Limit State), and 450 to 600 kPa at ULS (Ultimate Limit State), or on shale bedrock bedrock for a bearing capacity value of 1,500 kPa at SLS (Serviceability Limit State), and for a factored geotechnical resistances of 2,250 kPa at ULS.

Townhouses can be supported by spread and strip footings founded on the undisturbed native soils for a bearing capacity values of 150 kPa at SLS (Serviceability Limit State), and 225 kPa at ULS (Ultimate Limit State) in compact sand below 2 to 3m from existing grade, as the upper sandy soils are very loose and not suitable for founding the footings nor the slab-on-grade. The bearing pressures and the founding depth are given in Table 4-1 at the borehole locations.

Table 4-1 Bearing Values and Founding Levels of Spread Footings on native soils

BH No.	Material	Geotechnical Bearing Capacity at SLS (kPa)	Factored Geotechnical Resistance at ULS (kPa)	Founding level at or below (m)	
				Depth Below Existing Grade	Elevation
BH16-1	Silty Clay Till	300	450	3.0	88.2
	Till/Shale Complex	400	600	9.1	82.1
	Bedrock	1500	2250	11.0	80.2
BH16-2	Silty Clay Till	200	300	2.3	88.4
	Till/Shale Complex	400	600	9.1	81.6
	Bedrock	1500	2250	11.3	79.4
BH16-3	Clayey Silt Till	300	450	2.3	87.2
	Silty Clay/Till/Shale Complex	400	600	6.1	83.4
	Bedrock	1500	2250	10.6	78.9
BH16-4	Sand	150	225	1.5	90.4
	Silty Clay Till	300	450	4.5	87.4
	Bedrock	1500	2250	11.9	80.0
BH16-5	Silty Clay	250	375	3.0	88.8
	Silty Clay	300	450	4.5	87.3
	Bedrock	1500	2250	11.6	80.2

BH No.	Material	Geotechnical Bearing Capacity at SLS (kPa)	Factored Geotechnical Resistance at ULS (kPa)	Founding level at or below (m)	
				Depth Below Existing Grade	Elevation
BH16-6	Silty Sand	150	225	4.5	90.2
	Silty Clay Till	300	450	6.1	88.6
	Till/Shale Complex	600	900	12.2	82.5
	Bedrock	1500	2250	15.2	79.5
BH16-7	Sand	150	225	2.3	90.3
	Silt Till	300	450	6.0	86.6
	Bedrock	1500	2250	12.5	80.1
BH16-8	Clayey Silt Till	300	450	2.4	87.2
BH16-9	Sand/Clayey Silt	150	225	0.8	89.8
	Clayey Silt	300	450	4.5	86.1
BH16-10	Sand	150	225	3.5	87.6
	Silty Clay Till	300	450	4.6	86.5
BH16-11	Sand	150	225	1.5	90.1
	Silty Clay Till	300	450	4.6	87.0
BH16-12	Sand	150	225	1.5	90.1
	Silty Clay Till	300	450	4.6	87.0
BH16-13	Sand	200	300	2.3	90.7
	Silty Clay	300	450	4.5	88.5
BH16-14	Sand	150	225	2.3	90.8
	Silty Clay	300	450	6.0	87.1
BH16-15	Sand	200	300	2.3	90.5
	Silty Clay Till	300	450	4.6	88.2
BH16-16	Sand	150	225	3.0	89.8
	Clayey Silt Till	300	450	6.1	86.7
BH16-17	Silty Sand	150	225	2.3	91.9
	Silty Clay	300	450	6.1	88.1
BH16-18	Sand	150	225	3.0	90.9
	Clayey Silt Till	300	450	6.1	87.8

Based on the borehole and monitoring well information, the groundwater at the site is expected to be about 0.2 to 4.4m m below grade (Elev. 86.7 m to 91.0 m). Dewatering will be required prior to the excavation in wet sands, otherwise it will result in loss of soil and bearing capacity. The groundwater table must be lowered to at least 1.0 m below the deepest excavation base. A contractor specializing in dewatering should be retained to design the dewatering systems. Groundwater can be lowered by 0.3 m to 0.5 m by pumping from oversized excavations and flatter side slopes as illustrated on Drawing 4. For deeper excavations, positive dewatering will be required.

If the sandy soils at the anticipated townhouse footing levels are wet, they can be easily disturbed to foot traffic. In this case, the base must be covered with 50 mm thick mud slab immediately after inspection and cleaning.

Footings designed to the specified allowable bearing capacity at the serviceability limit states (SLS) are expected to settle 25 mm total and 19 mm differential.

Where it is necessary to place footings at different levels, the upper footing must be founded below an imaginary 10 horizontal to 7 vertical line drawn up from the base of the lower footing. The lower footing must be installed first to help minimize the risk of undermining the upper footing.

All foundation bases must be inspected by this office prior to pouring concrete. Where the excavated footings base are in wet to saturated sandy deposits these should be covered with 50 mm thick mud slab immediately after inspection and cleaning, in order to avoid disturbance of the founding soil due to construction activity and weathering /drying.

It should be noted that the recommended bearing capacities have been calculated by WSP from the borehole information for the design stage only. The investigation and comments are necessarily on-going as new information of the underground conditions becomes available. For example, more specific information is available with respect to conditions between boreholes when foundation construction is underway. The interpretation between boreholes and the recommendations of this report must therefore be checked through field inspections provided by WSP to validate the information for use during the construction stage.

5 FROST PROTECTION

All foundations exposed to seasonal freezing conditions must have at least 1.2 metres of soil cover for frost protection.

There is no official rule governing the required founding depth for footings below unheated basement floors. Certainly, it will not be greater than the 1.2 m required in Southern Ontario for exterior footings. Un-monitored experience indicates that a shallower depth ranging from 0.82 to 0.9 m for interior column footings and 0.4 m for wall footings has been successful where 2 or more basement levels apply. The 0.82 m depth is believed to be close to the minimum structural requirement for interior column footings. Adjacent to air shafts and entrance and exit doors, a footing depth of 1.2 m below floor level is required or, alternatively, insulation protection must be provided.

It is also emphasized that underfloor drainage and/or an adequate free draining gravel base is required to minimize the risk of floor dampness. Floor dampness could lead to temporary icing and the risk of accidents.

6 FLOOR SLAB AND PERMANENT DRAINAGE

The floor slab can be supported on grade provided all loose to very loose fill and native sands, and any disturbed native soils are removed and the base thoroughly proof rolled. The loose sands must be removed and replaced by engineered fill or improved by dynamic compaction. The fill required to raise the grade can consist of inorganic soil, placed in shallow lifts and compacted to 98 percent of Standard Proctor Maximum Dry Density (SPMDD).

A moisture barrier consisting of at least 200mm of 19mm clear crushed stone should be installed under the floor slab.

A perimeter and underfloor drainage system will be required around the exterior basement walls, as shown on Drawings 5 to 7. Where the exposed subgrade consists of cohesionless soil below the water table, all openings including the subgrade must be covered or wrapped with filter fabric, typically a Class II non-woven textile with a filtration opening size (F.O.S.) of 50 to 100 µm. Above the filter fabric, we recommend that 60 mm thick concrete sand be placed to prevent the loss of silt fines through the filter fabric. It is imperative that both the filter fabric and concrete sand are placed on the subgrade.

As to be discussed in Section 8 of this report, a detailed hydrogeologic study is required for the design of the permanent perimeter and underfloor drainages, as well as for the temporary groundwater control during the construction stage.

7 ELEVATOR PITS AND SUMP PITS

It is anticipated that some elevator pits in the P3 level and sump pits for the townhouses will be installed in cohesionless soils below the water table. In this case, drainage systems at the base level of the elevator pits / sump pits are not recommended, due to the concern of loss of fines. The elevator pits/ sump pits can be designed as water-tight structures, and water pressure on the pit walls and the slab should be considered, assuming the water table at about 0.3m below the adjacent basement floor.

8 EXCAVATIONS AND GROUNDWATER CONTROL

Excavations can be carried out with heavy hydraulic backhoe. Stabilized groundwater table in the monitoring wells was reported to be in the range of 0.2 to 4.4m below ground surface, corresponding to Elev. 86.7 to 91.0m. Any excavation in sandy and silty deposits below the groundwater will require positive dewatering such as well points/eductors; otherwise, it will result in an unstable base and flowing sides. The groundwater encountered at higher elevations may be handled by pumping from sumps/trenches.

The groundwater pressure levels measured in the monitoring wells installed in the lower deposits (aquifer) in BH16-1 and BH16-3 were at about elevation 86.7 to 91.0m. The groundwater table must be lowered to at least 1.0m below the deepest excavation. A contractor specializing in dewatering should be retained to design the dewatering systems.

It should be noted that the till is a non-sorted sediment and therefore may contain boulders. Possible large obstructions such as buried concrete pieces are also anticipated in the fill material. Provisions must be made in the excavation contract for the removal of possible boulders in the till or obstructions in the fill material.

All excavations must be carried out in accordance with the most recent Occupational Health and Safety Act (OHSA). In accordance with OHSA, the existing fill, stiff silty clay to clayey silt can be classified as Type 3 Soil above the groundwater table and Type 4 below groundwater table. The very stiff to hard clayey silt till can be classified as Type 2 Soil above the groundwater table and Type 3 Soil below groundwater table. Cohesionless sands and silts below the groundwater can be classified as Type 4 Soil and Type 3 Soil above groundwater (with dewatering).

Select existing fill and the native soils free from topsoil and organics can be used as general construction backfill. Loose lifts of soil, which are to be compacted, should not exceed 200mm. Depending on the time of construction and weather, some excavated material may be too wet to compact and will require aeration prior to its use.

The excavated soils are not considered to be free draining. Where free draining backfill is required, imported granular fill such as OPSS Granular B should be used. Imported granular fill used in confined areas can be compacted with hand held equipment. Underfloor fill should be compacted to at least 98 percent of Standard Proctor Maximum Dry Density (SPMDD).

It should be noted that the excavated soils are subject to moisture content increase during wet weather which would make these materials too wet for adequate compaction. Stockpiles should be compacted at the surface or be covered with tarpaulins to minimize moisture uptake.

9 TEMPORARY SHORING

A caisson wall may be required to support adjacent structures. The requirement for caisson wall to support adjacent structures is given on **Drawing 8**.

Dewatering will be required for the installation of shoring lagging in the sand, sandy silt till and sandy silt deposits.

The shoring system must be designed in accordance with the Fourth Edition of the Canadian Foundation Engineering Manual. The soil parameters estimated to be applicable for this design are as follows:

1) Earth Pressure Coefficients

   (a) where movement must be minimal K=0.45

   (b) where minor movement (.002H) can be tolerated K=0.28

   (c) passive earth pressure for soldier piles (unfactored) Kp=3.0

2) For stability check

   ϕ= 32°

   c= 0

   γ = 21 kN/m^3

Surcharge is to be determined by shoring contractor

3) For earth anchors

Based on the borehole information, an allowable bond value of 50 kPa is suggested for the dense or hard soils and 30 kPa for very stiff soils; this value depends on anchor installation methods and grouting procedures. Gravity poured concrete can result in low bond values while pressure grouted anchors will give higher values and produce a more satisfactory anchor.

Casing will be required during the construction of the tiebacks to prevent caving of soils. The soldier piles should be installed in pre-augered holes taken below the deepest excavation. The holes should be filled with concrete below the excavation level and half bag mix above the base of the excavation. The concrete strength must be specified by the shoring designer. Temporary liners may be required to help prevent the sandy and sandy silt deposits from caving during the installation period. Positive measures may be required to prevent the loss of soil through the spaces between the lagging boards. This could probably be achieved by placing well-graded sand and gravel behind the lagging boards or by installing a geotextile filter cloth.

Soil anchors will be required to support the shoring. The anchors must be of a length that meets the Canadian Foundation Manual recommendations. It is important to note that the minimum length lies beyond the 45 - $\phi/2$ + .15H line drawn from the base of the soldier pile and the overall stability of the system must be checked at each anchor level.

The top anchor must not be placed lower than 3.0 metres below the top of level ground surface. Anchors will require casing when penetrating through wet sand and sandy silt layers. Allowable bond values suggested above are arbitrary; hence, the contractor must decide on a capacity and confirm its availability. All anchors must be tested as indicated in the Foundation Manual, 4th edition.

Adhesion on the buried caisson shaft or behind the shoring system must be neglected when designing this shoring system.

Movement of the shoring system is inevitable. Vertical movements will result from the vertical load on the soldier piles resulting from the inclined tiebacks and inward horizontal movement results from earth and water pressures. The magnitude of this movement can be controlled by sound construction practices, and it is anticipated that the horizontal movement will be in the range of 0.1 to 0.25%H.

To ensure that movements of the shoring are within an acceptable range, monitoring must be carried out. Vertical and horizontal targets on the soldier piles must be located and surveyed before excavation begins. Weekly readings during excavation should show that the movements will be within those predicted; if not, the monitoring results will enable directions to be given to improve the shoring.

10 EARTH PRESSURES

The lateral earth pressures acting on basement walls may be calculated from the following expression:

$$p = K(\gamma h + q)$$

where p = Lateral earth pressure in kPa acting at depth h

K = Earth pressure coefficient equal to 0.4 for vertical walls and horizontal backfill.

γ = Unit weight of backfill, a value of 21 kN/m^3 may be assumed

h = Depth to point of interest in metres

q = Equivalent value of surcharge on the ground surface in kPa

The above expression assumes that the perimeter drainage system prevents the build-up of any hydrostatic pressure behind the wall. When the foundation wall is poured against the caisson wall, the foundation wall as well as the caisson wall should be designed for hydrostatic pressure, even though the drainage board is provided between the caisson wall and the basement wall.

11 EARTHQUAKE CONSIDERATIONS

Based on the borehole information and according to Table 4.1.8.4.A of OBC 2012, the subject site for the proposed buildings can be classified as Class 'C' for seismic site response for buildings with 1 to 3 levels of basement.

12 LIMITATIONS OF REPORT

This report is intended solely for the Client named. The material in it reflects our best judgment in light of the information available to WSP Canada Inc.at the time of preparation. Unless otherwise agreed in writing by WSP Consultants Limited, it shall not be used to express or imply warranty as to the fitness of the property for a particular purpose. No portion of this report may be used as a separate entity, it is written to be read in its entirety.

The conclusions and recommendations given in this report are based on information determined at the test hole locations. The information contained herein in no way reflects on the environment aspects of the project, unless otherwise stated. Subsurface and groundwater conditions between and beyond the test holes may differ from those encountered at the test hole locations, and conditions may become apparent during construction, which could not be detected or anticipated at the time of the site investigation. The benchmark and elevations used in this report are primarily to establish relative elevation differences between the test hole locations and should not be used for other purposes, such as grading, excavating, planning, development, etc.

The design recommendations given in this report are applicable only to the project described in the text and then only if constructed substantially in accordance with the details stated in this report.

The comments made in this report on potential construction problems and possible methods are intended only for the guidance of the designer. The number of test holes may not be sufficient to determine all the factors that may affect construction methods and costs. For example, the thickness of surficial topsoil or fill layers may vary markedly and unpredictably. The contractors bidding on this project or undertaking the construction should, therefore, make their own interpretation of the factual information presented and draw their own conclusions as to how the subsurface conditions may affect their work. This work has been undertaken in accordance with normally accepted geotechnical engineering practices.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. WSP Canada Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

We accept no responsibility for any decisions made or actions taken as a result of this report unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time.

We trust that the information contained in this report is satisfactory. Should you have any questions, please do not hesitate to contact this office.

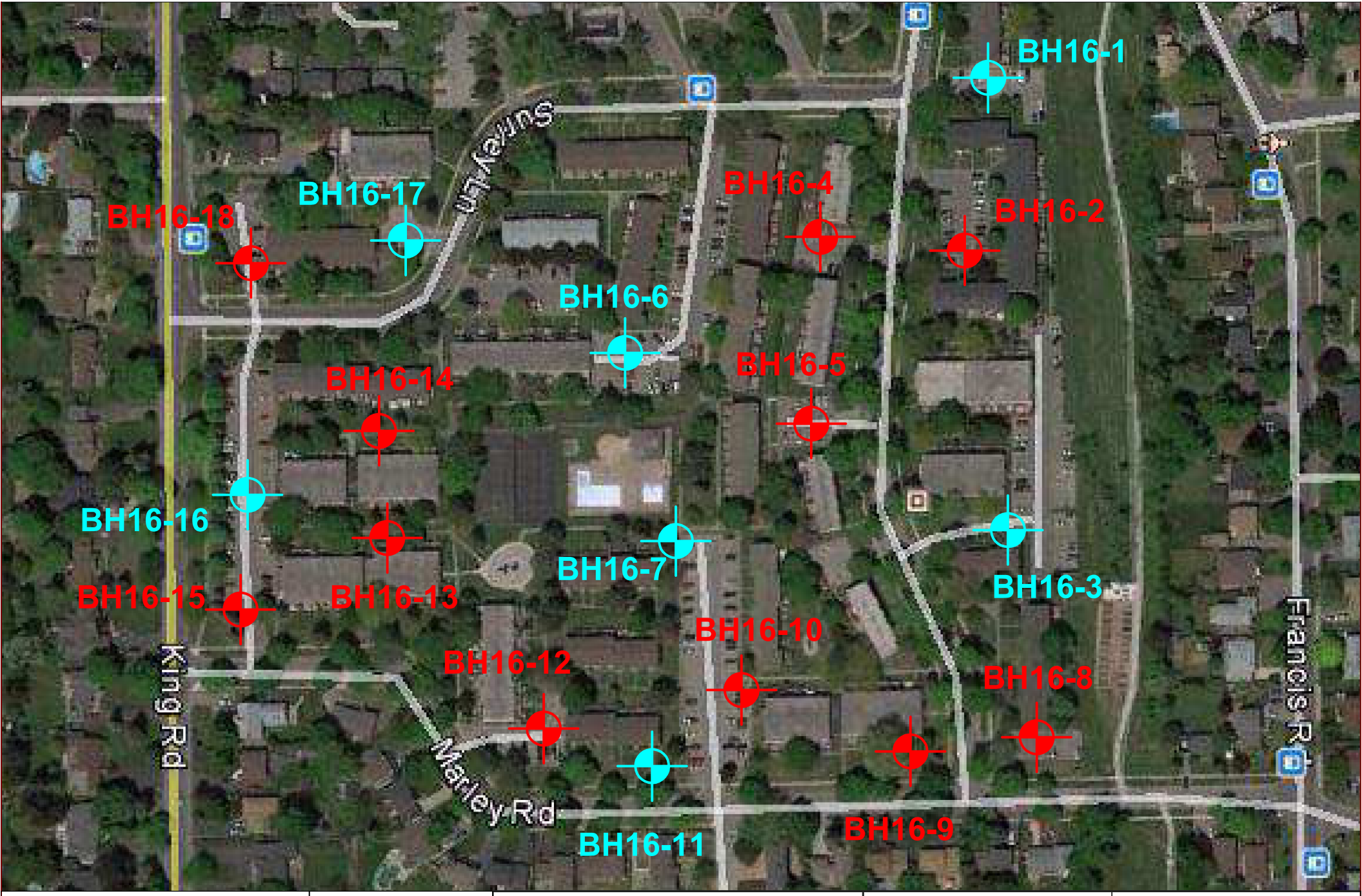
Eva Papp, P.Eng.



Shabbir Bandukwala, M.Eng., P.Eng.

Drawings

BOREHOLE LOCATION PLAN (DRAWING 1)
GENERALIZED SUBSURFACE PROFILES (DRAWINGS 2-3)
TYPICAL EXCAVATION PROCEDURE FOR SHALLOW DEPTHS
BELOW THE WATER TABLE IN SAND (DAWING 4)
DRAINAGE AND BACKFILL RECOMMENDATIONS (DRAWINGS 5-7)
GUIDELINES FOR UNDERPINNING (DRAWING 8)



SCALE:

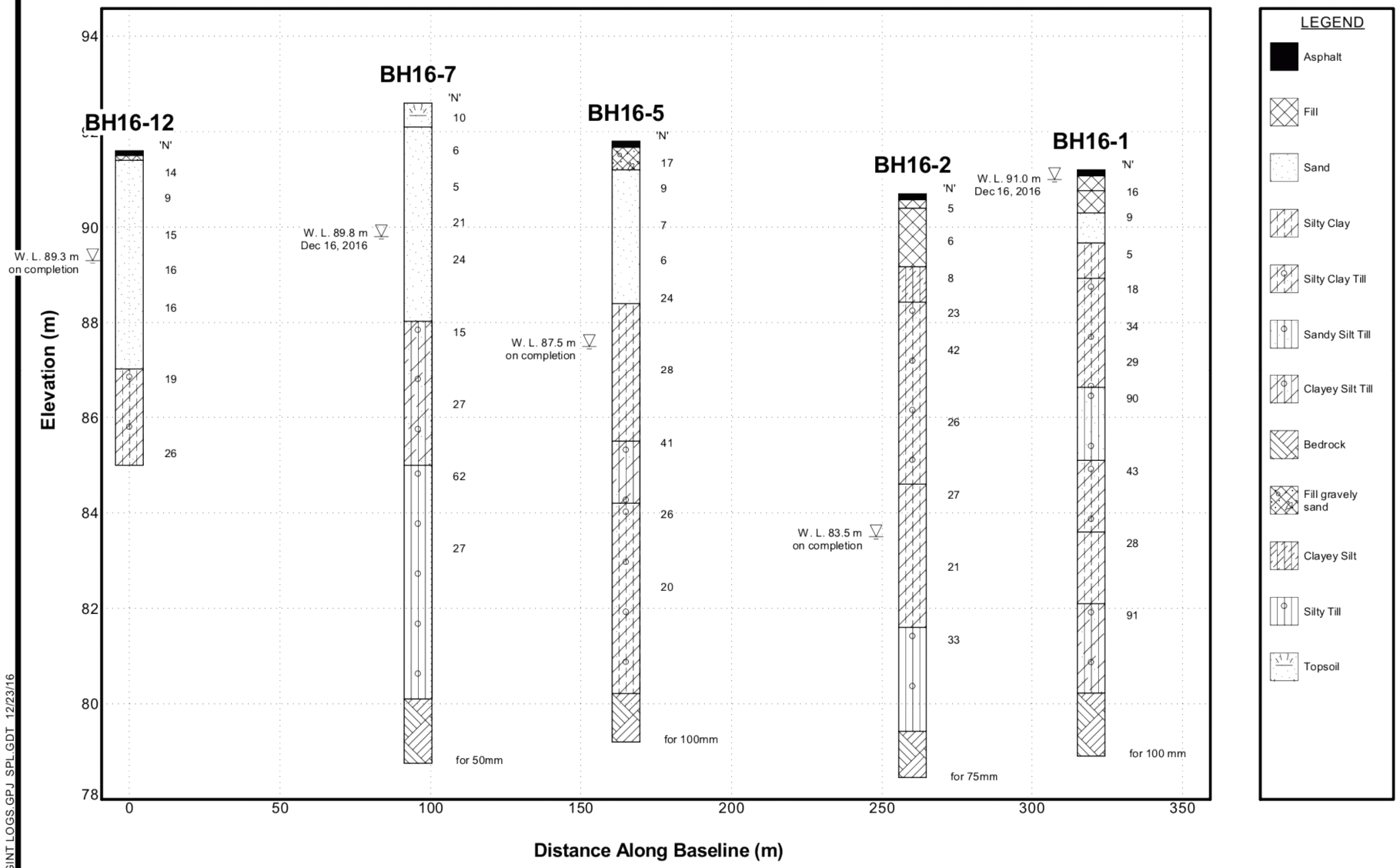
5M

0M 10M 30M 50M 100M

BOREHOLES:
BH16–13

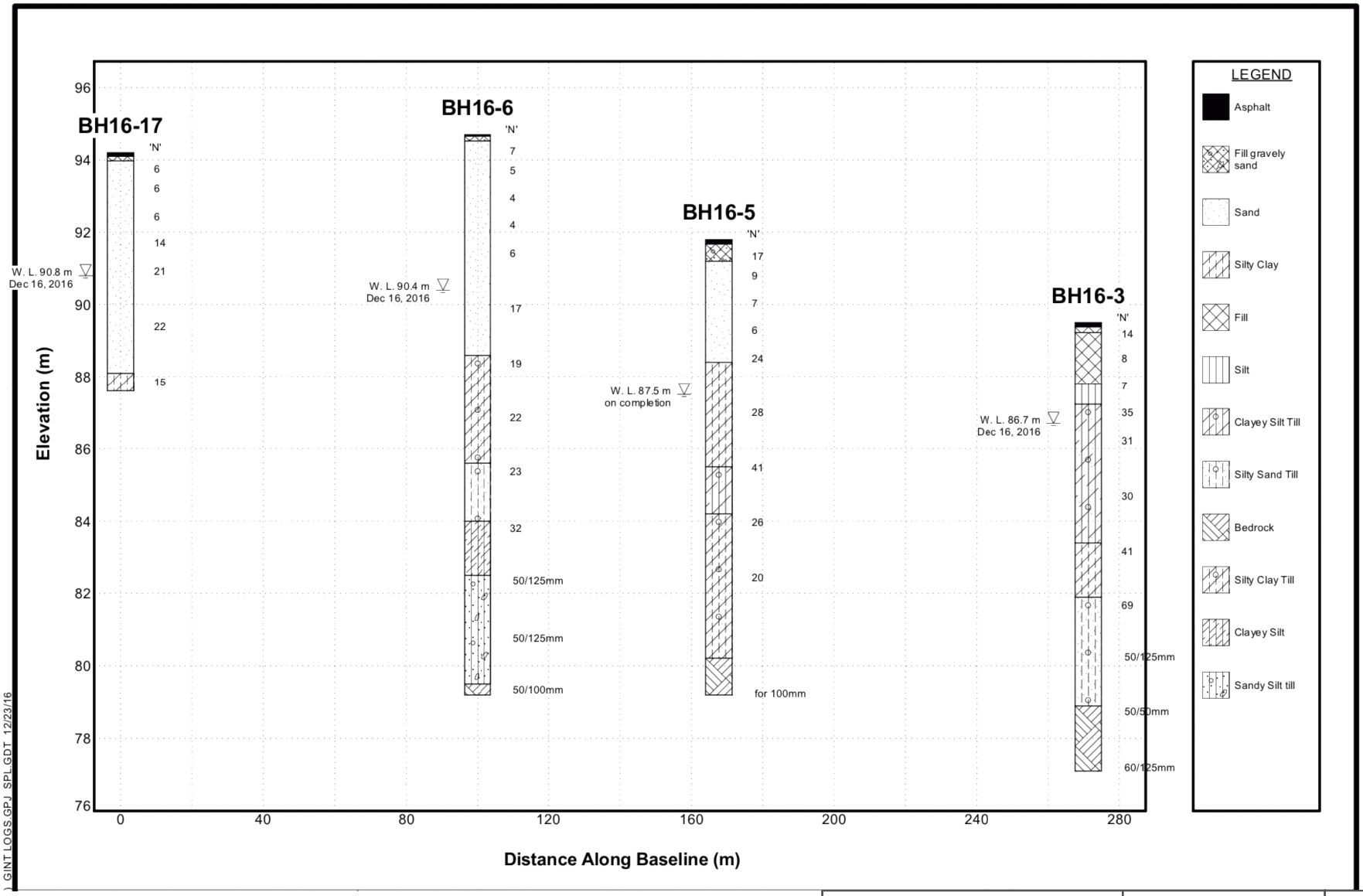
MONITORING WELLS:
BH16–1

Client: **bc IMC Realty Corp. o/a Georgina Court Estates**				Project No.: **161-15952-00**	Drawing No.: **1**
Drawn: **AP**		Approved: **EP**		Title: **Borehole Location Plan**	
Date: **Nov, 2016**		Scale: **As Shown**		Project: **Geotechnical and Hydrogeological Investigation Georgian Court, Burlington, Ontario**	
Original Size: **Tabloid**		Rev: **N/A**		WSP	



GINT LOGS.GPJ SPL.GDT 12/23/16

Client:	bcIMC Realty Corp. o/a Georgina Court Estates			Project No.: 161-15952-00	Drawing No.: 2
Drawn:	AP	Approved:	EP	Title:	Cross Section, South to North
Date:	DEC, 2016	Scale:	NTS	Project:	Geotechnical and Hydrogeological Investigation Georgian Court, Burlington, Ontario
Original Size:	Tabloid	Rev:	N/A		WSP

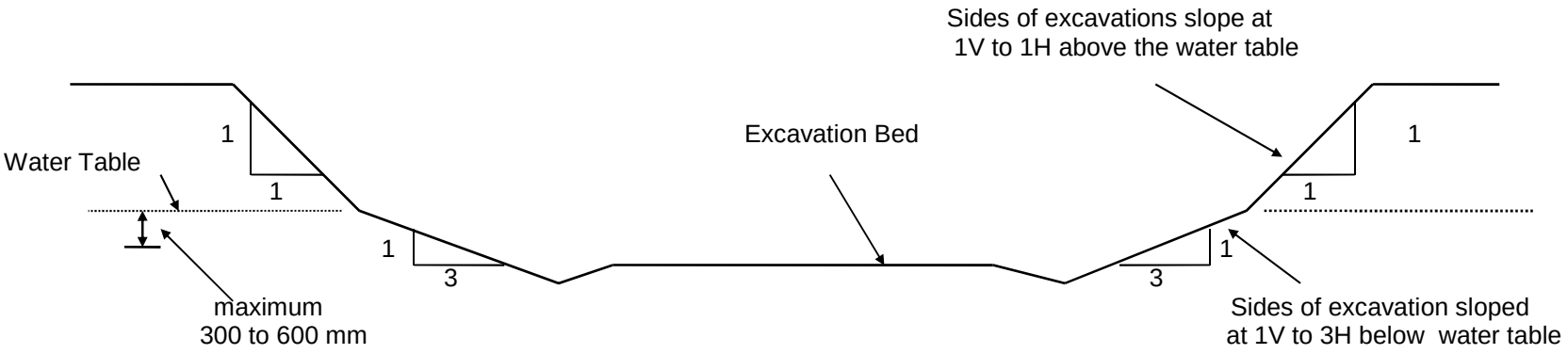


) GINT LOGS.GPJ SPL.GDT 12/23/16

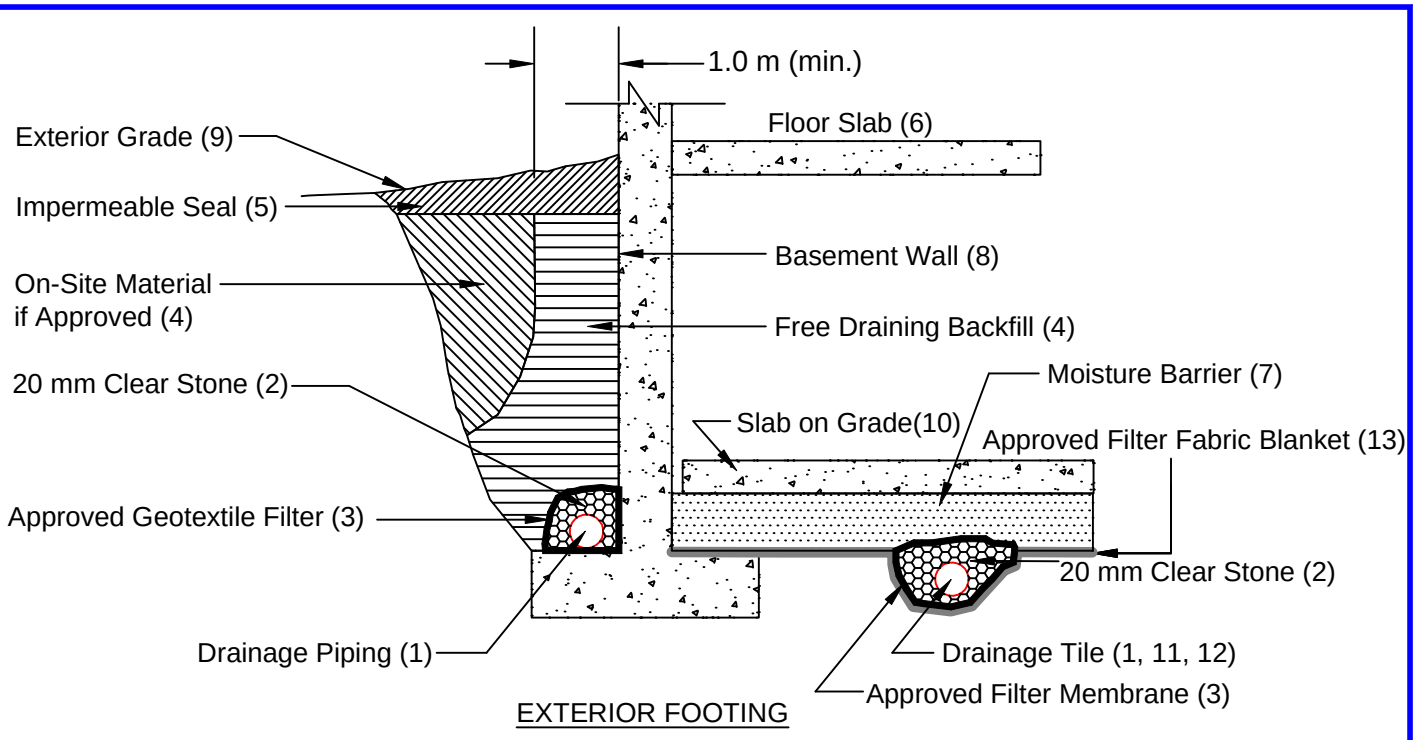
Client:	bc IMC Realty Corp. o/a Georgina Court Estates			Project No.: 161-15952-00	Drawing No.: 3
Drawn:	AP	Approved:	EP	Title:	Cross Section, West to East
Date:	DEC, 2016	Scale:	NTS	Project:	Geotechnical Hydrogeological Investigation Georgian Court, Burlington, Ontario
Original Size:	Tabloid	Rev:	N/A		WSP

PROJECT : 161-15952-00 **DRAWING 4**

TYPICAL EXCAVATION PROCEDURE FOR SHALLOW DEPTHS BELOW THE WATER TABLE IN SAND



Ditches dug at least 300 mm below the excavation bed to depress the water table (May be deeper if necessary)



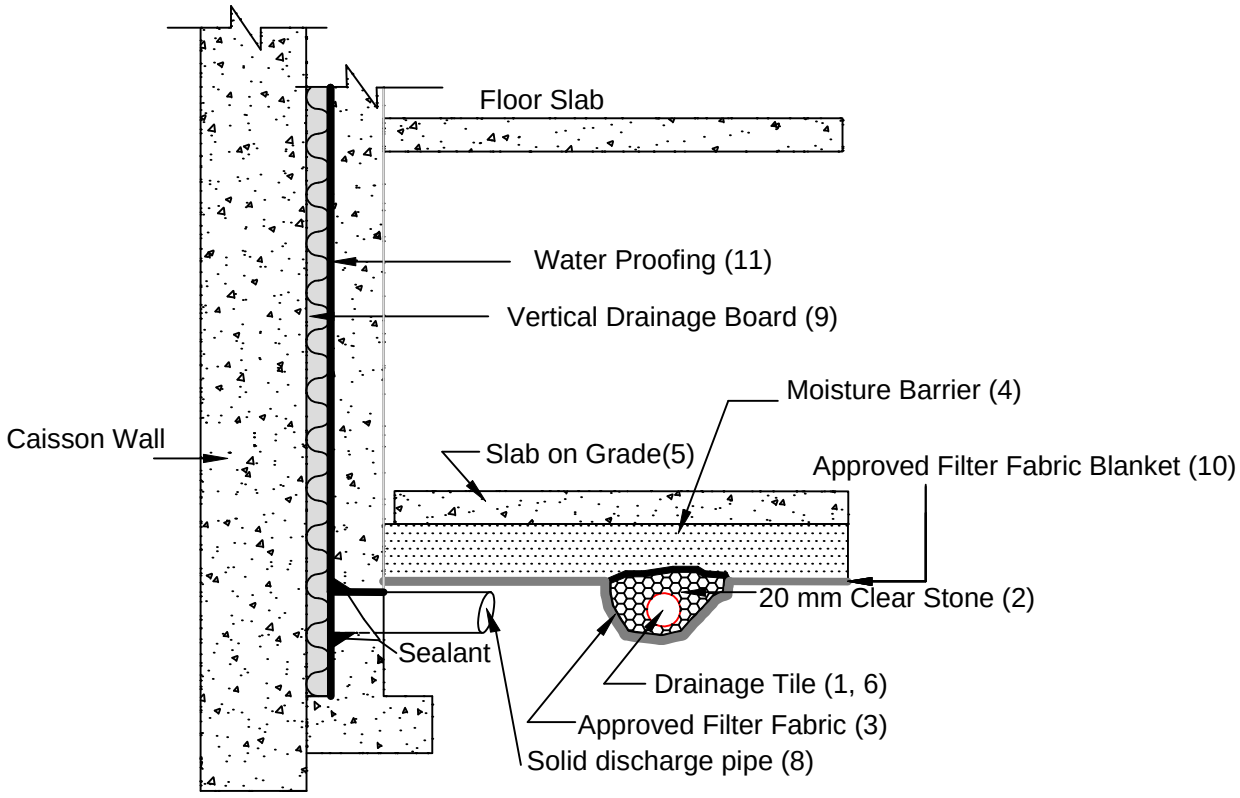
EXTERIOR FOOTING

Notes

1. Drainage piping to consist of 100 mm (4") diameter weeping tile or equivalent perforated pipe leading to a positive sump or outlet.
2. 20 mm (3/4") clear stone - 150 mm (6") top and side of drain. If drain is not on footing, place100 mm (4 inches) of stone below drain .
3. Wrap the clear stone with an approved geotextile filter fabrics (Terrafix 270R or equivalent).
4. Free Draining backfill - OPSS Granular B or equivalent compacted to the specified density. Do not use heavy compaction equipment within 450 mm (18") of the wall. Use hand controlled light compaction equipment within 1.8 m (6') of wall. The minimum width of the Granular 'B' backfill must be 1.0 m.
5. Impermeable backfill seal - compacted clay, clayey silt or equivalent. If original soil is free-draining, seal may be omitted. Maximum thickness of seal to be 0.5 m.
6. Do not backfill until wall is supported by basement floor slabs or adequate bracing.
7. Moisture barrier to be at least 200 mm (8") of compacted clear 20 mm (3/4") stone or equivalent free draining material. A vapour barrier may be required for specialty floors.
8. Basement wall to be damp proofed /water proofed as per OBC requirements.
9. Exterior grade to slope away from building min 2%.
10. Slab on grade should not be structurally connected to the wall or footing. Waterproof the slab and the slab-to-wall joint.
11. Underfloor drain invert to be at least 300 mm (12") below underside of floor slab.
12. Drainage piping placed in parallel rows 6 to 8 m (20 to 25') centers one way. Place drain on 100 mm (4") clear stone with 150 mm (6") of clear stone on top and sides. Enclose stone with filter fabric as noted in (3).
13. The entire subgrade to be covered with approved filter fabric (Terrafix 270R or equivalent) if non-cohesive (sandy) soils below ground water table encountered.
14. Do not connect the underfloor drains to perimeter drains.
15. Review the geotechnical report for specific details.

DRAINAGE AND BACKFILL RECOMMENDATIONS
Basement with Underfloor Drainage

(not to scale)

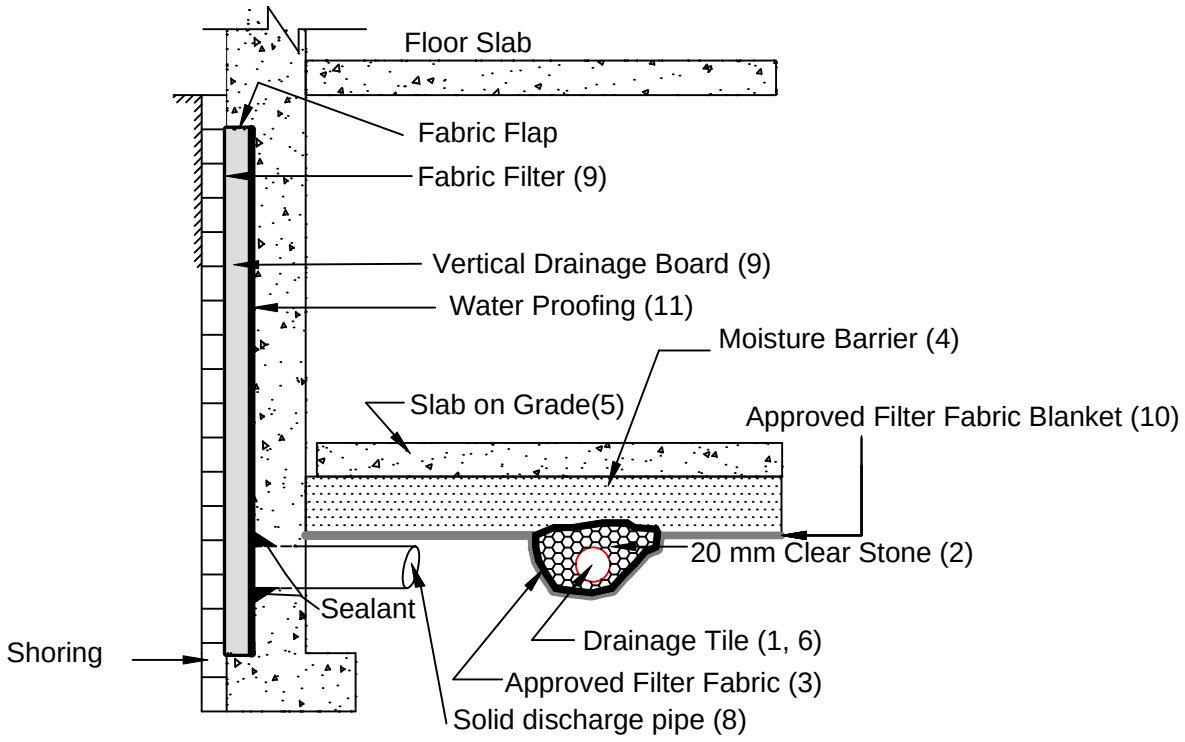


EXTERIOR FOOTING

Notes

1. Drainage tile to consist of 100 mm (4") diameter weeping tile or equivalent perforated pipe leading to a positive sump or outlet, spaced between columns.
2. 20 mm (3/4") clear stone - 150 mm (6") top and side of drain. If drain is not on footing, place100 mm (4 inches) of stone below drain .
3. Wrap the clear stone with an approved filter membrane (Terrafix 270R or equivalent).
4. Moisture barrier to be at least 200 mm (8") of compacted clear 20 mm (3/4") stone or equivalent free draining material. A vapour barrier may be required for specialty floors.
5. Slab on grade should not be structurally connected to the wall or footing.
6. Underfloor drain invert to be at least 300 mm (12") below underside of floor slab. Drainage tile placed in parallel rows 6 to 8 m (20 to 25') centers one way. Place drain on 100 mm (4") clear stone with 150 mm (6") of clear stone on top and sides. Enclose stone with filter fabric as noted in (3).
7. Do not connect the underfloor drains to perimeter drains.
8. Solid discharge pipe located at the middle of each bay between the solider piles, approximate spacing 2.5 m, outletting into a solid pipe leading to a sump.
9. Vertical drainage board mira-drain 6000 or eqivalent with filter cloth should be continous from bottom to 1.2 m below exterior finished grade.
10. The entire subgrade to be sealed with approved filter fabric (Terrafix 270R or equivalent) if non-cohesive (sandy) soils below ground water table encountered.
11. The basement walls must be water proofed using bentonite or equivalent water-proofing system.
12. Review the geotechnical report for specific details. Final detail must be approved before system is considered acceptable.

DRAINAGE RECOMMENDATIONS
Shored Basement wall with Underfloor Drainage System
(not to scale)



EXTERIOR FOOTING

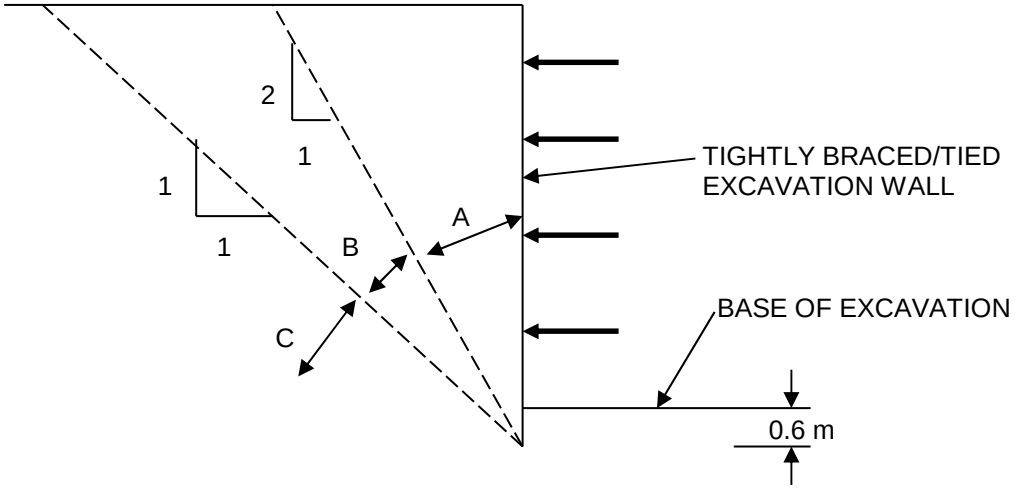
Notes

1. Drainage tile to consist of 100 mm (4") diameter weeping tile or equivalent perforated pipe leading to a positive sump or outlet, spaced between columns.
2. 20 mm (3/4") clear stone - 150 mm (6") top and side of drain. If drain is not on footing, place100 mm (4 inches) of stone below drain .
3. Wrap the clear stone with an approved filter membrane (Terrafix 270R or equivalent).
4. Moisture barrier to be at least 200 mm (8") of compacted clear 20 mm (3/4") stone or equivalent free draining material. A vapour barrier may be required for specialty floors.
5. Slab on grade should not be structurally connected to the wall or footing.
6. Underfloor drain invert to be at least 300 mm (12") below underside of floor slab. Drainage tile placed in parallel rows 6 to 8 m (20 to 25') centers one way. Place drain on 100 mm (4") clear stone with 150 mm (6") of clear stone on top and sides. Enclose stone with filter fabric as noted in (3).
7. Do not connect the underfloor drains to perimeter drains.
8. Solid discharge pipe located at the middle of each bay between the solider piles, approximate spacing 2.5 m, outletting into a solid pipe leading to a sump.
9. Vertical drainage board with filter cloth should be kept a minium of 1.2 m below exterior finished grade.
10. The entire subgrade to be sealed with approved filter fabric (Terrafix 270R or equivalent) if non-cohesive (sandy) soils below ground water table encountered.
11. The basement walls should be water proofed using bentonite or equivalent water-proofing system.
12. Review the geotechnical report for specific details. Final detail must be approved before system is considered acceptable.

DRAINAGE RECOMMENDATIONS
Shored Basement wall with Underfloor Drainage System
(not to scale)

Guidelines for Underpinning in Soil and Excavation Support

Existing foundations located within Zone A normally require underpinning, especially for heavy structures. For some foundations in Zone A, it may be possible to eliminate underpinning and control foundation movement by tightly braced excavation walls, such as caisson walls.



Zone A Foundations located within this zone normally require underpinning. Horizontal and vertical pressures on the excavation wall of non underpinned foundations must be considered

Zone B Foundations located within this zone normally do not require underpinning. Horizontal and vertical pressures on the excavation wall of non underpinned foundations must be considered

Zone C Underpinning to structures is normally founded in this zone. Lateral pressure from underpinning is not normally considered

(Reference: Figure 26.27 from Canadian Foundation Engineering Manual, 4th Edition)

Appendix A

EXPLANATION OF TERMS USED IN BOREHOLE LOG
LOGS OF BOREHOLES

Explanation of Terms Used in the Record of Borehole

Sample Type

AS	Auger sample
BS	Block sample
CS	Chunk sample
DO	Drive open
DS	Dimension type sample
FS	Foil sample
NR	No recovery
RC	Rock core
SC	Soil core
SS	Spoon sample
SH	Shelby tube sample
ST	Slotted tube
TO	Thin-walled, open
TP	Thin-walled, piston
WS	Wash sample

Penetration Resistance

Standard Penetration Resistance (SPT), N:
The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in) required to drive a 50 mm (2 in) drive open sampler for a distance of 300 mm (12 in).

WH – Samples sinks under "weight of hammer"

Dynamic Cone Penetration Resistance, N_d:
The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in) to drive uncased a 50 mm (2 in) diameter, 60° cone attached to "A" size drill rods for a distance of 300 mm (12 in).

Textural Classification of Soils (ASTM D2487-10)

Classification	Particle Size
Boulders	> 300 mm
Cobbles	75 mm - 300 mm
Gravel	4.75 mm - 75 mm
Sand	0.075 mm - 4.75 mm
Silt	0.002 mm - 0.075 mm
Clay	<0.002 mm(*)

(*) Canadian Foundation Engineering Manual (4th Edition)

Coarse Grain Soil Description (50% greater than 0.075 mm)

Terminology	Proportion
Trace	0-10%
Some	10-20%
Adjective (e.g. silty or sandy)	20-35%
And (e.g. sand and gravel)	> 35%

Soil Description

a) Cohesive Soils(*)

Consistency	Undrained Shear Strength (kPa)	SPT "N" Value
Very soft	<12	0-2
Soft	12-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very stiff	100-200	15-30
Hard	>200	>30

(*) Hierarchy of Shear Strength prediction
1. Lab triaxial test
2. Field vane shear test
3. Lab. vane shear test
4. SPT "N" value
5. Pocket penetrometer

b) Cohesionless Soils

Density Index (Relative Density)	SPT "N" Value
Very loose	<4
Loose	4-10
Compact	10-30
Dense	30-50
Very dense	>50

Soil Tests

w	Water content
w_p	Plastic limit
w_l	Liquid limit
C	Consolidation (oedometer) test
CID	Consolidated isotropically drained triaxial test
CIU	consolidated isotropically undrained triaxial test with porewater pressure measurement
D_R	Relative density (specific gravity, Gs)
DS	Direct shear test
ENV	Environmental/ chemical analysis
M	Sieve analysis for particle size
MH	Combined sieve and hydrometer (H) analysis
MPC	Modified proctor compaction test
SPC	Standard proctor compaction test
OC	Organic content test
U	Unconsolidated Undrained Triaxial Test
V	Field vane (LV-laboratory vane test)
γ	Unit weight

LOG OF BOREHOLE BH16-1

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797248 E 595103

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/01/2016

REF. NO.: 161-15952-00
ENCL NO.: 2

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"
91.2 / 0.0	**ASPHALTIC CONCRETE:** 125mm			
90.8 / 0.1	**GRANULAR BASE/SUBBASE:** 305mm	1	SS	16
90.3 / 0.4	**FILL:** silt with some sand and gravel, reddish brown/brown/black, very moist, compact			
89.7 / 0.9	**SAND:** some silt, trace organics, brown, very moist, loose	2	SS	9
88.9 / 1.5	**SILTY CLAY:** trace organics, dark brown, very moist, firm	3	SS	5
86.6 / 2.3	**SILTY CLAY TILL:** trace sand, brown, moist, very stiff	4	SS	18
	hard	5	SS	34
		6	SS	29
85.1 / 4.6	**SANDY SILT TILL:** trace gravel, trace clay, brown, moist, very dense	7	SS	90
83.6 / 6.1	**SILTY CLAY TILL:** some sand, trace gravel, grey, moist, hard	8	SS	43
82.1 / 7.6	**SILTY CLAY:** grey, moist, very stiff	9	SS	28
81.0 / 9.1	**CLAYEY SILT TILL/ SHALE COMPLEX:** trace sand, trace gravel, trace shale, reddish brown, very moist to wet, hard	10	SS	91

GROUND WATER CONDITIONS: W. L. 91.0 m Dec 16, 2017

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

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

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

DEPTH (m)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
1.5	75		
2.3	225		
3.8	225		
4.6			
7.6			9 62 29

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-1

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797248 E 595103

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/01/2016

REF. NO.: 161-15952-00
ENCL NO.: 2

SOIL PROFILE (m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	CLAYEY SILT TILL/ SHALE COMPLEX: trace sand, trace gravel, trace shale, reddish brown, very moist to wet, hard(Continued)						81				
80.2											
11.0	**INFERRED BEDROCK:** shale interbedded with siltstone/ limestone, reddish brown **(Queenston Formation)**						80				Hard augering
78.9			11	SS	for 100 mm		79				
12.3	**Refusal:** on assumed bedrock **Notes:** Water levels Dec 12 0.2 m.B.G.S. Dec 16 0.2 m.B.G.S. Combustible gas reading: 1200ppm in open borehole upon completion.										

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

LOG OF BOREHOLE BH16-2

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797196 E 595144

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/01/2016

REF. NO.: 161-15952-00
ENCL NO.: 3

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
90.7												
90.6	**ASPHALTIC CONCRETE:** 125mm											
90.4 0.3	**GRANULAR BASE/ SUBBASE:** 175mm		1	SS	5		90					
	FILL: medium to fine sand, trace organics, brown, black layers, wet, loose		2	SS	6							
89.2							89			75		
1.5	**CLAYEY SILT:** trace organics, trace sand, reddish brown, moist, stiff		3	SS	8							
88.4							88			225		
2.3	**SILTY CLAY TILL:** trace sand, brown, moist, very stiff		4	SS	23							
	trace shale fragments, grey, hard		5	SS	42		87					
	very stiff		6	SS	26		86					
84.6							85					
6.1	**SILTY CLAY:** trace sand and gravel, grey, moist, very stiff		7	SS	27	▽	84			225		
								W. L. 83.5 m on completion				
			8	SS	21		83			125		
81.6							82					
9.1	**SILT TILL/ SHALE COMPLEX:** trace sand and gravel, reddish brown, wet, dense		9	SS	33							
							81					

Continued Next Page

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

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-2

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797196 E 595144

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/01/2016

REF. NO.: 161-15952-00
ENCL NO.: 3

SOIL PROFILE (m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	SILT TILL/ SHALE COMPLEX: trace sand and gravel, reddish brown, wet, dense(Continued)						80				
11 79.4											
11.3	**INFERRED BEDROCK:** shale interbedded with siltstone/ limestone, reddish brown **(Queenston Formation)**						79				Hard augering
12 78.5											
12.2	**Refusal:** on assumed bedrock		10	SS	for 75mm						

Notes:
Combustible gas reading: 560 ppm in open borehole upon completion.
Water level at 7.2 m.b.g.l. upon completion.

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797133 E 595244

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/02/2016

REF. NO.: 161-15952-00
ENCL NO.: 4

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
89.5												
89.4	**ASPHALTIC CONCRETE:** 115mm											
89.2 / 0.3	**GRANULAR BASE/ SUBBASE:** 165mm		1	SS	14		89					
	FILL: sand, some silt, trace clay, trace organics, dark brown, very moist to wet, compact to loose		2	SS	8		88					
87.8			3	SS	7							
1.7 / 87.2	**SILT:** some sand, some clay, sand layers, brown, satured, loose											
2.3	**CLAYEY SILT TILL:** trace sand and gravel, brown, moist, hard		4	SS	35	▽	87					
								W. L. 86.7 m Dec 16, 2017				
			5	SS	31		86					
			6	SS	30		85					
83.4							84					
6.1	**SILTY CLAY:** trace sand, trace shale, occassional red layers, grey, moist, hard		7	SS	41		83					
81.9							82					
7.6	**SILTY SAND TILL/SHALE COMPLEX:** some clay, some gravel, reddish brown, moist, very dense		8	SS	69		81					
			9	SS	50/ 125mm		80					

Continued Next Page

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

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-3

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797133 E 595244

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/02/2016

REF. NO.: 161-15952-00
ENCL NO.: 4

ELEV / DEPTH (m)	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: "N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa)	PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT / WATER CONTENT (%)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	SILTY SAND TILL/SHALE COMPLEX: some clay, some gravel, reddish brown, moist, very dense(Continued)											
			10	SS	50/ 50mm		79					Hard augering 11 53 26 10
11												
							78					
12												
77.3 12.2	**INFERRED BEDROCK:** shale interbedded with siltstone/ limestone, reddish brown (**Queenston Formation**)		11	SS	60/ 125mm							
77.1 12.4	**Refusal:** on assumed bedrock											

Notes:
Water levels
Dec 12 2.8 m.B.G.S.
Dec 16 2.8 m.B.G.S.
Combustible gas reading: 560 ppm in open borehole upon completion.

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-4

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797149 E 595106

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/01/2016

REF. NO.: 161-15952-00
ENCL NO.: 5

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
91.9 / 0.0	**ASPHALTIC CONCRETE:** 125mm				
91.7 / 0.2	**GRANULAR BASE/SUBBASE:** 75mm	1	SS	8	
	SAND: some to trace silt, trace clay, reddish brown, wet, loose				
1	brown	2	SS	9	91
	saturated, compact	3	SS	16	
2		4	SS	18	90
88.9 / 3					89
3.1	**SILTY CLAY TILL:** trace sand, grey, moist, very stiff	5	SS	17	
4					
	trace gravel	6	SS	29	87
5					
6					86
85.6 / 6.3	**CLAYEY SILT TILL:** grey, moist, hard	7	SS	39	
7					85
8		8	SS	43	84
9	very stiff	9	SS	17	83
10					82

GROUND WATER CONDITIONS: ▽ W. L. 88.2 m on completion

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

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

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

POCKET PEN. (Cu) (kPa): 225 (NUMBER 6), 225 (NUMBER 7)

NATURAL UNIT WT (kN/m³)

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

Continued Next Page

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

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-4

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797149 E 595106

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/01/2016

REF. NO.: 161-15952-00
ENCL NO.: 5

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	CLAYEY SILT TILL: grey, moist, hard(Continued)											
11							81					
80.0												
12 11.9	**INFERRED BEDROCK:** shale interbedded with siltstone/ limestone, reddish brown **(Queenston Formation)**						80					Hard augering
79.0			10	SS	for 75mm							
12.9	**Refusal:** on assumed bedrock											

Notes:
Combustible gas reading: 0 ppm in open borehole upon completion.
Water level at 3.7 m.b.g.l. upon completion.

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-5

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797099 E 595146

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/01/2016

REF. NO.: 161-15952-00
ENCL NO.: 6

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
91.8 / 0.0	**ASPHALTIC CONCRETE:** 125mm				
91.7 / 0.1	**GRANULAR BASE/ SUBBASE:** 475mm	1	SS	17	
91.2 / 0.6	**SAND:** trace silt, reddish brown, very moist trace organics, brown, wet, loose	2	SS	9	91
1	reddish brown, saturated	3	SS	7	90
2		4	SS	6	89
3		5	SS	24	
88.4 / 3.4	**SILTY CLAY:** trace sand, grey, very moist, very stiff				88
4		6	SS	28	87
5					
6					86
85.5 / 6.3	**CLAYEY SILT TILL:** grey, moist, hard	7	SS	41	
7					85
84.2 / 7.6	**SILTY CLAY TILL:** grey, very moist, very stiff	8	SS	26	84
8					
9					83
9		SS	20		
10					82

GROUND WATER CONDITIONS: ▽ W. L. 87.5 m on completion

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100

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

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L

WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa): 125; 225; 225

NATURAL UNIT WT (kN/m³)

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

Continued Next Page

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

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-5

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797099 E 595146

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/01/2016

REF. NO.: 161-15952-00
ENCL NO.: 6

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	SILTY CLAY TILL: grey, very moist, very stiff(Continued)											
11							81					
80.2												
11.6	**INFERRED BEDROCK:** shale interbedded with siltstone/ limestone, reddish brown **(Queenston Formation)**											Hard augering
12							80					
79.2			10	SS	for 100mm							
12.6	**Refusal:** on assumed bedrock **Notes:** Combustible gas reading: 590 ppm in open borehole upon completion. Water level at 4.3 m.b.g.l. upon completion.											

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

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

LOG OF BOREHOLE BH16-6

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797069 E 595085

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/05/2016

REF. NO.: 161-15952-00
ENCL NO.: 7

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS "N" 0.3 m	ELEVATION
94.7 / 0.0	**ASPHALTIC CONCRETE:** 35mm				
94.5 / 0.2	**GRANULAR BASE/ SUBBASE:** 145mm				
	SILTY SAND: some clay, trace organics, reddish brown, very moist, loose	1	SS	7	94
		2	SS	5	
	wet	3	SS	4	93
		4	SS	4	92
		5	SS	6	91
	W. L. 90.4 m Dec 16, 2017				
	grey, saturated, compact	6	SS	17	90
88.6 / 6.1	**SILTY CLAY TILL:** trace sand, grey, moist, very stiff	7	SS	19	89
		8	SS	22	88
85.6 / 9.1	**SILTY SAND TILL:** trace clay, grey, very moist, compact	9	SS	23	87
					86
					85

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100

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

PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L

WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
		1 53 28 18
225		
175		

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-6

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797069 E 595085

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/05/2016

REF. NO.: 161-15952-00
ENCL NO.: 7

SOIL PROFILE (m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
84.0	**SILTY SAND TILL:** trace clay, grey, very moist, compact(Continued)										
10.7	**CLAYEY SILT:** grey, moist, hard		10	SS	32		84	○	○	225	
11											
12 82.5							83				
12.2	**SANDY SILT TILL/SHALE COMPLEX:** reddish brown, moist, very dense		11	SS	50/ 125mm				○	150	
13							82				
14			12	SS	50/ 125mm		81		○		
15 79.5							80				
15.2 79.2	**INFERRED BEDROCK:** shale interbedded with siltstone/ limestone, reddish brown **(Queenston Formation)**		13	SS	50/ 100mm				○		Hard augering
15.5	**Refusal:** on assumed bedrock										

Notes:
Water levels
Dec 12 4.4 m.B.G.S.
Dec 16 4.3 m.B.G.S.
Combustible gas reading: 0ppm in open borehole upon completion.

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-7

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797029 E 595150

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/02/2016

REF. NO.: 161-15952-00
ENCL NO.: 8

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
92.6					
0.0 / 92.1	**TOPSOIL:** dark brown, very moist, loose, 500 mm	1	SS	10	
0.5	**SAND:** trace silt, trace gravel, reddish brown, very moist, loose				92
	wet	2	SS	6	
		3	SS	5	91
	saturated, compact	4	SS	21	90
		5	SS	24	89
88.0					
4.6	**SILT TILL:** some clay to clayey, sandy, trace to some gravel, grey, very moist, very stiff	6	SS	15	88
		7	SS	27	87
85.0					86
7.6	**SILT TILL:** with some sand, trace gravel, trace clay, grey, very moist, very dense	8	SS	62	85
	compact	9	SS	27	84
					83

W. L. 89.8 m
Dec 16, 2017

10 23 48 19

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-7

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797029 E 595150

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/02/2016

REF. NO.: 161-15952-00
ENCL NO.: 8

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	SILT TILL: with some sand, trace gravel, trace clay, grey, very moist, very dense(Continued)						82					
11												
12							81					
80.1												
12.5	**INFERRED BEDROCK:** shale interbedded with siltstone/ limestone, reddish brown **(Queenston Formation)**						80					Hard augering
13												
78.8			10	SS	for 50mm		79					
13.8	**Refusal:** on assumed bedrock **Notes:** Water levels Dec 12 2.9 m.B.G.S. Dec 16 2.8 m.B.G.S. Combustible gas reaidng: 1200 ppm in open borehole upon completion.											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-8

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797080 E 595312

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/02/2016

REF. NO.: 161-15952-00
ENCL NO.: 9

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
89.6												
89.6	**ASPHALTIC CONCRETE:** 110mm											
89.3 0.3	**GRANULAR BASE/ SUBBASE:** 165mm		1	SS	7							
	FILL: sand, some silt, reddish brown, very moist, loose						89					
1	very loose		2	SS	3							
	saturated		3	SS	3		88					
2 87.2												
2.4	**CLAYEY SILT TILL:** trace sand, red, moist, very stiff		4	SS	19		87			225		
3			5	SS	20					225		
4	with occassional silt layers, hard		6	SS	34		86 85					
5 6			7	SS	30		84					
83.0							83					
6.6	**End of Borehole:**											
	Notes: Borehole dry on completion											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-9

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797038 E 595283

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/07/2016

REF. NO.: 161-15952-00
ENCL NO.: 10

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
90.6												
0.0 90.3	**TOPSOIL:** dark brown, very moist, loose, 300 mm		1	SS	6							
0.3	**SAND:** trace topsoil, reddish brown, very moist, compact						90					
1	trace silt		2	SS	17							
	reddish brown/brown layers		3	SS	16		89					
2	saturated		4	SS	21		88					
87.6												
3.1	**CLAYEY SILT:** trace sand, grey, moist, very stiff		5	SS	17		87			225		
4	hard		6	SS	31		86					
5							85					
6	very stiff		7	SS	29							
84.0							84					
6.6	**End of Borehole:** **Notes:** Borehole dry on completion											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-10

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797001 E 595211

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/02/2016

REF. NO.: 161-15952-00
ENCL NO.: 11

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
91.1												
90.9	**ASPHALTIC CONCRETE:** 110mm											
90.6	**GRANULAR BASE/ SUBBASE:** 140mm											
0.3	**SAND:** trace to some silt, reddish brown, very moist, compact		1	SS	12		91					
1	loose		2	SS	9		90					
	saturated, loose to very loose		3	SS	4	▽						
2							89	W. L. 89.0 m on completion				
			4	SS	3							
3	compact		5	SS	12		88					
4							87					
86.5												
4.6	**SILTY CLAY TILL:** trace shale, trace sand and gravel, grey, moist, very stiff		6	SS	22					225		
5							86					
6												
84.9			7	SS	50/ 100mm		85			125		
6.2	**End of Borehole:**											

Notes:
Water level at 2.1 m.b.g.l. upon completion.

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

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

LOG OF BOREHOLE BH16-11

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4796956 E 595211

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/07/2016

REF. NO.: 161-15952-00
ENCL NO.: 12

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
91.6												
90.6 0.2	**TOPSOIL:** dark brown, very moist, loose, 200 mm		1	SS	5		91					
	SAND: some silt, trace clay, trace gravel, reddish brown, very moist, loose											
1	very moist to wet, compact		2	SS	10							
	trace gravel, very moist		3	SS	13		90					
2												
	saturated		4	SS	19		89					
						▽		W. L. 89.0 m Dec 16, 2017				
3			5	SS	12							2 73 19 6
							88					
4												
87.0 4.6	**SILTY CLAY TILL:** trace gravel, moist, very stiff		6	SS	24		87			225		
5												
							86					
6												
	hard		7	SS	35							
85.0 6.6	**End of Borehole:**						85					
	Notes: Water levels Dec 12 2.6 m.B.G.S. Dec 16 2.6 m.B.G.S.											

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

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-12

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4796935 E 595168

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/06/2016

REF. NO.: 161-15952-00
ENCL NO.: 13

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
91.6												
90.6	**ASPHALTIC CONCRETE:** 100mm											
91.4 0.2	**GRANULAR BASE/ SUBBASE:** 100mm											
	SAND: trace to some silt, reddish brown, very moist, loose		1	SS	14		91					
1	trace silt, brown, compact		2	SS	9							
			3	SS	15		90					
2						▽						
	saturated		4	SS	16		W. L. 89.3 m on completion					
3			5	SS	16		89					
4							88					
87.0												
4.6	**SILTY CLAY TILL:** trace silt, grey, moist, very stiff		6	SS	19		87			200		
5												
6	trace clay, trace gravel		7	SS	26		86					
85.0												
6.6	**End of Borehole:**						85					
	Notes: Water level at 2.3 m.b.g.l. upon completion.											

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

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-13

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4796947 E 595067

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/07/2016

REF. NO.: 161-15952-00
ENCL NO.: 14

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
93.0												
92.9 / 0.1	**ASPHALTIC CONCRETE:** 50mm											
	GRANULAR BASE/ SUBBASE: 50mm											
92.2	**SAND:** trace silt, reddish brown, very moist, loose		1	SS	6							
0.8 / 91.5	**SILT:** some sand, reddish brown, very moist, loose		2	SS	8		92					
1.5	**SAND:** trace silt, brown/ reddish brown, very moist, loose		3	SS	4		91					
	saturated, compact		4	SS	17	▽						
							W. L. 90.4 m on completion					
88.5			5	SS	20		90					
4.5	**SILTY CLAY:** trace sand, grey, very moist to moist, very stiff		6	SS	15		89			175		
							88					
			7	SS	20		87			225		
86.4												
6.6	**End of Borehole:**											
	Notes: Water level at 2.6 m.b.g.l. upon completion.											

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

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-14

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4796974 E 595039

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/07/2016

REF. NO.: 161-15952-00
ENCL NO.: 15

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
93.1												
0.0 / 92.5	**TOPSOIL:** dark brown, very moist, loose, 600 mm		1	SS	10		93					
0.6 / 88.5	**SAND:** trace to some silt, reddish brown, very moist, loose - - - - - - - - - - - - - - - - brown - - - - - - - - - - - - - - - - saturated, compact		2	SS	4		92					
			3	SS	6		91					
			4	SS	15		90					
			5	SS	20		89					
4.6 / 86.5	**SILTY CLAY:** trace sand, grey, moist, stiff - - - - - - - - - - - - - - - - very stiff		6	SS	14		88			225		
			7	SS	25		87					
6.6	**End of Borehole:** **Notes:** Borehole dry on completion											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-15

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4796884 E 595049

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/05/2016

REF. NO.: 161-15952-00
ENCL NO.: 16

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
92.8												
92.7 0.1	**ASPHALTIC CONCRETE:** 100mm											
92.6 0.3	**GRANULAR BASE/ SUBBASE:** 150mm											
	SAND: some silt, reddish brown, very moist, compact		1	SS	10		92					
1			2	SS	10							
	loose		3	SS	5		91					
2												
	trace silt, grey, compact, saturated		4	SS	23	▽	W. L. 90.2 m on completion					
3			5	SS	26		89					
4												
88.2 4.6	**SILTY CLAY TILL:** trace sand, grey, moist, very stiff		6	SS	17		88			225		
5												
6 86.7							87					
6.1 86.4	**SILT TILL:** some sand, trace gravel, very moist, very dense		7	SS	50/ 150mm							
6.4	**End of Borehole:** **Notes:** Water level at 2.6 m.b.g.l. upon completion.											

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

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-16

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4796916 E 595016

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/05/2016

REF. NO.: 161-15952-00
ENCL NO.: 17

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
92.8 / 0.0	**ASPHALTIC CONCRETE:** 100mm				
92.7 / 0.1	**GRANULAR BASE/ SUBBASE:** 100mm				
92.6 / 0.2	**SAND:** trace to some silt, reddish brown, very moist, loose	1	SS	5	
		2	SS	4	92
		3	SS	7	91
	saturated	4	SS	6	W. L. 90.3 m Dec 16, 2017
	compact	5	SS	13	90
					89
88.2 / 4.6	**SILTY SAND:** some clay, trace gravel, grey, very moist, compact	6	SS	18	88
86.7 / 6.1	**CLAYEY SILT TILL:** grey, moist, hard	7	SS	31	87
86.2 / 6.6	**End of Borehole:** **Notes:** Water levels Dec 12 2.5 m.B.G.S. Dec 16 2.5 m.B.G.S.				

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100

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

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L

WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa): 225

NATURAL UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
2	67	20	11

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-17

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4797035 E 594991

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/06/2016

REF. NO.: 161-15952-00
ENCL NO.: 18

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
94.2												
94.0 0.1	**ASPHALTIC CONCRETE:** 100mm											
93.9 0.2	**GRANULAR BASE/ SUBBASE:** 125mm											
	SILTY SAND: some clay, trace gravel, reddish brown, very moist, loose		1	SS	6		94					
1			2	SS	6							
	trace silt, brown		3	SS	6		93					
2	compact		4	SS	14		92					
3	reddish brown, saturated		5	SS	21		91					
						W. L. 90.8 m Dec 16, 2017						
4							90					
5			6	SS	22							1 61 22 16
6 88.1							89					
6.1 87.6	**SILTY CLAY:** trace sand, grey, very moist, very stiff		7	SS	15		88			150		
6.6	**End of Borehole:**											

Notes:
Water levels
Dec 12 3.4 m.B.G.S.
Dec 16 3.4 m.B.G.S.

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

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

LOG OF BOREHOLE BH16-18

PROJECT: Geotechnical Investigation
CLIENT: bcIMC Realty Corp. o/a Georgian Court Estates
PROJECT LOCATION: Georgina Court Redevelopment
DATUM: Geodetic
BH LOCATION: N 4796984 E 594949

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 0.2
Date: Dec/06/2016

REF. NO.: 161-15952-00
ENCL NO.: 19

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
93.9												
90.0	**ASPHALTIC CONCRETE:** 150mm											
0.2 / 93.4	**GRANULAR BASE/ SUBBASE:** 350mm		1	SS	22				○			
0.5	**SAND:** trace to some silt, reddish brown, very moist, compact		2	SS	17		93		○			
1	very loose		3	SS	3				○			
2	wet		4	SS	1		92		○			
3	saturated, compact		5	SS	17	▽	91		○			
							W. L. 90.8 m on completion					
4							90					
			6	SS	25				○			
5							89					
6 / 87.8							88					
6.1 / 87.3	**CLAYEY SILT TILL:** trace sand, grey, moist, very stiff		7	SS	24				○			
6.6	**End of Borehole:** **Notes:** Water level at 3.1 m.b.g.l. upon completion.											

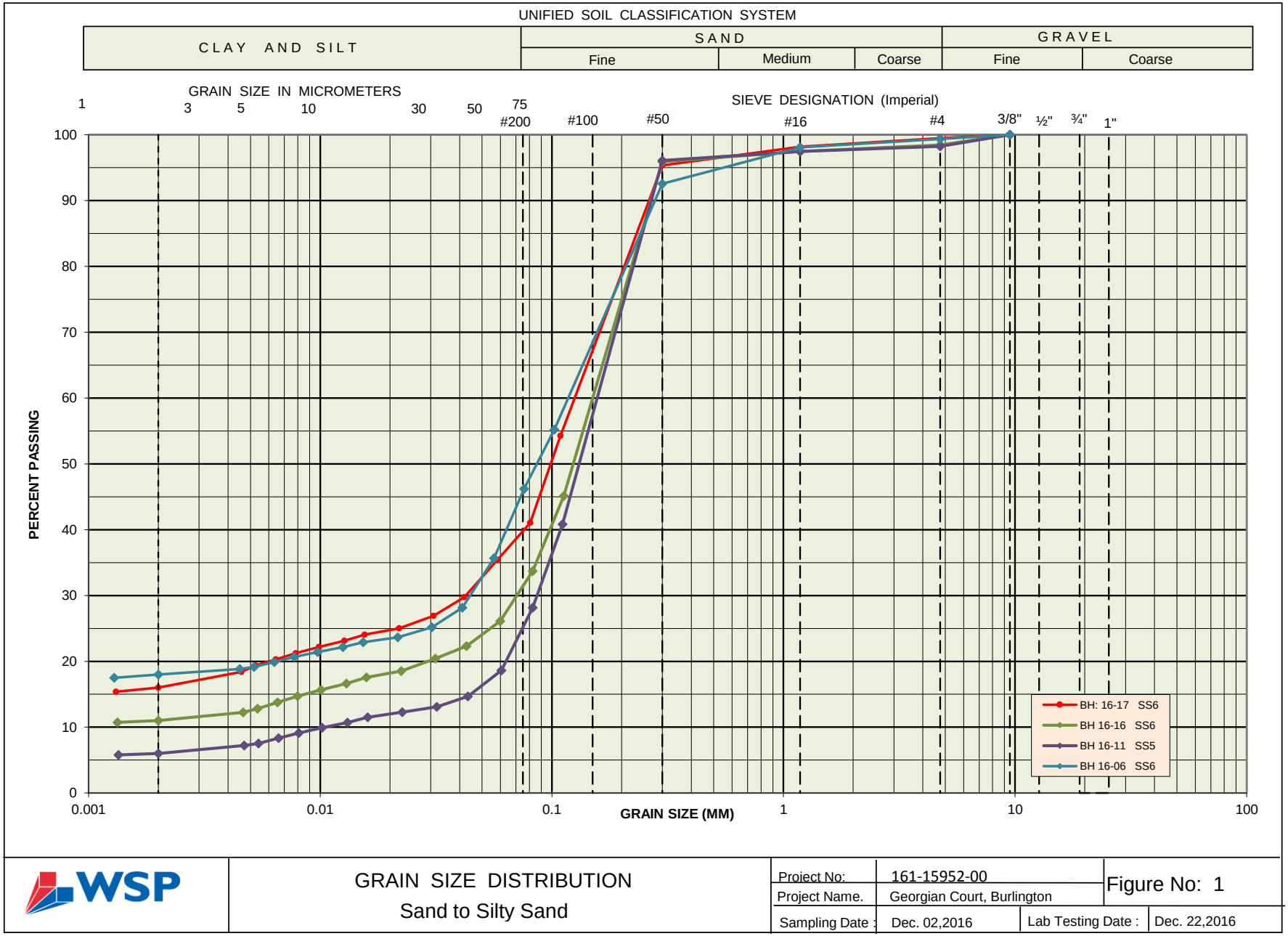
GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

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

WSP SOIL LOG GINT LOGS.GPJ SPL.GDT 1/3/17

Appendix B

GRAIN SIZE DISTRIBUTION CURVES
PLASTICITY CHART

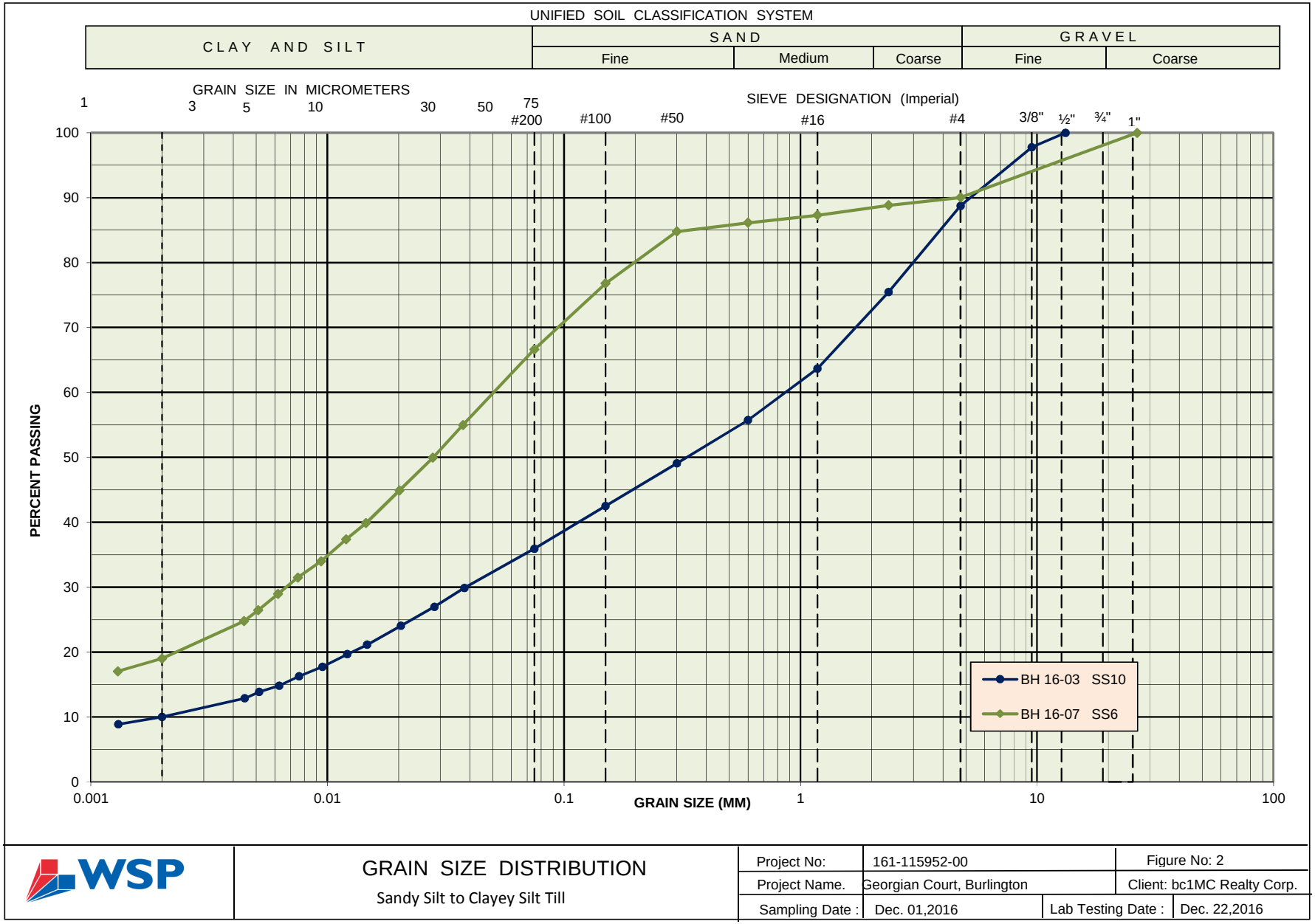


WSP

GRAIN SIZE DISTRIBUTION

Sand to Silty Sand

Project No:	161-15952-00	Figure No: 1	
Project Name.	Georgian Court, Burlington		
Sampling Date :	Dec. 02,2016	Lab Testing Date :	Dec. 22,2016

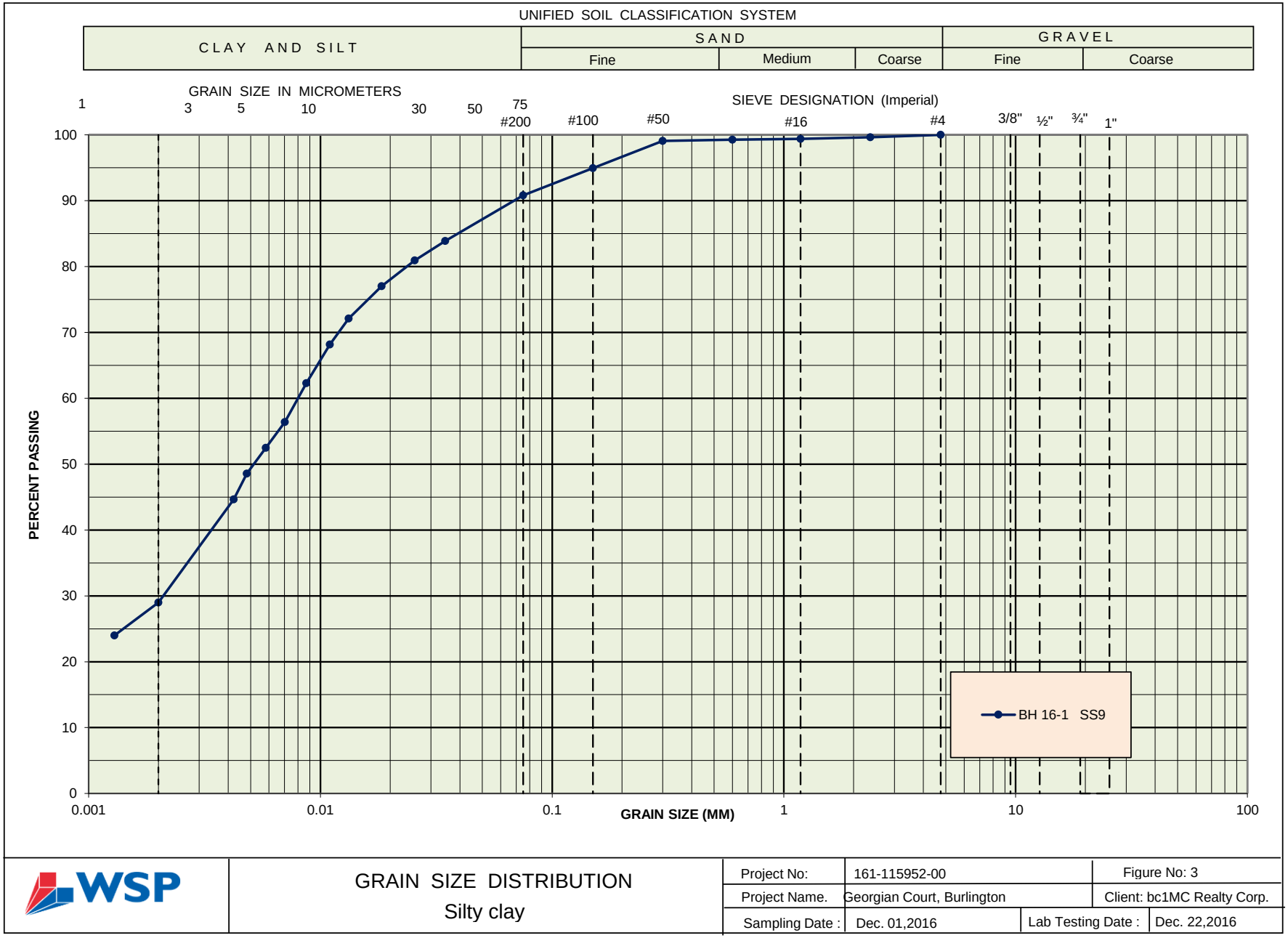


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GRAIN SIZE DISTRIBUTION

Sandy Silt to Clayey Silt Till

Project No:	161-115952-00		Figure No: 2
Project Name.	Georgian Court, Burlington		Client: bc1MC Realty Corp.
Sampling Date :	Dec. 01,2016	Lab Testing Date :	Dec. 22,2016

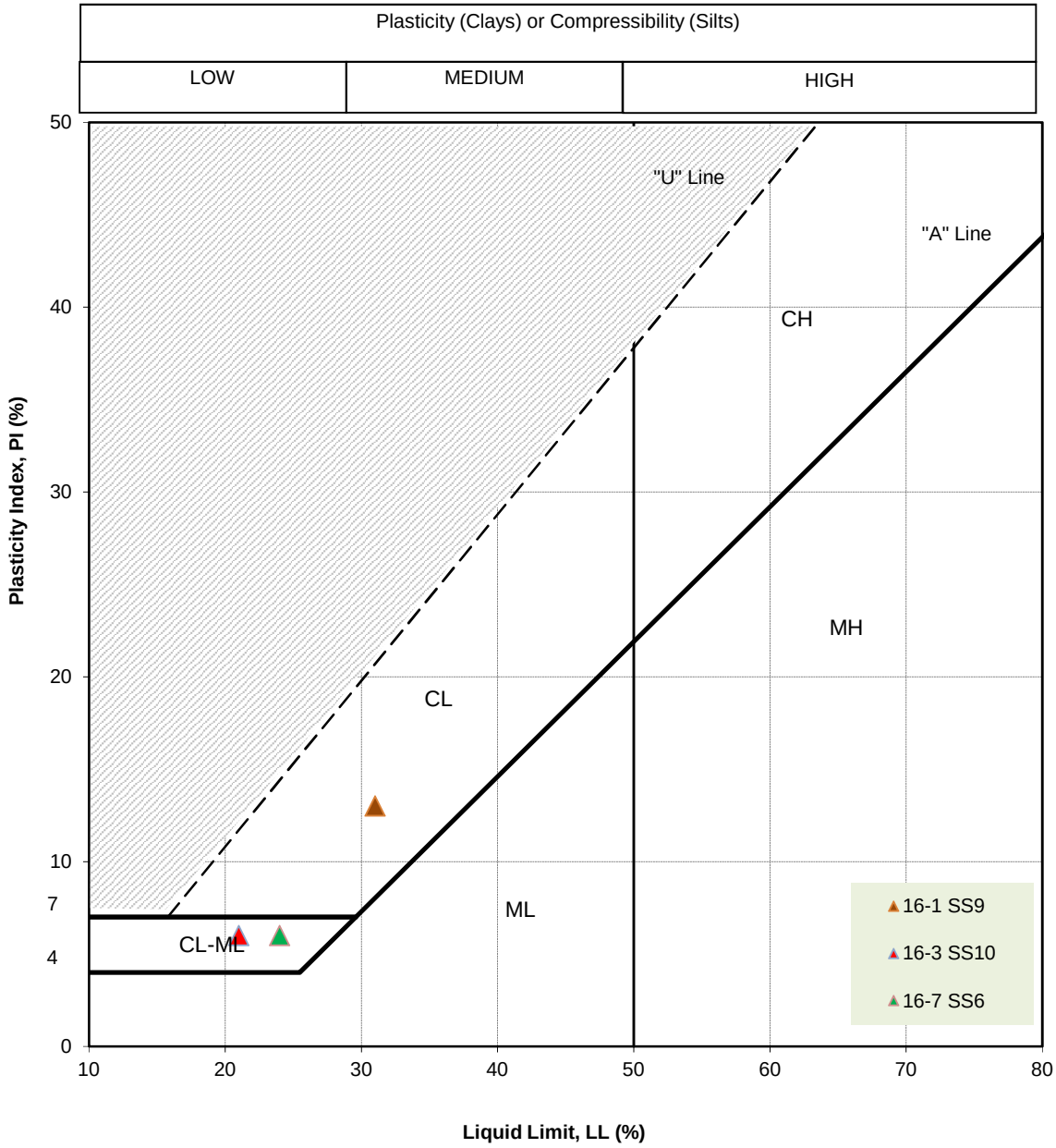


WSP

GRAIN SIZE DISTRIBUTION

Silty clay

Project No:	161-115952-00		Figure No: 3
Project Name.	Georgian Court, Burlington		Client: bc1MC Realty Corp.
Sampling Date :	Dec. 01,2016	Lab Testing Date :	Dec. 22,2016



WSP	**PLASTICITY CHART**	Project No: 161-15952-00
		Project Name: Georgian Court, Burlington
	Sampling Date: Dec. 02,2016	**Figure No**: 4

Appendix C

GENERAL COMMENTS – BEDROCK IN METRO TORONTO AREA

General Comments – Bedrock in Metro Toronto Area

The bedrock that makes spread footings or caissons a popular choice for high-rise foundation support is a shale or shale limestone composition. The highest member, the Queenston Formation, is generally found west of Toronto, while the Georgian Bay Formation underlies most of Metro Toronto, with the Collingwood Formation east of Toronto. The Queenston is, relatively speaking, the weaker of the three formations that are likely to support caissons or footings.

The Georgian Bay as well as the Queenston and Collingwood Formation are of Middle Ordovician Age. It is defined as the rock unit that overlies the bluish grey shales of the Collingwood Formation and is in turn overlain by the red shale of the Queenston Formation. The Georgian Bay Formation consists of bluish and grey shale with interbeds of sandstone, limestone and dolostone. Towards the west where the Georgian Bay formation underlies the Queenston Formation, the limestone content increases significantly and limestone and/or sandstone may comprise as much as 70 to 90 percent of the bedrock. The hard layers are usually less than about 100 to 150 mm thick but some layers are much thicker. The thicker layers have been observed to be as much as 750 to 900 mm at some sites. The layers are actually lenses and they can vary significantly in thickness over short distances.

The upper portion of the bedrock is commonly weathered for a depth of 600 to 1000 mm and within this weathered zone hard limestone layers or lenses are common. These hard limestone layers can result in contractual problems for augers, and can provide misleading bedrock elevations. Where the weathering is more extensive a shale till layer may be found above the bedrock. In the sound bedrock, the limestone, sandstone, dolostone is hard to very hard.

Stress relief features such as folds and faults are common in the bedrock. In these features, the rock is heavily fractured and sheared, and contains layers of shale rubble and clay. Weathering is much deeper than the surrounding rock in these features and often there is a lateral migration of the stress relief features resulting in sound unweathered bedrock overlying fractured and weather bedrock. The stress relief features are usually in the order of 4 to 6 m wide, but the depth can vary from 4 to 5 m to in excess of 10 m. These features occur randomly.

The bedrock contains significant high locked in horizontal stresses. These stresses can impose significant loads on tunnel walls but the slower rate of construction for basements allows for a relaxation of these stresses and they are not normally a problem for basement construction.

Groundwater seepage below the top 1000 mm is generally small, however, at several locations in Toronto and Mississauga large quantities have been encountered.

Bedding joints in the bedrock are very close-to-close, smooth planar in the shale and rough planar in the limestone. Significant vertical jointing is common.

Where the bedrock was cored, a detailed description of the rock core is appended to the borehole log.

Design features related to the bedrock are discussed in other sections of this report, and these general comments must be considered with these comments.

Methane gas exists in the bedrock, normally below the top 1000 mm and more concentrated with depth. Appropriate care and monitoring is essential in all confined bedrock excavations, particularly caissons and tunnels.

The methane is generally more prevalent with depth below the bedrock surface. In the event that methane gas is detected during the construction of the caissons taken to sound bedrock, it will not likely be possible to inspect the caisson base to ensure that it is founded in sound rock and that the recommended safe net bearing value of 5.0 to 7.5 MPa can be used.

If this occurs the design can be changed from end bearing to skin friction where a value of concrete to bedrock of 600 kPa is utilized. In this event the top 0.6 to 1.0 m of bedrock should be ignored in the design of the skin friction. Alternatively, the caissons can terminate at about 0.3 m below the surface of the bedrock and provided no methane is detected, and inspection is possible, the caissons can be designed using a safe net bearing value of 3.0 MPa.

There are significant cost implications in this change of design and the owners and designers should provide in the contract for the possible change in their design, and the higher costs associated with this change must be appreciated.

APPENDIX B – HYDRAULIC CONDUCTIVITY EVALUATION

HYDRAULIC CONDUCTIVITY ESTIMATION

GEORGIAN COURT REDEVELOPMENT
BURLINGTON ON

Soil Sample (SS) Location				Hazen Approximation: $K = C (D_{10})^2$					Puckett Method: $K = (4.36 \times 10^{-5}) e^{(-0.1975 \times \%clay)}$	
Borehole ID	Type and Number	Depth of SS		Diameter (mm) (10th percentile)	Diameter (cm) (10th percentile)	C	Hydraulic Conductivity (cm/sec)	Hydraulic Conductivity (m/sec)	% Clay (< 0.002 mm)	K value (m/sec)
		Depth (mBGS)	Elevation (mASL)							
BH16-01	SS9	7.6	83.6						27	2.1E-07
BH16-03	SS10	10.7	78.8	0.002	0.0002	60	2.4E-06	2.4E-08	10	6.0E-06
BH16-06	SS6	4.6	90.1						18	1.2E-06
BH16-07	SS6	4.6	88.0						19	1.0E-06
BH16-11	SS5	3.1	88.5	0.01	0.001	60	6.0E-05	6.0E-07		
BH16-16	SS6	4.6	88.2						11	5.0E-06
BH16-17	SS6	4.6	89.6						16	1.8E-06

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APPENDIX C – ECOLOG ERIS REPORT

ENVIRONMENTAL RISK INFORMATION SERVICES

DATABASE REPORT

Project Property:	*Georgian Redevelopment* *King Road And Surrey Lane* *Burlington ON*
Project No:	*3316497*
Report Type:	*Quote - Custom-Build Your Own Report*
Order No:	*20161222109*
Requested by:	*MMM Group Ltd.*
Date Completed:	*January 3, 2017*

Environmental Risk Information Services
A division of Glacier Media Inc.
P: 1.866.517.5204
E: info@erisinfo.com

www.erisinfo.com

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Executive Summary

Property Information:

Project Property:	*Georgian Redevelopment* *King Road And Surrey Lane Burlington ON*
Project No:	*3316497*

Order Information:

Order No:	*20161222109*
Date Requested:	*December 22, 2016*
Requested by:	*MMM Group Ltd.*
Report Type:	*Quote - Custom-Build Your Own Report*

Additional Products:

Executive Summary: Report Summary

Database	Name	Searched	Project Property	Boundary to 0.50km	Total
AAGR	Abandoned Aggregate Inventory	Y	0	0	0
AGR	Aggregate Inventory	Y	0	0	0
AMIS	Abandoned Mine Information System	Y	0	0	0
ANDR	Anderson's Waste Disposal Sites	Y	0	0	0
AUWR	Automobile Wrecking & Supplies	Y	0	0	0
BORE	Borehole	Y	3	19	22
CA	Certificates of Approval	Y	1	14	15
CFOT	Commercial Fuel Oil Tanks	Y	0	2	2
CHEM	Chemical Register	Y	0	0	0
CNG	Compressed Natural Gas Stations	Y	0	0	0
COAL	Inventory of Coal Gasification Plants and Coal Tar Sites	Y	0	0	0
CONV	Compliance and Convictions	Y	0	0	0
CPU	Certificates of Property Use	Y	0	0	0
DRL	Drill Hole Database	Y	0	0	0
EASR	Environmental Activity and Sector Registry	Y	2	0	2
EBR	Environmental Registry	Y	0	1	1
ECA	Environmental Compliance Approval	Y	0	2	2
EEM	Environmental Effects Monitoring	N	-	-	-
EHS	ERIS Historical Searches	Y	3	10	13
EIIS	Environmental Issues Inventory System	N	-	-	-
EMHE	Emergency Management Historical Event	Y	0	0	0
EXP	List of TSSA Expired Facilities	Y	0	29	29
FCON	Federal Convictions	N	-	-	-
FCS	Contaminated Sites on Federal Land	N	-	-	-
FOFT	Fisheries & Oceans Fuel Tanks	N	-	-	-
FST	Fuel Storage Tank	Y	0	9	9
FSTH	Fuel Storage Tank - Historic	Y	0	4	4
GEN	Ontario Regulation 347 Waste Generators Summary	Y	0	51	51
GHG	Greenhouse Gas Emissions from Large Facilities	N	-	-	-
HINC	TSSA Historic Incidents	Y	0	4	4
IAFT	Indian & Northern Affairs Fuel Tanks	N	-	-	-
INC	TSSA Incidents	Y	0	4	4
LIMO	Landfill Inventory Management Ontario	Y	0	0	0
MINE	Canadian Mine Locations	Y	0	0	0
MNR	Mineral Occurrences	Y	0	0	0
NATE	National Analysis of Trends in Emergencies System (NATES)	N	-	-	-

Database	Name	Searched	Project Property	Boundary to 0.50km	Total
NCPL	Non-Compliance Reports	Y	0	0	0
NDFT	National Defense & Canadian Forces Fuel Tanks	N	-	-	-
NDSP	National Defense & Canadian Forces Spills	N	-	-	-
NDWD	National Defence & Canadian Forces Waste Disposal Sites	N	-	-	-
NEBW	National Energy Board Wells	N	-	-	-
NEES	National Environmental Emergencies System (NEES)	N	-	-	-
NPCB	National PCB Inventory	N	-	-	-
NPRI	National Pollutant Release Inventory	N	-	-	-
OGW	Oil and Gas Wells	Y	0	0	0
OOGW	Ontario Oil and Gas Wells	Y	0	0	0
OPCB	Inventory of PCB Storage Sites	Y	0	0	0
ORD	Orders	Y	0	0	0
PAP	Canadian Pulp and Paper	Y	0	0	0
PCFT	Parks Canada Fuel Storage Tanks	N	-	-	-
PES	Pesticide Register	Y	0	0	0
PINC	TSSA Pipeline Incidents	Y	0	4	4
PRT	Private and Retail Fuel Storage Tanks	Y	0	4	4
PTTW	Permit to Take Water	Y	0	0	0
REC	Ontario Regulation 347 Waste Receivers Summary	Y	0	2	2
RSC	Record of Site Condition	Y	0	1	1
RST	Retail Fuel Storage Tanks	Y	0	4	4
SCT	Scott's Manufacturing Directory	Y	0	5	5
SPL	Ontario Spills	Y	0	14	14
SRDS	Wastewater Discharger Registration Database	Y	0	0	0
TANK	Anderson's Storage Tanks	Y	0	0	0
TCFT	Transport Canada Fuel Storage Tanks	N	-	-	-
VAR	TSSA Variances for Abandonment of Underground Storage Tanks	Y	0	0	0
WDS	Waste Disposal Sites - MOE CA Inventory	Y	0	0	0
WDSH	Waste Disposal Sites - MOE 1991 Historical Approval Inventory	Y	0	0	0
WWIS	Water Well Information System	Y	0	27	27
	Total:		9	210	219

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev diff (m)	Page Number
1	EHS		611 Surrey Lane Burlington ON L7T3S7	-/0.0	0.01	32
2	CA	GWL Realty Advisors Inc.	611 Surrey Lane Burlington ON L7T 3S7	-/0.0	2.47	32
2	EHS		611 Surrey Lane Burlington ON L7T3S7	-/0.0	2.47	32
3	EASR	BCIMC REALTY CORPORATION	611 SURREY BURLINGTON ON	-/0.0	2.47	32
3	EASR	BCIMC REALTY CORPORATION	611 SURREY BURLINGTON BURLINGTON ON	-/0.0	2.47	33
4	EHS		611 Surrey Lane Burlington ON	-/0.0	2.47	33
5	BORE		ON	-/0.0	2.47	33
5	BORE		ON	-/0.0	2.47	34
5	BORE		ON	-/0.0	2.47	35

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
6	BORE		ON	N/25.0	-0.53	35
7	HINC		862 KING ROAD [HIGHWAY 2] BURLINGTON ON L7T 3K9	SSW/33.7	1.19	36
8	SPL	UNKNOWN	ON TOWNSEND AVE. JUST WEST OF KING BURLINGTON CITY ON	W/37.7	3.47	36
9	EHS		705 Surrey Ln Burlington ON L7T 3Z4	NNW/50.9	0.47	37
10	EHS		695 Surrey Lane Burlington ON L7T3Z3	NW/51.1	1.10	37
11	BORE		ON	NNW/66.6	0.65	37
12	BORE		ON	NNW/84.6	1.05	38
13	INC		923 FRANCIS RD, BURLINGTON ON	NNE/86.3	-0.16	38
14	SPL	Union Gas Limited; Union Gas Limited<UNOFFICIAL>	833 King Road Burlington ON	S/97.4	0.47	39
15	BORE		ON	NW/99.2	1.47	39
16	BORE		ON	SE/101.7	-1.53	40
17	BORE		ON	NW/116.4	1.47	40
18	BORE		ON	NW/127.0	2.44	41
19	GEN	BURLINGTON HYDRO INC.	950 Warwick Crt. BURLINGTON ON L7T 3Z5	NW/128.0	1.72	41
20	CA		ROW of King Road, Townsend Avenue Burlington ON	WSW/129.3	3.47	41
21	EHS		955 Warwick Avenue Burlington ON L7T 3Z6	NNW/149.8	1.47	42
21	GEN	BURLINGTON HYDRO INC.	955 Warwick Court BURLINGTON ON L7T 3Z6	NNW/149.8	1.47	42
22	BORE		ON	NW/158.1	2.40	42
23	SCT	SupplyLevel Incorporated	1103 Marley Cres Burlington ON L7T 3S3	NE/169.6	-0.47	43
24	WWIS		ON	W/170.5	4.47	43
25	CA	Bin-There Inc.	1017 Cedar Avenue Burlington ON L7T 2R8	E/175.2	-1.53	44
26	HINC		855 KINGSWAY DRIVE BURLINGTON ON L7T 3H8	SSW/191.2	-0.51	44
27	PINC		883 Kingsway Drive, Burlington ON L7T 3H8	SW/193.2	1.07	44

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28	INC		841 Kingsway Drive, Burlington ON L7T 3H8	SSW/195.7	-1.00	45
29	BORE		ON	SW/204.6	0.51	46
30	WWIS		ON	W/204.9	4.47	46
31	SPL	PUC	1096 MARLEY CRESCENT BURLINGTON CITY ON L7T 3S1	NE/212.8	1.38	47
32	WWIS		ON	W/217.1	4.47	47
33	GEN	HALTON ROMAN CATHOLIC S.S.B.	ECOLE ST. PHILIPPE 901 FRANCIS RD. BURLINGTON ON L7T 3Y3	NNE/221.4	1.75	48
34	BORE		ON	NNE/229.2	3.47	48
35	CA		Within the R.O.W of Townsend Ave. & Kingsway Dr. Burlington ON	WSW/229.2	3.40	48
36	GEN	PPM CANADA INC.	ROYAL BOTANICAL GARDENS, 680 PLAINS RD C/O TORONTO STAR BLDG.,1 YONGE ST.#801 BURLINGTON ON	NW/230.0	1.47	49
36	REC	PPM CANADA INC.	ROYAL BOTANICAL GARDENS 680 PLAINS ROAD BURLINGTON ON	NW/230.0	1.47	49
36	REC	PPM CANADA INC.	ROYAL BOTANICAL GARDENS, 680 PLAINS RD C/O TORONTO STAR BLDG.,1 YONGE ST.#801 BURLINGTON ON	NW/230.0	1.47	49
36	SPL	Royal Botanical Gardens<UNOFFICIAL>	680 Plains Rd Burlington ON	NW/230.0	1.47	49
37	SCT	STETSON ENTERPRISES	979 GLEN VIEW AVE BURLINGTON ON L7T 3Y7	N/234.5	6.47	50
38	CA	ROSART PROPERTIES LTD.-PT. LOT 1, CONC.1	DESIGNERS WAY/PLAINS RD. W. BURLINGTON CITY ON	NNW/243.1	0.37	50
38	CA	ROSART PROPERTIES LTD.-PT. LOT 1, CONC.1	DESIGNERS WAY/PLAINS RD. E. BURLINGTON CITY ON	NNW/243.1	0.37	50
38	CA	ROSART PROPERTIES/CREATIVE LIVING CENTRE	PLAINS RD E/FRANCIS RD S. BURLINGTON CITY ON	NNW/243.1	0.37	51
39	WWIS		BURLINGTON ON	W/245.2	4.47	51
40	BORE		ON	NNE/247.0	2.61	53
41	BORE		ON	S/247.5	-0.64	53
42	WWIS		ON	WNW/253.1	3.47	54
43	EHS		650 Plains Road East Burlington ON L7T 2E9	NW/255.2	3.47	54
44	WWIS		BURLINGTON ON	WNW/257.9	3.77	55
45	FST	2437356 ONTARIO INC	632 PLAINS RD E BURLINGTON ON L7T 2E9	WNW/266.8	3.77	57
45	FST	2437356 ONTARIO INC	632 PLAINS RD E BURLINGTON ON L7T 2E9	WNW/266.8	3.77	57

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
45	FST	2437356 ONTARIO INC	632 PLAINS RD E BURLINGTON ON L7T 2E9	WNW/266.8	3.77	57
45	GEN	Shell Canada Products	632 Plains Road East Burlington ON L7T 2E9	WNW/266.8	3.77	57
45	GEN	Shell Canada Products	632 Plains Road East Burlington ON	WNW/266.8	3.77	58
45	INC		632 Plains Road East, Burlington ON	WNW/266.8	3.77	58
46	WWIS		ON	WNW/272.5	3.88	59
47	WWIS		ON	WNW/280.1	3.56	59
48	EBR	Shell Canada Products	632 Plains Rd E Burlington ON L7T 2E9	WNW/287.5	4.47	60
48	EXP	7-ELEVEN CANADA INC - NATIONAL GAS DEPT	632 PLAINS RD E BURLINGTON ON	WNW/287.5	4.47	60
48	EXP	7-ELEVEN CANADA INC - NATIONAL GAS DEPT	632 PLAINS RD E BURLINGTON ON	WNW/287.5	4.47	61
48	EXP	7-ELEVEN CANADA INC - NATIONAL GAS DEPT	632 PLAINS RD E BURLINGTON ON	WNW/287.5	4.47	61
48	FST	1632501 ONTARIO LIMITED O/A SHELL BURLINGTON	632 PLAINS RD EAST BURLINGTON ON L7T 2E9	WNW/287.5	4.47	61
48	FST	1632501 ONTARIO LIMITED O/A SHELL BURLINGTON	632 PLAINS RD EAST BURLINGTON ON L7T 2E9	WNW/287.5	4.47	61
48	FST	1632501 ONTARIO LIMITED O/A SHELL BURLINGTON	632 PLAINS RD EAST BURLINGTON ON L7T 2E9	WNW/287.5	4.47	62
48	FSTH	7-ELEVEN CANADA INC - NATIONAL GAS DEPT	632 PLAINS RD E BURLINGTON ON L7T 2E9	WNW/287.5	4.47	62
48	FSTH	7-ELEVEN CANADA INC - NATIONAL GAS DEPT	632 PLAINS RD E BURLINGTON ON L7T 2E9	WNW/287.5	4.47	62
48	GEN	Shell Canada Products	632 Plains Road East Burlington ON	WNW/287.5	4.47	63
48	GEN	Shell Canada Products Environment	632 Plains Road East Burlington ON L7T 2E9	WNW/287.5	4.47	63
48	PRT	SOUTHLAND CANADA 2830 ATTN MARYANN GRAHOVAC	632 PLAINS RD E BURLINGTON ON L7T2E9	WNW/287.5	4.47	63
48	SPL	Shell Canada Limited	632 Plains Rd. East Burlington ON L7T 2E9	WNW/287.5	4.47	64
48	SPL	SHELL CANADA PRODUCTS LTD.	632 PLAINS RD SERVICE STATION BURLINGTON CITY ON	WNW/287.5	4.47	64
48	SPL	Shell Canada Limited	632 Plains Road East Burlington ON L7T 2E9	WNW/287.5	4.47	64
49	SPL	Fortinos Supermarket Limited (Main Office)	1025 Plains Rd. E Burlington ON L7T 4K1	NNW/290.4	3.61	65
50	CA	R.M. OF HALTON	WAYNE PLACE/SHEPHERD'S WAY BURLINGTON CITY ON	E/291.6	-2.55	65
51	GEN	Acclaim Health	685 Plains Road East Burlington ON L7T 2E8	NW/293.4	3.37	65
51	GEN	Traverse Dentistry Professional Corporation	685 PLAINS ROAD EAST BURLINGTON ON	NW/293.4	3.37	65
51	GEN	Acclaim Health	685 Plains Road East Burlington ON	NW/293.4	3.37	66

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51	GEN	Dr. Kiran Grover Dentistry Professional Corp	685 PLAINS ROAD EAST BURLINGTON ON L7T2E8	NW/293.4	3.37	66
52	PINC		978 LONG DR, BURLINGTON ON	W/293.6	5.47	66
52	SPL	Union Gas Limited<UNOFFICIAL>	978 Long Drive Burlington ON	W/293.6	5.47	67
53	WWIS		ON	WNW/294.6	3.50	67
54	GEN	Traverse Dentistry Professional Corporation	685 PLAINS ROAD EAST BURLINGTON ON L7T 2E8	NW/296.5	3.37	68
54	GEN	Traverse Dentistry Professional Corporation	685 PLAINS ROAD EAST BURLINGTON ON L7T 2E8	NW/296.5	3.37	69
54	GEN	Traverse Dentistry Professional Corporation	685 PLAINS ROAD EAST BURLINGTON ON L7T 2E8	NW/296.5	3.37	69
54	GEN	Traverse Dentistry Professional Corporation	685 PLAINS ROAD EAST BURLINGTON ON L7T 2E8	NW/296.5	3.37	69
55	HINC		596 PLAINS ROAD EAST BURLINGTON ON	W/297.6	5.42	70
56	WWIS		BURLINGTON ON	WNW/310.6	4.47	70
57	SPL	ESSO PETROLEUM	AT CORNER OF KING & PLAINS RDS. SERVICE STATION BURLINGTON CITY ON	WNW/313.6	4.47	72
58	EXP	SUNCOR ENERGY PRODUCTS INC KEELE ST TERMINAL	629 PLAINS RD E BURLINGTON ON	WNW/320.4	3.47	72
58	EXP	SUNCOR ENERGY PRODUCTS INC KEELE ST TERMINAL	629 PLAINS RD E BURLINGTON ON	WNW/320.4	3.47	72
58	EXP	SUNCOR ENERGY PRODUCTS INC KEELE ST TERMINAL	629 PLAINS RD E BURLINGTON ON NULL	WNW/320.4	3.47	73
58	PRT	PETRO CANADA INC KEELE ST TERMINAL	629 PLAINS RD E BURLINGTON ON	WNW/320.4	3.47	73
59	GEN	Plainsview Drug Store	665 Plains Rd. East Burlington ON L7T 2E8	NW/323.9	3.66	73
59	SPL	Waldon Pools and Billiards	665 Plains Road East Burlington ON L7T 2E8	NW/323.9	3.66	73
60	WWIS		ON	NNW/324.1	2.36	74
60	WWIS		ON	NNW/324.1	2.36	74
61	BORE		ON	WNW/330.6	4.47	75
62	BORE		ON	ENE/342.5	-0.53	75
63	BORE		ON	E/345.3	-4.65	76
64	EHS		1025 & 1059 Plains Rd E Burlington ON	NNW/348.3	4.71	77
65	GEN	PETRO-CANADA	Road allowance adjacent to 623 PLAINS ROAD EAST BURLINGTON ON L7T 2E8	WNW/349.7	4.47	77
66	WWIS		BURLINGTON ON	WNW/349.9	4.47	77

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67	WWIS		BURLINGTON ON	WNW/351.8	5.47	79
68	EHS		564 Plains Road, East n/a ON L7T 2E5	W/354.8	5.47	81
69	GEN	PANIC PRINTING LIMITED 30-164	760 KING ROAD BURLINGTON ON L7T 3K6	SSE/355.0	-1.53	81
69	GEN	PANIC PRINTING LIMITED	760 KING ROAD BURLINGTON ON L7T 3K6	SSE/355.0	-1.53	82
70	WWIS		BURLINGTON ON	WNW/357.6	5.47	82
71	GEN	East Plains Animal Hospital Professional Corporati	645 Plains Road East Burlington ON	WNW/358.3	3.47	84
71	GEN	EH2 Medical Associates	645 Plains Road East Burlington ON L7T 4J5	WNW/358.3	3.47	84
71	GEN	East Plains Animal Hospital Professional Corporati	645 Plains Road East Burlington ON L7T 4J5	WNW/358.3	3.47	85
72	EXP	WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON	WNW/360.0	5.47	85
72	EXP	WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON L7T 2E6	WNW/360.0	5.47	85
72	EXP	WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON	WNW/360.0	5.47	85
72	EXP	WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON L7T 2E6	WNW/360.0	5.47	86
72	EXP	WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON L7T 2E6	WNW/360.0	5.47	86
72	EXP	WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON	WNW/360.0	5.47	86
72	EXP	WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON	WNW/360.0	5.47	86
72	GEN	Enterprize Car Rentals	603 Plains Road East Burlington ON L7T 2E6	WNW/360.0	5.47	87
72	GEN	Enterprise Rent A Car Canada Company	603 Plains Road East Burlington ON	WNW/360.0	5.47	87
72	PRT	WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON L7T 2E6	WNW/360.0	5.47	87
73	CA	TRIPLE HOLDING LIMITED	645 PLAINS RD. BURLINGTON CITY ON	NW/360.7	3.47	8
73	GEN	East Plains Animal Hospital Professional Corporati	645 Plains Road East Burlington ON L7T 4J5	NW/360.7	3.47	88
73	GEN	EH2 Medical Associates	645 Plains Road East Burlington ON	NW/360.7	3.47	88
73	GEN	East Plains Animal Hospital Professional Corporati	645 Plains Road East Burlington ON L7T 4J5	NW/360.7	3.47	88
73	GEN	East Plains Animal Hospital Professional Corporati	645 Plains Road East Burlington ON L7T 4J5	NW/360.7	3.47	89
73	GEN	East Plains Animal Hospital Professional Corporati	645 Plains Road East Burlington ON L7T 4J5	NW/360.7	3.47	89
74	PINC		515 ANN AVE, BURLINGTON ON	SW/361.4	-0.61	89
74	SPL	Union Gas Limited	515 Ann Avenue Burlington ON	SW/361.4	-0.61	90

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75	EXP	WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON L7T 2E6	WNW/374.2	5.47	90
75	EXP	WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON L7T 2E6	WNW/374.2	5.47	90
75	EXP	WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON L7T 2E6	WNW/374.2	5.47	91
75	GEN	Enterprise Rent A Car Canada Company	603 Plains Road East Burlington ON L7T 2E6	WNW/374.2	5.47	91
76	EHS		595 Plains Rd E Burlington ON L7T2E6	WNW/380.1	5.49	91
77	INC		696 PENNY LANE, BURLINGTON ON	NNW/385.2	1.85	91
78	WWIS		BURLINGTON ON	WNW/386.7	5.64	92
79	SCT	Image Design	581 Plains Rd E Burlington ON L7T 2E6	W/398.8	6.47	94
80	WWIS		Burlington ON	W/399.6	6.23	94
81	GEN	FORTINO'S SUPERMARKET LTD.	1059 PLAINS ROAD EAST HAMILTON ON	N/400.7	5.41	97
82	RSC	New Horizon Homes Kingsway Inc.	546 Plains Road East, Burlington, Ontario , L7T 2E3 ON L7T 2E3	W/402.7	5.47	97
83	SCT	Chrome-Metal Designs	575 Plains Rd E Burlington ON L7T 2E6	W/404.6	6.47	97
84	WWIS		Burlington ON	W/406.0	5.47	98
85	WWIS		ON	W/406.7	5.47	100
85	WWIS		ON	W/406.7	5.47	100
86	HINC		939 HARVEY PLACE BURLINGTON ON L7T 3E9	WSW/407.8	3.47	101
87	PINC		753 Kingsway Drive, Burlington ON	S/409.2	-2.76	101
88	CA		Greenwood Drive and King Road Burlington ON	SSE/412.1	-3.41	102
89	WWIS		BURLINGTON ON	W/415.2	5.82	102
90	GEN	BURLINGTON, CITY OF	494 TOWNSEND AVENUE BURLINGTON ON	SW/415.9	1.38	104
90	GEN	BURLINGTON, CITY OF ALDERSHOT ARENA	494 TOWNSEND AVENUE BURLINGTON ON L7T 2B2	SW/415.9	1.38	105
91	WWIS		ON	W/417.6	5.47	105
92	SCT	Chrome-Metal Designs	1015 Cedarwood Pl Unit 3 Burlington ON L7T 3J4	W/422.3	6.47	106
93	CFOT	Suncor Energy Products Inc.	559 Plains Rd. E., Burlington BURLINGTON ON L7T 2E4	W/425.7	6.19	106
93	EXP	1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	W/425.7	6.19	106
93	EXP	1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON	W/425.7	6.19	107

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
93	EXP	1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON	W/425.7	6.19	107
93	EXP	1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	W/425.7	6.19	107
93	EXP	1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON	W/425.7	6.19	107
93	EXP	1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	W/425.7	6.19	108
93	EXP	1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	W/425.7	6.19	108
93	EXP	1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON	W/425.7	6.19	108
93	EXP	1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON	W/425.7	6.19	108
93	FSTH	SUNCOR ENERGY PRODUCTS INC**	559 PLAINS RD E BURLINGTON ON L7T 2E4	W/425.7	6.19	109
93	FSTH	1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	W/425.7	6.19	109
93	GEN	HUSKY ENERGY	559 PLAINS ROAD EAST BURLINGTON ON L7T 2E4	W/425.7	6.19	110
93	GEN	Husky Oil Operations Ltd.	559 Plains Road East Burlington ON	W/425.7	6.19	110
93	GEN	Husky Oil Operations Ltd.	559 Plains Road East Burlington ON	W/425.7	6.19	110
93	GEN	petro canada	559 Plains Road Burlington ON	W/425.7	6.19	111
93	PRT	SUNOCO INC - THROUGH AGENT PIONEER PETROLEUMS MANA	559 PLAINS RD E BURLINGTON ON L7T 2E4	W/425.7	6.19	11
93	RST	SUNOCO	559 PLAINS RD E BURLINGTON ON L7T 2E4	W/425.7	6.19	111
93	RST	DONNELLY'S SERVICE CENTRE	559 PLAINS RD E BURLINGTON ON L7T2E4	W/425.7	6.19	111
93	SPL	Suncor Energy Products Inc.	559 Plains Road GAS STATION<UNOFFICIAL> Burlington ON	W/425.7	6.19	111
94	CFOT	SUNCOR ENERGY PRODUCTS INC	559 PLAINS ROAD EAST BURLINGTON ON L7T 2E4	W/428.6	6.47	112
94	EXP	1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	W/428.6	6.47	112
94	EXP	1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	W/428.6	6.47	112
94	EXP	1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	W/428.6	6.47	113
94	EXP	1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	W/428.6	6.47	113
94	FST	1892767 ONTARIO INC	559 PLAINS RD E BURLINGTON ON L7T 2E4	W/428.6	6.47	113
94	FST	1892767 ONTARIO INC	559 PLAINS RD E BURLINGTON ON L7T 2E4	W/428.6	6.47	113
94	FST	1892767 ONTARIO INC	559 PLAINS RD E BURLINGTON ON L7T 2E4	W/428.6	6.47	114

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94	GEN	Husky Oil Operations Ltd.	559 Plains Road East Burlington ON L7T 2E4	W/428.6	6.47	114
94	GEN	Husky Oil Operations Ltd.	559 Plains Road East Burlington ON	W/428.6	6.47	114
94	RST	HUSKY	559 PLAINS RD E BURLINGTON ON L7T2E4	W/428.6	6.47	115
94	RST	HUSKY GAS STATION	559 PLAINS RD E BURLINGTON ON L7T2E4	W/428.6	6.47	115
95	CA	660261 ONTARIO LTD. SAVALON CONSTRUCTION	PENNY LANE - FILE DB-070 BURLINGTON CITY ON	NW/431.2	4.53	11
95	CA	660261 ONTARIO LTD. SAVALON CONSTRUCTION	PENNY LANE - FILE DB-070 BURLINGTON CITY ON	NW/431.2	4.53	11
96	EHS		547 Plains Road East Burlington ON L7T 2E4	W/436.1	5.47	116
97	CA	SKYRAN CONSTRUCTION LTD.	BATEMAN CT./GREENWOOD DR. BURLINGTON CITY ON	SE/437.4	-1.53	11
97	CA	SKYRAN CONSTRUCTION LTD.	BATEMAN CT./GREENWOOD DR. BURLINGTON CITY ON	SE/437.4	-1.53	11
98	BORE		ON	N/439.4	8.45	116
99	BORE		ON	N/443.9	7.64	117
100	EHS		547 Plains Rd E Burlington ON L7T2E4	W/447.0	5.82	117
101	WWIS		BURLINGTON ON	WNW/447.8	5.80	118
102	CA	The Corporation of the City of Burlington	King Road and Inverness Avenue Burlington ON	WNW/453.3	6.51	120
102	ECA	The Corporation of the City of Burlington	King Rd and Inverness Avenue Burlington ON	WNW/453.3	6.51	120
102	ECA	The Corporation of the City of Burlington	King Rd and Inverness Avenue Burlington ON	WNW/453.3	6.51	120
103	WWIS		ON	WNW/459.9	6.68	120
103	WWIS		ON	WNW/459.9	6.68	121
104	WWIS		ON	WNW/462.4	6.68	122
104	WWIS		ON	WNW/462.4	6.68	122
105	GEN	BURLINGTON, CITY OF	494 TOWNSEND AVENUE BURLINGTON ON L7T 2B3	SW/466.5	1.44	123
105	GEN	BURLINGTON, CITY OF	494 TOWNSEND AVENUE BURLINGTON ON	SW/466.5	1.44	123
105	GEN	BURLINGTON, CITY OF	494 TOWNSEND AVENUE BURLINGTON ON L7T 2B3	SW/466.5	1.44	124
105	GEN	BURLINGTON, CITY OF 06-387	KIWANIS ARENA, 494 TOWNSEND AVE. C/O 426 BRANT ST. P.O.BOX 5013 BURLINGTON ON L7T 2B3	SW/466.5	1.44	124
105	GEN	BURLINGTON, CITY OF ALDERSHOT ARENA	494 TOWNSEND AVENUE BURLINGTON ON L7T 2B3	SW/466.5	1.44	124
105	GEN	BURLINGTON, CITY OF	KIWANIS ARENA, 494 TOWNSEND AVE. BURLINGTON ON L7T 2B3	SW/466.5	1.44	125

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
105	GEN	BURLINGTON, CITY OF	KIWANIS ARENA, 494 TOWNSEND AVE. C/O 426 BRANT ST. P.O.BOX 5013 BURLINGTON ON L7T 2B3	SW/466.5	1.44	125
105	GEN	BURLINGTON, CITY OF	494 TOWNSEND AVENUE BURLINGTON ON	SW/466.5	1.44	125
105	GEN	BURLINGTON, CITY OF	494 TOWNSEND AVENUE BURLINGTON ON	SW/466.5	1.44	126
105	GEN	BURLINGTON, CITY OF	KIWANIS ARENA 494 TOWNSEND AVENUE BURLINGTON ON L7T 2B3	SW/466.5	1.44	126
106	GEN	Halton District School Board	660 Greenwood Road Burlington ON L7T 3P3	SE/467.2	-1.65	126
107	BORE		ON	E/469.0	-6.59	127
108	BORE		ON	N/485.6	8.48	127
109	EHS		517 Plains Rd E Burlington ON L7T 2E2	W/490.1	5.47	127
110	SPL	TRANSPORT TRUCK	QEW S/B, JUST SOUTH OF PLAINS ROAD MOTOR VEHICLE (OPERATING FLUID) BURLINGTON CITY ON	N/498.5	4.83	12

Executive Summary: Summary By Data Source

BORE - Borehole

A search of the BORE database, dated 1875-Jul 2014 has found that there are 22 BORE site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	ON	0.0	5
	ON	0.0	5
	ON	0.0	5
	ON	25.0	6
	ON	66.6	11
	ON	84.6	12
	ON	99.2	15
	ON	101.7	16
	ON	116.4	17
	ON	127.0	18
	ON	158.1	22
	ON	204.6	29
	ON	229.2	34
	ON	247.0	40
	ON	247.5	41
	ON	330.6	61
	ON	342.5	62
	ON	345.3	63

Site	Address	Distance (m)	Map Key
	ON	439.4	98
	ON	443.9	99
	ON	469.0	107
	ON	485.6	108

CA - Certificates of Approval

A search of the CA database, dated 1985-Oct 30, 2011* has found that there are 15 CA site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
GWL Realty Advisors Inc.	611 Surrey Lane Burlington ON L7T 3S7	0.0	2
	ROW of King Road, Townsend Avenue Burlington ON	129.3	20
Bin-There Inc.	1017 Cedar Avenue Burlington ON L7T 2R8	175.2	25
	Within the R.O.W of Townsend Ave. & Kingsway Dr. Burlington ON	229.2	35
ROSART PROPERTIES LTD.-PT. LOT 1, CONC.1	DESIGNERS WAY/PLAINS RD. E. BURLINGTON CITY ON	243.1	38
ROSART PROPERTIES LTD.-PT. LOT 1, CONC.1	DESIGNERS WAY/PLAINS RD. W. BURLINGTON CITY ON	243.1	38
ROSART PROPERTIES/CREATIVE LIVING CENTRE	PLAINS RD E/FRANCIS RD S. BURLINGTON CITY ON	243.1	38
R.M. OF HALTON	WAYNE PLACE/SHEPHERD'S WAY BURLINGTON CITY ON	291.6	50
TRIPLE HOLDING LIMITED	645 PLAINS RD. BURLINGTON CITY ON	360.7	73
	Greenwood Drive and King Road Burlington ON	412.1	88
660261 ONTARIO LTD. SAVALON CONSTRUCTION	PENNY LANE - FILE DB-070 BURLINGTON CITY ON	431.2	95
660261 ONTARIO LTD. SAVALON CONSTRUCTION	PENNY LANE - FILE DB-070 BURLINGTON CITY ON	431.2	95
SKYRAN CONSTRUCTION LTD.	BATEMAN CT./GREENWOOD DR. BURLINGTON CITY ON	437.4	97
SKYRAN CONSTRUCTION LTD.	BATEMAN CT./GREENWOOD DR. BURLINGTON CITY ON	437.4	97
The Corporation of the City of Burlington	King Road and Inverness Avenue Burlington ON	453.3	102

CFOT - Commercial Fuel Oil Tanks

A search of the CFOT database, dated Oct 31, 2016 has found that there are 2 CFOT site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Suncor Energy Products Inc.	559 Plains Rd. E., Burlington BURLINGTON ON L7T 2E4	425.7	93
SUNCOR ENERGY PRODUCTS INC	559 PLAINS ROAD EAST BURLINGTON ON L7T 2E4	428.6	94

EASR - Environmental Activity and Sector Registry

A search of the EASR database, dated Nov 30, 2016 has found that there are 2 EASR site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
BCIMC REALTY CORPORATION	611 SURREY BURLINGTON ON	0.0	3
BCIMC REALTY CORPORATION	611 SURREY BURLINGTON BURLINGTON ON	0.0	3

EBR - Environmental Registry

A search of the EBR database, dated Nov 30, 2016 has found that there are 1 EBR site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Shell Canada Products	632 Plains Rd E Burlington ON L7T 2E9	287.5	48

ECA - Environmental Compliance Approval

A search of the ECA database, dated Nov 30, 2016 has found that there are 2 ECA site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
The Corporation of the City of Burlington	King Rd and Inverness Avenue Burlington ON	453.3	102
The Corporation of the City of Burlington	King Rd and Inverness Avenue Burlington ON	453.3	102

EHS - ERIS Historical Searches

A search of the EHS database, dated 1999-Aug 2016 has found that there are 13 EHS site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	611 Surrey Lane Burlington ON L7T3S7	0.0	1
	611 Surrey Lane Burlington ON L7T3S7	0.0	2
	611 Surrey Lane Burlington ON	0.0	4
	705 Surrey Ln Burlington ON L7T 3Z4	50.9	9
	695 Surrey Lane Burlington ON L7T3Z3	51.1	10
	955 Warwick Avenue Burlington ON L7T 3Z6	149.8	21
	650 Plains Road East Burlington ON L7T 2E9	255.2	43
	1025 & 1059 Plains Rd E Burlington ON	348.3	64
	564 Plains Road, East n/a ON L7T 2E5	354.8	68
	595 Plains Rd E Burlington ON L7T2E6	380.1	76
	547 Plains Road East Burlington ON L7T 2E4	436.1	96
	547 Plains Rd E Burlington ON L7T2E4	447.0	100
	517 Plains Rd E Burlington ON L7T 2E2	490.1	109

EXP - List of TSSA Expired Facilities

A search of the EXP database, dated Oct 31, 2016 has found that there are 29 EXP site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
7-ELEVEN CANADA INC - NATIONAL GAS DEPT	632 PLAINS RD E BURLINGTON ON	287.5	48
7-ELEVEN CANADA INC - NATIONAL GAS DEPT	632 PLAINS RD E BURLINGTON ON	287.5	48
7-ELEVEN CANADA INC - NATIONAL GAS DEPT	632 PLAINS RD E BURLINGTON ON	287.5	48
SUNCOR ENERGY PRODUCTS INC KEELE ST TERMINAL	629 PLAINS RD E BURLINGTON ON	320.4	58
SUNCOR ENERGY PRODUCTS INC KEELE ST TERMINAL	629 PLAINS RD E BURLINGTON ON	320.4	58
SUNCOR ENERGY PRODUCTS INC KEELE ST TERMINAL	629 PLAINS RD E BURLINGTON ON NULL	320.4	58

Site	Address	Distance (m)	Map Key
WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON	360.0	72
WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON L7T 2E6	360.0	72
WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON L7T 2E6	360.0	72
WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON	360.0	72
WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON	360.0	72
WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON	360.0	72
WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON L7T 2E6	360.0	72
WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON L7T 2E6	374.2	75
WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON L7T 2E6	374.2	75
WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON L7T 2E6	374.2	75
1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	425.7	93
1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON	425.7	93
1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON	425.7	93
1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	425.7	93
1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON	425.7	93
1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	425.7	93
1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	425.7	93
1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON	425.7	93
1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON	425.7	93
1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	428.6	94
1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	428.6	94
1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	428.6	94
1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	428.6	94

FST - Fuel Storage Tank

A search of the FST database, dated Oct 31, 2016 has found that there are 9 FST site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
2437356 ONTARIO INC	632 PLAINS RD E BURLINGTON ON L7T 2E9	266.8	45
2437356 ONTARIO INC	632 PLAINS RD E BURLINGTON ON L7T 2E9	266.8	45
2437356 ONTARIO INC	632 PLAINS RD E BURLINGTON ON L7T 2E9	266.8	45
1632501 ONTARIO LIMITED O/A SHELL BURLINGTON	632 PLAINS RD EAST BURLINGTON ON L7T 2E9	287.5	48
1632501 ONTARIO LIMITED O/A SHELL BURLINGTON	632 PLAINS RD EAST BURLINGTON ON L7T 2E9	287.5	48
1632501 ONTARIO LIMITED O/A SHELL BURLINGTON	632 PLAINS RD EAST BURLINGTON ON L7T 2E9	287.5	48
1892767 ONTARIO INC	559 PLAINS RD E BURLINGTON ON L7T 2E4	428.6	94
1892767 ONTARIO INC	559 PLAINS RD E BURLINGTON ON L7T 2E4	428.6	94
1892767 ONTARIO INC	559 PLAINS RD E BURLINGTON ON L7T 2E4	428.6	94

FSTH - Fuel Storage Tank - Historic

A search of the FSTH database, dated Pre-Jan 2010* has found that there are 4 FSTH site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
7-ELEVEN CANADA INC - NATIONAL GAS DEPT	632 PLAINS RD E BURLINGTON ON L7T 2E9	287.5	48
7-ELEVEN CANADA INC - NATIONAL GAS DEPT	632 PLAINS RD E BURLINGTON ON L7T 2E9	287.5	48
1463963 ONTARIO INC O/A SUNOCO GAS STATION	559 PLAINS RD E BURLINGTON ON L7T 2E4	425.7	93
SUNCOR ENERGY PRODUCTS INC**	559 PLAINS RD E BURLINGTON ON L7T 2E4	425.7	93

GEN - Ontario Regulation 347 Waste Generators Summary

A search of the GEN database, dated 1986-Sep 2016 has found that there are 51 GEN site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
BURLINGTON HYDRO INC.	950 Warwick Crt. BURLINGTON ON L7T 3Z5	128.0	19

Site	Address	Distance (m)	Map Key
BURLINGTON HYDRO INC.	955 Warwick Court BURLINGTON ON L7T 3Z6	149.8	21
HALTON ROMAN CATHOLIC S.S.B.	ECOLE ST. PHILIPPE 901 FRANCIS RD. BURLINGTON ON L7T 3Y3	221.4	33
PPM CANADA INC.	ROYAL BOTANICAL GARDENS, 680 PLAINS RD C/O TORONTO STAR BLDG.,1 YONGE ST.#801 BURLINGTON ON	230.0	36
Shell Canada Products	632 Plains Road East Burlington ON L7T 2E9	266.8	45
Shell Canada Products	632 Plains Road East Burlington ON	266.8	45
Shell Canada Products	632 Plains Road East Burlington ON	287.5	48
Shell Canada Products Environment	632 Plains Road East Burlington ON L7T 2E9	287.5	48
Acclaim Health	685 Plains Road East Burlington ON L7T 2E8	293.4	51
Dr. Kiran Grover Dentistry Professional Corp	685 PLAINS ROAD EAST BURLINGTON ON L7T2E8	293.4	51
Traverse Dentistry Professional Corporation	685 PLAINS ROAD EAST BURLINGTON ON	293.4	51
Acclaim Health	685 Plains Road East Burlington ON	293.4	51
Traverse Dentistry Professional Corporation	685 PLAINS ROAD EAST BURLINGTON ON L7T 2E8	296.5	54
Traverse Dentistry Professional Corporation	685 PLAINS ROAD EAST BURLINGTON ON L7T 2E8	296.5	54
Traverse Dentistry Professional Corporation	685 PLAINS ROAD EAST BURLINGTON ON L7T 2E8	296.5	54
Traverse Dentistry Professional Corporation	685 PLAINS ROAD EAST BURLINGTON ON L7T 2E8	296.5	54
Plainsview Drug Store	665 Plains Rd. East Burlington ON L7T 2E8	323.9	59
PETRO-CANADA	Road allowance adjacent to 623 PLAINS ROAD EAST BURLINGTON ON L7T 2E8	349.7	65
PANIC PRINTING LIMITED 30-164	760 KING ROAD BURLINGTON ON L7T 3K6	355.0	69
PANIC PRINTING LIMITED	760 KING ROAD BURLINGTON ON L7T 3K6	355.0	69
East Plains Animal Hospital Professional Corporati	645 Plains Road East Burlington ON	358.3	71
EH2 Medical Associates	645 Plains Road East Burlington ON L7T 4J5	358.3	71
East Plains Animal Hospital Professional Corporati	645 Plains Road East Burlington ON L7T 4J5	358.3	71
Enterprize Car Rentals	603 Plains Road East Burlington ON L7T 2E6	360.0	72

Site	Address	Distance (m)	Map Key
Enterprise Rent A Car Canada Company	603 Plains Road East Burlington ON	360.0	72
East Plains Animal Hospital Professional Corporati	645 Plains Road East Burlington ON L7T 4J5	360.7	73
EH2 Medical Associates	645 Plains Road East Burlington ON	360.7	73
East Plains Animal Hospital Professional Corporati	645 Plains Road East Burlington ON L7T 4J5	360.7	73
East Plains Animal Hospital Professional Corporati	645 Plains Road East Burlington ON L7T 4J5	360.7	73
East Plains Animal Hospital Professional Corporati	645 Plains Road East Burlington ON L7T 4J5	360.7	73
Enterprise Rent A Car Canada Company	603 Plains Road East Burlington ON L7T 2E6	374.2	75
FORTINO'S SUPERMARKET LTD.	1059 PLAINS ROAD EAST HAMILTON ON	400.7	81
BURLINGTON, CITY OF	494 TOWNSEND AVENUE BURLINGTON ON	415.9	90
BURLINGTON, CITY OF ALDERSHOT ARENA	494 TOWNSEND AVENUE BURLINGTON ON L7T 2B2	415.9	90
HUSKY ENERGY	559 PLAINS ROAD EAST BURLINGTON ON L7T 2E4	425.7	93
Husky Oil Operations Ltd.	559 Plains Road East Burlington ON	425.7	93
Husky Oil Operations Ltd.	559 Plains Road East Burlington ON	425.7	93
petro canada	559 Plains Road Burlington ON	425.7	93
Husky Oil Operations Ltd.	559 Plains Road East Burlington ON L7T 2E4	428.6	94
Husky Oil Operations Ltd.	559 Plains Road East Burlington ON	428.6	94
BURLINGTON, CITY OF	494 TOWNSEND AVENUE BURLINGTON ON L7T 2B3	466.5	105
BURLINGTON, CITY OF	494 TOWNSEND AVENUE BURLINGTON ON	466.5	105
BURLINGTON, CITY OF	494 TOWNSEND AVENUE BURLINGTON ON L7T 2B3	466.5	105
BURLINGTON, CITY OF 06-387	KIWANIS ARENA, 494 TOWNSEND AVE. C/O 426 BRANT ST. P.O.BOX 5013 BURLINGTON ON L7T 2B3	466.5	105
BURLINGTON, CITY OF ALDERSHOT ARENA	494 TOWNSEND AVENUE BURLINGTON ON L7T 2B3	466.5	105
BURLINGTON, CITY OF	KIWANIS ARENA, 494 TOWNSEND AVE. BURLINGTON ON L7T 2B3	466.5	105
BURLINGTON, CITY OF	KIWANIS ARENA, 494 TOWNSEND AVE. C/O 426 BRANT ST. P.O.BOX 5013 BURLINGTON ON L7T 2B3	466.5	105

Site	Address	Distance (m)	Map Key
BURLINGTON, CITY OF	494 TOWNSEND AVENUE BURLINGTON ON	466.5	105
BURLINGTON, CITY OF	494 TOWNSEND AVENUE BURLINGTON ON	466.5	105
BURLINGTON, CITY OF	KIWANIS ARENA 494 TOWNSEND AVENUE BURLINGTON ON L7T 2B3	466.5	105
Halton District School Board	660 Greenwood Road Burlington ON L7T 3P3	467.2	106

HINC - TSSA Historic Incidents

A search of the HINC database, dated 2006-June 2009* has found that there are 4 HINC site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	862 KING ROAD [HIGHWAY 2] BURLINGTON ON L7T 3K9	33.7	7
	855 KINGSWAY DRIVE BURLINGTON ON L7T 3H8	191.2	26
	596 PLAINS ROAD EAST BURLINGTON ON	297.6	55
	939 HARVEY PLACE BURLINGTON ON L7T 3E9	407.8	86

INC - TSSA Incidents

A search of the INC database, dated Oct 31, 2016 has found that there are 4 INC site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	923 FRANCIS RD, BURLINGTON ON	86.3	13
	841 Kingsway Drive, Burlington ON L7T 3H8	195.7	28
	632 Plains Road East, Burlington ON	266.8	45
	696 PENNY LANE, BURLINGTON ON	385.2	77

PINC - TSSA Pipeline Incidents

A search of the PINC database, dated Oct 31, 2016 has found that there are 4 PINC site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	883 Kingsway Drive, Burlington ON L7T 3H8	193.2	27
	978 LONG DR, BURLINGTON ON	293.6	52
	515 ANN AVE, BURLINGTON ON	361.4	74
	753 Kingsway Drive, Burlington ON	409.2	87

PRT - Private and Retail Fuel Storage Tanks

A search of the PRT database, dated 1989-1996* has found that there are 4 PRT site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
SOUTHLAND CANADA 2830 ATTN MARYANN GRAHOVAC	632 PLAINS RD E BURLINGTON ON L7T2E9	287.5	48
PETRO CANADA INC KEELE ST TERMINAL	629 PLAINS RD E BURLINGTON ON	320.4	58
WOOD'S ESSO	603 PLAINS RD E BURLINGTON ON L7T 2E6	360.0	72
SUNOCO INC - THROUGH AGENT PIONEER PETROLEUMS MANA	559 PLAINS RD E BURLINGTON ON L7T 2E4	425.7	93

REC - Ontario Regulation 347 Waste Receivers Summary

A search of the REC database, dated 1986-2013 has found that there are 2 REC site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
PPM CANADA INC.	ROYAL BOTANICAL GARDENS, 680 PLAINS RD C/O TORONTO STAR BLDG.,1 YONGE ST.#801 BURLINGTON ON	230.0	36
PPM CANADA INC.	ROYAL BOTANICAL GARDENS 680 PLAINS ROAD BURLINGTON ON	230.0	36

RSC - Record of Site Condition

A search of the RSC database, dated Oct 31, 2016 has found that there are 1 RSC site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
New Horizon Homes Kingsway Inc.	546 Plains Road East, Burlington, Ontario , L7T 2E3 ON L7T 2E3	402.7	82

RST - Retail Fuel Storage Tanks

A search of the RST database, dated Oct 31, 2016 has found that there are 4 RST site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
DONNELLY'S SERVICE CENTRE	559 PLAINS RD E BURLINGTON ON L7T2E4	425.7	93
SUNOCO	559 PLAINS RD E BURLINGTON ON L7T 2E4	425.7	93
HUSKY	559 PLAINS RD E BURLINGTON ON L7T2E4	428.6	94
HUSKY GAS STATION	559 PLAINS RD E BURLINGTON ON L7T2E4	428.6	94

SCT - Scott's Manufacturing Directory

A search of the SCT database, dated 1992-Mar 2011* has found that there are 5 SCT site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
SupplyLevel Incorporated	1103 Marley Cres Burlington ON L7T 3S3	169.6	23
STETSON ENTERPRISES	979 GLEN VIEW AVE BURLINGTON ON L7T 3Y7	234.5	37
Image Design	581 Plains Rd E Burlington ON L7T 2E6	398.8	79
Chrome-Metal Designs	575 Plains Rd E Burlington ON L7T 2E6	404.6	83
Chrome-Metal Designs	1015 Cedarwood Pl Unit 3 Burlington ON L7T 3J4	422.3	92

SPL - Ontario Spills

A search of the SPL database, dated 1988-Jan 2016 has found that there are 14 SPL site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
UNKNOWN	ON TOWNSEND AVE. JUST WEST OF KING BURLINGTON CITY ON	37.7	8
Union Gas Limited; Union Gas Limited<UNOFFICIAL>	833 King Road Burlington ON	97.4	14
PUC	1096 MARLEY CRESCENT BURLINGTON CITY ON L7T 3S1	212.8	31
Royal Botanical Gardens<UNOFFICIAL>	680 Plains Rd Burlington ON	230.0	36
SHELL CANADA PRODUCTS LTD.	632 PLAINS RD SERVICE STATION BURLINGTON CITY ON	287.5	48

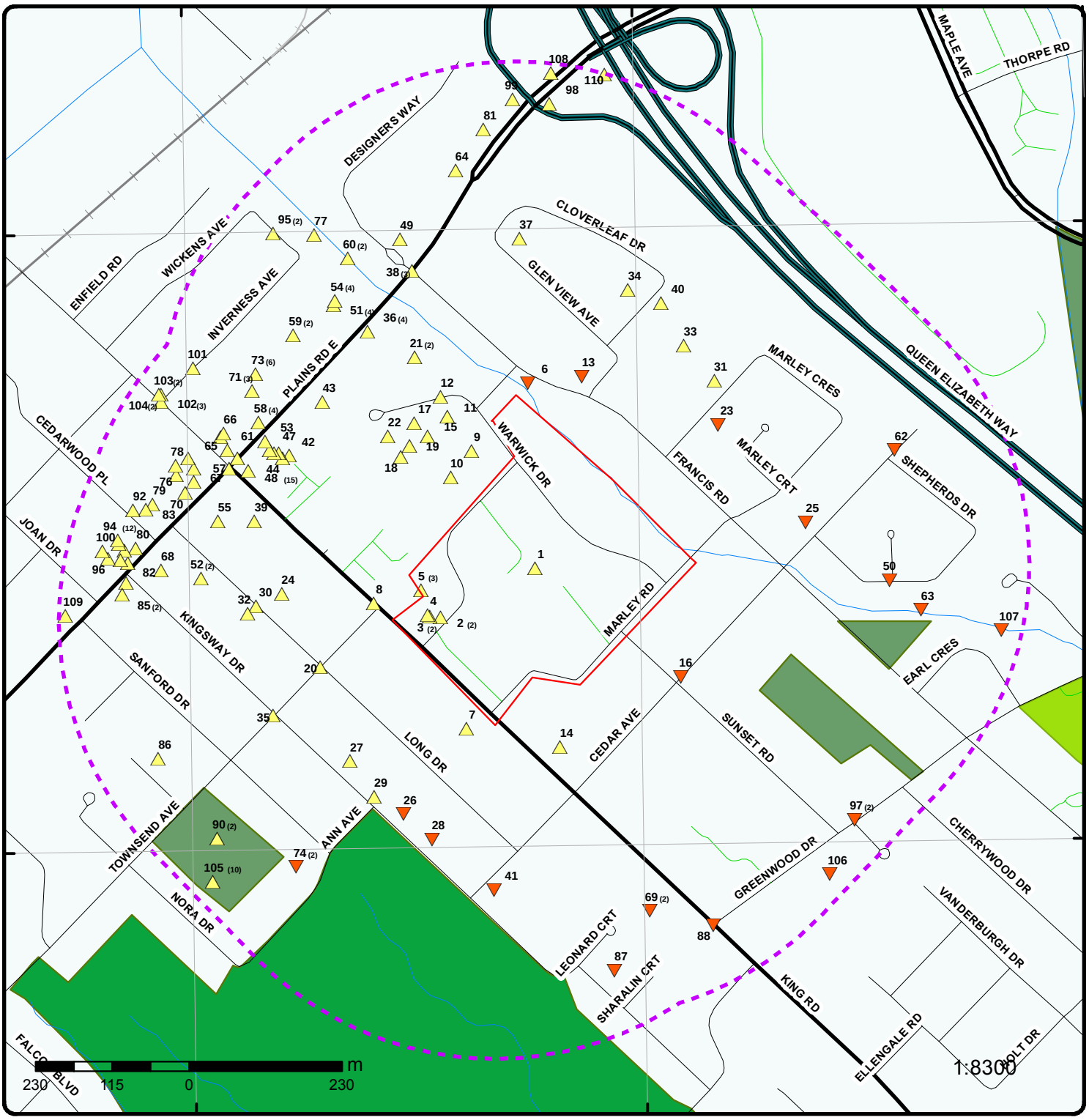
Site	Address	Distance (m)	Map Key
Shell Canada Limited	632 Plains Road East Burlington ON L7T 2E9	287.5	48
Shell Canada Limited	632 Plains Rd. East Burlington ON L7T 2E9	287.5	48
Fortinos Supermarket Limited (Main Office)	1025 Plains Rd. E Burlington ON L7T 4K1	290.4	49
Union Gas Limited<UNOFFICIAL>	978 Long Drive Burlington ON	293.6	52
ESSO PETROLEUM	AT CORNER OF KING & PLAINS RDS. SERVICE STATION BURLINGTON CITY ON	313.6	57
Waldon Pools and Billiards	665 Plains Road East Burlington ON L7T 2E8	323.9	59
Union Gas Limited	515 Ann Avenue Burlington ON	361.4	74
Suncor Energy Products Inc.	559 Plains Road GAS STATION<UNOFFICIAL> Burlington ON	425.7	93
TRANSPORT TRUCK	QEW S/B, JUST SOUTH OF PLAINS ROAD MOTOR VEHICLE (OPERATING FLUID) BURLINGTON CITY ON	498.5	110

WWIS - Water Well Information System

A search of the WWIS database, dated Jun 30, 2016 has found that there are 27 WWIS site(s) within approximately 0.50 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	ON	170.5	24
	ON	204.9	30
	ON	217.1	32
	BURLINGTON ON	245.2	39
	ON	253.1	42
	BURLINGTON ON	257.9	44
	ON	272.5	46
	ON	280.1	47
	ON	294.6	53
	BURLINGTON ON	310.6	56

Site	Address	Distance (m)	Map Key
	ON	324.1	60
	ON	324.1	60
	BURLINGTON ON	349.9	66
	BURLINGTON ON	351.8	67
	BURLINGTON ON	357.6	70
	BURLINGTON ON	386.7	78
	Burlington ON	399.6	80
	Burlington ON	406.0	84
	ON	406.7	85
	ON	406.7	85
	BURLINGTON ON	415.2	89
	ON	417.6	91
	BURLINGTON ON	447.8	101
	ON	459.9	103
	ON	459.9	103
	ON	462.4	104
	ON	462.4	104



Map : 0.5 Kilometer Radius

Order No: 20161222109

Address: King Road And Surrey Lane, Burlington, ON

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

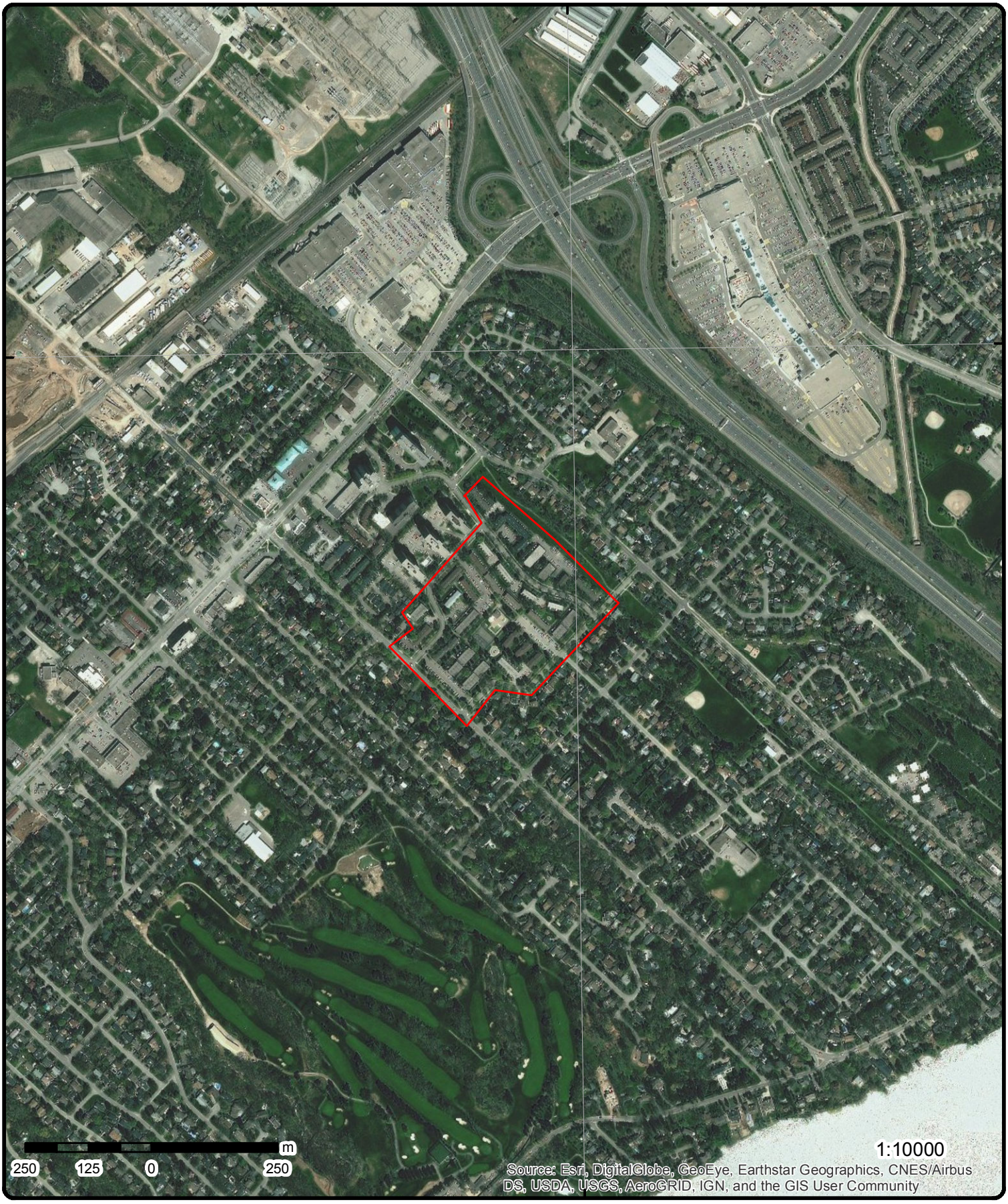
- Project Property
- Buffer Outline
- Eris Sites with Higher Elevation
- Eris Sites with Same Elevation
- Eris Sites with Lower Elevation
- Eris Sites with Unknown Elevation
- Expressway
- Principal Highway
- Secondary Highway
- Major Road
- Local road
- Trail
- Proposed Road
- Ferry Route/Ice Road
- Industrial and Resource - Regions
- Main Line
- Sidetrack
- Transit Line
- Abandoned Line
- National Park
- Provincial or Territorial Park
- Other Park
- Golf Course or Driving Range
- Park or Sports Field
- Other Recreation Area

Source: © 2015 DMTI Spatial Inc.

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79°49'30"W

43°19'30"N



43°19'30"N

Aerial

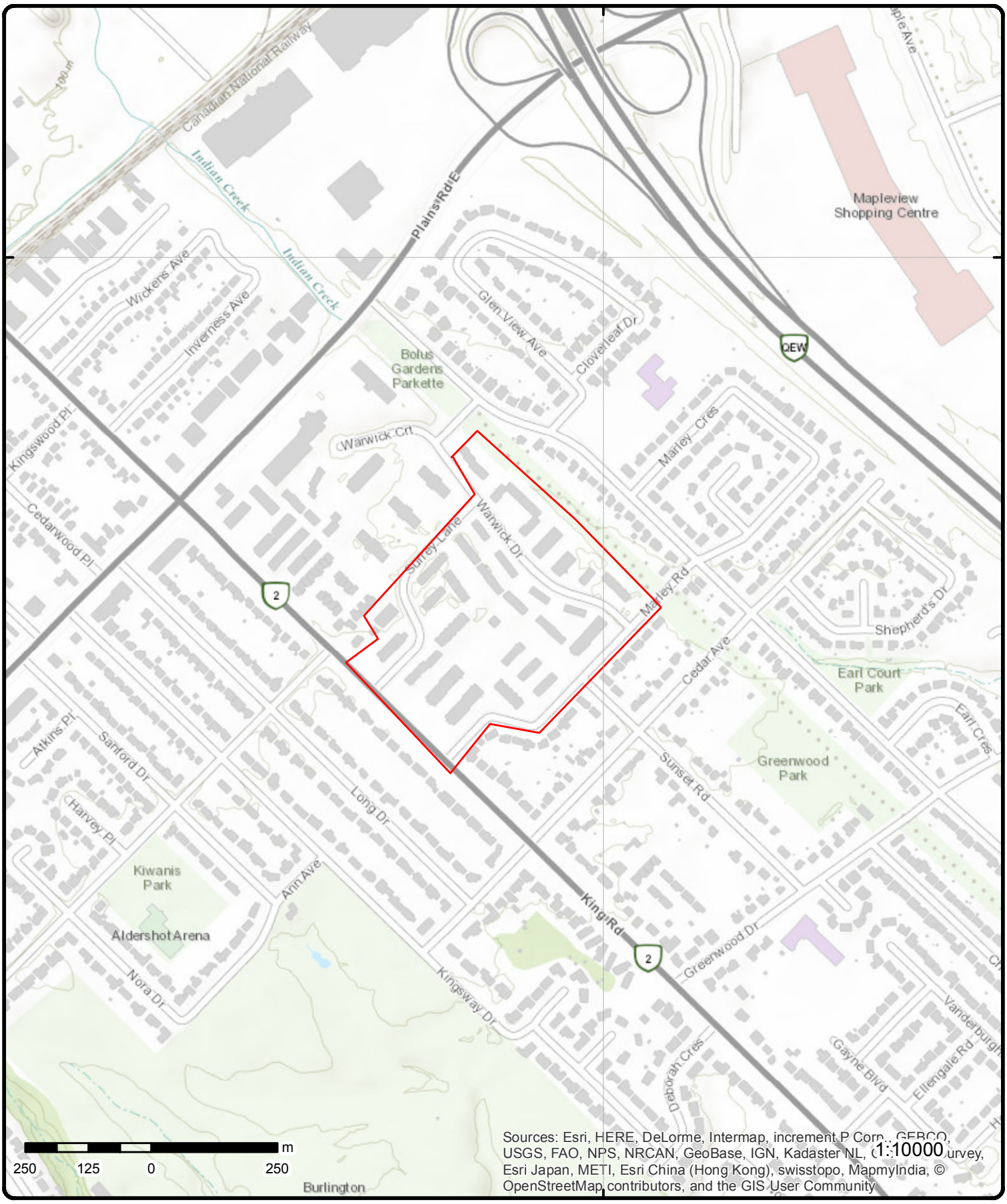
Order No: 20161222109

Address: King Road And Surrey Lane, Burlington, ON

Source: ESRI World Imagery

ENVIRONMENTAL RISK INFORMATION SERVICES

© ERIS Information Limited Partnership



Topographic Map

Address: King Road And Surrey Lane, Burlington, ON

Source: ESRI World Topographic Map

Order No: 20161222109

ENVIRONMENTAL RISK INFORMATION SERVICES

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Detail Report

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
1	1 of 1	-/0.0	91.4	611 Surrey Lane Burlington ON L7T3S7	EHS

Postal Code:	
City:	
Address2:	
Address1:	
Provstate:	
Order No.:	20131024046
Addit. Info Ordered::	
Report Date:	04-NOV-13
Report Type:	Custom Report
Search Radius (km):	.25

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
2	1 of 2	-/0.0	93.8	GWL Realty Advisors Inc. 611 Surrey Lane Burlington ON L7T 3S7	CA

Certificate #:	5381-7JTQRK
Application Year:	2008
Issue Date:	9/25/2008
Approval Type:	Air
Status:	Approved
Application Type:	
Client Name::	
Client Address::	
Client City::	
Client Postal Code::	
Project Description::	
Contaminants::	
Emission Control::	

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
2	2 of 2	-/0.0	93.8	611 Surrey Lane Burlington ON L7T3S7	EHS

Postal Code:	
City:	
Address2:	
Address1:	
Provstate:	
Order No.:	20130517033
Addit. Info Ordered::	
Report Date:	28-MAY-13
Report Type:	Standard Report
Search Radius (km):	.25

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
3	1 of 2	-/0.0	93.8	BCIMC REALTY CORPORATION 611 SURREY BURLINGTON ON	EASR

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Longitude: -79.8288888888888
Latitude: 43.3197222222222
Record Type: EASR
Pdf URL: http://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/ViewDocument.action?documentRefID=2023616
CofA Number: R-003-1618481868
Date: 8/2/2016
Status: Registered
Project Type: Heating System

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
3	2 of 2	-/0.0	93.8	BCIMC REALTY CORPORATION 611 SURREY BURLINGTON BURLINGTON ON	EASR

Longitude:
Latitude:
Record Type:
Pdf URL: http://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/ViewDocument.action?documentRefID=2023616
CofA Number: R-003-1618481868
Date: 2016-08-02
Status: Registered
Project Type: Heating System

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
4	1 of 1	-/0.0	93.8	611 Surrey Lane Burlington ON	EHS

Postal Code:
City: Burlington
Address2:
Address1: 611 Surrey Lane
Provstate: ON
Order No.: 20151223015
Addit. Info Ordered::
Report Date: 30-DEC-15
Report Type: Custom Report
Search Radius (km): .25

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
5	1 of 3	-/0.0	93.8	ON	BORE

Borehole ID:	621966	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	
Drill Method::	Power auger	**UTM Zone::**	17
Easting::	594945	**Northing::**	4797033
Location Accuracy::		**Orig. Ground Elev m::**	93.7
Elev. Reliability Note::		**DEM Ground Elev m::**	93.6
Total Depth m::	6.4	**Primary Name::**	
Township::		**Concession::**	
Lot::		**Municipality:**	
Completion Date::	MAR-1961	**Static Water Level::**	-999.9
Primary Water Use::	Not Used	**Sec. Water Use::**	

--Details--

Stratum ID:	218423508	**Top Depth(m):**	0.0
Bottom Depth(m):	1.4	**Stratum Desc:**	SAND-MEDIUM,SILT. BROWN,LACUSTRINE,LOOSE, GRANULAR,AGE GLACIAL.
Stratum ID:	218423509	**Top Depth(m):**	1.4

Bottom Depth(m):	3.7	**Stratum Desc:**	SAND-MEDIUM,SILT. BROWN,LACUSTRINE,COMPACT, GRANULAR,AGE GLACIAL.
Stratum ID:	218423510	**Top Depth(m):**	3.7
Bottom Depth(m):	4.0	**Stratum Desc:**	SAND-MEDIUM,SILT. BROWN,LACUSTRINE,DENSE, GRANULAR,AGE GLACIAL.
Stratum ID:	218423511	**Top Depth(m):**	4.0
Bottom Depth(m):	5.5	**Stratum Desc:**	SAND-MEDIUM,SILT. GREEN,LACUSTRINE,COMPACT, GRANULAR,AGE GLACIAL.
Stratum ID:	218423512	**Top Depth(m):**	5.5
Bottom Depth(m):	6.1	**Stratum Desc:**	TILL,CLAY,SAND, GRAVEL. BROWN,GLACIAL,LAYERED, AGE GLACIAL.
Stratum ID:	218423513	**Top Depth(m):**	6.1
Bottom Depth(m):	6.4	**Stratum Desc:**	TILL,CLAY,SAND. GREEN,GLACIAL,VERY SOFT, LAYERED,AGE GLACIAL. 008 014

5 **2 of 3** **-/0.0** **93.8** **ON** **BORE**

Borehole ID:	621967	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	
Drill Method::	Power auger	**UTM Zone::**	17
Easting::	594945	**Northing::**	4797033
Location Accuracy::		**Orig. Ground Elev m::**	93.3
Elev. Reliability Note::		**DEM Ground Elev m::**	93.6
Total Depth m::	7.6	**Primary Name::**	
Township::		**Concession::**	
Lot::		**Municipality:**	
Completion Date::	MAR-1961	**Static Water Level::**	-999.9
Primary Water Use::	Not Used	**Sec. Water Use::**	

--Details--

Stratum ID:	218423514	**Top Depth(m):**	0.0
Bottom Depth(m):	1.5	**Stratum Desc:**	SAND-MEDIUM,SILT. BROWN,LACUSTRINE,COMPACT, GRANULAR,AGE GLACIAL.
Stratum ID:	218423515	**Top Depth(m):**	1.5
Bottom Depth(m):	2.3	**Stratum Desc:**	SAND-MEDIUM,SILT. BROWN,LACUSTRINE,COMPACT, GRANULAR,AGE GLACIAL.
Stratum ID:	218423516	**Top Depth(m):**	2.3
Bottom Depth(m):	3.7	**Stratum Desc:**	SAND-MEDIUM,SILT. BROWN,LACUSTRINE,DENSE, GRANULAR,AGE GLACIAL.
Stratum ID:	218423517	**Top Depth(m):**	3.7
Bottom Depth(m):	4.0	**Stratum Desc:**	SAND-MEDIUM,SILT. GREEN,LACUSTRINE,COMPACT, GRANULAR,AGE GLACIAL.
Stratum ID:	218423518	**Top Depth(m):**	4.0
Bottom Depth(m):	5.2	**Stratum Desc:**	SAND-MEDIUM,SILT. GREEN,LACUSTRINE,COMPACT, GRANULAR,AGE GLACIAL.

Stratum ID:	218423519	**Top Depth(m):**	5.2
Bottom Depth(m):	7.6	**Stratum Desc:**	TILL,CLAY. GREEN,GLACIAL,VERY HARD, UNIFORM,AGE GLACIAL. 011 009 017

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5 ***3 of 3*** ***-/0.0*** ***93.8*** ***ON*** ***BORE***

Borehole ID:	621968	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	
Drill Method::	Power auger	**UTM Zone::**	17
Easting::	594945	**Northing::**	4797033
Location Accuracy::		**Orig. Ground Elev m::**	93.4
Elev. Reliability Note::		**DEM Ground Elev m::**	93.6
Total Depth m::	6.4	**Primary Name::**	
Township::		**Concession::**	
Lot::		**Municipality:**	
Completion Date::	MAR-1961	**Static Water Level::**	-999.9
Primary Water Use::	Not Used	**Sec. Water Use::**	

--Details--

Stratum ID:	218423520	**Top Depth(m):**	0.0
Bottom Depth(m):	0.6	**Stratum Desc:**	SAND-MEDIUM,SILT. BROWN,LACUSTRINE,GRANULAR, AGE GLACIAL.
Stratum ID:	218423521	**Top Depth(m):**	0.6
Bottom Depth(m):	2.3	**Stratum Desc:**	SAND-MEDIUM,SILT. BROWN,LACUSTRINE,COMPACT, GRANULAR,AGE GLACIAL.
Stratum ID:	218423522	**Top Depth(m):**	2.3
Bottom Depth(m):	3.7	**Stratum Desc:**	SAND-MEDIUM,SILT. BROWN,LACUSTRINE,COMPACT, GRANULAR,AGE GLACIAL.
Stratum ID:	218423523	**Top Depth(m):**	3.7
Bottom Depth(m):	4.0	**Stratum Desc:**	SAND-MEDIUM,SILT. BROWN,LACUSTRINE,COMPACT, GRANULAR,AGE GLACIAL.
Stratum ID:	218423524	**Top Depth(m):**	4.0
Bottom Depth(m):	5.5	**Stratum Desc:**	SAND-MEDIUM,SILT. GREEN,LACUSTRINE,COMPACT, GRANULAR,AGE GLACIAL.
Stratum ID:	218423525	**Top Depth(m):**	5.5
Bottom Depth(m):	6.4	**Stratum Desc:**	TILL,CLAY. BROWN,VERY HARD,UNIFORM, AGE GLACIAL. 012 020 020

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6 ***1 of 1*** ***N/25.0*** ***90.8*** ***ON*** ***BORE***

Borehole ID:	621737	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	
Drill Method::	Power auger	**UTM Zone::**	17
Easting::	595105	**Northing::**	4797343
Location Accuracy::		**Orig. Ground Elev m::**	91.5
Elev. Reliability Note::		**DEM Ground Elev m::**	90.7
Total Depth m::	4.3	**Primary Name::**	

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Township::		**Concession::**	
Lot::		**Municipality:**	
Completion Date::	MAY-1964	**Static Water Level::**	-999.9
Primary Water Use::	Not Used	**Sec. Water Use::**	

--Details--

Stratum ID:	218422199	**Top Depth(m):**	0.0
Bottom Depth(m):	0.3	**Stratum Desc:**	SOIL,SAND. BLACK,AGE POST-GLACIAL.
Stratum ID:	218422200	**Top Depth(m):**	0.3
Bottom Depth(m):	1.5	**Stratum Desc:**	SAND-FINE TO MEDIUM,SILT,SILT. BROWN,LACUSTRINE,LOOSE, GRANULAR,AGE GLACIAL.
Stratum ID:	218422201	**Top Depth(m):**	1.5
Bottom Depth(m):	1.8	**Stratum Desc:**	SAND-FINE TO MEDIUM.BROWN,LACUSTRINE,COMPACT, GRANULAR,AGE GLACIAL.
Stratum ID:	218422202	**Top Depth(m):**	1.8
Bottom Depth(m):	4.3	**Stratum Desc:**	SILT,SAND,CLAY. GREEN,LACUSTRINE,DENSE, UNIFORM,AGE GLACIAL. 000100100005001500060036000039T

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7 | ***1 of 1*** | ***SSW/33.7*** | ***92.6*** | ***862 KING ROAD [HIGHWAY 2] BURLINGTON ON L7T 3K9*** | ***HINC***

External File Num:	FS INC 0707-03814
Date of Occurrence:	7/9/2007
Fuel Occurrence Type:	Vapour Release
Fuel Type Involved:	Natural Gas
Status Desc::	Completed - Causal Analysis(End)
Job Type Desc::	Incident/Near-Miss Occurrence (FS)
Oper. Type Involved::	Construction Site (excluding pipeline strike)
Service Interruptions::	Yes
Property Damage::	No
Fuel Life Cycle Stage::	Utilization
Root Cause::	Root Cause: Equipment/Material/Component:No Procedures:Yes Maintenance:No Design:No Training:Yes Management:Yes Human Factors:Yes
Reported Details::	
Fuel Category::	Gaseous Fuel
Occurrence Type::	Incident
Affiliation::	Industry Stakeholder (Licensee/Registration/Certificate Holder, Facility Owner, etc.)
County Name::	Halton
Approx. Quant. Rel::	
Nearby body of water::	
Enter Drainage Syst.::	
Approx. Quant. Unit::	
Environmental Impact::	

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8 | ***1 of 1*** | ***W/37.7*** | ***94.8*** | ***UNKNOWN ON TOWNSEND AVE. JUST WEST OF KING BURLINGTON CITY ON*** | ***SPL***

Ref NO:	87680
Contaminant Code:	
Contaminant Name:	
Contaminant Quantity:	
Incident Cause::	UNKNOWN
Incident Dt:	6/28/1993
Incident Reason::	UNKNOWN

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Incident Summary::	50 L OF DIESEL FUEL TO DITCH FROM AN UNKNOWN SOURCE.
MOE Reported Dt:	6/28/1993
Environmental Impact::	NOT ANTICIPATED
Nature of Impact::	Other
Receiving Medium::	LAND
SAC Action Class:	
Sector Source Type:	
Site Municipality:	14101

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9 | **1 of 1** | **NNW/50.9** | **91.8** | **705 Surrey Ln Burlington ON L7T 3Z4** | **EHS**

Postal Code:	
City:	
Address2:	
Address1:	
Provstate:	
Order No.:	20050622008
Addit. Info Ordered::	
Report Date:	6/30/2005
Report Type:	
Search Radius (km):	0.25

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10 | **1 of 1** | **NW/51.1** | **92.5** | **695 Surrey Lane Burlington ON L7T3Z3** | **EHS**

Postal Code:	L7T3Z3
City:	Burlington
Address2:	
Address1:	695 Surrey Lane
Provstate:	ON
Order No.:	20150831058
Addit. Info Ordered::	
Report Date:	04-SEP-15
Report Type:	Custom Report
Search Radius (km):	.25

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11 | **1 of 1** | **NNW/66.6** | **92.0** | **ON** | **BORE**

Borehole ID:	624240	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	
Drill Method::	Power auger	**UTM Zone::**	17
Easting::	594985	**Northing::**	4797293
Location Accuracy::		**Orig. Ground Elev m::**	95.1
Elev. Reliability Note::		**DEM Ground Elev m::**	92.7
Total Depth m::	13.3	**Primary Name::**	
Township::		**Concession::**	
Lot::		**Municipality:**	
Completion Date::	OCT-1967	**Static Water Level::**	-999.9
Primary Water Use::	Not Used	**Sec. Water Use::**	

--Details--

Stratum ID:	218433001	**Top Depth(m):**	0.0
Bottom Depth(m):	0.3	**Stratum Desc:**	SOIL. AGE POST-GLACIAL.
Stratum ID:	218433002	**Top Depth(m):**	0.3
Bottom Depth(m):	1.2	**Stratum Desc:**	SAND(89)-FINE TO MEDIUM,SILT. DENSE,LAYERED,AGE GLACIAL.

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Stratum ID:	218433003	**Top Depth(m):**	1.2
Bottom Depth(m):	10.6	**Stratum Desc:**	TILL,SILT,GRAVEL. RED,GLACIAL,HARD,AGE GLACIAL.
Stratum ID:	218433004	**Top Depth(m):**	10.6
Bottom Depth(m):	13.3	**Stratum Desc:**	BEDROCK,SHALE. RED,BEDDED,AGE PALEOZOIC. 022 013 000100120004006000045RM

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12 **1 of 1** **NNW/84.6** **92.4** **ON** **BORE**

Borehole ID:	624241	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	
Drill Method::	Power auger	**UTM Zone::**	17
Easting::	594975	**Northing::**	4797323
Location Accuracy::		**Orig. Ground Elev m::**	95.1
Elev. Reliability Note::		**DEM Ground Elev m::**	92.6
Total Depth m::	15.5	**Primary Name::**	
Township::		**Concession::**	
Lot::		**Municipality:**	
Completion Date::	OCT-1967	**Static Water Level::**	-999.9
Primary Water Use::	Not Used	**Sec. Water Use::**	

--Details--

Stratum ID:	218433005	**Top Depth(m):**	0.0
Bottom Depth(m):	0.3	**Stratum Desc:**	SOIL. AGE POST-GLACIAL.
Stratum ID:	218433006	**Top Depth(m):**	0.3
Bottom Depth(m):	5.8	**Stratum Desc:**	SAND(95)-FINE TO MEDIUM,GRAVEL,CLAY. RED,AGE GLACIAL.
Stratum ID:	218433007	**Top Depth(m):**	5.8
Bottom Depth(m):	15.5	**Stratum Desc:**	TILL,CLAY,SILT, GRAVEL. RED,GLACIAL,HARD,AGE GLACIAL. 010 014 000100100019004

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13 **1 of 1** **NNE/86.3** **91.2** **923 FRANCIS RD, BURLINGTON ON** **INC**

Incident ID:	
Incident Number:	1721522
Attribute Category:	FS-Perform L1 Incident Insp
Status Code:	
Incident Location:	923 FRANCIS RD, BURLINGTON - VAPOUR RELEASE
Drainage System:	
Sub Surface Contam.:	
Aff. Prop. Use Water:	
Contam. Migrated:	
Contact Natural Env.:	
Near Body of Water:	
Approx. Quant. Rel.:	
Equipment Model:	
Serial No:	
Residential App. Type:	
Commercial App. Type:	
Industrial App. Type:	
Institutional App. Type:	
Venting Type:	
Vent Connector Mater.:	
Vent Chimney Mater.:	
Notes:	

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Pipeline Type:
Pipeline Involved:
Pipe Material:
Depth Ground Cover:
Regulator Location:
Regulator Type:
Operation Pressure:
Occurence Narrative: NULL
Liquid Prop Make:
Liquid Prop Model:
Liquid Prop Serial No:
Equipment Type:
Cylinder Capacity:
Cylinder Capac. Units:
Cylinder Material Type:
Tank Capacity:
Tank Material Type:
Tank Storage Type:
Tank Location Type:
Pump Flow Rate Capac.:
Liquid Prop Notes:

14	*1 of 1*	*S/97.4*	*91.8*	***Union Gas Limited; Union Gas Limited<UNOFFICIAL>*** ***833 King Road*** ***Burlington ON***	***SPL***

Ref NO: 0577-947JAN
Contaminant Code: 35
Contaminant Name: NATURAL GAS, COMPRESSED (METHANE)
Contaminant Quantity: 0 other - see incident description
Incident Cause:: Leak/Break
Incident Dt: 21-JAN-13
Incident Reason:: Operator/Human Error
Incident Summary:: TSSA FSB: track-heater line strike, made safe
MOE Reported Dt: 22-JAN-13
Environmental Impact:: Confirmed
Nature of Impact:: Air Pollution
Receiving Medium::
SAC Action Class: TSSA - Fuel Safety Branch - Hydrocarbon Fuel Release/Spill
Sector Source Type: Power Facility (i.e. Wind, Nuclear, Water, Solar, Natural Gas)
Site Municipality: Burlington

15	*1 of 1*	*NW/99.2*	*92.8*	***ON***	***BORE***

Borehole ID: 624242
Use: Geotechnical/Geological Investigation
Drill Method:: Power auger
Easting:: 594955
Location Accuracy::
Elev. Reliability Note::
Total Depth m:: 15.8
Township::
Lot::
Completion Date:: OCT-1967
Primary Water Use:: Not Used
Type: Borehole
Status::
UTM Zone:: 17
Northing:: 4797263
Orig. Ground Elev m:: 94.8
DEM Ground Elev m:: 93.4
Primary Name::
Concession::
Municipality:
Static Water Level:: -999.9
Sec. Water Use::

--Details--
Stratum ID: 218433008
Bottom Depth(m): 0.3
Top Depth(m): 0.0
Stratum Desc: SOIL. AGE POST-GLACIAL.

Stratum ID:	218433009	**Top Depth(m):**	0.3
Bottom Depth(m):	3.7	**Stratum Desc:**	SAND,GRAVEL. DENSE,AGE GLACIAL.
Stratum ID:	218433010	**Top Depth(m):**	3.7
Bottom Depth(m):	15.5	**Stratum Desc:**	TILL,CLAY,SILT, GRAVEL. RED,GLACIAL,HARD,AGE GLACIAL.
Stratum ID:	218433011	**Top Depth(m):**	15.5
Bottom Depth(m):	15.8	**Stratum Desc:**	BEDROCK,SHALE. RED,AGE PALEOZOIC. 00010015000560010

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16 **1 of 1** **SE/101.7** **89.8** **ON** **BORE**

Borehole ID:	622166	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	
Drill Method::	Power auger	**UTM Zone::**	17
Easting::	595335	**Northing::**	4796903
Location Accuracy::		**Orig. Ground Elev m::**	90.2
Elev. Reliability Note::		**DEM Ground Elev m::**	90.3
Total Depth m::	4.6	**Primary Name::**	
Township::		**Concession::**	
Lot::		**Municipality:**	
Completion Date::	JAN-1961	**Static Water Level::**	-999.9
Primary Water Use::	Not Used	**Sec. Water Use::**	

--Details--

Stratum ID:	218424675	**Top Depth(m):**	0.0
Bottom Depth(m):	0.2	**Stratum Desc:**	SOIL. AGE POST-GLACIAL.
Stratum ID:	218424676	**Top Depth(m):**	0.2
Bottom Depth(m):	2.2	**Stratum Desc:**	SAND,GRAVEL. RED,HARD,AGE GLACIAL.
Stratum ID:	218424677	**Top Depth(m):**	2.2
Bottom Depth(m):	4.6	**Stratum Desc:**	CLAY,GRAVEL. GREEN,HARD,AGE GLACIAL. 000080250007308000050

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17 **1 of 1** **NW/116.4** **92.8** **ON** **BORE**

Borehole ID:	624243	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	
Drill Method::	Power auger	**UTM Zone::**	17
Easting::	594935	**Northing::**	4797283
Location Accuracy::		**Orig. Ground Elev m::**	95.1
Elev. Reliability Note::		**DEM Ground Elev m::**	93.7
Total Depth m::	11.6	**Primary Name::**	
Township::		**Concession::**	
Lot::		**Municipality:**	
Completion Date::	OCT-1967	**Static Water Level::**	-999.9
Primary Water Use::	Not Used	**Sec. Water Use::**	

--Details--

Stratum ID:	218433012	**Top Depth(m):**	0.0
Bottom Depth(m):	0.3	**Stratum Desc:**	SOIL. AGE POST-GLACIAL.
Stratum ID:	218433013	**Top Depth(m):**	0.3
Bottom Depth(m):	4.3	**Stratum Desc:**	SILT,SAND(60),CLAY. RED,AGE GLACIAL.
Stratum ID:	218433014	**Top Depth(m):**	4.3

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Bottom Depth(m):	11.6	**Stratum Desc:**	TILL,CLAY,SILT, GRAVEL. RED,GLACIAL,HARD,AGE GLACIAL. 022 014 000100040014007

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18 *1 of 1* *NW/127.0* *93.8* *ON* **BORE**

Borehole ID:	624244	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	
Drill Method::	Power auger	**UTM Zone::**	17
Easting::	594915	**Northing::**	4797233
Location Accuracy::		**Orig. Ground Elev m::**	94.5
Elev. Reliability Note::		**DEM Ground Elev m::**	94.1
Total Depth m::	14.6	**Primary Name::**	
Township::		**Concession::**	
Lot::		**Municipality:**	
Completion Date::	OCT-1967	**Static Water Level::**	-999.9
Primary Water Use::	Not Used	**Sec. Water Use::**	

--Details--

Stratum ID:	218433015	**Top Depth(m):**	0.0
Bottom Depth(m):	0.3	**Stratum Desc:**	SOIL. AGE POST-GLACIAL.
Stratum ID:	218433016	**Top Depth(m):**	0.3
Bottom Depth(m):	6.9	**Stratum Desc:**	SAND(85)-FINE TO MEDIUM,GRAVEL(9). BROWN,LAYERED,AGE GLACIAL.
Stratum ID:	218433017	**Top Depth(m):**	6.9
Bottom Depth(m):	14.6	**Stratum Desc:**	TILL,CLAY,SILT, GRAVEL. GREEN,GLACIAL,HARD, AGE GLACIAL. 020 014 000100170022

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19 *1 of 1* *NW/128.0* *93.1* ***BURLINGTON HYDRO INC.*** ***950 Warwick Crt.*** ***BURLINGTON ON L7T 3Z5*** **GEN**

PO Box Num:	
Status:	
Country:	
Generator #:	ON4654299
Approval Yrs::	07,08
SIC Code:	531111
SIC Description:	Lessors of Residential Buildings and Dwellings (except Social Housing Projects)

--Details--

Waste Code:	243
Waste Description:	PCB'S

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20 *1 of 1* *WSW/129.3* *94.8* ***ROW of King Road, Townsend Avenue*** ***Burlington ON*** **CA**

Certificate #:	0065-4WMNYQ
Application Year:	01
Issue Date:	5/14/01
Approval Type:	Municipal & Private water
Status:	Approved
Application Type:	New Certificate of Approval
Client Name::	Corporation of the Regional Municipality of Halton
Client Address::	1151 Bronte Road

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Client City:: Oakville
Client Postal Code:: L6M 3L1
Project Description:: Watermains to be constructed on King Road, Townsend Avenue
Contaminants::
Emission Control::

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21 | 1 of 2 | NNW/149.8 | 92.8 | 955 Warwick Avenue Burlington ON L7T 3Z6 | EHS

Postal Code:
City:
Address2:
Address1:
Provstate:
Order No.: 20090225020
Addit. Info Ordered:: Fire Insur. Maps and/or Site Plans
Report Date: 3/5/2009
Report Type: Custom Report
Search Radius (km): 0.25

---

21 | 2 of 2 | NNW/149.8 | 92.8 | BURLINGTON HYDRO INC. 955 Warwick Court BURLINGTON ON L7T 3Z6 | GEN

PO Box Num:
Status:
Country:
Generator #: ON4854758
Approval Yrs:: 07,08
SIC Code: 221122
SIC Description: Electric Power Distribution

--Details--
Waste Code: 243
Waste Description: PCB'S

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

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22 | 1 of 1 | NW/158.1 | 93.8 | ON | BORE

Borehole ID: 624245
Use: Geotechnical/Geological Investigation
Drill Method:: Power auger
Easting:: 594895
Location Accuracy::
Elev. Reliability Note::
Total Depth m:: 14.5
Township::
Lot::
Completion Date:: OCT-1967
Primary Water Use:: Not Used
Type: Borehole
Status::
UTM Zone:: 17
Northing:: 4797263
Orig. Ground Elev m:: 94.8
DEM Ground Elev m:: 94.4
Primary Name::
Concession::
Municipality:
Static Water Level:: -999.9
Sec. Water Use::

--Details--
Stratum ID: 218433018
Bottom Depth(m): 0.3
Top Depth(m): 0.0
Stratum Desc: SOIL. AGE POST-GLACIAL.

Stratum ID: 218433019
Top Depth(m): 0.3

Bottom Depth(m):	4.3	**Stratum Desc:**	SAND,SILT,CLAY. BROWN,LAYERED,AGE GLACIAL.
Stratum ID:	218433020	**Top Depth(m):**	4.3
Bottom Depth(m):	14.0	**Stratum Desc:**	TILL,CLAY,SILT, GRAVEL. RED,GLACIAL,HARD,AGE GLACIAL.
Stratum ID:	218433021	**Top Depth(m):**	14.0
Bottom Depth(m):	14.5	**Stratum Desc:**	BEDROCK,SHALE. RED,AGE PALEOZOIC. 020 010 00010015001400600080

---

23 **1 of 1** **NE/169.6** **90.9** **SupplyLevel Incorporated** **SCT**
1103 Marley Cres
Burlington ON L7T 3S3

Established: 01-AUG-07
Plant Size (ft²):
Employment:

--Details--
Description: Computer Systems Design and Related Services
SIC/NAICS Code: 541510

Description: Electrical Wiring and Construction Supplies Wholesaler-Distributors
SIC/NAICS Code: 416110

Description: Computer, Computer Peripheral and Pre-Packaged Software Wholesaler-Distributors
SIC/NAICS Code: 417310

Description: Industrial Machinery, Equipment and Supplies Wholesaler-Distributors
SIC/NAICS Code: 417230

---

24 **1 of 1** **W/170.5** **95.8** **ON** **WWIS**

Well ID:	7193004	**Lot:**	
Construction Date::		**Concession:**	
Primary Water Use::		**Concession Name:**	
Sec. Water Use::		**Easting NAD83::**	
Final Well Status::		**Northing NAD83::**	
Specific Capacity::		**Zone::**	
Municipality:	BURLINGTON CITY	**UTM Reliability::**	
County:	HALTON		

Bore Hole Information
-- --
Bore Hole ID: 1004216522
DP2BR:
Code OB:
Code OB Description:
Open Hole:
Date Completed: 24-JUL-12
Remarks:
Zone: 17
East 83: 594736
North 83: 4797027
UTMRC: 4
UTMRC Description: margin of error : 30 m - 100 m
Location Method: wwr
Org CS: UTM83
Elevation:
Elevrc:

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
Elevrc Description:					
Location Source Date:					
Source Revision Comment:					
Improvement Location Source:					
Improvement Location Method:					
Supplier Comment:					
Spatial Status:					
--		--			
--		--			

25	1 of 1	E/175.2	89.8	**Bin-There Inc.** **1017 Cedar Avenue** **Burlington ON L7T 2R8**	CA

Certificate #:	A841596
Application Year:	2005
Issue Date:	6/22/2005
Approval Type:	Waste Management Systems
Status:	Approved
Application Type:	
Client Name::	
Client Address::	
Client City::	
Client Postal Code::	
Project Description::	
Contaminants::	
Emission Control::	

26	1 of 1	SSW/191.2	90.9	**855 KINGSWAY DRIVE** **BURLINGTON ON L7T 3H8**	HINC

External File Num:	FS INC 0904-01846
Date of Occurrence:	4/2/2009
Fuel Occurrence Type:	Pipeline Strike
Fuel Type Involved:	Natural Gas
Status Desc::	Completed - Causal Analysis(End)
Job Type Desc::	Incident/Near-Miss Occurrence (FS)
Oper. Type Involved::	Private Dwelling
Service Interruptions::	Yes
Property Damage::	No
Fuel Life Cycle Stage::	Utilization
Root Cause::	Root Cause: Equipment/Material/Component:No Procedures:Yes Maintenance:No Design:No Training:Yes Management:Yes Human Factors:Yes
Reported Details::	
Fuel Category::	Gaseous Fuel
Occurrence Type::	Incident
Affiliation::	Industry Stakeholder (Licensee/Registration/Certificate Holder, Facility Owner, etc.)
County Name::	Halton
Approx. Quant. Rel::	
Nearby body of water::	
Enter Drainage Syst.::	
Approx. Quant. Unit::	
Environmental Impact::	

27	1 of 1	SW/193.2	92.5	**883 Kingsway Drive, Burlington** **ON L7T 3H8**	PINC

Incident ID:	2670206
Tank Status:	
Attribute Category:	
Task Number:	

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Type:	FS-Pipeline Incident
Incident Number:	513834
Status Code:	Pipeline Damage Reason Est
Summary:	883 Kingsway Drive, Burlington - 1/2" Pipeline Hit
Spills Action Centre:	
Reported By:	Lori Devay - Uniongas
Affiliation:	Industry Stakeholder (Licensee/Registration/Certificate Holder, Facility Owner, etc.)
Method Details:	Utility damage
Fuel Category:	Heating Fuel
Fuel Occurrence Type:	
Date of Occurrence:	
Occurrence Start Date:	
Health Impact:	
Occurrence Desc:	
Environment Impact:	
Property Damage:	
Service Interupt:	
Fuel Type:	
Enforce Policy:	
Operation Type:	
Damage Reason:	
Public Relation:	
Pipeline System:	
Pipeline Type:	
Depth:	
Pipe Material:	
Regualtor Location:	
PSIG:	
Regulator Type:	
Notes:	

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
28	1 of 1	SSW/195.7	90.4	841 Kingsway Drive, Burlington ON L7T 3H8	INC

Incident ID:	2569980
Incident Number:	418280
Attribute Category:	FS-Incident
Status Code:	Causal Analysis Complete
Incident Location:	841 Kingsway Drive, Burlington - 1/2" Pipeline Hit
Drainage System:	
Sub Surface Contam.:	
Aff. Prop. Use Water:	
Contam. Migrated:	
Contact Natural Env.:	
Near Body of Water:	
Approx. Quant. Rel.:	
Equipment Model:	
Serial No:	
Residential App. Type:	
Commercial App. Type:	
Industrial App. Type:	
Institutional App. Type:	
Venting Type:	
Vent Connector Mater.:	
Vent Chimney Mater.:	
Notes:	
Pipeline Type:	Service / Riser Distribution Pipeline
Pipeline Involved:	
Pipe Material:	Plastic
Depth Ground Cover:	
Regulator Location:	
Regulator Type:	
Operation Pressure:	50#
Occurence Narrative:	Hand digging hit gas line - Contractor Pinched Line to stop flow

Liquid Prop Make:
Liquid Prop Model:
Liquid Prop Serial No:
Equipment Type:
Cylinder Capacity:
Cylinder Capac. Units:
Cylinder Material Type:
Tank Capacity:
Tank Material Type:
Tank Storage Type:
Tank Location Type:
Pump Flow Rate Capac.:
Liquid Prop Notes:

---

29 ***1 of 1*** ***SW/204.6*** ***91.9*** ***ON*** ***BORE***

Borehole ID:	622178	***Type:***	Borehole
Use:	Geotechnical/Geological Investigation	***Status::***	
Drill Method::	Power auger	***UTM Zone::***	17
Easting::	594875	***Northing::***	4796723
Location Accuracy::		***Orig. Ground Elev m::***	92.7
Elev. Reliability Note::		***DEM Ground Elev m::***	91.7
Total Depth m::	7.3	***Primary Name::***	
Township::		***Concession::***	
Lot::		***Municipality:***	
Completion Date::	JAN-1961	***Static Water Level::***	-999.9
Primary Water Use::	Not Used	***Sec. Water Use::***	

--Details--

Stratum ID:	218424703	***Top Depth(m):***	0.0
Bottom Depth(m):	0.2	***Stratum Desc:***	SOIL. AGE POST-GLACIAL.
Stratum ID:	218424704	***Top Depth(m):***	0.2
Bottom Depth(m):	4.7	***Stratum Desc:***	SAND,GRAVEL. BROWN,VERY SOFT,AGE GLACIAL.
Stratum ID:	218424705	***Top Depth(m):***	4.7
Bottom Depth(m):	7.3	***Stratum Desc:***	CLAY,GRAVEL,SHALE. GREEN,HARD,AGE GLACIAL. 000080240015504000055

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30 ***1 of 1*** ***W/204.9*** ***95.8*** ***ON*** ***WWIS***

Well ID:	7188888	***Lot:***	
Construction Date::		***Concession:***	
Primary Water Use::		***Concession Name:***	
Sec. Water Use::		***Easting NAD83::***	
Final Well Status::		***Northing NAD83::***	
Specific Capacity::		***Zone::***	
Municipality:	BURLINGTON CITY	***UTM Reliability::***	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	1004198183
DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	18-JUN-12

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Remarks:	
Zone:	17
East 83:	594698
North 83:	4797008
UTMRC:	4
UTMRC Description:	margin of error : 30 m - 100 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
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--	--

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
31	1 of 1	NE/212.8	92.8	PUC 1096 MARLEY CRESCENT BURLINGTON CITY ON L7T 3S1	SPL

Ref NO:	6328	
Contaminant Code:		
Contaminant Name:		
Contaminant Quantity:		
Incident Cause::	OTHER CONTAINER LEAK	
Incident Dt:	7/9/1988	
Incident Reason::	EQUIPMENT FAILURE	
Incident Summary::	BURLINGTON HYDRO-	TRANSFORMER LEAK OF 0.25 L OIL TO POLE AND GROUND
MOE Reported Dt:	7/9/1988	
Environmental Impact::		
Nature of Impact::		
Receiving Medium::	LAND	
SAC Action Class:		
Sector Source Type:		
Site Municipality:	14101	

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
32	1 of 1	W/217.1	95.8	ON	WWIS

Well ID:	7188887	**Lot:**	
Construction Date::		**Concession:**	
Primary Water Use::		**Concession Name:**	
Sec. Water Use::		**Easting NAD83::**	
Final Well Status::		**Northing NAD83::**	
Specific Capacity::		**Zone::**	
Municipality:	BURLINGTON CITY	**UTM Reliability::**	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	1004198168
DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	24-MAY-12
Remarks:	
Zone:	17
East 83:	594685

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

North 83:	4796998
UTMRC:	4
UTMRC Description:	margin of error : 30 m - 100 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--
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33 | ***1 of 1*** | ***NNE/221.4*** | ***93.1*** | ***HALTON ROMAN CATHOLIC S.S.B.***
ECOLE ST. PHILIPPE 901 FRANCIS RD.
BURLINGTON ON L7T 3Y3 | ***GEN***

PO Box Num:	
Status:	
Country:	
Generator #:	ON0965415
Approval Yrs::	93,94
SIC Code:	0000
SIC Description:	*** NOT DEFINED ***

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34 | ***1 of 1*** | ***NNE/229.2*** | ***94.8*** | ***ON*** | ***BORE***

Borehole ID:	624830	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	
Drill Method::	Power auger	**UTM Zone::**	17
Easting::	595255	**Northing::**	4797483
Location Accuracy::		**Orig. Ground Elev m::**	97.5
Elev. Reliability Note::		**DEM Ground Elev m::**	95
Total Depth m::	4.8	**Primary Name::**	
Township::		**Concession::**	
Lot::		**Municipality:**	
Completion Date::	FEB-1965	**Static Water Level::**	-999.9
Primary Water Use::	Not Used	**Sec. Water Use::**	

--Details--

Stratum ID:	218435594	**Top Depth(m):**	0.0
Bottom Depth(m):	0.2	**Stratum Desc:**	SOIL. AGE POST-GLACIAL.
Stratum ID:	218435595	**Top Depth(m):**	0.2
Bottom Depth(m):	4.5	**Stratum Desc:**	SAND-FINE TO MEDIUM,SILT. BROWN,LOOSE,AGE GLACIAL.
Stratum ID:	218435596	**Top Depth(m):**	4.5
Bottom Depth(m):	4.8	**Stratum Desc:**	TILL,CLAY,SILT,SAND.BROWN,GLACIAL,HARD, AGE GLACIAL. 00008006001480330008 5GLACI

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35 | ***1 of 1*** | ***WSW/229.2*** | ***94.8*** | ***Within the R.O.W of Townsend Ave. & Kingsway Dr.***
Burlington ON | ***CA***

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Certificate #:	5345-4TPJKD
Application Year:	01
Issue Date:	2/6/01
Approval Type:	Municipal & Private water
Status:	Approved
Application Type:	New Certificate of Approval
Client Name::	Corporation of the Regional Municipality of Halton
Client Address::	1151 Bronte Road
Client City::	Oakville
Client Postal Code::	L6M 3L1
Project Description::	Installation of watermains at: Glencres Ct., Nora Dr., Ann Ave., Sanford Dr., Kingsway Dr., Harvey Pl., Atkins Pl., Deborah Cr., Condor Dr., Raven Ave., Leonard Ct., Cedar Ave., Townsend Ave., and Falcon Blvd..
Contaminants::	
Emission Control::	

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
36	1 of 4	NW/230.0	92.8	**PPM CANADA INC.** **ROYAL BOTANICAL GARDENS, 680 PLAINS RD** **C/O TORONTO STAR BLDG.,1 YONGE ST.#801** **BURLINGTON ON**	GEN

PO Box Num:	
Status:	
Country:	
Generator #:	A210110
Approval Yrs::	86
SIC Code:	050
SIC Description:	

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
36	2 of 4	NW/230.0	92.8	**PPM CANADA INC.** **ROYAL BOTANICAL GARDENS 680 PLAINS ROAD** **BURLINGTON ON**	REC

Receiver #::	A210110
Facility Type:	
Approval Yrs::	06,07,08

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
36	3 of 4	NW/230.0	92.8	**PPM CANADA INC.** **ROYAL BOTANICAL GARDENS, 680 PLAINS RD** **C/O TORONTO STAR BLDG.,1 YONGE ST.#801** **BURLINGTON ON**	REC

Receiver #::	A210110
Facility Type:	RECLAIM
Approval Yrs::	87,88,89,90,92,93,94,95,96,97,98

--Details--

Waste Code:	145
Waste Description:	PAINT/PIGMENT/COATING RESIDUES

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
36	4 of 4	NW/230.0	92.8	**Royal Botanical Gardens<UNOFFICIAL>** **680 Plains Rd** **Burlington ON**	SPL

Ref NO:	5302-5MLHSM
Contaminant Code:	13
Contaminant Name:	DIESEL FUEL
Contaminant Quantity:	other - see incident description

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Incident Cause::
Incident Dt: 5/16/2003
Incident Reason::
Incident Summary:: RBG: diesel to private property ground & cb.
MOE Reported Dt: 5/16/2003
Environmental Impact:: Possible
Nature of Impact::
Receiving Medium:: Land & Water
SAC Action Class: Spills
Sector Source Type: Other
Site Municipality: Burlington

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37 | ***1 of 1*** | ***N/234.5*** | ***97.9*** | ***STETSON ENTERPRISES 979 GLEN VIEW AVE BURLINGTON ON L7T 3Y7*** | ***SCT***

Established: 1978
Plant Size (ft²): 0
Employment: 2

--Details--
Description: INDUSTRIAL SUPPLIES
SIC/NAICS Code: 5085

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38 | ***1 of 3*** | ***NNW/243.1*** | ***91.8*** | ***ROSART PROPERTIES LTD.-PT. LOT 1, CONC.1 DESIGNERS WAY/PLAINS RD. W. BURLINGTON CITY ON*** | ***CA***

Certificate #: 3-0906-90-
Application Year: 90
Issue Date: 6/5/1990
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

---

38 | ***2 of 3*** | ***NNW/243.1*** | ***91.8*** | ***ROSART PROPERTIES LTD.-PT. LOT 1, CONC.1 DESIGNERS WAY/PLAINS RD. E. BURLINGTON CITY ON*** | ***CA***

Certificate #: 7-0759-90-
Application Year: 90
Issue Date: 6/5/1990
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
38	3 of 3	NNW/243.1	91.8	ROSART PROPERTIES/CREATIVE LIVING CENTRE PLAINS RD E/FRANCIS RD S. BURLINGTON CITY ON	CA

Certificate #:	7-1127-90-
Application Year:	90
Issue Date:	7/24/1990
Approval Type:	Municipal water
Status:	Approved
Application Type:	
Client Name::	
Client Address::	
Client City::	
Client Postal Code::	
Project Description::	
Contaminants::	
Emission Control::	

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
39	1 of 1	W/245.2	95.8	BURLINGTON ON	WWIS

Well ID:	2810155	**Lot:**	
Construction Date::		**Concession:**	
Primary Water Use::		**Concession Name:**	
Sec. Water Use::		**Easting NAD83::**	
Final Well Status::	Observation Wells	**Northing NAD83::**	
Specific Capacity::		**Zone::**	
Municipality:	BURLINGTON CITY	**UTM Reliability::**	
County:	HALTON		

Bore Hole Information	
--	--
Bore Hole ID:	11319110
DP2BR:	
Code OB:	o
Code OB Description:	Overburden
Open Hole:	
Date Completed:	10-DEC-04
Remarks:	
Zone:	17
East 83:	594695
North 83:	4797135
UTMRC:	
UTMRC Description:	
Location Method:	wwr
Org CS:	UTM83
Elevation:	96.14
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--
Overburden and Bedrock Materials Interval	
--	--
Formation ID:	933007112
Layer:	1

General Color:	BROWN
Most Common Material:	SILT
Other Materials:	CLAY
Other Materials:	
Formation Top Depth:	0
Formation End Depth:	1
Formation End Depth UOM:	m
--	--
Formation ID:	933007113
Layer:	2
General Color:	RED
Most Common Material:	SAND
Other Materials:	
Other Materials:	
Formation Top Depth:	1
Formation End Depth:	4.5
Formation End Depth UOM:	m
--	--
Annular Space/Abandonment Sealing Record	
--	--
Plug ID:	933265366
Layer:	1
Plug From:	0
Plug To:	.3
Plug Depth UOM:	m
--	--
Plug ID:	933265364
Layer:	2
Plug From:	.3
Plug To:	1.4
Plug Depth UOM:	m
--	--
Plug ID:	933265365
Layer:	3
Plug From:	1.4
Plug To:	4.5
Plug Depth UOM:	m
--	--
Method of Construction & Well Use	
--	--
Method Construction ID:	962810155
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	
--	--
Pipe Information	
--	--
Pipe ID:	11333965
Casing Number:	1
Comment:	
Alt Name:	
--	--
Construction Record - Casing	
--	--
Casing ID:	930860106
Layer:	1
Open Hole or Material:	PLASTIC
Depth From:	0
Depth To:	1.5
Casing Diameter:	5
Casing Diameter UOM:	cm
Casing Depth UOM:	m
--	--
--	--

Construction Record - Screen	
--	--
Screen ID:	933411751
Layer:	1
Slot:	10
Screen Top Depth:	1.5
Screen End Depth:	4.5
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	6.4
--	--
Hole Diameter	
--	--
Hole ID:	11537671
Diameter:	21
Depth From:	0
Depth To:	4.5
Hole Depth UOM:	m
Hole Diameter UOM:	cm
--	--
--	--

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40 ***1 of 1*** ***NNE/247.0*** ***94.0*** ***ON*** ***BORE***

Borehole ID:	624831	***Type:***	Borehole
Use:	Geotechnical/Geological Investigation	***Status::***	
Drill Method::	Power auger	***UTM Zone::***	17
Easting::	595305	***Northing::***	4797463
Location Accuracy::		***Orig. Ground Elev m::***	97.5
Elev. Reliability Note::		***DEM Ground Elev m::***	94.2
Total Depth m::	4.9	***Primary Name::***	
Township::		***Concession::***	
Lot::		***Municipality:***	
Completion Date::	FEB-1965	***Static Water Level::***	-999.9
Primary Water Use::	Not Used	***Sec. Water Use::***	

--Details--

Stratum ID:	218435597	***Top Depth(m):***	0.0
Bottom Depth(m):	0.3	***Stratum Desc:***	SOIL. AGE POST-GLACIAL.
Stratum ID:	218435598	***Top Depth(m):***	0.3
Bottom Depth(m):	4.6	***Stratum Desc:***	SAND,SILT. BROWN,LOOSE,AGE GLACIAL.
Stratum ID:	218435599	***Top Depth(m):***	4.6
Bottom Depth(m):	4.9	***Stratum Desc:***	TILL,SAND,GRAVEL. BROWN,GLACIAL,HARD, AGE GLACIAL. 000100050015203600087O

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41 ***1 of 1*** ***S/247.5*** ***90.7*** ***ON*** ***BORE***

Borehole ID:	622167	***Type:***	Borehole
Use:	Geotechnical/Geological Investigation	***Status::***	
Drill Method::	Power auger	***UTM Zone::***	17
Easting::	595055	***Northing::***	4796583
Location Accuracy::		***Orig. Ground Elev m::***	87.5
Elev. Reliability Note::		***DEM Ground Elev m::***	90
Total Depth m::	5.6	***Primary Name::***	
Township::		***Concession::***	
Lot::		***Municipality:***	

Completion Date::	JAN-1961	**Static Water Level::**	-999.9
Primary Water Use::	Not Used	**Sec. Water Use::**	

--Details--

Stratum ID:	218424678	**Top Depth(m):**	0.0
Bottom Depth(m):	0.1	**Stratum Desc:**	SOIL. AGE POST-GLACIAL.
Stratum ID:	218424679	**Top Depth(m):**	0.1
Bottom Depth(m):	2.7	**Stratum Desc:**	SAND,GRAVEL. RED,VERY SOFT,AGE GLACIAL.
Stratum ID:	218424680	**Top Depth(m):**	2.7
Bottom Depth(m):	5.6	**Stratum Desc:**	CLAY,GRAVEL. RED,VERY SOFT,AGE GLACIAL. 000030190009002600045

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42 | **1 of 1** | **WNW/253.1** | **94.8** | **ON** | **WWIS**

Well ID:	7203650	**Lot:**	
Construction Date::		**Concession:**	
Primary Water Use::		**Concession Name:**	
Sec. Water Use::		**Easting NAD83::**	
Final Well Status::		**Northing NAD83::**	
Specific Capacity::		**Zone::**	
Municipality:	BURLINGTON CITY	**UTM Reliability::**	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	1004369551
DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	01-MAY-13
Remarks:	
Zone:	17
East 83:	594747
North 83:	4797234
UTMRC:	4
UTMRC Description:	margin of error : 30 m - 100 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--
--	--

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43 | **1 of 1** | **NW/255.2** | **94.8** | **650 Plains Road East Burlington ON L7T 2E9** | **EHS**

Postal Code:	
City:	
Address2:	
Address1:	

Provstate:	
Order No.:	20060531004
Addit. Info Ordered::	
Report Date:	6/8/2006
Report Type:	Custom Report
Search Radius (km):	0.25

44 **1 of 1** **WNW/257.9** **95.2** **BURLINGTON ON** **WWIS**

Well ID:	2810491	**Lot:**	
Construction Date::		**Concession:**	
Primary Water Use::		**Concession Name:**	
Sec. Water Use::		**Easting NAD83::**	
Final Well Status::	Observation Wells	**Northing NAD83::**	
Specific Capacity::		**Zone::**	
Municipality:	BURLINGTON CITY	**UTM Reliability::**	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	11552401
DP2BR:	
Code OB:	o
Code OB Description:	Overburden
Open Hole:	
Date Completed:	27-JAN-06
Remarks:	
Zone:	17
East 83:	594737
North 83:	4797230
UTMRC:	3
UTMRC Description:	margin of error : 10 - 30 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	95.68
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--

Overburden and Bedrock Materials Interval

--	--
Formation ID:	933044649
Layer:	1
General Color:	BROWN
Most Common Material:	SAND
Other Materials:	GRAVEL
Other Materials:	SILT
Formation Top Depth:	0
Formation End Depth:	.6
Formation End Depth UOM:	m
--	--
Formation ID:	933044650
Layer:	2
General Color:	BROWN
Most Common Material:	SAND
Other Materials:	SILT
Other Materials:	SOFT

Formation Top Depth:	.6
Formation End Depth:	6.1
Formation End Depth UOM:	m
--	--
Annular Space/Abandonment Sealing Record	
--	--
Plug ID:	933288605
Layer:	1
Plug From:	0
Plug To:	1.2
Plug Depth UOM:	m
--	--
Method of Construction & Well Use	
--	--
Method Construction ID:	962810491
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	
--	--
Pipe Information	
--	--
Pipe ID:	11562008
Casing Number:	1
Comment:	
Alt Name:	
--	--
Construction Record - Casing	
--	--
Casing ID:	930875760
Layer:	1
Open Hole or Material:	PLASTIC
Depth From:	0
Depth To:	1.5
Casing Diameter:	5.1
Casing Diameter UOM:	cm
Casing Depth UOM:	m
--	--
--	--
Construction Record - Screen	
--	--
Screen ID:	933417377
Layer:	1
Slot:	20
Screen Top Depth:	1.5
Screen End Depth:	6.1
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	6.4
--	--
Water Details	
--	--
Water ID:	934073223
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	3.6
Water Found Depth UOM:	m
--	--
Hole Diameter	
--	--
Hole ID:	11683515
Diameter:	21
Depth From:	0

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
Depth To:		6.1			
Hole Depth UOM:		m			
Hole Diameter UOM:		cm			
--		--			
--		--			

45	1 of 6	WNW/266.8	95.2	**2437356 ONTARIO INC** **632 PLAINS RD E** **BURLINGTON ON L7T 2E9**	FST

Instance Number:	64533418
Cont Name:	
Instance Type:	FS Liquid Fuel Tank
Fuel Type:	Gasoline
Status:	Active
Capacity:	40000
Tank Material:	Fiberglass (FRP)
Corrosion Protection:	Fiberglass
Tank Type:	Double Wall UST
Install Year:	2012
Parent Facility Type:	FS Gasoline Station - Self Serve
Facility Type:	FS Liquid Fuel Tank

45	2 of 6	WNW/266.8	95.2	**2437356 ONTARIO INC** **632 PLAINS RD E** **BURLINGTON ON L7T 2E9**	FST

Instance Number:	64533420
Cont Name:	
Instance Type:	FS Liquid Fuel Tank
Fuel Type:	Diesel
Status:	Active
Capacity:	35000
Tank Material:	Fiberglass (FRP)
Corrosion Protection:	Fiberglass
Tank Type:	Double Wall UST
Install Year:	2012
Parent Facility Type:	FS Gasoline Station - Self Serve
Facility Type:	FS Liquid Fuel Tank

45	3 of 6	WNW/266.8	95.2	**2437356 ONTARIO INC** **632 PLAINS RD E** **BURLINGTON ON L7T 2E9**	FST

Instance Number:	64533419
Cont Name:	
Instance Type:	FS Liquid Fuel Tank
Fuel Type:	Gasoline
Status:	Active
Capacity:	40000
Tank Material:	Fiberglass (FRP)
Corrosion Protection:	Fiberglass
Tank Type:	Double Wall UST
Install Year:	2012
Parent Facility Type:	FS Gasoline Station - Self Serve
Facility Type:	FS Liquid Fuel Tank

45	4 of 6	WNW/266.8	95.2	**Shell Canada Products** **632 Plains Road East** **Burlington ON L7T 2E9**	GEN

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

PO Box Num:
Status: Registered
Country: Canada
Generator #: ON9650175
Approval Yrs:: As of Sep 2016
SIC Code:
SIC Description:

--Details--
Waste Code: 221 L
Waste Description: Light fuels

Waste Code: 251 L
Waste Description: Waste oils/sludges (petroleum based)

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45 | ***5 of 6*** | ***WNW/266.8*** | ***95.2*** | ***Shell Canada Products 632 Plains Road East Burlington ON*** | ***GEN***

PO Box Num:
Status:
Country:
Generator #: ON2850973
Approval Yrs:: 2013
SIC Code: 447110
SIC Description:

--Details--
Waste Code: 221
Waste Description: LIGHT FUELS

---

45 | ***6 of 6*** | ***WNW/266.8*** | ***95.2*** | ***632 Plains Road East, Burlington ON*** | ***INC***

Incident ID: 2521612
Incident Number: 370042
Attribute Category: FS-Perform L1 Incident Insp
Status Code: Causal Analysis Complete
Incident Location: 632 Plains Road East, Burlington - Spill
Drainage System:
Sub Surface Contam.: 0
Aff. Prop. Use Water: No
Contam. Migrated: No
Contact Natural Env.: No
Near Body of Water: No
Approx. Quant. Rel.: 50 LITRES
Equipment Model:
Serial No:
Residential App. Type:
Commercial App. Type:
Industrial App. Type:
Institutional App. Type:
Venting Type:
Vent Connector Mater.:
Vent Chimney Mater.:
Notes:
Pipeline Type:
Pipeline Involved:
Pipe Material:
Depth Ground Cover:

Regulator Location:	
Regulator Type:	
Operation Pressure:	
Occurence Narrative:	vehicle drove away with nozzle in tank -s[o;; amd resi;tomg eal
Liquid Prop Make:	
Liquid Prop Model:	
Liquid Prop Serial No:	
Equipment Type:	
Cylinder Capacity:	
Cylinder Capac. Units:	
Cylinder Material Type:	
Tank Capacity:	
Tank Material Type:	
Tank Storage Type:	
Tank Location Type:	
Pump Flow Rate Capac.:	
Liquid Prop Notes:	

46 **1 of 1** **WNW/272.5** **95.3** **ON** **WWIS**

Well ID:	7193005	**Lot:**	
Construction Date::		**Concession:**	
Primary Water Use::		**Concession Name:**	
Sec. Water Use::		**Easting NAD83::**	
Final Well Status::		**Northing NAD83::**	
Specific Capacity::		**Zone::**	
Municipality:	BURLINGTON CITY	**UTM Reliability::**	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	1004216525
DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	
Remarks:	
Zone:	17
East 83:	594724.21
North 83:	4797237.59
UTMRC:	3
UTMRC Description:	margin of error : 10 - 30 m
Location Method:	wwr
Org CS:	N27a
Elevation:	
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--
--	--

47 **1 of 1** **WNW/280.1** **94.9** **ON** **WWIS**

Well ID:	7188667	**Lot:**	
Construction Date::		**Concession:**	

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Primary Water Use:: ***Concession Name:***
Sec. Water Use:: ***Easting NAD83::***
Final Well Status:: ***Northing NAD83::***
Specific Capacity:: ***Zone::***
Municipality: BURLINGTON CITY ***UTM Reliability::***
County: HALTON

Bore Hole Information
-- --
Bore Hole ID: 1004197491
DP2BR:
Code OB:
Code OB Description:
Open Hole:
Date Completed: 10-APR-12
Remarks:
Zone: 17
East 83: 594718
North 83: 4797242
UTMRC: 4
UTMRC Description: margin of error : 30 m - 100 m
Location Method: wwr
Org CS: UTM83
Elevation:
Elevrc:
Elevrc Description:
Location Source Date:
Source Revision Comment:
Improvement Location Source:
Improvement Location Method:
Supplier Comment:
Spatial Status:
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-- --

48	*1 of 15*	*WNW/287.5*	*95.8*	***Shell Canada Products*** ***632 Plains Rd E*** ***Burlington ON L7T 2E9***	***EBR***

Company Name:
Year: 2005
Notice Date:
EBR Registry No.: IT05E0035
Ministry Ref. No.: 2005-000195
Notice Type: Instrument Decision
Instrument Type:
Proposal Date:
Location: 632 Plains Rd. E. Burlington Ontario L7T 2E9
Proponent Address: 90 Sheppard Avenue East, Suite 600 Toronto Ontario M4N 6Y2

48	*2 of 15*	*WNW/287.5*	*95.8*	***7-ELEVEN CANADA INC - NATIONAL GAS DEPT*** ***632 PLAINS RD E*** ***BURLINGTON ON***	***EXP***

Instance ID: 315286
TSSA Program Area:
Maximum Hazard Rank:
Facility Type:
Expired Date:
Instance Number: 44170197
Instance Type: FS Piping
Status: EXPIRED
Description: FS Piping

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
48	3 of 15	WNW/287.5	95.8	7-ELEVEN CANADA INC - NATIONAL GAS DEPT 632 PLAINS RD E BURLINGTON ON	EXP

Instance ID:	314406
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	
Expired Date:	
Instance Number:	44170196
Instance Type:	FS Piping
Status:	EXPIRED
Description:	FS Piping

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
48	4 of 15	WNW/287.5	95.8	7-ELEVEN CANADA INC - NATIONAL GAS DEPT 632 PLAINS RD E BURLINGTON ON	EXP

Instance ID:	308511
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	
Expired Date:	
Instance Number:	39278069
Instance Type:	FS Piping
Status:	EXPIRED
Description:	FS Piping

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
48	5 of 15	WNW/287.5	95.8	1632501 ONTARIO LIMITED O/A SHELL BURLINGTON 632 PLAINS RD EAST BURLINGTON ON L7T 2E9	FST

Instance Number:	11346019
Cont Name:	DURHAM COLLEGE
Instance Type:	FS Liquid Fuel Tank
Fuel Type:	Gasoline
Status:	Active
Capacity:	22700
Tank Material:	Fiberglass (FRP)
Corrosion Protection:	Fiberglass
Tank Type:	Liquid Fuel Single Wall UST
Install Year:	1989
Parent Facility Type:	FS GASOLINE STATION - SELF SERVE
Facility Type:	

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
48	6 of 15	WNW/287.5	95.8	1632501 ONTARIO LIMITED O/A SHELL BURLINGTON 632 PLAINS RD EAST BURLINGTON ON L7T 2E9	FST

Instance Number:	10634054
Cont Name:	DURHAM COLLEGE
Instance Type:	FS Liquid Fuel Tank
Fuel Type:	Gasoline
Status:	Active
Capacity:	45400
Tank Material:	Fiberglass (FRP)

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Corrosion Protection: Fiberglass
Tank Type: Liquid Fuel Single Wall UST
Install Year: 1989
Parent Facility Type: FS GASOLINE STATION - SELF SERVE
Facility Type:

---

48 | 7 of 15 | WNW/287.5 | 95.8 | 1632501 ONTARIO LIMITED O/A SHELL BURLINGTON, 632 PLAINS RD EAST, BURLINGTON ON L7T 2E9 | FST

Instance Number: 11346044
Cont Name: DURHAM COLLEGE
Instance Type: FS Liquid Fuel Tank
Fuel Type: Gasoline
Status: Active
Capacity: 45400
Tank Material: Fiberglass (FRP)
Corrosion Protection: Fiberglass
Tank Type: Liquid Fuel Single Wall UST
Install Year: 1989
Parent Facility Type: FS GASOLINE STATION - SELF SERVE
Facility Type:

---

48 | 8 of 15 | WNW/287.5 | 95.8 | 7-ELEVEN CANADA INC - NATIONAL GAS DEPT, 632 PLAINS RD E, BURLINGTON ON L7T 2E9 | FSTH

License Issue Date: 12/7/2001
Tank Status: Licensed
Tank Status As Of: August 2007
Operation Type: Retail Fuel Outlet
Facility Type: Gasoline Station - Self Serve

--Details--
Status: Active
Year of Installation: 1989
Corrosion Protection:
Capacity: 45460
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

Status: Active
Year of Installation: 1989
Corrosion Protection:
Capacity: 22730
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

Status: Active
Year of Installation: 1989
Corrosion Protection:
Capacity: 45460
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

---

48 | 9 of 15 | WNW/287.5 | 95.8 | 7-ELEVEN CANADA INC - NATIONAL GAS DEPT, 632 PLAINS RD E, BURLINGTON ON L7T 2E9 | FSTH

License Issue Date: 12/7/2001
Tank Status: Pending Renewal
Tank Status As Of: December 2008

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Operation Type: Retail Fuel Outlet
Facility Type: Gasoline Station - Self Serve

--Details--
Status: Active
Year of Installation: 1989
Corrosion Protection:
Capacity: 45400
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

Status: Active
Year of Installation: 1989
Corrosion Protection:
Capacity: 22700
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

Status: Active
Year of Installation: 1989
Corrosion Protection:
Capacity: 45400
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

48	10 of 15	WNW/287.5	95.8	**Shell Canada Products** **632 Plains Road East** **Burlington ON**	GEN

PO Box Num:
Status:
Country:
Generator #: ON2850973
Approval Yrs:: 2012
SIC Code: 447110
SIC Description: Gasoline Stations with Convenience Stores

48	11 of 15	WNW/287.5	95.8	**Shell Canada Products Environment** **632 Plains Road East** **Burlington ON L7T 2E9**	GEN

PO Box Num:
Status:
Country:
Generator #: ON2850973
Approval Yrs:: As of May 2015
SIC Code:
SIC Description:

--Details--
Waste Code: 221
Waste Description: Light fuels

48	12 of 15	WNW/287.5	95.8	**SOUTHLAND CANADA 2830 ATTN MARYANN GRAHOVAC** **632 PLAINS RD E** **BURLINGTON ON L7T2E9**	PRT

Location ID: 2474
Type: retail
Expiry Date: 1995-12-31
Capacity (L): 25427

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
Licence #:		0055627001			

48	13 of 15	WNW/287.5	95.8	**Shell Canada Limited** **632 Plains Rd. East** **Burlington ON L7T 2E9**	SPL

Ref NO:	7884-67JMNV
Contaminant Code:	12
Contaminant Name:	GASOLINE
Contaminant Quantity:	
Incident Cause::	Pipe Or Hose Leak
Incident Dt:	12/10/2004
Incident Reason::	Spill
Incident Summary::	Shell Gas Bar - gasoline leak
MOE Reported Dt:	12/10/2004
Environmental Impact::	Possible
Nature of Impact::	Soil Contamination
Receiving Medium::	Land
SAC Action Class:	Notification
Sector Source Type:	Service Station
Site Municipality:	Burlington

48	14 of 15	WNW/287.5	95.8	**SHELL CANADA PRODUCTS LTD.** **632 PLAINS RD SERVICE STATION** **BURLINGTON CITY ON**	SPL

Ref NO:	167794
Contaminant Code:	
Contaminant Name:	
Contaminant Quantity:	
Incident Cause::	OTHER CONTAINER LEAK
Incident Dt:	5/16/1999
Incident Reason::	UNKNOWN
Incident Summary::	SHELL: 30 GASOLINE LEAKED TO CONCRETE PAD.
MOE Reported Dt:	5/16/1999
Environmental Impact::	NOT ANTICIPATED
Nature of Impact::	
Receiving Medium::	LAND
SAC Action Class:	
Sector Source Type:	
Site Municipality:	14101

48	15 of 15	WNW/287.5	95.8	**Shell Canada Limited** **632 Plains Road East** **Burlington ON L7T 2E9**	SPL

Ref NO:	7128-84KPH8
Contaminant Code:	12
Contaminant Name:	GASOLINE
Contaminant Quantity:	50 L
Incident Cause::	Other Discharges
Incident Dt:	
Incident Reason::	Error- Operator error
Incident Summary::	Shell Sevice Stn, 20-50L gasoline to asphalt, cntnd
MOE Reported Dt:	4/16/2010
Environmental Impact::	Not Anticipated
Nature of Impact::	Other Impact(s)
Receiving Medium::	
SAC Action Class:	Land Spills
Sector Source Type:	Service Station

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
Site Municipality:					

49	1 of 1	NNW/290.4	95.0	**Fortinos Supermarket Limited (Main Office)** **1025 Plains Rd. E** **Burlington ON L7T 4K1**	SPL

Ref NO:	3442-74AL8B
Contaminant Code:	38
Contaminant Name:	REFRIGERANT GAS, R22.
Contaminant Quantity:	116 kg
Incident Cause::	Discharge or Emission to Air
Incident Dt:	
Incident Reason::	Material Failure - Poor design or substandard materials
Incident Summary::	Fortinos: 116kg R22 to atm from loose packing
MOE Reported Dt:	6/18/2007
Environmental Impact::	Possible
Nature of Impact::	Air Pollution; Other Impact(s)
Receiving Medium::	Air
SAC Action Class:	
Sector Source Type:	Other
Site Municipality:	Burlington

50	1 of 1	E/291.6	88.8	**R.M. OF HALTON** **WAYNE PLACE/SHEPHERD'S WAY** **BURLINGTON CITY ON**	CA

Certificate #:	7-1220-95-966
Application Year:	95
Issue Date:	1/12/96
Approval Type:	Municipal water
Status:	Received in 1995, Issued in 1996
Application Type:	
Client Name::	
Client Address::	
Client City::	
Client Postal Code::	
Project Description::	
Contaminants::	
Emission Control::	

51	1 of 4	NW/293.4	94.7	**Acclaim Health** **685 Plains Road East** **Burlington ON L7T 2E8**	GEN

PO Box Num:	
Status:	Registered
Country:	Canada
Generator #:	ON5897186
Approval Yrs::	As of Sep 2016
SIC Code:	
SIC Description:	
--Details--	
Waste Code:	312 P
Waste Description:	Pathological wastes

51	2 of 4	NW/293.4	94.7	**Traverse Dentistry Professional Corporation** **685 PLAINS ROAD EAST**	GEN

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
				BURLINGTON ON	

PO Box Num:
Status:
Country:
Generator #: ON7113298
Approval Yrs:: 2013
SIC Code: 621210
SIC Description: OFFICES OF DENTISTS

--Details--
Waste Code: 312
Waste Description: PATHOLOGICAL WASTES

51	***3 of 4***	***NW/293.4***	***94.7***	***Acclaim Health*** ***685 Plains Road East*** ***Burlington ON***	***GEN***

PO Box Num:
Status:
Country:
Generator #: ON5897186
Approval Yrs:: As of May 2015
SIC Code:
SIC Description:

--Details--
Waste Code: 312
Waste Description: Pathological wastes

51	***4 of 4***	***NW/293.4***	***94.7***	***Dr. Kiran Grover Dentistry Professional Corp*** ***685 PLAINS ROAD EAST*** ***BURLINGTON ON L7T2E8***	***GEN***

PO Box Num:
Status: Registered
Country: Canada
Generator #: ON7113298
Approval Yrs:: As of Sep 2016
SIC Code:
SIC Description:

--Details--
Waste Code: 312 P
Waste Description: Pathological wastes

52	***1 of 2***	***W/293.6***	***96.8***	***978 LONG DR, BURLINGTON ON***	***PINC***

Incident ID:
Tank Status: RC Established
Attribute Category: FS-Perform P-line Inc Invest
Task Number: 5054287
Type: FS-Pipeline Incident
Incident Number: 1412040
Status Code: Pipeline Damage Reason Est
Summary: 978 LONG DR, BURLINGTON - PIPELINE HIT - 1/2"

Spills Action Centre:	
Reported By:	Lia Squires - Union Gas
Affiliation:	
Method Details:	E-mail
Fuel Category:	Natural Gas
Fuel Occurrence Type:	
Date of Occurrence:	
Occurrence Start Date:	2014/06/12
Health Impact:	
Occurrence Desc:	
Environment Impact:	
Property Damage:	Yes
Service Interupt:	
Fuel Type:	
Enforce Policy:	Yes
Operation Type:	
Damage Reason:	No notification made to the one call center
Public Relation:	
Pipeline System:	
Pipeline Type:	
Depth:	
Pipe Material:	
Regualtor Location:	
PSIG:	
Regulator Type:	
Notes:	

52 ***2 of 2*** ***W/293.6*** ***96.8*** ***Union Gas Limited<UNOFFICIAL>*** ***SPL***
978 Long Drive
Burlington ON

Ref NO:	0471-9KUMPS
Contaminant Code:	35
Contaminant Name:	NATURAL GAS, COMPRESSED (METHANE)
Contaminant Quantity:	0 other - see incident description
Incident Cause::	Leak/Break
Incident Dt:	2014/06/07
Incident Reason::	Operator/Human Error
Incident Summary::	TSSA 1/2" line damage, made safe
MOE Reported Dt:	2014/06/07
Environmental Impact::	Confirmed
Nature of Impact::	Air Pollution
Receiving Medium::	
SAC Action Class:	TSSA - Fuel Safety Branch - Hydrocarbon Fuel Release/Spill
Sector Source Type:	Pipeline/Components
Site Municipality:	Burlington

53 ***1 of 1*** ***WNW/294.6*** ***94.9*** ***ON*** ***WWIS***

Well ID:	7049724	***Lot:***	
Construction Date::		***Concession:***	
Primary Water Use::		***Concession Name:***	
Sec. Water Use::		***Easting NAD83::***	
Final Well Status::	Abandoned-Other	***Northing NAD83::***	
Specific Capacity::		***Zone::***	
Municipality:	BURLINGTON CITY	***UTM Reliability::***	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	23049724

DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	03-AUG-07
Remarks:	
Zone:	17
East 83:	594711
North 83:	4797256
UTMRC:	3
UTMRC Description:	margin of error : 10 - 30 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	95.62
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--
Annular Space/Abandonment Sealing Record	
--	--
Plug ID:	44005240
Layer:	1
Plug From:	0
Plug To:	1.83
Plug Depth UOM:	m
--	--
Plug ID:	44005241
Layer:	2
Plug From:	1.83
Plug To:	6.1
Plug Depth UOM:	m
--	--
Method of Construction & Well Use	
--	--
Method Construction ID:	25949724
Method Construction Code:	B
Method Construction:	Other Method
Other Method Construction:	
--	--
Pipe Information	
--	--
Pipe ID:	29049724
Casing Number:	0
Comment:	
Alt Name:	
Hole Diameter	
--	--
Hole ID:	46003964
Diameter:	20.43
Depth From:	0
Depth To:	1.83
Hole Depth UOM:	m
Hole Diameter UOM:	cm
--	--
--	--

54	*1 of 4*	*NW/296.5*	*94.7*	***Traverse Dentistry Professional Corporation*** ***685 PLAINS ROAD EAST***	***GEN***

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
				BURLINGTON ON L7T 2E8	

PO Box Num:
Status:
Country:
Generator #: ON7113298
Approval Yrs:: As of May 2015
SIC Code:
SIC Description:

--Details--
Waste Code: 312
Waste Description: Pathological wastes

54	***2 of 4***	***NW/296.5***	***94.7***	***Traverse Dentistry Professional Corporation*** ***685 PLAINS ROAD EAST*** ***BURLINGTON ON L7T 2E8***	***GEN***

PO Box Num:
Status:
Country:
Generator #: ON7113298
Approval Yrs:: 2010
SIC Code: 621210
SIC Description: Offices of Dentists

--Details--
Waste Code: 312
Waste Description: PATHOLOGICAL WASTES

54	***3 of 4***	***NW/296.5***	***94.7***	***Traverse Dentistry Professional Corporation*** ***685 PLAINS ROAD EAST*** ***BURLINGTON ON L7T 2E8***	***GEN***

PO Box Num:
Status:
Country:
Generator #: ON7113298
Approval Yrs:: 2012
SIC Code: 621210
SIC Description: Offices of Dentists

--Details--
Waste Code: 312
Waste Description: PATHOLOGICAL WASTES

54	***4 of 4***	***NW/296.5***	***94.7***	***Traverse Dentistry Professional Corporation*** ***685 PLAINS ROAD EAST*** ***BURLINGTON ON L7T 2E8***	***GEN***

PO Box Num:
Status:
Country:
Generator #: ON7113298
Approval Yrs:: 2011
SIC Code: 621210
SIC Description: Offices of Dentists

--Details--
Waste Code: 312
Waste Description: PATHOLOGICAL WASTES

---

55 ***1 of 1*** ***W/297.6*** ***96.8*** ***596 PLAINS ROAD EAST BURLINGTON ON*** ***HINC***

External File Num: FS INC 0811-06774
Date of Occurrence: 11/6/2008
Fuel Occurrence Type: Vapour Release
Fuel Type Involved: Natural Gas
Status Desc:: Completed - Causal Analysis(End)
Job Type Desc:: Incident/Near-Miss Occurrence (FS)
Oper. Type Involved:: Commercial (e.g. restaurant, business unit, etc)
Service Interruptions:: No
Property Damage:: No
Fuel Life Cycle Stage:: Utilization
Root Cause:: Root Cause: Equipment/Material/Component:No Procedures:Yes Maintenance:No Design:No Training:No Management:Yes Human Factors:No
Reported Details::
Fuel Category:: Gaseous Fuel
Occurrence Type:: Near-miss
Affiliation:: Industry Stakeholder (Licensee/Registration/Certificate Holder, Facility Owner, etc.)
County Name:: Halton
Approx. Quant. Rel::
Nearby body of water::
Enter Drainage Syst.::
Approx. Quant. Unit::
Environmental Impact::

---

56 ***1 of 1*** ***WNW/310.6*** ***95.8*** ***BURLINGTON ON*** ***WWIS***

Well ID: 7050491
Construction Date::
Primary Water Use:: Not Used
Sec. Water Use::
Final Well Status:: Abandoned-Other
Specific Capacity::
Municipality: BURLINGTON CITY
County: HALTON
Lot:
Concession:
Concession Name:
Easting NAD83::
Northing NAD83::
Zone::
UTM Reliability::

Bore Hole Information
-- --
Bore Hole ID: 23050491
DP2BR:
Code OB:
Code OB Description:
Open Hole:
Date Completed: 24-AUG-07
Remarks:
Zone: 17
East 83: 594670
North 83: 4797230
UTMRC: 3
UTMRC Description: margin of error : 10 - 30 m
Location Method: wwr
Org CS: UTM83
Elevation: 95.93
Elevrc:

Elevrc Description:
Location Source Date:
Source Revision Comment:
Improvement Location Source:
Improvement Location Method:
Supplier Comment:
Spatial Status:
-- --
Overburden and Bedrock Materials Interval
-- --
Formation ID: 1000019503
Layer: 1
General Color:
Most Common Material:
Other Materials:
Other Materials:
Formation Top Depth: 0
Formation End Depth:
Formation End Depth UOM: m
-- --
Annular Space/Abandonment Sealing Record
-- --
Plug ID: 1000019504
Layer: 1
Plug From: 0
Plug To: 6
Plug Depth UOM: m
-- --
Method of Construction & Well Use
-- --
Method Construction ID: 1000019508
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:
-- --
Pipe Information
-- --
Pipe ID: 1000019501
Casing Number: 0
Comment:
Alt Name:
-- --
Construction Record - Screen
-- --
Screen ID: 1000019506
Layer:
Slot:
Screen Top Depth:
Screen End Depth:
Screen Material:
Screen Depth UOM:
Screen Diameter UOM:
Screen Diameter:
-- --
Well Yield Testing
-- --
Pump Test ID: 1000019502
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Recommended Pump Rate:	
Levels UOM:	m
Rate UOM:	LPM
Water State After Test Code:	0
Water State After Test:	
Pumping Test Method:	0
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	
--	--
Water Details	
--	--
Water ID:	1000019505
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	3
Water Found Depth UOM:	m
--	--
--	--

57	1 of 1	WNW/313.6	95.8	**ESSO PETROLEUM** **AT CORNER OF KING & PLAINS RDS. SERVICE STATION** **BURLINGTON CITY ON**	SPL

Ref NO:	472
Contaminant Code:	
Contaminant Name:	
Contaminant Quantity:	
Incident Cause::	VALVE/FITTING LEAK OR FAILURE
Incident Dt:	2/20/1988
Incident Reason::	VANDALISM
Incident Summary::	ESSO - 900 L. FUEL OIL TOCREEK.
MOE Reported Dt:	2/20/1988
Environmental Impact::	NOT ANTICIPATED
Nature of Impact::	
Receiving Medium::	LAND / WATER
SAC Action Class:	
Sector Source Type:	
Site Municipality:	14101

58	1 of 4	WNW/320.4	94.8	**SUNCOR ENERGY PRODUCTS INC KEELE ST TERMINAL** **629 PLAINS RD E** **BURLINGTON ON**	EXP

Instance ID:	
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	
Expired Date:	7/30/1993
Instance Number:	10003819
Instance Type:	FS Facility
Status:	EXPIRED
Description:	

58	2 of 4	WNW/320.4	94.8	**SUNCOR ENERGY PRODUCTS INC KEELE ST TERMINAL** **629 PLAINS RD E** **BURLINGTON ON**	EXP

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Instance ID:
TSSA Program Area:
Maximum Hazard Rank:
Facility Type:
Expired Date: 7/30/1993
Instance Number: 11154881
Instance Type: FS Liquid Fuel Tank
Status: EXPIRED
Description:

---

58 | ***3 of 4*** | ***WNW/320.4*** | ***94.8*** | ***SUNCOR ENERGY PRODUCTS INC KEELE ST TERMINAL***
629 PLAINS RD E
BURLINGTON ON NULL | ***EXP***

Instance ID:
TSSA Program Area:
Maximum Hazard Rank:
Facility Type: FS Liquid Fuel Tank
Expired Date: 7/30/1993
Instance Number: 11154881
Instance Type: FS Liquid Fuel Tank
Status: EXPIRED
Description: FS Gasoline Station - Full Serve

---

58 | ***4 of 4*** | ***WNW/320.4*** | ***94.8*** | ***PETRO CANADA INC KEELE ST TERMINAL***
629 PLAINS RD E
BURLINGTON ON | ***PRT***

Location ID: 21095
Type: retail
Expiry Date: 1994-07-31
Capacity (L): 0
Licence #: 0076398049

---

59 | ***1 of 2*** | ***NW/323.9*** | ***95.0*** | ***Plainsview Drug Store***
665 Plains Rd. East
Burlington ON L7T 2E8 | ***GEN***

PO Box Num:
Status:
Country:
Generator #: ON4319174
Approval Yrs:: 2010
SIC Code: 446110
SIC Description: Pharmacies and Drug Stores

--Details--
Waste Code: 261
Waste Description: PHARMACEUTICALS

---

59 | ***2 of 2*** | ***NW/323.9*** | ***95.0*** | ***Waldon Pools and Billiards***
665 Plains Road East
Burlington ON L7T 2E8 | ***SPL***

Ref NO: 8533-5LPN93
Contaminant Code: 28

Contaminant Name:	CHLORINE LIQUID(POOL CHEMICALS)
Contaminant Quantity:	20 L
Incident Cause::	Unknown
Incident Dt:	4/17/2003
Incident Reason::	Spill
Incident Summary::	20L of Chlorine to Storm Sewer: Burlington
MOE Reported Dt:	4/17/2003
Environmental Impact::	Possible
Nature of Impact::	Surface Water Pollution
Receiving Medium::	Water
SAC Action Class:	
Sector Source Type:	
Site Municipality:	Burlington

---

60 **1 of 2** **NNW/324.1** **93.7** **ON** **WWIS**

Well ID:	7160251	**Lot:**	
Construction Date::		**Concession:**	
Primary Water Use::		**Concession Name:**	
Sec. Water Use::		**Easting NAD83::**	
Final Well Status::		**Northing NAD83::**	
Specific Capacity::		**Zone::**	
Municipality:	BURLINGTON CITY	**UTM Reliability::**	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	1003484931
DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	10-FEB-11
Remarks:	
Zone:	17
East 83:	594835
North 83:	4797530
UTMRC:	3
UTMRC Description:	margin of error : 10 - 30 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--
--	--

---

60 **2 of 2** **NNW/324.1** **93.7** **ON** **WWIS**

Well ID:	7165993	**Lot:**	
Construction Date::		**Concession:**	
Primary Water Use::		**Concession Name:**	
Sec. Water Use::		**Easting NAD83::**	
Final Well Status::		**Northing NAD83::**	
Specific Capacity::		**Zone::**	

Municipality:	BURLINGTON CITY	**UTM Reliability::**	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	1003538028
DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	05-JUL-11
Remarks:	
Zone:	17
East 83:	594835
North 83:	4797530
UTMRC:	3
UTMRC Description:	margin of error : 10 - 30 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--
--	--

---

61 **1 of 1** **WNW/330.6** **95.8** **ON** **BORE**

Borehole ID:	622172	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	
Drill Method::	Power auger	**UTM Zone::**	17
Easting::	594655	**Northing::**	4797243
Location Accuracy::		**Orig. Ground Elev m::**	96.9
Elev. Reliability Note::		**DEM Ground Elev m::**	95.9
Total Depth m::	6.1	**Primary Name::**	
Township::		**Concession::**	
Lot::		**Municipality:**	
Completion Date::	JAN-1961	**Static Water Level::**	-999.9
Primary Water Use::	Not Used	**Sec. Water Use::**	

--Details--

Stratum ID:	218424691	**Top Depth(m):**	0.0
Bottom Depth(m):	6.1	**Stratum Desc:**	SAND. BROWN,VERY SOFT,AGE GLACIAL. 00000022LAY,

---

62 **1 of 1** **ENE/342.5** **90.8** **ON** **BORE**

Borehole ID:	621738	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	
Drill Method::	Power auger	**UTM Zone::**	17
Easting::	595655	**Northing::**	4797243
Location Accuracy::		**Orig. Ground Elev m::**	90.1
Elev. Reliability Note::		**DEM Ground Elev m::**	91.6
Total Depth m::	-999	**Primary Name::**	
Township::		**Concession::**	

Lot::		**Municipality:**	
Completion Date::	MAY-1964	**Static Water Level::**	-999.9
Primary Water Use::	Not Used	**Sec. Water Use::**	

--Details--

Stratum ID:	218422203	**Top Depth(m):**	0.0
Bottom Depth(m):	0.1	**Stratum Desc:**	SOIL. AGE POST-GLACIAL.
Stratum ID:	218422204	**Top Depth(m):**	0.1
Bottom Depth(m):	1.5	**Stratum Desc:**	SAND-MEDIUM. BROWN,LACUSTRINE,LOOSE, GRANULAR,AGE GLACIAL.
Stratum ID:	218422205	**Top Depth(m):**	1.5
Bottom Depth(m):	2.1	**Stratum Desc:**	SAND-MEDIUM,SILT. BROWN,LACUSTRINE,COMPACT, GRANULAR,AGE GLACIAL.
Stratum ID:	218422206	**Top Depth(m):**	2.1
Bottom Depth(m):	2.5	**Stratum Desc:**	SAND-MEDIUM,SILT. BROWN,LACUSTRINE,COMPACT, GRANULAR,AGE GLACIAL.
Stratum ID:	218422207	**Top Depth(m):**	2.5
Bottom Depth(m):	3.7	**Stratum Desc:**	TILL,SILT,CLAY,SAND.GREEN,GLACIAL,VERY DENSE, LAYERED,AGE GLACIAL.
Stratum ID:	218422208	**Top Depth(m):**	3.7
Bottom Depth(m):		**Stratum Desc:**	REFUSAL OF ENTRY. 0000201000050020000700200008306000034

---

63 ***1 of 1*** ***E/345.3*** ***86.7*** ***ON*** ***BORE***

Borehole ID:	622251	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	
Drill Method::	Power auger	**UTM Zone::**	17
Easting::	595695	**Northing::**	4797003
Location Accuracy::		**Orig. Ground Elev m::**	80.4
Elev. Reliability Note::		**DEM Ground Elev m::**	86.2
Total Depth m::	5.5	**Primary Name::**	
Township::		**Concession::**	
Lot::		**Municipality:**	
Completion Date::	AUG-1961	**Static Water Level::**	-999.9
Primary Water Use::	Not Used	**Sec. Water Use::**	

--Details--

Stratum ID:	218424939	**Top Depth(m):**	0.0
Bottom Depth(m):	5.5	**Stratum Desc:**	SOIL. AGE POST-GLACIAL.
Stratum ID:	218424940	**Top Depth(m):**	0.0
Bottom Depth(m):	3.5	**Stratum Desc:**	CLAY,SAND,GRAVEL. BROWN,HARD,AGE GLACIAL.
Stratum ID:	218424941	**Top Depth(m):**	3.5
Bottom Depth(m):	4.7	**Stratum Desc:**	CLAY,SAND,GRAVEL. GREEN,HARD,AGE GLACIAL.
Stratum ID:	218424942	**Top Depth(m):**	4.7
Bottom Depth(m):	5.5	**Stratum Desc:**	SILT,SAND,CLAY. BROWN,VERY HARD,AGE GLACIAL. 0000005100115056001551 98ED,V

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
64	1 of 1	NNW/348.3	96.1	1025 & 1059 Plains Rd E Burlington ON	EHS

Postal Code:
City:
Address2:
Address1:
Provstate:
Order No.: 20130111206
Addit. Info Ordered::
Report Date: 23-JAN-13
Report Type: Custom Report
Search Radius (km): .25

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
65	1 of 1	WNW/349.7	95.8	PETRO-CANADA Road allowance adjacent to 623 PLAINS ROAD EAST BURLINGTON ON L7T 2E8	GEN

PO Box Num:
Status:
Country:
Generator #: ON2555664
Approval Yrs:: 05
SIC Code: 562910
SIC Description: Remediation Services

--Details--
Waste Code: 221
Waste Description: LIGHT FUELS

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
66	1 of 1	WNW/349.9	95.8	BURLINGTON ON	WWIS

Well ID: 2810387
Construction Date::
Primary Water Use::
Sec. Water Use::
Final Well Status:: Observation Wells
Specific Capacity::
Municipality: BURLINGTON CITY
County: HALTON

Lot:
Concession:
Concession Name:
Easting NAD83::
Northing NAD83::
Zone::
UTM Reliability::

Bore Hole Information
-- --
Bore Hole ID: 11319342
DP2BR:
Code OB: o
Code OB Description: Overburden
Open Hole:
Date Completed: 12-OCT-05
Remarks:
Zone: 17
East 83: 594649
North 83: 4797268
UTMRC:
UTMRC Description:
Location Method: wwr
Org CS: UTM83
Elevation: 95.82

Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--
Overburden and Bedrock Materials Interval	
--	--
Formation ID:	933007676
Layer:	1
General Color:	BROWN
Most Common Material:	SAND
Other Materials:	DRY
Other Materials:	
Formation Top Depth:	0
Formation End Depth:	4
Formation End Depth UOM:	m
--	--
Formation ID:	933007677
Layer:	2
General Color:	BROWN
Most Common Material:	SAND
Other Materials:	
Other Materials:	
Formation Top Depth:	4
Formation End Depth:	6
Formation End Depth UOM:	m
--	--
Annular Space/Abandonment Sealing Record	
--	--
Plug ID:	933279441
Layer:	1
Plug From:	0
Plug To:	.3
Plug Depth UOM:	m
--	--
Plug ID:	933279442
Layer:	2
Plug From:	.3
Plug To:	2.8
Plug Depth UOM:	m
--	--
Method of Construction & Well Use	
--	--
Method Construction ID:	962810387
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	
--	--
Pipe Information	
--	--
Pipe ID:	11334197
Casing Number:	1
Comment:	
Alt Name:	
--	--
Construction Record - Casing	
--	--
Casing ID:	930860345
Layer:	1

Open Hole or Material:	PLASTIC
Depth From:	0
Depth To:	3
Casing Diameter:	5
Casing Diameter UOM:	cm
Casing Depth UOM:	m
--	--
--	--
Construction Record - Screen	
--	--
Screen ID:	933415175
Layer:	1
Slot:	10
Screen Top Depth:	3
Screen End Depth:	6
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	6.4
--	--
Water Details	
--	--
Water ID:	934066535
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	4
Water Found Depth UOM:	m
--	--
Hole Diameter	
--	--
Hole ID:	11537931
Diameter:	21
Depth From:	0
Depth To:	6
Hole Depth UOM:	m
Hole Diameter UOM:	cm
--	--
--	--

67 ***1 of 1*** ***WNW/351.8*** ***96.8*** ***BURLINGTON ON*** ***WWIS***

Well ID:	7260263	***Lot:***	
Construction Date::		***Concession:***	
Primary Water Use::	Test Hole	***Concession Name:***	
Sec. Water Use::	Monitoring	***Easting NAD83::***	
Final Well Status::	Monitoring and Test Hole	***Northing NAD83::***	
Specific Capacity::		***Zone::***	
Municipality:	BURLINGTON CITY	***UTM Reliability::***	
County:	HALTON		

Bore Hole Information	
--	--
Bore Hole ID:	1005917326
DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	16-FEB-16
Remarks:	
Zone:	17
East 83:	594604
North 83:	4797195
UTMRC:	4

UTMRC Description:	margin of error : 30 m - 100 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--
Overburden and Bedrock Materials Interval	
--	--
Formation ID:	1006046061
Layer:	1
General Color:	BLACK
Most Common Material:	OTHER
Other Materials:	
Other Materials:	
Formation Top Depth:	0
Formation End Depth:	3
Formation End Depth UOM:	ft
--	--
Formation ID:	1006046062
Layer:	2
General Color:	BROWN
Most Common Material:	SAND
Other Materials:	
Other Materials:	
Formation Top Depth:	3
Formation End Depth:	20
Formation End Depth UOM:	ft
--	--
Annular Space/Abandonment Sealing Record	
--	--
Plug ID:	1006046070
Layer:	1
Plug From:	20
Plug To:	9
Plug Depth UOM:	ft
--	--
Plug ID:	1006046071
Layer:	2
Plug From:	9
Plug To:	0
Plug Depth UOM:	ft
--	--
Plug ID:	1006046072
Layer:	3
Plug From:	
Plug To:	
Plug Depth UOM:	ft
--	--
Method of Construction & Well Use	
--	--
Method Construction ID:	1006046069
Method Construction Code:	D
Method Construction:	Direct Push
Other Method Construction:	
--	--
Pipe Information	

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site		DB

--	--
Pipe ID:	1006046060
Casing Number:	0
Comment:	
Alt Name:	
--	--
Construction Record - Casing	
--	--
Casing ID:	1006046065
Layer:	1
Open Hole or Material:	PLASTIC
Depth From:	0
Depth To:	10
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft
--	--
--	--
Construction Record - Screen	
--	--
Screen ID:	1006046066
Layer:	1
Slot:	.10
Screen Top Depth:	10
Screen End Depth:	20
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.25
--	--
Hole Diameter	
--	--
Hole ID:	1006046063
Diameter:	6
Depth From:	0
Depth To:	20
Hole Depth UOM:	ft
Hole Diameter UOM:	inch
--	--
--	--

68	1 of 1	W/354.8	96.8	564 Plains Road, East n/a ON L7T 2E5		EHS

Postal Code:	
City:	
Address2:	
Address1:	
Provstate:	
Order No.:	20080318030w
Addit. Info Ordered::	
Report Date:	3/18/2008
Report Type:	Online Mapless
Search Radius (km):	0.25

69	1 of 2	SSE/355.0	89.8	PANIC PRINTING LIMITED 760 KING ROAD BURLINGTON ON L7T 3K6	30-164	GEN

PO Box Num:	
Status:	
Country:	
Generator #:	ON0544100

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Approval Yrs:: 92,93,94
SIC Code: 0007
SIC Description: LETTER ACKNOWLEDG.

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69 | ***2 of 2*** | ***SSE/355.0*** | ***89.8*** | ***PANIC PRINTING LIMITED***
760 KING ROAD
BURLINGTON ON L7T 3K6 | ***GEN***

PO Box Num:
Status:
Country:
Generator #: ON0544100
Approval Yrs:: 86,87,88,89
SIC Code: 0007
SIC Description: LETTER ACKNOWLEDG.

---

70 | ***1 of 1*** | ***WNW/357.6*** | ***96.8*** | ***BURLINGTON ON*** | ***WWIS***

Well ID:	7260264	***Lot:***	
Construction Date::		***Concession:***	
Primary Water Use::	Test Hole	***Concession Name:***	
Sec. Water Use::	Monitoring	***Easting NAD83::***	
Final Well Status::	Monitoring and Test Hole	***Northing NAD83::***	
Specific Capacity::		***Zone::***	
Municipality:	BURLINGTON CITY	***UTM Reliability::***	
County:	HALTON		

Bore Hole Information
-- --
Bore Hole ID: 1005917329
DP2BR:
Code OB:
Code OB Description:
Open Hole:
Date Completed: 16-FEB-16
Remarks:
Zone: 17
East 83: 594591
North 83: 4797178
UTMRC: 4
UTMRC Description: margin of error : 30 m - 100 m
Location Method: wwr
Org CS: UTM83
Elevation:
Elevrc:
Elevrc Description:
Location Source Date:
Source Revision Comment:
Improvement Location Source:
Improvement Location Method:
Supplier Comment:
Spatial Status:
-- --
Overburden and Bedrock Materials Interval
-- --
Formation ID: 1006046074
Layer: 1
General Color: BLACK
Most Common Material: OTHER
Other Materials:

Other Materials:	
Formation Top Depth:	0
Formation End Depth:	3
Formation End Depth UOM:	ft
--	--
Formation ID:	1006046075
Layer:	2
General Color:	BROWN
Most Common Material:	SAND
Other Materials:	
Other Materials:	
Formation Top Depth:	3
Formation End Depth:	20
Formation End Depth UOM:	ft
--	--
Annular Space/Abandonment Sealing Record	
--	--
Plug ID:	1006046083
Layer:	1
Plug From:	20
Plug To:	9
Plug Depth UOM:	ft
--	--
Plug ID:	1006046084
Layer:	2
Plug From:	9
Plug To:	0
Plug Depth UOM:	ft
--	--
Plug ID:	1006046085
Layer:	3
Plug From:	
Plug To:	
Plug Depth UOM:	ft
--	--
Method of Construction & Well Use	
--	--
Method Construction ID:	1006046082
Method Construction Code:	D
Method Construction:	Direct Push
Other Method Construction:	
--	--
Pipe Information	
--	--
Pipe ID:	1006046073
Casing Number:	0
Comment:	
Alt Name:	
--	--
Construction Record - Casing	
--	--
Casing ID:	1006046078
Layer:	1
Open Hole or Material:	PLASTIC
Depth From:	0
Depth To:	10
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft
--	--
--	--
Construction Record - Screen	
--	--
Screen ID:	1006046079

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Layer:	1
Slot:	.10
Screen Top Depth:	10
Screen End Depth:	20
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.25
--	--
Hole Diameter	
--	--
Hole ID:	1006046076
Diameter:	6
Depth From:	0
Depth To:	20
Hole Depth UOM:	ft
Hole Diameter UOM:	inch
--	--
--	--

71	***1 of 3***	***WNW/358.3***	***94.8***	***East Plains Animal Hospital Professional Corporati*** ***645 Plains Road East*** ***Burlington ON***	***GEN***

PO Box Num:	
Status:	
Country:	
Generator #:	ON2859811
Approval Yrs::	2013
SIC Code:	541940
SIC Description:	VETERINARY SERVICES

--Details--

Waste Code:	261
Waste Description:	PHARMACEUTICALS
Waste Code:	312
Waste Description:	PATHOLOGICAL WASTES

71	***2 of 3***	***WNW/358.3***	***94.8***	***EH2 Medical Associates*** ***645 Plains Road East*** ***Burlington ON L7T 4J5***	***GEN***

PO Box Num:	
Status:	Registered
Country:	Canada
Generator #:	ON7378586
Approval Yrs::	As of Sep 2016
SIC Code:	
SIC Description:	

--Details--

Waste Code:	261 A
Waste Description:	Pharmaceuticals
Waste Code:	312 P
Waste Description:	Pathological wastes

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
71	3 of 3	WNW/358.3	94.8	East Plains Animal Hospital Professional Corporati 645 Plains Road East Burlington ON L7T 4J5	GEN

PO Box Num:
Status: Registered
Country: Canada
Generator #: ON2859811
Approval Yrs:: As of Sep 2016
SIC Code:
SIC Description:

--Details--
Waste Code: 261 A
Waste Description: Pharmaceuticals

Waste Code: 312 P
Waste Description: Pathological wastes

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
72	1 of 10	WNW/360.0	96.8	WOOD'S ESSO 603 PLAINS RD E BURLINGTON ON	EXP

Instance ID: 31386
TSSA Program Area:
Maximum Hazard Rank:
Facility Type:
Expired Date:
Instance Number: 10634010
Instance Type: FS Liquid Fuel Tank
Status: EXPIRED
Description: FS Liquid Fuel Tank

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
72	2 of 10	WNW/360.0	96.8	WOOD'S ESSO 603 PLAINS RD E BURLINGTON ON L7T 2E6	EXP

Instance ID:
TSSA Program Area:
Maximum Hazard Rank:
Facility Type:
Expired Date: 4/2/2009
Instance Number: 10633920
Instance Type: FS Liquid Fuel Tank
Status: EXPIRED
Description:

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
72	3 of 10	WNW/360.0	96.8	WOOD'S ESSO 603 PLAINS RD E BURLINGTON ON	EXP

Instance ID: 31458
TSSA Program Area:
Maximum Hazard Rank:
Facility Type:
Expired Date:
Instance Number: 10633945
Instance Type: FS Piping
Status: EXPIRED

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
Description:		FS Piping			

72	4 of 10	WNW/360.0	96.8	WOOD'S ESSO 603 PLAINS RD E BURLINGTON ON L7T 2E6	EXP

Instance ID:
TSSA Program Area:
Maximum Hazard Rank:
Facility Type:
Expired Date: 4/2/2009
Instance Number: 9693003
Instance Type: FS Facility
Status: EXPIRED
Description:

72	5 of 10	WNW/360.0	96.8	WOOD'S ESSO 603 PLAINS RD E BURLINGTON ON L7T 2E6	EXP

Instance ID:
TSSA Program Area:
Maximum Hazard Rank:
Facility Type:
Expired Date: 4/2/2009
Instance Number: 10633966
Instance Type: FS Liquid Fuel Tank
Status: EXPIRED
Description:

72	6 of 10	WNW/360.0	96.8	WOOD'S ESSO 603 PLAINS RD E BURLINGTON ON	EXP

Instance ID: 30493
TSSA Program Area:
Maximum Hazard Rank:
Facility Type:
Expired Date:
Instance Number: 10634029
Instance Type: FS Piping
Status: EXPIRED
Description: FS Piping

72	7 of 10	WNW/360.0	96.8	WOOD'S ESSO 603 PLAINS RD E BURLINGTON ON	EXP

Instance ID: 31084
TSSA Program Area:
Maximum Hazard Rank:
Facility Type:
Expired Date:
Instance Number: 10633986
Instance Type: FS Piping
Status: EXPIRED
Description: FS Piping

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
72	8 of 10	WNW/360.0	96.8	Enterprize Car Rentals 603 Plains Road East Burlington ON L7T 2E6	GEN

PO Box Num:	
Status:	
Country:	
Generator #:	ON7099559
Approval Yrs::	2011
SIC Code:	532111
SIC Description:	

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
72	9 of 10	WNW/360.0	96.8	Enterprise Rent A Car Canada Company 603 Plains Road East Burlington ON	GEN

PO Box Num:	
Status:	
Country:	
Generator #:	ON7038459
Approval Yrs::	As of May 2015
SIC Code:	
SIC Description:	
--Details--	
Waste Code:	251
Waste Description:	Waste oils/sludges (petroleum based)

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
72	10 of 10	WNW/360.0	96.8	WOOD'S ESSO 603 PLAINS RD E BURLINGTON ON L7T 2E6	PRT

Location ID:	2473
Type:	retail
Expiry Date:	1991-06-30
Capacity (L):	20972
Licence #:	0050120001

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
73	1 of 6	NW/360.7	94.8	TRIPLE HOLDING LIMITED 645 PLAINS RD. BURLINGTON CITY ON	CA

Certificate #:	8-3690-94-
Application Year:	94
Issue Date:	2/9/1995
Approval Type:	Industrial air
Status:	Cancelled
Application Type:	
Client Name::	
Client Address::	
Client City::	
Client Postal Code::	
Project Description::	APPLICATION FORM BLANK-TO BE RETURNED
Contaminants::	
Emission Control::	

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
73	2 of 6	NW/360.7	94.8	East Plains Animal Hospital Professional Corporati 645 Plains Road East Burlington ON L7T 4J5	GEN

PO Box Num:
Status:
Country:
Generator #: ON2859811
Approval Yrs:: 2011
SIC Code: 541940
SIC Description: Veterinary Services

--Details--
Waste Code: 312
Waste Description: PATHOLOGICAL WASTES

Waste Code: 261
Waste Description: PHARMACEUTICALS

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
73	3 of 6	NW/360.7	94.8	EH2 Medical Associates 645 Plains Road East Burlington ON	GEN

PO Box Num:
Status:
Country:
Generator #: ON7378586
Approval Yrs:: As of May 2015
SIC Code:
SIC Description:

--Details--
Waste Code: 261
Waste Description: Pharmaceuticals

Waste Code: 312
Waste Description: Pathological wastes

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
73	4 of 6	NW/360.7	94.8	East Plains Animal Hospital Professional Corporati 645 Plains Road East Burlington ON L7T 4J5	GEN

PO Box Num:
Status:
Country:
Generator #: ON2859811
Approval Yrs:: 2010
SIC Code: 541940
SIC Description: Veterinary Services

--Details--
Waste Code: 261
Waste Description: PHARMACEUTICALS

Waste Code: 312
Waste Description: PATHOLOGICAL WASTES

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
73	5 of 6	NW/360.7	94.8	East Plains Animal Hospital Professional Corporati 645 Plains Road East Burlington ON L7T 4J5	GEN

PO Box Num:
Status:
Country:
Generator #: ON2859811
Approval Yrs:: As of May 2015
SIC Code:
SIC Description:

--Details--
Waste Code: 261
Waste Description: Pharmaceuticals

Waste Code: 312
Waste Description: Pathological wastes

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
73	6 of 6	NW/360.7	94.8	East Plains Animal Hospital Professional Corporati 645 Plains Road East Burlington ON L7T 4J5	GEN

PO Box Num:
Status:
Country:
Generator #: ON2859811
Approval Yrs:: 2012
SIC Code: 541940
SIC Description: Veterinary Services

--Details--
Waste Code: 261
Waste Description: PHARMACEUTICALS

Waste Code: 312
Waste Description: PATHOLOGICAL WASTES

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
74	1 of 2	SW/361.4	90.8	515 ANN AVE, BURLINGTON ON	PINC

Incident ID:
Tank Status: RC Established
Attribute Category: FS-Perform P-line Inc Invest
Task Number: 5242176
Type: FS-Pipeline Incident
Incident Number: 1512286
Status Code: Pipeline Damage Reason Est
Summary: 515 ANN AVE, BURLINGTON - PIPELINE HIT 1/2"
Spills Action Centre:
Reported By: lORI Devay - Union Gas
Affiliation:
Method Details: E-mail
Fuel Category: Natural Gas
Fuel Occurrence Type:
Date of Occurrence:
Occurrence Start Date: 2014/10/06
Health Impact:

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Occurrence Desc:
Environment Impact:
Property Damage: Yes
Service Interupt:
Fuel Type:
Enforce Policy: Yes
Operation Type:
Damage Reason: No notification made to the one call center
Public Relation:
Pipeline System:
Pipeline Type:
Depth:
Pipe Material:
Regualtor Location:
PSIG:
Regulator Type:
Notes:

74	2 of 2	SW/361.4	90.8	**Union Gas Limited** **515 Ann Avenue** **Burlington ON**	SPL

Ref NO: 4344-9QAR4V
Contaminant Code: 35
Contaminant Name: NATURAL GAS (METHANE)
Contaminant Quantity: 1 other - see incident description
Incident Cause:: Operator/Human error
Incident Dt: 2014/10/27
Incident Reason:: Operator/Human Error
Incident Summary:: Union Gas: 1/2" plstc dmgd by contractor - SAFE
MOE Reported Dt: 2014/10/27
Environmental Impact:: Confirmed
Nature of Impact:: Air Pollution; Human Health/Safety
Receiving Medium::
SAC Action Class: TSSA - Fuel Safety Branch - Hydrocarbon Fuel Release/Spill
Sector Source Type: Pipeline/Components
Site Municipality: Burlington

75	1 of 4	WNW/374.2	96.8	**WOOD'S ESSO** **603 PLAINS RD E** **BURLINGTON ON L7T 2E6**	EXP

Instance ID:
TSSA Program Area:
Maximum Hazard Rank:
Facility Type: FS Liquid Fuel Tank
Expired Date: 4/2/2009
Instance Number: 10634010
Instance Type: FS Liquid Fuel Tank
Status: EXPIRED
Description: FS Gasoline Station - Full Serve

75	2 of 4	WNW/374.2	96.8	**WOOD'S ESSO** **603 PLAINS RD E** **BURLINGTON ON L7T 2E6**	EXP

Instance ID:
TSSA Program Area:
Maximum Hazard Rank:
Facility Type: FS Liquid Fuel Tank

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Expired Date: 4/2/2009
Instance Number: 10633966
Instance Type: FS Liquid Fuel Tank
Status: EXPIRED
Description: FS Gasoline Station - Full Serve

75	3 of 4	WNW/374.2	96.8	WOOD'S ESSO 603 PLAINS RD E BURLINGTON ON L7T 2E6	EXP

Instance ID:
TSSA Program Area:
Maximum Hazard Rank:
Facility Type: FS Liquid Fuel Tank
Expired Date: 4/2/2009
Instance Number: 10633920
Instance Type: FS Liquid Fuel Tank
Status: EXPIRED
Description: FS Gasoline Station - Full Serve

75	4 of 4	WNW/374.2	96.8	Enterprise Rent A Car Canada Company 603 Plains Road East Burlington ON L7T 2E6	GEN

PO Box Num:
Status: Registered
Country: Canada
Generator #: ON7038459
Approval Yrs:: As of Sep 2016
SIC Code:
SIC Description:

--Details--
Waste Code: 251 L
Waste Description: Waste oils/sludges (petroleum based)

76	1 of 1	WNW/380.1	96.9	595 Plains Rd E Burlington ON L7T2E6	EHS

Postal Code: L7T2E6
City: Burlington
Address2:
Address1: 595 Plains Rd E
Provstate: ON
Order No.: 20160105001
Addit. Info Ordered:: Aerial Photos
Report Date: 11-JAN-16
Report Type: Standard Report
Search Radius (km): .25

77	1 of 1	NNW/385.2	93.2	696 PENNY LANE, BURLINGTON ON	INC

Incident ID: 3112906
Incident Number: 954778
Attribute Category: FS-Perform L1 Incident Insp
Status Code: Open L1 Incident Inspection
Incident Location: 696 PENNY LANE, BURLINGTON - CO RELEASE

Drainage System:	
Sub Surface Contam.:	
Aff. Prop. Use Water:	
Contam. Migrated:	
Contact Natural Env.:	
Near Body of Water:	
Approx. Quant. Rel.:	
Equipment Model:	HE RP180
Serial No:	0205J12950
Residential App. Type:	Water heater
Commercial App. Type:	
Industrial App. Type:	
Institutional App. Type:	
Venting Type:	Natural Draft
Vent Connector Mater.:	C Vent (e.g., Single Wall Vent)
Vent Chimney Mater.:	B Vent
Notes:	
Pipeline Type:	
Pipeline Involved:	
Pipe Material:	
Depth Ground Cover:	
Regulator Location:	
Regulator Type:	
Operation Pressure:	
Occurence Narrative:	30 ppm of CO
Liquid Prop Make:	
Liquid Prop Model:	
Liquid Prop Serial No:	
Equipment Type:	
Cylinder Capacity:	
Cylinder Capac. Units:	
Cylinder Material Type:	
Tank Capacity:	
Tank Material Type:	
Tank Storage Type:	
Tank Location Type:	
Pump Flow Rate Capac.:	
Liquid Prop Notes:	

---

78 ***1 of 1*** ***WNW/386.7*** ***97.0*** ***BURLINGTON ON*** ***WWIS***

Well ID:	7260265	***Lot:***	
Construction Date::		***Concession:***	
Primary Water Use::	Test Hole	***Concession Name:***	
Sec. Water Use::	Monitoring	***Easting NAD83::***	
Final Well Status::	Monitoring and Test Hole	***Northing NAD83::***	
Specific Capacity::		***Zone::***	
Municipality:	BURLINGTON CITY	***UTM Reliability::***	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	1005917332
DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	16-FEB-16
Remarks:	
Zone:	17
East 83:	594577
North 83:	4797220
UTMRC:	4

UTMRC Description:	margin of error : 30 m - 100 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--
Overburden and Bedrock Materials Interval	
--	--
Formation ID:	1006046087
Layer:	1
General Color:	BROWN
Most Common Material:	SAND
Other Materials:	
Other Materials:	
Formation Top Depth:	0
Formation End Depth:	20
Formation End Depth UOM:	ft
--	--
Annular Space/Abandonment Sealing Record	
--	--
Plug ID:	1006046095
Layer:	1
Plug From:	20
Plug To:	9
Plug Depth UOM:	ft
--	--
Plug ID:	1006046096
Layer:	2
Plug From:	9
Plug To:	0
Plug Depth UOM:	ft
--	--
Plug ID:	1006046097
Layer:	3
Plug From:	
Plug To:	
Plug Depth UOM:	ft
--	--
Method of Construction & Well Use	
--	--
Method Construction ID:	1006046094
Method Construction Code:	D
Method Construction:	Direct Push
Other Method Construction:	
--	--
Pipe Information	
--	--
Pipe ID:	1006046086
Casing Number:	0
Comment:	
Alt Name:	
--	--
Construction Record - Casing	
--	--
Casing ID:	1006046090
Layer:	1

Open Hole or Material:	PLASTIC
Depth From:	0
Depth To:	10
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft
--	--
--	--
Construction Record - Screen	
--	--
Screen ID:	1006046091
Layer:	1
Slot:	.10
Screen Top Depth:	10
Screen End Depth:	20
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.25
--	--
Hole Diameter	
--	--
Hole ID:	1006046088
Diameter:	6
Depth From:	0
Depth To:	20
Hole Depth UOM:	ft
Hole Diameter UOM:	inch
--	--
--	--

79 ***1 of 1*** ***W/398.8*** ***97.8*** ***Image Design*** ***581 Plains Rd E*** ***Burlington ON L7T 2E6*** ***SCT***

Established:	1994
Plant Size (ft²):	
Employment:	6

--Details--

Description:	Commercial Screen Printing
SIC/NAICS Code:	323113
Description:	Digital Printing
SIC/NAICS Code:	323115
Description:	Other Printing
SIC/NAICS Code:	323119

80 ***1 of 1*** ***W/399.6*** ***97.6*** ***Burlington ON*** ***WWIS***

Well ID:	7172375	***Lot:***	
Construction Date::		***Concession:***	
Primary Water Use::	Test Hole	***Concession Name:***	
Sec. Water Use::		***Easting NAD83::***	
Final Well Status::	Test Hole	***Northing NAD83::***	
Specific Capacity::		***Zone::***	
Municipality:	BURLINGTON CITY	***UTM Reliability::***	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	1003613019
DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	27-OCT-11
Remarks:	
Zone:	17
East 83:	594517
North 83:	4797095
UTMRC:	3
UTMRC Description:	margin of error : 10 - 30 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--
Overburden and Bedrock Materials Interval	
--	--
Formation ID:	1004104230
Layer:	1
General Color:	BROWN
Most Common Material:	FILL
Other Materials:	
Other Materials:	DRY
Formation Top Depth:	0
Formation End Depth:	2
Formation End Depth UOM:	m
--	--
Formation ID:	1004104231
Layer:	2
General Color:	BROWN
Most Common Material:	SAND
Other Materials:	
Other Materials:	DRY
Formation Top Depth:	2
Formation End Depth:	8
Formation End Depth UOM:	m
--	--
Formation ID:	1004104232
Layer:	3
General Color:	BROWN
Most Common Material:	SAND
Other Materials:	
Other Materials:	WATER-BEARING
Formation Top Depth:	8
Formation End Depth:	13
Formation End Depth UOM:	m
--	--
Formation ID:	1004104233
Layer:	4
General Color:	GREY
Most Common Material:	SAND
Other Materials:	
Other Materials:	WATER-BEARING
Formation Top Depth:	13
Formation End Depth:	17

Formation End Depth UOM:	m
--	--
Annular Space/Abandonment Sealing Record	
--	--
Plug ID:	1004104240
Layer:	1
Plug From:	0
Plug To:	1
Plug Depth UOM:	m
--	--
Plug ID:	1004104241
Layer:	2
Plug From:	1
Plug To:	6
Plug Depth UOM:	m
--	--
Plug ID:	1004104242
Layer:	3
Plug From:	6
Plug To:	17
Plug Depth UOM:	m
--	--
Method of Construction & Well Use	
--	--
Method Construction ID:	1004104239
Method Construction Code:	2
Method Construction:	Rotary (Convent.)
Other Method Construction:	
--	--
Pipe Information	
--	--
Pipe ID:	1004104229
Casing Number:	0
Comment:	
Alt Name:	
--	--
Construction Record - Casing	
--	--
Casing ID:	1004104236
Layer:	1
Open Hole or Material:	PLASTIC
Depth From:	0
Depth To:	7
Casing Diameter:	2
Casing Diameter UOM:	cm
Casing Depth UOM:	m
--	--
--	--
Construction Record - Screen	
--	--
Screen ID:	1004104237
Layer:	1
Slot:	10
Screen Top Depth:	7
Screen End Depth:	17
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	2
--	--
Hole Diameter	
--	--
Hole ID:	1004104234
Diameter:	8.25

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Depth From:	0
Depth To:	17
Hole Depth UOM:	m
Hole Diameter UOM:	cm
--	--
--	--

---

81 | **1 of 1** | **N/400.7** | **96.8** | **FORTINO'S SUPERMARKET LTD.**
1059 PLAINS ROAD EAST
HAMILTON ON | **GEN**

PO Box Num:	
Status:	
Country:	
Generator #:	ON1826008
Approval Yrs::	96,97,98,99,00,01
SIC Code:	6571
SIC Description:	CAMERA/PHOTO. SUPPLY

--Details--

Waste Code:	264
Waste Description:	PHOTOPROCESSING WASTES

---

82 | **1 of 1** | **W/402.7** | **96.8** | **New Horizon Homes Kingsway Inc.**
546 Plains Road East, Burlington, Ontario , L7T 2E3
ON L7T 2E3 | **RSC**

Date Submitted:	18-Mar-10
Date Acknowledg.:	
Date Returned:	
Certification Date:	10-Mar-10
RSC Type:	
Soil Type:	
Restoration Type:	
Registration #::	73317
Stratified (Y/N)::	
Criteria::	
Consultant::	
District Office::	BURLINGTON
Intended Prop Use::	Residential
Current Property Use::	Commercial
Certificate Prop Use #::	No CPU
Applicable Standards::	ESA Phase 1
Property Municipal Address::	546 Plains Road East, Burlington, Ontario , L7T 2E3
Legal Description::	PT LTS 21 & 22 , PL PF825 , & ; PT LT 22 , PL PF833 , AS IN 605962 ; BURLINGTON
Prop. Identification #::	07105-0075 [LT]
Entire legal prop. (y/n)::	Yes
UTM Coordinates::	NAD83 17-594495-4796995
Latitude & Longitude::	43.31985940N 79.83461250W (converted from UTM)
Accuracy Estimate::	6 to 10 meters
Measurement Method::	Global Positioning System
CPU Issued Sect 1686::	No

---

83 | **1 of 1** | **W/404.6** | **97.8** | **Chrome-Metal Designs**
575 Plains Rd E
Burlington ON L7T 2E6 | **SCT**

Established:	
Plant Size (ft²):	
Employment:	

--Details--
Description: Medical Equipment and Supplies Manufacturing
SIC/NAICS Code: 339110

---

84 ***1 of 1*** ***W/406.0*** ***96.8*** ***Burlington ON*** ***WWIS***

Well ID:	7164319	***Lot:***	
Construction Date::		***Concession:***	
Primary Water Use::	Test Hole	***Concession Name:***	
Sec. Water Use::		***Easting NAD83::***	
Final Well Status::	Test Hole	***Northing NAD83::***	
Specific Capacity::		***Zone::***	
Municipality:	BURLINGTON CITY	***UTM Reliability::***	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	1003521232
DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	04-MAY-11
Remarks:	
Zone:	17
East 83:	594505
North 83:	4797073
UTMRC:	3
UTMRC Description:	margin of error : 10 - 30 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--

Overburden and Bedrock Materials Interval

--	--
Formation ID:	1003953861
Layer:	1
General Color:	BROWN
Most Common Material:	GRAVEL
Other Materials:	FILL
Other Materials:	LOOSE
Formation Top Depth:	0
Formation End Depth:	4
Formation End Depth UOM:	ft
--	--
Formation ID:	1003953862
Layer:	2
General Color:	RED
Most Common Material:	SAND
Other Materials:	SILT
Other Materials:	WATER-BEARING
Formation Top Depth:	4

Formation End Depth:	16
Formation End Depth UOM:	ft
--	--
Annular Space/Abandonment Sealing Record	
--	--
Plug ID:	1003953869
Layer:	1
Plug From:	0
Plug To:	1
Plug Depth UOM:	ft
--	--
Plug ID:	1003953870
Layer:	2
Plug From:	1
Plug To:	5
Plug Depth UOM:	ft
--	--
Plug ID:	1003953871
Layer:	3
Plug From:	5
Plug To:	16
Plug Depth UOM:	ft
--	--
Method of Construction & Well Use	
--	--
Method Construction ID:	1003953868
Method Construction Code:	2
Method Construction:	Rotary (Convent.)
Other Method Construction:	
--	--
Pipe Information	
--	--
Pipe ID:	1003953860
Casing Number:	0
Comment:	
Alt Name:	
--	--
Construction Record - Casing	
--	--
Casing ID:	1003953865
Layer:	1
Open Hole or Material:	PLASTIC
Depth From:	0
Depth To:	6
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft
--	--
--	--
Construction Record - Screen	
--	--
Screen ID:	1003953866
Layer:	1
Slot:	10
Screen Top Depth:	6
Screen End Depth:	16
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2
--	--
Hole Diameter	
--	--
Hole ID:	1003953863

Diameter:	8
Depth From:	0
Depth To:	16
Hole Depth UOM:	ft
Hole Diameter UOM:	inch
--	--
--	--

85 **1 of 2** **W/406.7** **96.8** **ON** **WWIS**

Well ID:	7156458	**Lot:**	
Construction Date::		**Concession:**	
Primary Water Use::		**Concession Name:**	
Sec. Water Use::		**Easting NAD83::**	
Final Well Status::		**Northing NAD83::**	
Specific Capacity::		**Zone::**	
Municipality:	BURLINGTON CITY	**UTM Reliability::**	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	1003437689
DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	06-SEP-10
Remarks:	
Zone:	17
East 83:	594497
North 83:	4797026
UTMRC:	3
UTMRC Description:	margin of error : 10 - 30 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--
--	--

85 **2 of 2** **W/406.7** **96.8** **ON** **WWIS**

Well ID:	7154292	**Lot:**	
Construction Date::		**Concession:**	
Primary Water Use::		**Concession Name:**	
Sec. Water Use::		**Easting NAD83::**	
Final Well Status::		**Northing NAD83::**	
Specific Capacity::		**Zone::**	
Municipality:	BURLINGTON CITY	**UTM Reliability::**	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	1003364984
DP2BR:	

Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	06-SEP-10
Remarks:	
Zone:	17
East 83:	594497
North 83:	4797026
UTMRC:	3
UTMRC Description:	margin of error : 10 - 30 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	97.35
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--
--	--

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86 | ***1 of 1*** | ***WSW/407.8*** | ***94.8*** | ***939 HARVEY PLACE BURLINGTON ON L7T 3E9*** | ***HINC***

External File Num:	FS INC 0610-03430
Date of Occurrence:	10/21/2006
Fuel Occurrence Type:	Pipeline Strike
Fuel Type Involved:	Natural Gas
Status Desc::	Completed - Causal Analysis(End)
Job Type Desc::	Incident/Near-Miss Occurrence (FS)
Oper. Type Involved::	Construction Site (pipeline strike)
Service Interruptions::	Yes
Property Damage::	No
Fuel Life Cycle Stage::	Transmission, Distribution and Transportation
Root Cause::	Root Cause: Equipment/Material/Component:No Procedures:Yes Maintenance:No Design:No Training:No Management:No Human Factors:No
Reported Details::	
Fuel Category::	Gaseous Fuel
Occurrence Type::	Incident
Affiliation::	Industry Stakeholder (Licensee/Registration/Certificate Holder, Facility Owner, etc.)
County Name::	Halton
Approx. Quant. Rel::	
Nearby body of water::	
Enter Drainage Syst.::	
Approx. Quant. Unit::	
Environmental Impact::	

---

87 | ***1 of 1*** | ***S/409.2*** | ***88.6*** | ***753 Kingsway Drive, Burlington ON*** | ***PINC***

Incident ID:	
Tank Status:	RC Established
Attribute Category:	FS-Perform P-line Inc Invest
Task Number:	3529985
Type:	FS-Pipeline Incident
Incident Number:	682202
Status Code:	Pipeline Damage Reason Est
Summary:	753 Kingsway Drive, Burlington - 1/2" Pipeline Hit
Spills Action Centre:	
Reported By:	Devay, Lori - Union gas

Affiliation:	
Method Details:	E-mail
Fuel Category:	Natural Gas
Fuel Occurrence Type:	
Date of Occurrence:	
Occurrence Start Date:	2011/11/07
Health Impact:	
Occurrence Desc:	
Environment Impact:	
Property Damage:	No
Service Interupt:	
Fuel Type:	
Enforce Policy:	Yes
Operation Type:	
Damage Reason:	Excavation practices not sufficient
Public Relation:	
Pipeline System:	
Pipeline Type:	
Depth:	
Pipe Material:	
Regualtor Location:	
PSIG:	
Regulator Type:	
Notes:	

---

88 ***1 of 1*** ***SSE/412.1*** ***88.0*** ***Greenwood Drive and King Road Burlington ON*** ***CA***

Certificate #:	9898-52GP5H
Application Year:	01
Issue Date:	9/14/01
Approval Type:	Municipal & Private sewage
Status:	Approved
Application Type:	New Certificate of Approval
Client Name::	The Corporation of the City of Burlington
Client Address::	P.O. Box 5013, 426 Brant Street
Client City::	Burlington
Client Postal Code::	L7R 3Z6
Project Description::	Construction of storm sewers on Greenwood Drive and King Road.
Contaminants::	
Emission Control::	

---

89 ***1 of 1*** ***W/415.2*** ***97.2*** ***BURLINGTON ON*** ***WWIS***

Well ID:	7132901	***Lot:***	
Construction Date::		***Concession:***	
Primary Water Use::		***Concession Name:***	
Sec. Water Use::		***Easting NAD83::***	
Final Well Status::	Test Hole	***Northing NAD83::***	
Specific Capacity::		***Zone::***	
Municipality:	BURLINGTON CITY	***UTM Reliability::***	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	1002777071
DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	01-SEP-09

Remarks:	
Zone:	17
East 83:	594500
North 83:	4797092
UTMRC:	4
UTMRC Description:	margin of error : 30 m - 100 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	97.48
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--
Overburden and Bedrock Materials Interval	
--	--
Formation ID:	1002980556
Layer:	1
General Color:	BROWN
Most Common Material:	FILL
Other Materials:	
Other Materials:	WATER-BEARING
Formation Top Depth:	0
Formation End Depth:	5
Formation End Depth UOM:	ft
--	--
Formation ID:	1002980557
Layer:	2
General Color:	RED
Most Common Material:	SAND
Other Materials:	WATER-BEARING
Other Materials:	DRY
Formation Top Depth:	5
Formation End Depth:	10
Formation End Depth UOM:	ft
--	--
Formation ID:	1002980558
Layer:	3
General Color:	RED
Most Common Material:	SAND
Other Materials:	SILT
Other Materials:	WATER-BEARING
Formation Top Depth:	10
Formation End Depth:	15
Formation End Depth UOM:	ft
--	--
Annular Space/Abandonment Sealing Record	
--	--
Plug ID:	1002980560
Layer:	1
Plug From:	15
Plug To:	4
Plug Depth UOM:	ft
--	--
Plug ID:	1002980561
Layer:	2
Plug From:	4
Plug To:	1
Plug Depth UOM:	ft
--	--

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Plug ID:	1002980562
Layer:	3
Plug From:	1
Plug To:	0
Plug Depth UOM:	ft
--	--
Method of Construction & Well Use	
--	--
Method Construction ID:	1002980566
Method Construction Code:	2
Method Construction:	Rotary (Convent.)
Other Method Construction:	
--	--
Pipe Information	
--	--
Pipe ID:	1002980555
Casing Number:	0
Comment:	
Alt Name:	
--	--
Construction Record - Casing	
--	--
Casing ID:	1002980564
Layer:	1
Open Hole or Material:	PLASTIC
Depth From:	5
Depth To:	0
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft
--	--
--	--
Construction Record - Screen	
--	--
Screen ID:	1002980565
Layer:	1
Slot:	10
Screen Top Depth:	5
Screen End Depth:	15
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2
--	--
Hole Diameter	
--	--
Hole ID:	1002980559
Diameter:	8
Depth From:	15
Depth To:	0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch
--	--
--	--

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
90	1 of 2	SW/415.9	92.8	BURLINGTON, CITY OF 494 TOWNSEND AVENUE BURLINGTON ON	GEN

PO Box Num:	
Status:	
Country:	
Generator #:	ON0040707
Approval Yrs::	2013

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

SIC Code: 711218
SIC Description:

--Details--
Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

---

90 | **2 of 2** | **SW/415.9** | **92.8** | **BURLINGTON, CITY OF ALDERSHOT ARENA**
494 TOWNSEND AVENUE
BURLINGTON ON L7T 2B2 | **GEN**

PO Box Num:
Status: Registered
Country: Canada
Generator #: ON0040707
Approval Yrs:: As of Sep 2016
SIC Code:
SIC Description:

--Details--
Waste Code: 252 L
Waste Description: Waste crankcase oils and lubricants

Waste Code: 251 L
Waste Description: Waste oils/sludges (petroleum based)

---

91 | **1 of 1** | **W/417.6** | **96.8** | **ON** | **WWIS**

Well ID: 7232991
Construction Date::
Primary Water Use::
Sec. Water Use::
Final Well Status::
Specific Capacity::
Municipality: BURLINGTON CITY
County: HALTON

Lot:
Concession:
Concession Name:
Easting NAD83::
Northing NAD83::
Zone::
UTM Reliability::

Bore Hole Information
-- --
Bore Hole ID: 1005249295
DP2BR:
Code OB:
Code OB Description:
Open Hole:
Date Completed: 24-JUN-14
Remarks:
Zone: 17
East 83: 594494
North 83: 4797077
UTMRC: 4
UTMRC Description: margin of error : 30 m - 100 m
Location Method: wwr
Org CS: UTM83
Elevation:

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
Elevrc:					
Elevrc Description:					
Location Source Date:					
Source Revision Comment:					
Improvement Location Source:					
Improvement Location Method:					
Supplier Comment:					
Spatial Status:					
--		--			
--		--			

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
92	1 of 1	W/422.3	97.8	**Chrome-Metal Designs** **1015 Cedarwood Pl Unit 3** **Burlington ON L7T 3J4**	SCT

Established: 01-JUL-00
Plant Size (ft²):
Employment:

--Details--
Description: Medical Equipment and Supplies Manufacturing
SIC/NAICS Code: 339110

Description: Medical Equipment and Supplies Manufacturing
SIC/NAICS Code: 339110

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
93	1 of 20	W/425.7	97.6	**Suncor Energy Products Inc.** **559 Plains Rd. E., Burlington** **BURLINGTON ON L7T 2E4**	CFOT

Registration No.: 200204-2989
Licence No.:
Tank Size: 1000 gal
Instance Number:
Facility Type:
Status Name:
Corrosion Protection:
Fuel Type:
Year Installed: 1982 or earlier
Tank Material: Steel
Distributor:
Contact Name: c/o Karl Zeeb
Contact Address: 36 York Mills Rd.
Contact Address2:
Contact City: North York
Comments:

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
93	2 of 20	W/425.7	97.6	**1463963 ONTARIO INC O/A SUNOCO GAS STATION** **559 PLAINS RD E** **BURLINGTON ON L7T 2E4**	EXP

Instance ID:
TSSA Program Area:
Maximum Hazard Rank:
Facility Type:
Expired Date: 12/1/2006
Instance Number: 10633834
Instance Type: FS Liquid Fuel Tank
Status: EXPIRED
Description:

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
93	3 of 20	W/425.7	97.6	1463963 ONTARIO INC O/A SUNOCO GAS STATION 559 PLAINS RD E BURLINGTON ON	EXP

Instance ID:	31075
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	
Expired Date:	
Instance Number:	10633784
Instance Type:	FS Piping
Status:	EXPIRED
Description:	FS Piping

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
93	4 of 20	W/425.7	97.6	1463963 ONTARIO INC O/A SUNOCO GAS STATION 559 PLAINS RD E BURLINGTON ON	EXP

Instance ID:	31379
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	
Expired Date:	
Instance Number:	10633810
Instance Type:	FS Piping
Status:	EXPIRED
Description:	FS Piping

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
93	5 of 20	W/425.7	97.6	1463963 ONTARIO INC O/A SUNOCO GAS STATION 559 PLAINS RD E BURLINGTON ON L7T 2E4	EXP

Instance ID:	
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	
Expired Date:	12/1/2006
Instance Number:	10633879
Instance Type:	FS Liquid Fuel Tank
Status:	EXPIRED
Description:	

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
93	6 of 20	W/425.7	97.6	1463963 ONTARIO INC O/A SUNOCO GAS STATION 559 PLAINS RD E BURLINGTON ON	EXP

Instance ID:	29927
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	
Expired Date:	
Instance Number:	10633898
Instance Type:	FS Piping
Status:	EXPIRED

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
Description:		FS Piping			

93	7 of 20	W/425.7	97.6	1463963 ONTARIO INC O/A SUNOCO GAS STATION 559 PLAINS RD E BURLINGTON ON L7T 2E4	EXP

Instance ID:	
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	
Expired Date:	12/1/2006
Instance Number:	10633759
Instance Type:	FS Liquid Fuel Tank
Status:	EXPIRED
Description:	

93	8 of 20	W/425.7	97.6	1463963 ONTARIO INC O/A SUNOCO GAS STATION 559 PLAINS RD E BURLINGTON ON L7T 2E4	EXP

Instance ID:	
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	
Expired Date:	12/1/2001
Instance Number:	9836731
Instance Type:	FS Facility
Status:	EXPIRED
Description:	

93	9 of 20	W/425.7	97.6	1463963 ONTARIO INC O/A SUNOCO GAS STATION 559 PLAINS RD E BURLINGTON ON	EXP

Instance ID:	31402
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	
Expired Date:	
Instance Number:	10633797
Instance Type:	FS Liquid Fuel Tank
Status:	EXPIRED
Description:	FS Liquid Fuel Tank

93	10 of 20	W/425.7	97.6	1463963 ONTARIO INC O/A SUNOCO GAS STATION 559 PLAINS RD E BURLINGTON ON	EXP

Instance ID:	32056
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	
Expired Date:	
Instance Number:	10633860
Instance Type:	FS Piping

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
Status:		EXPIRED			
Description:		FS Piping			

93	11 of 20	W/425.7	97.6	**SUNCOR ENERGY PRODUCTS INC**** **559 PLAINS RD E** **BURLINGTON ON L7T 2E4**	FSTH

License Issue Date: 2/16/2007
Tank Status: Licensed
Tank Status As Of: August 2007
Operation Type: Retail Fuel Outlet
Facility Type: Gasoline Station - Self Serve

--Details--

Status: Removed
Year of Installation: 1981
Corrosion Protection:
Capacity: 45000
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

Status: Removed
Year of Installation: 1981
Corrosion Protection:
Capacity: 45000
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

Status: Removed
Year of Installation: 1981
Corrosion Protection:
Capacity: 22700
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

Status: Removed
Year of Installation: 1981
Corrosion Protection:
Capacity: 22700
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

Status: Active
Year of Installation: 2006
Corrosion Protection:
Capacity: 50000
Tank Fuel Type: Liquid Fuel Double Wall UST - Gasoline

Status: Active
Year of Installation: 2006
Corrosion Protection:
Capacity: 50000
Tank Fuel Type: Liquid Fuel Double Wall UST - Gasoline

Status: Active
Year of Installation: 2006
Corrosion Protection:
Capacity: 50000
Tank Fuel Type: Liquid Fuel Double Wall UST - Gasoline

93	12 of 20	W/425.7	97.6	**1463963 ONTARIO INC O/A SUNOCO GAS STATION** **559 PLAINS RD E** **BURLINGTON ON L7T 2E4**	FSTH

License Issue Date: 2/16/2007 11:28:00 AM
Tank Status: Pending Renewal
Tank Status As Of: December 2008
Operation Type: Retail Fuel Outlet
Facility Type: Gasoline Station - Self Serve

--Details--
Status: Active
Year of Installation: 2006
Corrosion Protection:
Capacity: 50000
Tank Fuel Type: Liquid Fuel Double Wall UST - Gasoline

Status: Active
Year of Installation: 2006
Corrosion Protection:
Capacity: 50000
Tank Fuel Type: Liquid Fuel Double Wall UST - Gasoline

Status: Active
Year of Installation: 2006
Corrosion Protection:
Capacity: 50000
Tank Fuel Type: Liquid Fuel Double Wall UST - Gasoline

93	13 of 20	W/425.7	97.6	**HUSKY ENERGY** **559 PLAINS ROAD EAST** **BURLINGTON ON L7T 2E4**	GEN

PO Box Num:
Status:
Country:
Generator #: ON5910797
Approval Yrs:: 2011
SIC Code: 541990
SIC Description:

93	14 of 20	W/425.7	97.6	**Husky Oil Operations Ltd.** **559 Plains Road East** **Burlington ON**	GEN

PO Box Num:
Status:
Country:
Generator #: ON4795280
Approval Yrs:: As of May 2015
SIC Code:
SIC Description:

--Details--
Waste Code: 221
Waste Description: Light fuels

93	15 of 20	W/425.7	97.6	**Husky Oil Operations Ltd.** **559 Plains Road East** **Burlington ON**	GEN

PO Box Num:
Status:

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
Country:					
Generator #:		ON4795280			
Approval Yrs::		2012			
SIC Code:		447190			
SIC Description:		Other Gasoline Stations			

93	16 of 20	W/425.7	97.6	petro canada 559 Plains Road Burlington ON	GEN

PO Box Num:	
Status:	
Country:	
Generator #:	ON6889336
Approval Yrs::	2009
SIC Code:	447110
SIC Description:	Gasoline Stations with Convenience Stores
--Details--	
Waste Code:	251
Waste Description:	OIL SKIMMINGS & SLUDGES

93	17 of 20	W/425.7	97.6	SUNOCO INC - THROUGH AGENT PIONEER PETROLEUMS MANA 559 PLAINS RD E BURLINGTON ON L7T 2E4	PRT

Location ID:	2472
Type:	retail
Expiry Date:	1995-05-31
Capacity (L):	136200
Licence #:	0076413608

93	18 of 20	W/425.7	97.6	SUNOCO 559 PLAINS RD E BURLINGTON ON L7T 2E4	RST

Code:	01186800
Facility:	SERVICE STATIONS-GASOLINE, OIL & NATURAL GAS
Description:	
List Name:	

93	19 of 20	W/425.7	97.6	DONNELLY'S SERVICE CENTRE 559 PLAINS RD E BURLINGTON ON L7T2E4	RST

Code:	1186800
Facility:	Service Stations-Gasoline, Oil & Natural Gas
Description:	
List Name:	

93	20 of 20	W/425.7	97.6	Suncor Energy Products Inc. 559 Plains Road GAS STATION<UNOFFICIAL> Burlington ON	SPL

Ref NO:	0265-6LLK88

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Contaminant Code:	12
Contaminant Name:	GASOLINE
Contaminant Quantity:	unknown
Incident Cause::	Unknown
Incident Dt:	2/1/2006
Incident Reason::	
Incident Summary::	Suncor-Gas Stn: product in ground by tanks.
MOE Reported Dt:	2/1/2006
Environmental Impact::	Possible
Nature of Impact::	Groundwater Pollution; Soil Contamination; Surface Water Pollution
Receiving Medium::	Land & Water
SAC Action Class:	
Sector Source Type:	Other
Site Municipality:	Burlington

---

94 | ***1 of 12*** | ***W/428.6*** | ***97.8*** | ***SUNCOR ENERGY PRODUCTS INC***
559 PLAINS ROAD EAST
BURLINGTON ON L7T 2E4 | ***CFOT***

Registration No.:	
Licence No.:	
Tank Size:	3784
Instance Number:	61532890
Facility Type:	FS Fuel Oil Tank
Status Name:	Active
Corrosion Protection:	
Fuel Type:	Fuel Oil
Year Installed:	1982
Tank Material:	Steel
Distributor:	
Contact Name:	
Contact Address:	
Contact Address2:	
Contact City:	
Comments:	

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94 | ***2 of 12*** | ***W/428.6*** | ***97.8*** | ***1463963 ONTARIO INC O/A SUNOCO GAS STATION***
559 PLAINS RD E
BURLINGTON ON L7T 2E4 | ***EXP***

Instance ID:	
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	FS Liquid Fuel Tank
Expired Date:	12/1/2006
Instance Number:	10633797
Instance Type:	FS Liquid Fuel Tank
Status:	EXPIRED
Description:	FS Gasoline Station - Self Serve

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94 | ***3 of 12*** | ***W/428.6*** | ***97.8*** | ***1463963 ONTARIO INC O/A SUNOCO GAS STATION***
559 PLAINS RD E
BURLINGTON ON L7T 2E4 | ***EXP***

Instance ID:	
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	FS Liquid Fuel Tank

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
Expired Date:		12/1/2006			
Instance Number:		10633759			
Instance Type:		FS Liquid Fuel Tank			
Status:		EXPIRED			
Description:		FS Gasoline Station - Self Serve			

94	4 of 12	W/428.6	97.8	1463963 ONTARIO INC O/A SUNOCO GAS STATION 559 PLAINS RD E BURLINGTON ON L7T 2E4	EXP

Instance ID:	
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	FS Liquid Fuel Tank
Expired Date:	12/1/2006
Instance Number:	10633879
Instance Type:	FS Liquid Fuel Tank
Status:	EXPIRED
Description:	FS Gasoline Station - Self Serve

94	5 of 12	W/428.6	97.8	1463963 ONTARIO INC O/A SUNOCO GAS STATION 559 PLAINS RD E BURLINGTON ON L7T 2E4	EXP

Instance ID:	
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	FS Liquid Fuel Tank
Expired Date:	12/1/2006
Instance Number:	10633834
Instance Type:	FS Liquid Fuel Tank
Status:	EXPIRED
Description:	FS Gasoline Station - Self Serve

94	6 of 12	W/428.6	97.8	1892767 ONTARIO INC 559 PLAINS RD E BURLINGTON ON L7T 2E4	FST

Instance Number:	46307918
Cont Name:	
Instance Type:	FS Liquid Fuel Tank
Fuel Type:	Gasoline
Status:	Active
Capacity:	50000
Tank Material:	Fiberglass (FRP)
Corrosion Protection:	Fiberglass
Tank Type:	Double Wall UST
Install Year:	2007
Parent Facility Type:	FS Gasoline Station - Self Serve
Facility Type:	FS Liquid Fuel Tank

94	7 of 12	W/428.6	97.8	1892767 ONTARIO INC 559 PLAINS RD E BURLINGTON ON L7T 2E4	FST

Instance Number:	46307917
Cont Name:	

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Instance Type: FS Liquid Fuel Tank
Fuel Type: Gasoline
Status: Active
Capacity: 50000
Tank Material: Fiberglass (FRP)
Corrosion Protection: Fiberglass
Tank Type: Double Wall UST
Install Year: 2007
Parent Facility Type: FS Gasoline Station - Self Serve
Facility Type: FS Liquid Fuel Tank

94	8 of 12	W/428.6	97.8	**1892767 ONTARIO INC** **559 PLAINS RD E** **BURLINGTON ON L7T 2E4**	FST

Instance Number: 46307919
Cont Name:
Instance Type: FS Liquid Fuel Tank
Fuel Type: Gasoline
Status: Active
Capacity: 50000
Tank Material: Fiberglass (FRP)
Corrosion Protection: Fiberglass
Tank Type: Double Wall UST
Install Year: 2007
Parent Facility Type: FS Gasoline Station - Self Serve
Facility Type: FS Liquid Fuel Tank

94	9 of 12	W/428.6	97.8	**Husky Oil Operations Ltd.** **559 Plains Road East** **Burlington ON L7T 2E4**	GEN

PO Box Num:
Status: Registered
Country: Canada
Generator #: ON4795280
Approval Yrs:: As of Sep 2016
SIC Code:
SIC Description:

--Details--
Waste Code: 221 L
Waste Description: Light fuels

94	10 of 12	W/428.6	97.8	**Husky Oil Operations Ltd.** **559 Plains Road East** **Burlington ON**	GEN

PO Box Num:
Status:
Country:
Generator #: ON4795280
Approval Yrs:: 2013
SIC Code: 447190
SIC Description:

--Details--
Waste Code: 221
Waste Description: LIGHT FUELS

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
94	11 of 12	W/428.6	97.8	HUSKY 559 PLAINS RD E BURLINGTON ON L7T2E4	RST

Code: 01186800
Facility: SERVICE STATIONS GASOLINE OIL & NATURAL
Description:
List Name:

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
94	12 of 12	W/428.6	97.8	HUSKY GAS STATION 559 PLAINS RD E BURLINGTON ON L7T2E4	RST

Code: 01186800
Facility: SERVICE STATIONS GASOLINE OIL & NATURAL
Description:
List Name:

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
95	1 of 2	NW/431.2	95.9	660261 ONTARIO LTD. SAVALON CONSTRUCTION PENNY LANE - FILE DB-070 BURLINGTON CITY ON	CA

Certificate #: 3-1329-86-
Application Year: 86
Issue Date: 9/10/1986
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
95	2 of 2	NW/431.2	95.9	660261 ONTARIO LTD. SAVALON CONSTRUCTION PENNY LANE - FILE DB-070 BURLINGTON CITY ON	CA

Certificate #: 7-1064-86-
Application Year: 86
Issue Date: 9/10/1986
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
96	1 of 1	W/436.1	96.8	547 Plains Road East Burlington ON L7T 2E4	EHS

Postal Code:
City:
Address2:
Address1:
Provstate:
Order No.: 20120425070
Addit. Info Ordered::
Report Date: 5/4/2012 9:47:46 PM
Report Type: Standard Report
Search Radius (km): 0.25

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
97	1 of 2	SE/437.4	89.8	SKYRAN CONSTRUCTION LTD. BATEMAN CT./GREENWOOD DR. BURLINGTON CITY ON	CA

Certificate #: 3-1505-94-
Application Year: 94
Issue Date: 11/18/1994
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
97	2 of 2	SE/437.4	89.8	SKYRAN CONSTRUCTION LTD. BATEMAN CT./GREENWOOD DR. BURLINGTON CITY ON	CA

Certificate #: 7-1116-94-
Application Year: 94
Issue Date: 11/18/1994
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
98	1 of 1	N/439.4	99.8	ON	BORE

Borehole ID: 890459
Use: Geotechnical/Geological Investigation
Drill Method:: Diamond Drill
Easting:: 595137
Location Accuracy::
Elev. Reliability Note::
Total Depth m:: 15.1
Township:: NELSON
Type: Borehole
Status:: Decommissioned
UTM Zone:: 17
Northing:: 4797761
Orig. Ground Elev m:: 97.4
DEM Ground Elev m:: 100
Primary Name::
Concession:: BRANTS BLOCK

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Lot:: | ***Municipality:***
Completion Date:: 10-JAN-1956 | ***Static Water Level::*** -999.9
Primary Water Use:: | ***Sec. Water Use::***

--Details--

Stratum ID: 8501709 | ***Top Depth(m):*** 0.0
Bottom Depth(m): 3.4 | ***Stratum Desc:*** Medium sand

Stratum ID: 8501710 | ***Top Depth(m):*** 3.4
Bottom Depth(m): 12.8 | ***Stratum Desc:*** Hard to medium clay with layers brown stony clay

Stratum ID: 8501711 | ***Top Depth(m):*** 12.8
Bottom Depth(m): 15.1 | ***Stratum Desc:*** Bedrock soft broken shale

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99 | ***1 of 1*** | ***N/443.9*** | ***99.0*** | ***ON*** | ***BORE***

Borehole ID: 890460 | ***Type:*** Borehole
Use: Geotechnical/Geological Investigation | ***Status::*** Decommissioned
Drill Method:: Diamond Drill | ***UTM Zone::*** 17
Easting:: 595082 | ***Northing::*** 4797769
Location Accuracy:: | ***Orig. Ground Elev m::*** 97.6
Elev. Reliability Note:: | ***DEM Ground Elev m::*** 100
Total Depth m:: 12.8 | ***Primary Name::***
Township:: NELSON | ***Concession::*** BRANTS BLOCK
Lot:: | ***Municipality:***
Completion Date:: 12-JAN-1956 | ***Static Water Level::*** -999.9
Primary Water Use:: | ***Sec. Water Use::***

--Details--

Stratum ID: 8501712 | ***Top Depth(m):*** 0.0
Bottom Depth(m): 2.4 | ***Stratum Desc:*** Medium sand

Stratum ID: 8501713 | ***Top Depth(m):*** 2.4
Bottom Depth(m): 9.1 | ***Stratum Desc:*** Gravel clay stony, grey brown clay till very stony,

Stratum ID: 8501714 | ***Top Depth(m):*** 9.1
Bottom Depth(m): 11.6 | ***Stratum Desc:*** Grey hard clay slightly stony

Stratum ID: 8501715 | ***Top Depth(m):*** 11.6
Bottom Depth(m): 12.8 | ***Stratum Desc:*** Red shale

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100 | ***1 of 1*** | ***W/447.0*** | ***97.2*** | ***547 Plains Rd E Burlington ON L7T2E4*** | ***EHS***

Postal Code:
City:
Address2:
Address1:
Provstate:
Order No.: 20140522014
Addit. Info Ordered:: Topographic Maps
Report Date: 30-MAY-14
Report Type: Standard Report
Search Radius (km): .25

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
101	1 of 1	WNW/447.8	97.2	BURLINGTON ON	WWIS

Well ID: 2810507
Construction Date::
Primary Water Use::
Sec. Water Use::
Final Well Status:: Observation Wells
Specific Capacity::
Municipality: BURLINGTON CITY
County: HALTON

Lot:
Concession:
Concession Name:
Easting NAD83::
Northing NAD83::
Zone::
UTM Reliability::

Bore Hole Information

--	--
Bore Hole ID:	11552417
DP2BR:	
Code OB:	o
Code OB Description:	Overburden
Open Hole:	
Date Completed:	22-FEB-06
Remarks:	
Zone:	17
East 83:	594603
North 83:	4797365
UTMRC:	3
UTMRC Description:	margin of error : 10 - 30 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	96.27
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--

Overburden and Bedrock Materials Interval

--	--
Formation ID:	933045628
Layer:	1
General Color:	BROWN
Most Common Material:	SAND
Other Materials:	
Other Materials:	
Formation Top Depth:	0
Formation End Depth:	2
Formation End Depth UOM:	m
--	--
Formation ID:	933045629
Layer:	2
General Color:	BROWN
Most Common Material:	SAND
Other Materials:	
Other Materials:	
Formation Top Depth:	2
Formation End Depth:	5.2
Formation End Depth UOM:	m
--	--

Annular Space/Abandonment Sealing Record

--	--
Plug ID:	933288949
Layer:	1

Plug From:	0
Plug To:	.3
Plug Depth UOM:	m
--	--
Plug ID:	933288950
Layer:	2
Plug From:	.3
Plug To:	4
Plug Depth UOM:	m
--	--
Method of Construction & Well Use	
--	--
Method Construction ID:	962810507
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	
--	--
Pipe Information	
--	--
Pipe ID:	11562024
Casing Number:	1
Comment:	
Alt Name:	
--	--
Construction Record - Casing	
--	--
Casing ID:	930875705
Layer:	1
Open Hole or Material:	PLASTIC
Depth From:	0
Depth To:	4.2
Casing Diameter:	5
Casing Diameter UOM:	cm
Casing Depth UOM:	m
--	--
--	--
Construction Record - Screen	
--	--
Screen ID:	933417357
Layer:	1
Slot:	20
Screen Top Depth:	4.2
Screen End Depth:	5.2
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	6.4
--	--
Water Details	
--	--
Water ID:	934073972
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	2
Water Found Depth UOM:	m
--	--
Hole Diameter	
--	--
Hole ID:	11683532
Diameter:	21
Depth From:	0
Depth To:	5.2
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
--		--			
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102 *1 of 3* **WNW/453.3** **97.9** **The Corporation of the City of Burlington** **CA**
King Road and Inverness Avenue
Burlington ON

Certificate #:	4677-88NLMG
Application Year:	2010
Issue Date:	9/2/2010
Approval Type:	Municipal and Private Sewage Works
Status:	Approved
Application Type:	
Client Name::	
Client Address::	
Client City::	
Client Postal Code::	
Project Description::	
Contaminants::	
Emission Control::	

102 *2 of 3* **WNW/453.3** **97.9** **The Corporation of the City of Burlington** **ECA**
King Rd and Inverness Avenue
Burlington ON

Record Type:	
PDF URL:	
Full Address:	
CofA Number:	0356-97BPNB
Date:	5/21/13
Status:	Approved
Project Type:	Municipal and Private Sewage

102 *3 of 3* **WNW/453.3** **97.9** **The Corporation of the City of Burlington** **ECA**
King Rd and Inverness Avenue
Burlington ON

Record Type:	
PDF URL:	
Full Address:	
CofA Number:	1162-99GR7G
Date:	23-JUL-13
Status:	Approved
Project Type:	Municipal and Private Sewage

103 *1 of 2* **WNW/459.9** **98.1** **ON** **WWIS**

Well ID:	7165776	**Lot:**	
Construction Date::		**Concession:**	
Primary Water Use::		**Concession Name:**	
Sec. Water Use::		**Easting NAD83::**	
Final Well Status::		**Northing NAD83::**	
Specific Capacity::		**Zone::**	
Municipality:	BURLINGTON CITY	**UTM Reliability::**	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	1003536243

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	05-JUL-11
Remarks:	
Zone:	17
East 83:	594555
North 83:	4797326
UTMRC:	3
UTMRC Description:	margin of error : 10 - 30 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--
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103 **2 of 2** **WNW/459.9** **98.1** **ON** **WWIS**

Well ID:	7163095	**Lot:**	
Construction Date::		**Concession:**	
Primary Water Use::		**Concession Name:**	
Sec. Water Use::		**Easting NAD83::**	
Final Well Status::		**Northing NAD83::**	
Specific Capacity::		**Zone::**	
Municipality:	BURLINGTON CITY	**UTM Reliability::**	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	1003509254
DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	22-FEB-11
Remarks:	
Zone:	17
East 83:	594555
North 83:	4797326
UTMRC:	3
UTMRC Description:	margin of error : 10 - 30 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
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Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
104	1 of 2	WNW/462.4	98.1	ON	WWIS

Well ID: 7156454
Construction Date::
Primary Water Use::
Sec. Water Use::
Final Well Status::
Specific Capacity::
Municipality: BURLINGTON CITY
County: HALTON

Lot:
Concession:
Concession Name:
Easting NAD83::
Northing NAD83::
Zone::
UTM Reliability::

Bore Hole Information

--	--
Bore Hole ID:	1003437681
DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	21-OCT-10
Remarks:	
Zone:	17
East 83:	594552
North 83:	4797326
UTMRC:	3
UTMRC Description:	margin of error : 10 - 30 m
Location Method:	wwr
Org CS:	UTM83
Elevation:	
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	
Improvement Location Source:	
Improvement Location Method:	
Supplier Comment:	
Spatial Status:	
--	--
--	--

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
104	2 of 2	WNW/462.4	98.1	ON	WWIS

Well ID: 7160254
Construction Date::
Primary Water Use::
Sec. Water Use::
Final Well Status::
Specific Capacity::
Municipality: BURLINGTON CITY
County: HALTON

Lot:
Concession:
Concession Name:
Easting NAD83::
Northing NAD83::
Zone::
UTM Reliability::

Bore Hole Information

--	--
Bore Hole ID:	1003484937
DP2BR:	
Code OB:	
Code OB Description:	
Open Hole:	
Date Completed:	08-DEC-10
Remarks:	
Zone:	17
East 83:	594552
North 83:	4797326

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

UTMRC: 3
UTMRC Description: margin of error : 10 - 30 m
Location Method: wwr
Org CS: UTM83
Elevation:
Elevrc:
Elevrc Description:
Location Source Date:
Source Revision Comment:
Improvement Location Source:
Improvement Location Method:
Supplier Comment:
Spatial Status:
-- --
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105 ***1 of 10*** ***SW/466.5*** ***92.8*** ***BURLINGTON, CITY OF***
494 TOWNSEND AVENUE
BURLINGTON ON L7T 2B3 ***GEN***

PO Box Num:
Status:
Country:
Generator #: ON0040707
Approval Yrs:: 02,03,04,05,06,07,08
SIC Code: 711218
SIC Description: Other Spectator Sports

--Details--
Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

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105 ***2 of 10*** ***SW/466.5*** ***92.8*** ***BURLINGTON, CITY OF***
494 TOWNSEND AVENUE
BURLINGTON ON ***GEN***

PO Box Num:
Status:
Country:
Generator #: ON0040707
Approval Yrs:: 2010
SIC Code: 711218
SIC Description: Other Spectator Sports

--Details--
Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
105	3 of 10	SW/466.5	92.8	BURLINGTON, CITY OF 494 TOWNSEND AVENUE BURLINGTON ON L7T 2B3	GEN

PO Box Num:
Status:
Country:
Generator #: ON0040707
Approval Yrs:: 2012
SIC Code: 711218
SIC Description: Other Spectator Sports

--Details--
Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
105	4 of 10	SW/466.5	92.8	BURLINGTON, CITY OF 06-387 KIWANIS ARENA, 494 TOWNSEND AVE. C/O 426 BRANT ST. P.O.BOX 5013 BURLINGTON ON L7T 2B3	GEN

PO Box Num:
Status:
Country:
Generator #: ON0040707
Approval Yrs:: 94,95,96
SIC Code: 8351
SIC Description: EXEC./LEGIS. ADMIN.

--Details--
Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
105	5 of 10	SW/466.5	92.8	BURLINGTON, CITY OF ALDERSHOT ARENA 494 TOWNSEND AVENUE BURLINGTON ON L7T 2B3	GEN

PO Box Num:
Status:
Country:
Generator #: ON0040707
Approval Yrs:: As of May 2015
SIC Code:
SIC Description:

--Details--
Waste Code: 252
Waste Description: Waste crankcase oils and lubricants

Waste Code: 251
Waste Description: Waste oils/sludges (petroleum based)

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
105	6 of 10	SW/466.5	92.8	BURLINGTON, CITY OF KIWANIS ARENA, 494 TOWNSEND AVE. BURLINGTON ON L7T 2B3	GEN

PO Box Num:
Status:
Country:
Generator #: ON0040707
Approval Yrs:: 92,93,97
SIC Code: 8351
SIC Description: EXEC./LEGIS. ADMIN.

--Details--
Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
105	7 of 10	SW/466.5	92.8	BURLINGTON, CITY OF KIWANIS ARENA, 494 TOWNSEND AVE. C/O 426 BRANT ST. P.O.BOX 5013 BURLINGTON ON L7T 2B3	GEN

PO Box Num:
Status:
Country:
Generator #: ON0040707
Approval Yrs:: 89,90
SIC Code: 8351
SIC Description: EXEC./LEGIS. ADMIN.

--Details--
Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
105	8 of 10	SW/466.5	92.8	BURLINGTON, CITY OF 494 TOWNSEND AVENUE BURLINGTON ON	GEN

PO Box Num:
Status:
Country:
Generator #: ON0040707
Approval Yrs:: 2011
SIC Code: 711218
SIC Description: Other Spectator Sports

--Details--
Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
105	9 of 10	SW/466.5	92.8	BURLINGTON, CITY OF 494 TOWNSEND AVENUE BURLINGTON ON	GEN

PO Box Num:
Status:
Country:
Generator #: ON0040707
Approval Yrs:: 2009
SIC Code: 711218
SIC Description: Other Spectator Sports

--Details--
Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
105	10 of 10	SW/466.5	92.8	BURLINGTON, CITY OF KIWANIS ARENA 494 TOWNSEND AVENUE BURLINGTON ON L7T 2B3	GEN

PO Box Num:
Status:
Country:
Generator #: ON0040707
Approval Yrs:: 98,99,00,01
SIC Code: 8351
SIC Description: EXEC./LEGIS. ADMIN.

--Details--
Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Description: WASTE OILS & LUBRICANTS
Waste Code: 252

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB
106	1 of 1	SE/467.2	89.7	Halton District School Board 660 Greenwood Road Burlington ON L7T 3P3	GEN

PO Box Num:
Status:
Country:
Generator #: ON8841485
Approval Yrs:: 02,03,04
SIC Code:
SIC Description:

--Details--

Waste Code: 243
Waste Description: PCB'S

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107 **1 of 1** **E/469.0** **84.8** **ON** **BORE**

Borehole ID:	621961	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	
Drill Method::	Power auger	**UTM Zone::**	17
Easting::	595815	**Northing::**	4796973
Location Accuracy::		**Orig. Ground Elev m::**	85.5
Elev. Reliability Note::		**DEM Ground Elev m::**	84.6
Total Depth m::	5.6	**Primary Name::**	
Township::		**Concession::**	
Lot::		**Municipality:**	
Completion Date::	JAN-1967	**Static Water Level::**	-999.9
Primary Water Use::	Not Used	**Sec. Water Use::**	

--Details--

Stratum ID:	218423496	**Top Depth(m):**	0.0
Bottom Depth(m):	0.2	**Stratum Desc:**	SOIL.
Stratum ID:	218423497	**Top Depth(m):**	0.2
Bottom Depth(m):	1.2	**Stratum Desc:**	SAND-MEDIUM,SILT. BROWN,LOOSE,GRANULAR, AGE GLACIAL.
Stratum ID:	218423498	**Top Depth(m):**	1.2
Bottom Depth(m):	5.6	**Stratum Desc:**	TILL,SILT,SHALE. BROWN,GLACIAL,VERY DENSE, LAYERED,AGE GLACIAL. 009 00040053

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108 **1 of 1** **N/485.6** **99.9** **ON** **BORE**

Borehole ID:	626213	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	
Drill Method::	Diamond Drill	**UTM Zone::**	17
Easting::	595140	**Northing::**	4797808
Location Accuracy::		**Orig. Ground Elev m::**	96.9
Elev. Reliability Note::		**DEM Ground Elev m::**	100
Total Depth m::	-999	**Primary Name::**	
Township::		**Concession::**	
Lot::		**Municipality:**	
Completion Date::	DEC-1955	**Static Water Level::**	.3
Primary Water Use::	Not Used	**Sec. Water Use::**	

--Details--

Stratum ID:	218439202	**Top Depth(m):**	0.0
Bottom Depth(m):	4.0	**Stratum Desc:**	SAND,GRAVEL.
Stratum ID:	218439203	**Top Depth(m):**	4.0
Bottom Depth(m):	9.1	**Stratum Desc:**	CLAY. BROWN,STIFF, WATER STABLE AT 317.0 FEET.
Stratum ID:	218439204	**Top Depth(m):**	9.1
Bottom Depth(m):		**Stratum Desc:**	ROCK,SHALE. SOFT. 0STI

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109 **1 of 1** **W/490.1** **96.8** **517 Plains Rd E** **Burlington ON L7T 2E2** **EHS**

Map Key	Number of Records	Direction/ Distance (m)	Elevation (m)	Site	DB

Postal Code:
City:
Address2:
Address1:
Provstate:
Order No.: 20050715013
Addit. Info Ordered::
Report Date: 7/19/2005
Report Type: Site Report
Search Radius (km): 0.25

110	*1 of 1*	*N/498.5*	*96.2*	***TRANSPORT TRUCK*** ***QEW S/B, JUST SOUTH OF PLAINS ROAD*** ***MOTOR VEHICLE (OPERATING FLUID)*** ***BURLINGTON CITY ON***	*SPL*

Ref NO: 155187
Contaminant Code:
Contaminant Name:
Contaminant Quantity:
Incident Cause:: OTHER TRANSPORTATION ACCIDENT
Incident Dt: 5/1/1998
Incident Reason:: ERROR
Incident Summary:: VERSPEEDEN CARTAGE:500 L DIESEL TO ROAD FROM T.T.,CONTAINED.
MOE Reported Dt: 5/1/1998
Environmental Impact:: POSSIBLE
Nature of Impact:: Soil contamination
Receiving Medium:: LAND
SAC Action Class:
Sector Source Type:
Site Municipality: 14101

Unplottable Summary

Total: 34 Unplottable sites

DB	Company Name/Site Name	Address	City	Postal
AUWR	BIN-THERE INC		BURLINGTON ON	L7R 2G6
CA	R.M. OF HALTON	GREENWOOD DR.	BURLINGTON CITY ON	
CA	R.M. OF HALTON	EARL CRESCENT	BURLINGTON CITY ON	
CA	QUEENS COURT DEVELOPMENTS LTD.	CEDARWOOD PLACE	BURLINGTON CITY ON	
CA	QUEENS COURT DEVELOPMENT LTD.	CEDARWOOD PLACE	BURLINGTON CITY ON	
CA	Bronte Woods Community Subdivision	Part of Lot 2, Concession 1, SDS	Burlington ON	
CA	Bronte Woods Community Subdivision	Part of Lot 2, Concession 1	Burlington ON	
CA	Bronte Woods Community Subdivision	Part of Lot 2, Concession 1	Burlington ON	
CA	PPM CANADA INC.	PLIBRICO MOBILE PCB UNIT	BURLINGTON CITY ON	
CA	North Service Road Portfolio Inc.	Lot 1, Conc. 1	Burlington ON	
CA		Lot 1, BF Concession	Burlington ON	
CA	RADIX INVESTMENTS LTD.	LOT 2 CONC 1	BURLINGTON CITY ON	
CA	TYKA INVESTMENTS LTD.	EASEMENT GREENWOOD PLACE	BURLINGTON CITY ON	
CA	TYKA INVESTMENTS LTD.	GREENWOOD PLACE	BURLINGTON CITY ON	
CA	TYKA INVESTMENTS LTD.	GREENWOOD PLACE OUTFALL	BURLINGTON CITY ON	
CA	BRANTDALE CONSTRUCTION LTD.	KING RD.	BURLINGTON ON	
CA	683560 ONTARIO LTD. CHATTLE TOWNHOUSES	KING RD.	BURLINGTON CITY ON	

CA	BURLINGTON CITY BAYVIEW LANDFILL SITE	KING RD. P.S. FORCEMAIN REVIS.	BURLINGTON CITY ON
CA	The Regional Municipality of Halton	King Rd	Burlington ON
CA	SAMPURAN ENTERPRISES LTD.	PLAINS RD. EAST KINGS LANDING	BURLINGTON CITY ON
CA	R.M. OF HALTON	S. OF Q.E.W. EASTBOUND	BURLINGTON CITY ON
CA	Suncor Energy Products Inc.		Burlington ON
CA	The Corporation of the City of Burlington	Sunset Rd	Burlington ON
CA	Petro-Canada		Burlington ON
CONV	HUSKY SNOWPLOWING AND PROPERTY		ON
LIMO	The Corporation of the City of Burlington	Lot 2,3, Concession 1,2	City of Burlington ON
SPL	TRANSPORT TRUCK	QEW WESTBOUND, NEAR PLAINS ROAD CENTRE MEDIAN TRANSPORT TRUCK (CARGO)	BURLINGTON CITY ON
SPL	Dedicated Logistics Inc<UNOFFICIAL>	QEW	Burlington ON
SPL		Plains Road, near QEW Niagara & Plains Rd	Burlington ON
SPL	Fortino's Supermarket: Store # 78<UNOFFICIAL>		Burlington ON
SPL	CANADIAN NATIONAL RAILWAY	CN ALDERSHOT YARD & ALONG TRAIN TRACKS FROM CONCORD UP TO BURLINGTON YARD. TRAIN	BURLINGTON CITY ON
SPL	Petro Canada<UNOFFICIAL>	CN RAILYARD - ALDERSHOT<UNOFFICIAL>	Burlington ON
SPL	Neelands Refrigeration Limited; Fortinos<UNOFFICIAL>		Burlington ON
WWIS			BURLINGTON ON

Unplottable Report

Site: BIN-THERE INC
BURLINGTON ON L7R 2G6

Database: AUWR

Code: 1169400
Facility: Scrap Metals
Description:
List Name:

Site: R.M. OF HALTON
GREENWOOD DR. BURLINGTON CITY ON

Database: CA

Certificate #: 7-1209-87-
Application Year: 87
Issue Date: 8/14/1987
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: R.M. OF HALTON
EARL CRESCENT BURLINGTON CITY ON

Database: CA

Certificate #: 7-0708-87-
Application Year: 87
Issue Date: 6/8/1987
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: QUEENS COURT DEVELOPMENTS LTD.
CEDARWOOD PLACE BURLINGTON CITY ON

Database: CA

Certificate #: 7-1374-87-
Application Year: 87
Issue Date: 9/16/1987
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::

Project Description::
Contaminants::
Emission Control::

Site: ***QUEENS COURT DEVELOPMENT LTD.***
CEDARWOOD PLACE BURLINGTON CITY ON

Database: ***CA***

Certificate #: 3-1664-87-
Application Year: 87
Issue Date: 9/16/1987
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: ***Bronte Woods Community Subdivision***
Part of Lot 2, Concession 1, SDS Burlington ON

Database: ***CA***

Certificate #: 0652-538JYL
Application Year: 01
Issue Date: 10/15/01
Approval Type: Municipal & Private sewage
Status: Approved
Application Type: New Certificate of Approval
Client Name:: Tabera Ltd.
Client Address:: 1810 Avenue Road
Client City:: Toronto
Client Postal Code:: M5M 3Z2
Project Description:: Stormwater Management Pond
Contaminants::
Emission Control::

Site: ***Bronte Woods Community Subdivision***
Part of Lot 2, Concession 1 Burlington ON

Database: ***CA***

Certificate #: 6825-52ZR8H
Application Year: 01
Issue Date: 10/15/01
Approval Type: Municipal & Private sewage
Status: Approved
Application Type: New Certificate of Approval
Client Name:: Tabera Limited
Client Address:: 1810 Avenue Road
Client City:: Toronto
Client Postal Code:: M5M 3Z2
Project Description:: Storm and sanitary sewer construction on Street A, Street B, Street C and Street D, sanitary sewers to be constructed on Street E, storm sewers to be constructed on Easement (west limit of subdivision to Street C) and storm outfall (from intersection with Street C to Pond).
Contaminants::
Emission Control::

Site: ***Bronte Woods Community Subdivision***
Part of Lot 2, Concession 1 Burlington ON

Database: ***CA***

Certificate #: 7186-52ZR53
Application Year: 01
Issue Date: 10/9/01

Approval Type: Municipal & Private water
Status: Approved
Application Type: New Certificate of Approval
Client Name:: Tabera Limited
Client Address:: 1810 Avenue Road
Client City:: Toronto
Client Postal Code:: M5M 3Z2
Project Description:: Watermain construction on Street A, Street B, Street C, Street D and Street E.
Contaminants::
Emission Control::

Site: ***PPM CANADA INC.***
PLIBRICO MOBILE PCB UNIT BURLINGTON CITY ON

Database: ***CA***

Certificate #: 8-3027-87-
Application Year: 87
Issue Date: 5/4/1987
Approval Type: Industrial air
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description:: MOBILE P.C.B. DESTRUCTION RIG
Contaminants:: Polychlorinated Biphenyls
Emission Control:: Act. Charcoal Filter

Site: ***North Service Road Portfolio Inc.***
Lot 1, Conc. 1 Burlington ON

Database: ***CA***

Certificate #: 3353-8DVPAZ
Application Year: 2011
Issue Date: 2/22/2011
Approval Type: Industrial Sewage Works
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site:
Lot 1, BF Concession Burlington ON

Database: ***CA***

Certificate #: 0316-4RKS7Q
Application Year: 00
Issue Date: 12/1/00
Approval Type: Municipal & Private sewage
Status: Approved
Application Type: New Certificate of Approval
Client Name:: Corporation of the City of Burlington
Client Address:: P.O. Box 5013, 426 Brant Street
Client City:: Burlington
Client Postal Code:: L7R 3Z6
Project Description:: Storm sewers to be constructed on North Shore Boulevard East and Oneida Drive
Contaminants::
Emission Control::

Site: ***RADIX INVESTMENTS LTD.***
LOT 2 CONC 1 BURLINGTON CITY ON

Database: ***CA***

Certificate #: 7-0210-96-
Application Year: 96
Issue Date: 4/1/1996
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: ***TYKA INVESTMENTS LTD.***
EASEMENT GREENWOOD PLACE BURLINGTON CITY ON

Database: ***CA***

Certificate #: 3-0795-86-
Application Year: 86
Issue Date: 6/19/1986
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: ***TYKA INVESTMENTS LTD.***
GREENWOOD PLACE BURLINGTON CITY ON

Database: ***CA***

Certificate #: 7-0636-86-
Application Year: 86
Issue Date: 6/19/1986
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: ***TYKA INVESTMENTS LTD.***
GREENWOOD PLACE OUTFALL BURLINGTON CITY ON

Database: ***CA***

Certificate #: 3-0817-86-
Application Year: 86
Issue Date: 7/3/1986
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::

Project Description::
Contaminants::
Emission Control::

Site: ***BRANTDALE CONSTRUCTION LTD.***
KING RD. BURLINGTON ON

Database: ***CA***

Certificate #: 7-0515-85-006
Application Year: 85
Issue Date: 7/5/85
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: ***683560 ONTARIO LTD. CHATTLE TOWNHOUSES***
KING RD. BURLINGTON CITY ON

Database: ***CA***

Certificate #: 3-0647-87-
Application Year: 87
Issue Date: 6/5/1987
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: ***BURLINGTON CITY BAYVIEW LANDFILL SITE***
KING RD. P.S. FORCEMAIN REVIS. BURLINGTON CITY ON

Database: ***CA***

Certificate #: 3-0819-86-
Application Year: 86
Issue Date: 8/7/1986
Approval Type: Municipal sewage
Status: Revised
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: ***The Regional Municipality of Halton***
King Rd Burlington ON

Database: ***CA***

Certificate #: 6179-89JLET
Application Year: 2010
Issue Date: 10/8/2010
Approval Type: Municipal and Private Sewage Works

Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: ***SAMPURAN ENTERPRISES LTD.***
PLAINS RD. EAST KINGS LANDING BURLINGTON CITY ON

Database: ***CA***

Certificate #: 3-2066-87-
Application Year: 87
Issue Date: 11/20/1987
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: ***R.M. OF HALTON***
S. OF Q.E.W. EASTBOUND BURLINGTON CITY ON

Database: ***CA***

Certificate #: 7-0564-86-
Application Year: 86
Issue Date: 6/6/1986
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: ***Suncor Energy Products Inc.***
Burlington ON

Database: ***CA***

Certificate #: 0845-6FHK5G
Application Year: 2007
Issue Date: 12/11/2007
Approval Type: Industrial Sewage Works
Status: Revoked and/or Replaced
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: ***The Corporation of the City of Burlington***

Database: ***CA***

Sunset Rd Burlington ON

Certificate #: 3731-7TQJEG
Application Year: 2009
Issue Date: 7/7/2009
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: ***Petro-Canada***
Burlington ON

Database: ***CA***

Certificate #: 2556-5YEKZ8
Application Year: 2004
Issue Date: 4/28/2004
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: ***HUSKY SNOWPLOWING AND PROPERTY***
ON

Database: ***CONV***

File No.:
Publication Title:
Publication City:
Url:
Crown Brief No.: 99-0185-0301
Ministry District: METRO
Region: CENTRAL REGION
Description:: OPERATE A HEAVY DIESEL-FUELLED MOTOR VEHICLE THAT CONTRAVENES THE EMISSION STANDARDS.

--Details--
Publication Date:
Count: 1
Act: EPA
Act/Regulation/Section: EPA-361/98-12(5)
Date Charged: 12/16/99
Charge Disposition: SUSPENDED SENTENCE
Fine: $250.00

Site: ***The Corporation of the City of Burlington***
Lot 2,3, Concession 1,2 City of Burlington ON

Database: ***LIMO***

C of A No: A210103
C of A Issue Date: 5/10/1905
C of A Issued to:
Operation Status: Closed
Landfill Type:
Site County: Halton
MOE Region: Central
MOE District: Halton-Peel
Easting:
Northing:

Total Site Area:		***Latitude:***	
Footprint:		***Longitude:***	
Tot Apprvd Capac:		***UTM Zone:***	
Tot Aprv Cp Unit:		***Data Source:***	small landfills
Fill Rate:		***Cntm Attn Zn:***	
Fill Rate Unit:		***Grndwtr Mntr:***	
Est Remain Cap:		***Surf Wtr Mntr:***	
ERC Volume Unit:		***Lst Rprting Yr:***	
ERC Methodology:		***Fin Assrnce:***	
ERC Dt Last Det:		***Nat Attnuatn:***	
Total Waste Rec:		***Liners:***	
TWR Unit:		***Cvr Material:***	
TWR Methodology:			
Site Name:	Bayview Park Landfill		
Air Emmis Monitor:			
Leachate Off-Site:			
Leachate On Site:			
Landfill Gas Manag (P):			
Landfill Gas Manag (F):			
Landfill Gas Manag (E):			
Req Col Lndfll Gas:			
Lndfll Gas Cllcted:			
Lndfll Gas Mntr:			
Service Area:			
Approved Waste Type:			

Site: ***TRANSPORT TRUCK***
QEW WESTBOUND, NEAR PLAINS ROAD CENTRE MEDIAN TRANSPORT TRUCK (CARGO) BURLINGTON CITY ON

Database: ***SPL***

Ref NO:	51365
Contaminant Code:	
Contaminant Name:	
Contaminant Quantity:	
Incident Cause::	TRUCK/TRAILER OVERTURN
Incident Dt:	5/29/1991
Incident Reason::	UNKNOWN
Incident Summary::	TRANSPORT TRUCK-ACCIDENT ON QEW. 200 L DIESEL TO CENTRE MEDIAN FROM TANKS.
MOE Reported Dt:	5/29/1991
Environmental Impact::	POSSIBLE
Nature of Impact::	Water course or lake
Receiving Medium::	LAND / WATER
SAC Action Class:	
Sector Source Type:	
Site Municipality:	14101

Site: ***Dedicated Logistics Inc<UNOFFICIAL>***
QEW Burlington ON

Database: ***SPL***

Ref NO:	0815-7V4ESG
Contaminant Code:	
Contaminant Name:	DIESEL FUEL AND WATER MIXTURE
Contaminant Quantity:	0 other - see incident description
Incident Cause::	Other Transport Accident
Incident Dt:	
Incident Reason::	Spill
Incident Summary::	QEW Skyway TT accident
MOE Reported Dt:	8/20/2009
Environmental Impact::	Confirmed
Nature of Impact::	Other Impact(s); Soil Contamination
Receiving Medium::	
SAC Action Class:	Highway Spills (usually highway accidents)
Sector Source Type:	Motor Vehicle
Site Municipality:	Burlington

Site: ***Database:***
Plains Road, near QEW Niagara & Plains Rd Burlington ON ***SPL***

Ref NO:	6643-7RQNSZ
Contaminant Code:	
Contaminant Name:	REFRIGERANT GAS, N.O.S.
Contaminant Quantity:	681 kg
Incident Cause::	Pipe Or Hose Leak
Incident Dt:	
Incident Reason::	Equipment Failure
Incident Summary::	Fortino's: 681kg of R507 released to atm
MOE Reported Dt:	5/4/2009
Environmental Impact::	Confirmed
Nature of Impact::	Air Pollution; Other Impact(s)
Receiving Medium::	
SAC Action Class:	Air Spills - Gases and Vapours
Sector Source Type:	Other
Site Municipality:	Burlington

Site: ***Fortino's Supermarket: Store # 78<UNOFFICIAL>*** ***Database:***
Burlington ON ***SPL***

Ref NO:	2314-9LKQQM
Contaminant Code:	38
Contaminant Name:	FREON (CFC)
Contaminant Quantity:	46 kg
Incident Cause::	Leak/Break
Incident Dt:	2014/06/27
Incident Reason::	Equipment Failure
Incident Summary::	Fortino's: Freon to atm
MOE Reported Dt:	2014/06/30
Environmental Impact::	Confirmed
Nature of Impact::	Air Pollution
Receiving Medium::	
SAC Action Class:	Air Spills - Gases and Vapours
Sector Source Type:	Pipeline/Components
Site Municipality:	Burlington

Site: ***CANADIAN NATIONAL RAILWAY*** ***Database:***
CN ALDERSHOT YARD & ALONG TRAIN TRACKS FROM CONCORD UP TO BURLINGTON YARD. TRAIN ***SPL***
BURLINGTON CITY ON

Ref NO:	176974
Contaminant Code:	
Contaminant Name:	
Contaminant Quantity:	
Incident Cause::	VALVE/FITTING LEAK OR FAILURE
Incident Dt:	1/25/2000
Incident Reason::	EQUIPMENT FAILURE
Incident Summary::	CANADIAN NATIONAL-DIESEL TRAIL ALONG TRACKS FROM LOCOMOTIVE RUPTURE LINE.
MOE Reported Dt:	1/25/2000
Environmental Impact::	POSSIBLE
Nature of Impact::	Soil contamination
Receiving Medium::	LAND
SAC Action Class:	
Sector Source Type:	
Site Municipality:	14101

Site: ***Petro Canada<UNOFFICIAL>*** ***Database:***
CN RAILYARD - ALDERSHOT<UNOFFICIAL> Burlington ON ***SPL***

Ref NO:	8564-65HVEG
Contaminant Code:	21

Contaminant Name:	SPENT SULFURIC ACID
Contaminant Quantity:	227.5 L
Incident Cause::	Tank (Above Ground) Leak
Incident Dt:	10/7/2004
Incident Reason::	Equipment Failure
Incident Summary::	CN- <50 gal spent sulf acid to grv,clng.
MOE Reported Dt:	10/6/2004
Environmental Impact::	Possible
Nature of Impact::	Other Impact(s)
Receiving Medium::	Land
SAC Action Class:	Spill to Land
Sector Source Type:	
Site Municipality:	Burlington

Site: ***Neelands Refrigeration Limited; Fortinos<UNOFFICIAL>***
Burlington ON

Database: ***SPL***

Ref NO:	3565-9H7QGA
Contaminant Code:	38
Contaminant Name:	FREON R-22 (CFC)
Contaminant Quantity:	115.9 kg
Incident Cause::	Leak/Break
Incident Dt:	2014/03/14
Incident Reason::	Equipment Failure
Incident Summary::	Fortinos Burlington: Refridgerant Release
MOE Reported Dt:	2014/03/14
Environmental Impact::	Confirmed
Nature of Impact::	Air Pollution
Receiving Medium::	
SAC Action Class:	Air Spills - Gases and Vapours
Sector Source Type:	Other
Site Municipality:	Burlington

Site:
BURLINGTON ON

Database: ***WWIS***

Well ID:	7041923	***Lot:***	
Construction Date::		***Concession:***	
Primary Water Use::	Not Used	***Concession Name:***	
Sec. Water Use::		***Easting NAD83::***	
Final Well Status::	Observation Wells	***Northing NAD83::***	
Specific Capacity::		***Zone::***	
Municipality:	BURLINGTON CITY	***UTM Reliability::***	
County:	HALTON		

Bore Hole Information

--	--
Bore Hole ID:	11764426
DP2BR:	115
Code OB:	h
Code OB Description:	Mixed in a Layer
Open Hole:	
Date Completed:	02-FEB-07
Remarks:	
Zone:	
East 83:	
North 83:	
UTMRC:	
UTMRC Description:	
Location Method:	
Org CS:	
Elevation:	
Elevrc:	
Elevrc Description:	
Location Source Date:	
Source Revision Comment:	

Improvement Location Source:
Improvement Location Method:
Supplier Comment:
Spatial Status:
-- --
Overburden and Bedrock Materials Interval
-- --
Formation ID: 933095533
Layer: 1
General Color: BROWN
Most Common Material: SAND
Other Materials:
Other Materials:
Formation Top Depth: 0
Formation End Depth: 5
Formation End Depth UOM: ft
-- --
Formation ID: 933095534
Layer: 2
General Color: GREY
Most Common Material: CLAY
Other Materials: GRAVEL
Other Materials: DENSE
Formation Top Depth: 5
Formation End Depth: 35
Formation End Depth UOM: ft
-- --
Formation ID: 933095535
Layer: 3
General Color: RED
Most Common Material: CLAY
Other Materials: SHALE
Other Materials: DENSE
Formation Top Depth: 35
Formation End Depth: 38
Formation End Depth UOM: ft
-- --
Annular Space/Abandonment Sealing Record
-- --
Plug ID: 933315978
Layer: 1
Plug From: 0
Plug To: 37
Plug Depth UOM: ft
-- --
Plug ID: 933315979
Layer: 2
Plug From: 27
Plug To: 38
Plug Depth UOM: ft
-- --
Method of Construction & Well Use
-- --
Method Construction ID: 967041923
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:
-- --
Pipe Information
-- --
Pipe ID: 11772146
Casing Number: 1
Comment:
Alt Name:
-- --
Construction Record - Casing

--	--
Casing ID:	930897210
Layer:	1
Open Hole or Material:	PLASTIC
Depth From:	0
Depth To:	33
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft
--	--
--	--
Construction Record - Screen	
--	--
Screen ID:	933423696
Layer:	1
Slot:	10
Screen Top Depth:	28
Screen End Depth:	38
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2
--	--
Well Yield Testing	
--	--
Pump Test ID:	997041923
Pump Set At:	
Static Level:	
Final Level After Pumping:	
Recommended Pump Depth:	
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	1
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	N
--	--
Hole Diameter	
--	--
Hole ID:	11850678
Diameter:	4
Depth From:	0
Depth To:	38
Hole Depth UOM:	ft
Hole Diameter UOM:	inch
--	--
--	--

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ***Note:*** *Databases denoted with " * " indicates that the database will no longer be updated. See the individual database description for more information.*

Abandoned Aggregate Inventory: Provincial AAGR

The MAAP Program maintains a database of abandoned pits and quarries. Please note that the database is only referenced by lot and concession and city/town location. The database provides information regarding the location, type, size, land use, status and general comments.*

Government Publication Date: Sept 2002*

Aggregate Inventory: Provincial AGR

The Ontario Ministry of Natural Resources maintains a database of all active pits and quarries. The database provides information regarding the registered owner/operator, location name, operation type, approval type, and maximum annual tonnage.

Government Publication Date: Up to Sep 2016

Abandoned Mine Information System: Provincial AMIS

The Abandoned Mines Information System contains data on known abandoned and inactive mines located on both Crown and privately held lands. The information was provided by the Ministry of Northern Development and Mines (MNDM), with the following disclaimer: "the database provided has been compiled from various sources, and the Ministry of Northern Development and Mines makes no representation and takes no responsibility that such information is accurate, current or complete". Reported information includes official mine name, status, background information, mine start/end date, primary commodity, mine features, hazards and remediation.

Government Publication Date: Oct 31, 2014

Anderson's Waste Disposal Sites: Private ANDR

The information provided in this database was collected by examining various historical documents which aimed to characterize the likely position of former waste disposal sites from 1860 to present. The research initiative behind the creation of this database was to identify those sites that are missing from the Ontario MOE Waste Disposal Site Inventory, as well as to provide revisions and corrections to the positions and descriptions of sites currently listed in the MOE inventory. In addition to historic waste disposal facilities, the database also identifies certain auto wreckers and scrap yards that have been extrapolated from documentary sources. Please note that the data is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

Government Publication Date: 1860s-Present

Automobile Wrecking & Supplies: Private AUWR

This database provides an inventory of known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.

Government Publication Date: Oct 31, 2016

Borehole: Provincial BORE

A borehole is the generalized term for any narrow shaft drilled in the ground, either vertically or horizontally. The information here includes geotechnical investigations or environmental site assessments, mineral exploration, or as a pilot hole for installing piers or underground utilities. Information is from many sources such as the Ministry of Transportation (MTO) boreholes from engineering reports and projects from the 1950 to 1990's in Southern Ontario. Boreholes from the Ontario Geological Survey (OGS) including The Urban Geology Analysis Information System (UGAIS) and the York Peel Durham Toronto (YPDT) database of the Conservation Authority Moraine Coalition. This database will include fields such as location, stratigraphy, depth, elevation, year drilled, etc. For all water well data or oil and gas well data for Ontario please refer to WWIS and OOGW.

Government Publication Date: 1875-Jul 2014

Certificates of Approval: Provincial CA

This database contains the following types of approvals: Air & Noise, Industrial Sewage, Municipal & Private Sewage, Waste Management Systems and Renewable Energy Approvals. The MOE in Ontario states that any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste, must have a Certificate of Approval before it can operate lawfully. Fields include approval number, business name, address, approval date, approval type and status. This database will no longer be updated, as CofA's have been replaced by either Environmental Activity and Sector Registry (EASR) or Environmental Compliance Approval (ECA). Please refer to those individual databases for any information after Oct.31, 2011.

Government Publication Date: 1985-Oct 30, 2011*

Commercial Fuel Oil Tanks: Provincial CFOT

Since May 2002, Ontario developed a new act where it became mandatory for fuel oil tanks to be registered with Technical Standards & Safety Authority (TSSA). This data would include all commercial underground fuel oil tanks in Ontario with fields such as location, registration number, tank material, age of tank and tank size.

Government Publication Date: Oct 31, 2016

Chemical Register: Private CHEM

This database includes information from both a one time study conducted in 1992 and private source and is a listing of facilities that manufacture or distribute chemicals. The production of these chemical substances may involve one or more chemical reactions and/or chemical separation processes (i.e. fractionation, solvent extraction, crystallization, etc.).

Government Publication Date: Oct 31, 2016

Compressed Natural Gas Stations: Private CNG

Canada has a network of public access compressed natural gas (CNG) refuelling stations. These stations dispense natural gas in compressed form at 3,000 pounds per square inch (psi), the pressure which is allowed within the current Canadian codes and standards. The majority of natural gas refuelling is located at existing retail gasoline that have a separate refuelling island for natural gas. This list of stations is made available by the Canadian Natural Gas Vehicle Alliance.

Government Publication Date: Dec 31, 2012

Inventory of Coal Gasification Plants and Coal Tar Sites: Provincial COAL

This inventory includes both the "Inventory of Coal Gasification Plant Waste Sites in Ontario-April 1987" and the Inventory of Industrial Sites Producing or Using Coal Tar and Related Tars in Ontario-November 1988) collected by the MOE. It identifies industrial sites that produced and continue to produce or use coal tar and other related tars. Detailed information is available and includes: facility type, size, land use, information on adjoining properties, soil condition, site operators/occupants, site description, potential environmental impacts and historic maps available. This was a one-time inventory.*

Government Publication Date: Apr 1987 and Nov 1988*

Compliance and Convictions: Provincial CONV

This database summarizes the fines and convictions handed down by the Ontario courts beginning in 1989. Companies and individuals named here have been found guilty of environmental offenses in Ontario courts of law.

Government Publication Date: Nov 30, 2016

Certificates of Property Use: Provincial CPU

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all CPU's on the registry such as (EPA s. 168.6) - Certificate of Property Use.

Government Publication Date: Nov 30, 2016

Drill Hole Database: Provincial DRL

The Ontario Drill Hole Database contains information on more than 113,000 percussion, overburden, sonic and diamond drill holes from assessment files on record with the department of Mines and Minerals. Please note that limited data is available for southern Ontario, as it was the last area to be completed. The database was created when surveys submitted to the Ministry were converted in the Assessment File Research Image Database (AFRI) project. However, the degree of accuracy (coordinates) as to the exact location of drill holes is dependent upon the source document submitted to the MNDM. Levels of accuracy used to locate holes are: centering on the mining claim; a sketch of the mining claim; a 1:50,000 map; a detailed company map; or from submitted a "Report of Work".

Government Publication Date: Aug 31, 2015

Environmental Activity and Sector Registry: Provincial EASR

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. The EASR allows businesses to register certain activities with the ministry, rather than apply for an approval. The registry is available for common systems and processes, to which preset rules of operation can be applied. The EASR is currently available for: heating systems, standby power systems and automotive refinishing. Businesses whose activities aren't subject to the EASR may apply for an ECA (Environmental Compliance Approval), Please see our ECA database.

Government Publication Date: Nov 30, 2016

Environmental Registry: Provincial EBR

The Environmental Registry lists proposals, decisions and exceptions regarding policies, Acts, instruments, or regulations that could significantly affect the environment. Through the Registry, thirteen provincial ministries notify the public of upcoming proposals and invite their comments. For example, if a local business is requesting a permit, license, or certificate of approval to release substances into the air or water; these are notified on the registry. Data includes: Approval for discharge into the natural environment other than water (i.e. Air) - EPA s. 9, Approval for sewage works - OWRA s. 53(1), and EPA s. 27 - Approval for a waste disposal site. For information regarding Permit to Take Water (PTTW), Certificate of Property Use (CPU) and (ORD) Orders please refer to those individual databases.

Government Publication Date: Nov 30, 2016

Environmental Compliance Approval: Provincial ECA

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. In the past, a business had to apply for multiple approvals (known as certificates of approval) for individual processes and pieces of equipment. Today, a business either registers itself, or applies for a single approval, depending on the types of activities it conducts. Businesses whose activities aren't subject to the EASR may apply for an ECA. A single ECA addresses all of a business's emissions, discharges and wastes. Separate approvals for air, noise and waste are no longer required. This database will also include Renewable Energy Approvals. For certificates of approval prior to Nov 1st, 2011, please refer to the CA database. For all Waste Disposal Sites please refer to the WDS database.

Government Publication Date: Nov 30, 2016

Environmental Effects Monitoring: Federal EEM

The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

Government Publication Date: 1992-2007*

ERIS Historical Searches: Private EHS

ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Government Publication Date: 1999-Aug 2016

Environmental Issues Inventory System: Federal EIIS

The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Government Publication Date: 1992-2001*

Emergency Management Historical Event: Provincial EMHE

The Emergency Management Historical Event data class will store the locations of historical occurrences of emergency events. Events captured will include those assigned to the Ministry of Natural Resources by Order-In-Council (OIC) under the Emergency Management and Civil Protection Act as well as events where MNR provided requested emergency response assistance. Many of these events will have involved community evacuations, significant structural loss, and/or involvement of MNR emergency response staff. These events fall into one of ten (10) type categories: Dam Failure; Drought / Low Water; Erosion; Flood; Forest Fire; Soil and Bedrock Instability; Petroleum Resource Center Event, EMO Requested Assistance, Continuity of Operations Event, Other Requested Assistance.

Government Publication Date: May 31, 2014

List of TSSA Expired Facilities: Provincial EXP

This is a list of all expired facilities that fall under the TSSA (TSSA Act & Safety Regulations), including the six regulations that exist under the Fuels Safety Division. It will include facilities such as private fuel outlets, bulk plants, fuel oil tanks, gasoline stations, marinas, propane filling stations, liquid fuel tanks, piping systems, etc. These tanks have been removed and automatically fall under the expired facilities inventory held by TSSA.

Government Publication Date: Oct 31, 2016

Federal Convictions: Federal FCON

Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Government Publication Date: 1988-Jun 2007*

Contaminated Sites on Federal Land: Federal FCS

The Federal Contaminated Sites Inventory includes information on known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government.

Government Publication Date: June 2000-Oct 2015

Fisheries & Oceans Fuel Tanks: Federal FOFT

Fisheries & Oceans Canada maintains an inventory of aboveground & underground fuel storage tanks located on Fisheries & Oceans property or controlled by DFO. Our inventory provides information on the site name, location, tank owner, tank operator, facility type, storage tank location, tank contents & capacity, and date of tank installation.

Government Publication Date: 1964-Sept 2003

Fuel Storage Tank: Provincial FST

The Technical Standards & Safety Authority (TSSA), under the Technical Standards & Safety Act of 2000 maintains a database of registered private and retail fuel storage tanks in Ontario with fields such as location, tank status, license date, tank type, tank capacity, fuel type, installation year and facility type.

Government Publication Date: Oct 31, 2016

Fuel Storage Tank - Historic: Provincial FSTH

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks. Public records of private fuel storage tanks are only available since the registration became effective in September 1989. This information is now collected by the Technical Standards and Safety Authority.

Government Publication Date: Pre-Jan 2010*

Ontario Regulation 347 Waste Generators Summary: Provincial GEN

Regulation 347 of the Ontario EPA defines a waste generation site as any site, equipment and/or operation involved in the production, collection, handling and/or storage of regulated wastes. A generator of regulated waste is required to register the waste generation site and each waste produced, collected, handled, or stored at the site. This database contains the registration number, company name and address of registered generators including the types of hazardous wastes generated. It includes data on waste generating facilities such as: drycleaners, waste treatment and disposal facilities, machine shops, electric power distribution etc. This information is a summary of all years from 1986 including the most currently available data. Some records may contain, within the company name, the phrase "See & Use..." followed by a series of letters and numbers. This occurs when one company is amalgamated with or taken over by another registered company. The number listed as "See & Use", refers to the new ownership and the other identification number refers to the original ownership. This phrase serves as a link between the 2 companies until operations have been fully transferred.

Government Publication Date: 1986-Sep 2016

Greenhouse Gas Emissions from Large Facilities: Federal GHG

List of greenhouse gas emissions from large facilities made available by Environment Canada. Greenhouse gas emissions in kilotonnes of carbon dioxide equivalents (kt CO2 eq).

Government Publication Date: 2013 - Dec 2014

TSSA Historic Incidents: Provincial HINC

This database will cover all incidences recorded by TSSA with their older system, before they moved to their new management system. TSSA's Fuels Safety Program administers the Technical Standards & Safety Act 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. The TSSA works to protect the public, the environment and property from fuel-related hazards such as spills, fires and explosions. This database will include spills and leaks from pipelines, diesel, fuel oil, gasoline, natural gas, propane and hydrogen recorded by the TSSA.

Government Publication Date: 2006-June 2009*

Indian & Northern Affairs Fuel Tanks: Federal IAFT

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

Government Publication Date: 1950-Aug 2003*

TSSA Incidents: Provincial INC

TSSA's Fuels Safety Program administers the Technical Standards & Safety Act 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. Includes incidents from fuel-related hazards such as spills, fires and explosions. This database will include spills and leaks from diesel, fuel oil, gasoline, natural gas, propane and hydrogen recorded by the TSSA.

Government Publication Date: Oct 31, 2016

Landfill Inventory Management Ontario: Provincial LIMO

The Landfill Inventory Management Ontario (LIMO) database is updated every year, as the ministry compiles new and updated information. The inventory will include small and large landfills. Additionally, each year the ministry will request operators of the larger landfills complete a landfill data collection form that will be used to update LIMO and will include the following information from the previous operating year. This will include additional information such as estimated amount of total waste received, landfill capacity, estimated total remaining landfill capacity, fill rates, engineering designs, reporting and monitoring details, size of location, service area, approved waste types, leachate of site treatment, contaminant attenuation zone and more. The small landfills will include information such as site owner, site location and certificate of approval # and status.

Government Publication Date: Dec 31, 2013

Canadian Mine Locations: Private MINE

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Government Publication Date: 1998-2009*

Mineral Occurrences: Provincial MNR

In the early 70's, the Ministry of Northern Development and Mines created an inventory of approximately 19,000 mineral occurrences in Ontario, in regard to metallic and industrial minerals, as well as some information on building stones and aggregate deposits. Please note that the "Horizontal Positional Accuracy" is approximately +/- 200 m. Many reference elements for each record were derived from field sketches using pace or chain/tape measurements against claim posts or topographic features in the area. The primary limiting factor for the level of positional accuracy is the scale of the source material. The testing of horizontal accuracy of the source materials was accomplished by comparing the plan metric (X and Y) coordinates of that point with the coordinates of the same point as defined from a source of higher accuracy.

Government Publication Date: 1846-Feb 2016

National Analysis of Trends in Emergencies System (NATES): Federal NATE

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

Government Publication Date: 1974-1994*

Non-Compliance Reports: Provincial NCPL

The Ministry of the Environment provides information about non-compliant discharges of contaminants to air and water that exceed legal allowable limits, from regulated industrial and municipal facilities. A reported non-compliance failure may be in regard to a Control Order, Certificate of Approval, Sectoral Regulation or specific regulation/act.

Government Publication Date: Dec 31, 2014

National Defense & Canadian Forces Fuel Tanks: Federal NDFT

The Department of National Defense and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

Government Publication Date: Up to May 2001*

National Defense & Canadian Forces Spills: Federal NDSP

The Department of National Defense and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

Government Publication Date: Mar 1999-Aug 2010

National Defence & Canadian Forces Waste Disposal Sites: Federal NDWD

The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

Government Publication Date: 2001-Apr 2007*

National Energy Board Wells: Federal NEBW

The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date.

Government Publication Date: 1920-Feb 2003*

National Environmental Emergencies System (NEES): Federal NEES

In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for previous Environment Canada spill datasets. NEES is composed of the historic datasets ' or Trends ' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

Government Publication Date: 1974-2003*

National PCB Inventory: Federal NPCB

Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. Federal out-of-service PCB containing equipment and PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites. Some addresses provided may be Head Office addresses and are not necessarily the location of where the waste is being used or stored.

Government Publication Date: 1988-2008*

National Pollutant Release Inventory: Federal NPRI

Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

Government Publication Date: Dec 31, 2014

Oil and Gas Wells: Private OGW

The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Government Publication Date: 1988-Jun 2016

Ontario Oil and Gas Wells: Provincial OOGW

In 1998, the MNR handed over to the Ontario Oil, Gas and Salt Resources Corporation, the responsibility of maintaining a database of oil and gas wells drilled in Ontario. The OGSR Library has over 20,000+ wells in their database. Information available for all wells in the ERIS database include well owner/operator, location, permit issue date, and well cap date, license No., status, depth and the primary target (rock unit) of the well being drilled. All geology/stratigraphy table information, plus all water table information is also provide for each well record.

Government Publication Date: Oct 31, 2016

Inventory of PCB Storage Sites: Provincial OPCB

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of PCB storage sites within the province. Ontario Regulation 11/82 (Waste Management - PCB) and Regulation 347 (Generator Waste Management) under the Ontario EPA requires the registration of inactive PCB storage equipment and/or disposal sites of PCB waste with the Ontario Ministry of Environment. This database contains information on: 1) waste quantities; 2) major and minor sites storing liquid or solid waste; and 3) a waste storage inventory.

Government Publication Date: 1987-Oct 2004; 2012-Dec 2013

Orders: Provincial ORD

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all Orders on the registry such as (EPA s. 17) - Order for remedial work, (EPA s. 18) - Order for preventative measures, (EPA s. 43) - Order for removal of waste and restoration of site, (EPA s. 44) - Order for conformity with Act for waste disposal sites, (EPA s. 136) - Order for performance of environmental measures.

Government Publication Date: Nov 30, 2016

Canadian Pulp and Paper: Private PAP

This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

Government Publication Date: 1999, 2002, 2004, 2005, 2009

Parks Canada Fuel Storage Tanks: Federal PCFT

Canadian Heritage maintains an inventory of known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Government Publication Date: 1920-Jan 2005*

Pesticide Register: Provincial PES

The Ontario Ministry of the Environment and Climate Change maintains a database of licensed operators and vendors of registered pesticides.

Government Publication Date: Oct 31, 2016

TSSA Pipeline Incidents: Provincial PINC

TSSA's Fuels Safety Program administers the Technical Standards & Safety Act 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. This database will include spills, strike and leaks from recorded by the TSSA.

Government Publication Date: Oct 31, 2016

Private and Retail Fuel Storage Tanks: Provincial PRT

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks and licensed retail fuel outlets. This database includes an inventory of locations that have gasoline, oil, waste oil, natural gas and/or propane storage tanks on their property. The MCCR no longer collects this information. This information is now collected by the Technical Standards and Safety Authority (TSSA).

Government Publication Date: 1989-1996*

Permit to Take Water: Provincial PTTW

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all PTTW's on the registry such as OWRA s. 34 - Permit to take water.

Government Publication Date: Nov 30, 2016

Ontario Regulation 347 Waste Receivers Summary: Provincial REC

Part V of the Ontario Environmental Protection Act ("EPA") regulates the disposal of regulated waste through an operating waste management system or a waste disposal site operated or used pursuant to the terms and conditions of a Certificate of Approval or a Provisional Certificate of Approval. Regulation 347 of the Ontario EPA defines a waste receiving site as any site or facility to which waste is transferred by a waste carrier. A receiver of regulated waste is required to register the waste receiving facility. This database represents registered receivers of regulated wastes, identified by registration number, company name and address, and includes receivers of waste such as: landfills, incinerators, transfer stations, PCB storage sites, sludge farms and water pollution control plants. This information is a summary of all years from 1986 including the most currently available data.

Government Publication Date: 1986-2013

Record of Site Condition: Provincial RSC

The Record of Site Condition (RSC) is part of the Ministry of the Environment's Brownfields Environmental Site Registry. Protection from environmental cleanup orders for property owners is contingent upon documentation known as a record of site condition (RSC) being filed in the Environmental Site Registry. In order to file an RSC, the property must have been properly assessed and shown to meet the soil, sediment and groundwater standards appropriate for the use (such as residential) proposed to take place on the property. The Record of Site Condition Regulation (O. Reg. 153/04) details requirements related to site assessment and clean up.
RSCs filed after July 1, 2011 will also be included as part of the new (O.Reg. 511/09).

Government Publication Date: Oct 31, 2016

Retail Fuel Storage Tanks: Private RST

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.

Government Publication Date: Oct 31, 2016

Scott's Manufacturing Directory: Private SCT

Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

Government Publication Date: 1992-Mar 2011*

Ontario Spills: Provincial SPL

This database identifies information such as location (approximate), type and quantity of contaminant, date of spill, environmental impact, cause, nature of impact, etc. Information from 1988-2002 was part of the ORIS (Occurrence Reporting Information System). The SAC (Spills Action Centre) handles all spills reported in Ontario. Regulations for spills in Ontario are part of the MOE's Environmental Protection Act, Part X.

Government Publication Date: 1988-Jan 2016

Wastewater Discharger Registration Database: Provincial SRDS

Information under this heading is combination of the following 2 programs. The Municipal/Industrial Strategy for Abatement (MISA) division of the Ontario Ministry of Environment maintained a database of all direct dischargers of toxic pollutants within nine sectors including: Electric Power Generation; Mining; Petroleum Refining; Organic Chemicals; Inorganic Chemicals; Pulp & Paper; Metal Casting; Iron & Steel; and Quarries. All sampling information is now collected and stored within the Sample Result Data Store (SRDS).

Government Publication Date: 1990-2014

Anderson's Storage Tanks: Private TANK

The information provided in this database was collected by examining various historical documents, which identified the location of former storage tanks, containing substances such as fuel, water, gas, oil, and other various types of miscellaneous products. Information is available in regard to business operating at tank site, tank location, permit year, permit & installation type, no. of tanks installed & configuration and tank capacity. Data contained within this database pertains only to the city of Toronto and is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

Government Publication Date: 1915-1953*

Transport Canada Fuel Storage Tanks: Federal TCFT

List of fuel storage tanks currently or previously owned or operated by Transport Canada. This inventory also includes tanks on The Pickering Lands, which refers to 7,530 hectares (18,600 acres) of land in Pickering, Markham, and Uxbridge owned by the Government of Canada since 1972; properties on this land has been leased by the government since 1975, and falls under the Site Management Policy of Transport Canada, but is administered by Public Works and Government Services Canada. This inventory provides information on the site name, location, tank age, capacity and fuel type.

Government Publication Date: Jan 31, 2015

TSSA Variances for Abandonment of Underground Storage Tanks: Provincial VAR

The TSSA, under the Liquid Fuels Handling Code and the Fuel Oil Code, all underground storage tanks must be removed within two years of disuse. If removal of a tank is not feasible, you may apply to seek a variance from this code requirement. This is a list of all variances granted for abandoned tanks.

Government Publication Date: Oct 31, 2016

Waste Disposal Sites - MOE CA Inventory: Provincial WDS

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of known open (active or inactive) and closed disposal sites in the Province of Ontario. Active sites maintain a Certificate of Approval, are approved to receive and are receiving waste. Inactive sites maintain Certificate(s) of Approval but are not receiving waste. Closed sites are not receiving waste. The data contained within this database was compiled from the MOE's Certificate of Approval database. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number. All new Environmental Compliance Approvals handed out after Oct 31, 2011 for Waste Disposal Sites will still be found in this database.

Government Publication Date: Nov 30, 2016

Waste Disposal Sites - MOE 1991 Historical Approval Inventory: Provincial WDSH

In June 1991, the Ontario Ministry of Environment, Waste Management Branch, published the "June 1991 Waste Disposal Site Inventory", of all known active and closed waste disposal sites as of October 30st, 1990. For each "active" site as of October 31st 1990, information is provided on site location, site/CA number, waste type, site status and site classification. For each "closed" site as of October 31st 1990, information is provided on site location, site/CA number, closure date and site classification. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number.

Government Publication Date: Up to Oct 1990*

Water Well Information System: Provincial WWIS

This database describes locations and characteristics of water wells found within Ontario in accordance with Regulation 903. It includes such information as coordinates, construction date, well depth, primary and secondary use, pump rate, static water level, well status, etc. Also included are detailed stratigraphy information, approximate depth to bedrock and the approximate depth to the water table.

Government Publication Date: Jun 30, 2016

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

APPENDIX D – AGAT LABORATORIES – CERTIFICATE OF ANALYSIS

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: WSP CANADA INC.
180 SHEARSON CRESCENT, UNIT 5
CAMBRIDGE, ON N1T1P4
(519) 740-0065

ATTENTION TO: Adam Paquette

PROJECT: 161-15952-00

AGAT WORK ORDER: 16T172187

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

WATER ANALYSIS REVIEWED BY: Mike Muneswar, BSc (Chem), Senior Inorganic Analyst

DATE REPORTED: Dec 29, 2016

PAGES (INCLUDING COVER): 29

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

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MISSISSAUGA, ONTARIO
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Certificate of Analysis

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PAHs (Water)

DATE RECEIVED: 2016-12-19

DATE REPORTED: 2016-12-29

		SAMPLE DESCRIPTION:		BH16-1	BH16-11	BH16-17
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		2016-12-16	2016-12-16	2016-12-16
Parameter	**Unit**	**G / S**	**RDL**	**8098668**	**8098760**	**8098800**
Naphthalene	µg/L	11	0.20	<0.20	<0.20	<0.20
Acenaphthylene	µg/L	1	0.20	<0.20	<0.20	<0.20
Acenaphthene	µg/L	4.1	0.20	<0.20	<0.20	<0.20
Fluorene	µg/L	120	0.20	<0.20	<0.20	<0.20
Phenanthrene	µg/L	1	0.10	<0.10	<0.10	<0.10
Anthracene	µg/L	2.4	0.10	<0.10	<0.10	<0.10
Fluoranthene	µg/L	0.41	0.20	<0.20	<0.20	<0.20
Pyrene	µg/L	4.1	0.20	<0.20	<0.20	<0.20
Benz(a)anthracene	µg/L	1	0.20	<0.20	<0.20	<0.20
Chrysene	µg/L	0.1	0.10	<0.10	<0.10	<0.10
Benzo(b)fluoranthene	µg/L	0.1	0.10	<0.10	<0.10	<0.10
Benzo(k)fluoranthene	µg/L	0.1	0.10	<0.10	<0.10	<0.10
Benzo(a)pyrene	µg/L	0.01	0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.20	<0.20	<0.20	<0.20
Dibenz(a,h)anthracene	µg/L	0.2	0.20	<0.20	<0.20	<0.20
Benzo(g,h,i)perylene	µg/L	0.2	0.20	<0.20	<0.20	<0.20
2-and 1-methyl Naphthalene	µg/L	3.2	0.20	<0.20	<0.20	<0.20
Surrogate	**Unit**	**Acceptable Limits**				
Chrysene-d12	%	50-140		75	77	75

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils

8098668-8098800 Note: The result for Benzo(b)Flouranthene is the total of the Benzo(b)&(j)Flouranthene isomers because the isomers co-elute on the GC column.

Certified By:

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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FAX (905)712-5122
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Certificate of Analysis

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Water)

DATE RECEIVED: 2016-12-19

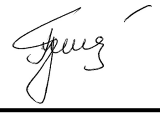
DATE REPORTED: 2016-12-29

		SAMPLE DESCRIPTION:		BH16-3	BH16-6	BH16-7	BH16-16
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2016-12-16	2016-12-16	2016-12-16	2016-12-16
Parameter	**Unit**	**G / S**	**RDL**	**8098691**	**8098716**	**8098735**	**8098783**
F1 (C6 to C10)	µg/L	750	25	<25	<25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L	750	25	<25	<25	<25	<25
F2 (C10 to C16)	µg/L	150	100	<100	<100	<100	<100
F3 (C16 to C34)	µg/L	500	100	<100	100	<100	<100
F4 (C34 to C50)	µg/L	500	100	<100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500	NA	NA	NA	NA
Surrogate	**Unit**	**Acceptable Limits**					
Terphenyl	%	60-140		91	86	68	68

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils

8098691-8098783 The C6-C10 fraction is calculated using Toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.

Certified By:



Results relate only to the items tested and to all the items tested

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Water)

DATE RECEIVED: 2016-12-19

DATE REPORTED: 2016-12-29

		SAMPLE DESCRIPTION:		BH16-1	BH16-11	BH16-17
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		2016-12-16	2016-12-16	2016-12-16
Parameter	**Unit**	**G / S**	**RDL**	**8098668**	**8098760**	**8098800**
F1 (C6 to C10)	µg/L	750	25	<25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L	750	25	<25	<25	<25
F2 (C10 to C16)	µg/L	150	100	<100	<100	<100
F2 (C10 to C16) minus Naphthalene	µg/L		100	<100	<100	<100
F3 (C16 to C34)	µg/L	500	100	<100	<100	<100
F3 (C16 to C34) minus PAHs	µg/L		100	<100	<100	<100
F4 (C34 to C50)	µg/L	500	100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500	NA	NA	NA
Surrogate	**Unit**	**Acceptable Limits**				
Terphenyl	%	60-140		65	67	70

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils

8098668-8098800 The C6-C10 fraction is calculated using Toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX and PAH contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.

Certified By:

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
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Certificate of Analysis

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

Oil and Grease (+Total) - water

DATE RECEIVED: 2016-12-19

DATE REPORTED: 2016-12-29

		SAMPLE DESCRIPTION:		BH16-1	BH16-3	BH16-6	BH16-7	BH16-11	BH16-16	BH16-17
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2016-12-16	2016-12-16	2016-12-16	2016-12-16	2016-12-16	2016-12-16	2016-12-16
Parameter	Unit	G / S	RDL	8098668	8098691	8098716	8098735	8098760	8098783	8098800
Oil and Grease (animal/vegetable)	mg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Oil and Grease (mineral) in water	mg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Oil and Grease (Total) in water	mg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By:

Results relate only to the items tested and to all the items tested

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

Volatile Organic Compounds in Water

DATE RECEIVED: 2016-12-19

DATE REPORTED: 2016-12-29

		SAMPLE DESCRIPTION:		BH16-1	BH16-3	BH16-6	BH16-7	BH16-11	BH16-16	BH16-17	Trip Blank
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2016-12-16	2016-12-16	2016-12-16	2016-12-16	2016-12-16	2016-12-16	2016-12-16	2016-12-16
Parameter	Unit	G / S	RDL	8098668	8098691	8098716	8098735	8098760	8098783	8098800	8098821
Dichlorodifluoromethane	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloromethane	µg/L	700	0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Vinyl Chloride	µg/L	600	0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Bromomethane	µg/L	0.9	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroethane	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L		0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Acetone	µg/L		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1 Dichloroethylene	µg/L	40	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Methylene Chloride	µg/L	100	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans- 1,2-dichloroethylene	µg/L	200	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methyl tert-butyl ether	µg/L	200	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	µg/L	200	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Methyl Ethyl Ketone	µg/L	400	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis- 1,2-Dichloroethylene	µg/L	200	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	µg/L		0.20	<0.20	<0.20	<0.20	28	<0.20	<0.20	<0.20	<0.20
1,2 - Dichloroethane	µg/L	100	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	10	0.30	<0.30	0.41	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Carbon Tetrachloride	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzene	µg/L	100	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloropropane	µg/L	0.7	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethylene	µg/L	20	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	µg/L	200	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	ug/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methyl Isobutyl Ketone	µg/L		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,3-Dichloropropene	µg/L	7	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
1,1,2-Trichloroethane	µg/L	800	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	0.8	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.31	<0.20
2-Hexanone	µg/L		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	µg/L	40	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Ethylene Dibromide	µg/L	5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

Certified By:

Results relate only to the items tested and to all the items tested

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Certificate of Analysis

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

Volatile Organic Compounds in Water

DATE RECEIVED: 2016-12-19

DATE REPORTED: 2016-12-29

		SAMPLE DESCRIPTION:		BH16-1	BH16-3	BH16-6	BH16-7	BH16-11	BH16-16	BH16-17	Trip Blank
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2016-12-16	2016-12-16	2016-12-16	2016-12-16	2016-12-16	2016-12-16	2016-12-16	2016-12-16
Parameter	**Unit**	**G / S**	**RDL**	**8098668**	**8098691**	**8098716**	**8098735**	**8098760**	**8098783**	**8098800**	**8098821**
Tetrachloroethylene	µg/L	50	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1,2-Tetrachloroethane	µg/L	20	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chlorobenzene	µg/L	15	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Ethylbenzene	µg/L	8	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
m & p-Xylene	µg/L	32	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	60	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Styrene	µg/L	4	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	70	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	40	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,3-Dichlorobenzene	µg/L	2.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	4	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,2-Dichlorobenzene	µg/L	2.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,2,4-Trichlorobenzene	µg/L	0.5	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
1,3-Dichloropropene (Cis + Trans)	µg/L		0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Xylene Mixture (Total)	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
n-Hexane	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Surrogate	**Unit**	**Acceptable Limits**									
Toluene-d8	% Recovery	60-130		100	101	101	103	107	103	101	102
4-Bromofluorobenzene	% Recovery	70-130		83	81	84	81	76	75	80	114

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO (ug/L)

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Certificate of Analysis

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

Metals Scan - PWQO

DATE RECEIVED: 2016-12-19

DATE REPORTED: 2016-12-29

SAMPLE DESCRIPTION:				BH16-1 (Filtered)		BH16-3 (Filtered)		BH16-6 (Filtered)	BH16-7 (Filtered)	BH16-11 (Filtered)	BH16-16 (Filtered)
SAMPLE TYPE:				Water		Water		Water	Water	Water	Water
DATE SAMPLED:				2016-12-16		2016-12-16		2016-12-16	2016-12-16	2016-12-16	2016-12-16
Parameter	Unit	G / S	RDL	8098686	RDL	8098711	RDL	8098734	8098751	8098780	8098799
Aluminum	mg/L		0.004	0.006	0.004	0.007	0.004	<0.004	0.009	<0.004	<0.004
Antimony	mg/L	0.020	0.003	<0.003	0.003	<0.003	0.003	<0.003	<0.003	<0.003	<0.003
Arsenic	mg/L	0.1	0.003	0.005	0.003	0.009	0.003	0.003	<0.003	<0.003	<0.003
Barium	mg/L		0.002	0.370	0.002	9.83	0.002	0.196	0.449	0.171	0.262
Beryllium	mg/L	0.011	0.001	<0.001	0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001
Boron	mg/L	0.20	0.01	**2.11**	0.01	**3.26**	0.01	0.18	**0.22**	0.06	0.10
Cadmium	mg/L	0.0002	0.0001	<0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L		0.003	<0.003	0.003	<0.003	0.003	<0.003	<0.003	<0.003	<0.003
Cobalt	mg/L	0.0009	0.0005	0.0006	0.0005	**0.0020**	0.0005	**0.0010**	<0.0005	<0.0005	0.0005
Copper	mg/L	0.005	0.002	<0.002	0.002	0.003	0.002	<0.002	<0.002	<0.002	<0.002
Iron	mg/L	0.3	0.01	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
Lead	mg/L	0.005	0.001	<0.001	0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001
Manganese	mg/L		0.002	0.193	0.002	0.250	0.002	0.165	0.054	0.061	0.183
Molybdenum	mg/L	0.04	0.002	0.011	0.002	0.017	0.002	**0.041**	0.007	0.002	<0.002
Nickel	mg/L	0.025	0.003	<0.003	0.003	0.003	0.003	<0.003	<0.003	<0.003	<0.003
Selenium	mg/L	0.1	0.004	<0.004	0.004	<0.004	0.004	<0.004	<0.004	<0.004	<0.004
Silver	mg/L	0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L		0.025	25.4	0.010	79.3	0.005	0.757	2.35	0.788	1.01
Thallium	mg/L	0.0003	0.0003	<0.0003	0.0003	<0.0003	0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Titanium	mg/L		0.002	0.002	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002
Tungsten	mg/L	0.03	0.010	<0.010	0.010	<0.010	0.010	<0.010	<0.010	<0.010	<0.010
Uranium	mg/L	0.005	0.002	<0.002	0.002	0.002	0.002	**0.008**	0.002	0.002	<0.002
Vanadium	mg/L	0.006	0.002	<0.002	0.002	**0.016**	0.002	<0.002	<0.002	<0.002	<0.002
Zinc	mg/L	0.02	0.005	<0.005	0.005	0.006	0.005	<0.005	<0.005	<0.005	<0.005
Zirconium	mg/L	0.004	0.004	<0.004	0.004	<0.004	0.004	<0.004	<0.004	<0.004	<0.004

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Certificate of Analysis

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

Metals Scan - PWQO

DATE RECEIVED: 2016-12-19

DATE REPORTED: 2016-12-29

Parameter	Unit	G / S	RDL	BH16-17 (Filtered) Water 2016-12-16 8098818
Aluminum	mg/L		0.004	<0.004
Antimony	mg/L	0.020	0.003	<0.003
Arsenic	mg/L	0.1	0.003	<0.003
Barium	mg/L		0.002	0.088
Beryllium	mg/L	0.011	0.001	<0.001
Boron	mg/L	0.20	0.01	0.09
Cadmium	mg/L	0.0002	0.0001	<0.0001
Chromium	mg/L		0.003	<0.003
Cobalt	mg/L	0.0009	0.0005	0.0009
Copper	mg/L	0.005	0.002	<0.002
Iron	mg/L	0.3	0.01	<0.01
Lead	mg/L	0.005	0.001	<0.001
Manganese	mg/L		0.002	0.103
Molybdenum	mg/L	0.04	0.002	<0.002
Nickel	mg/L	0.025	0.003	<0.003
Selenium	mg/L	0.1	0.004	<0.004
Silver	mg/L	0.0001	0.0001	<0.0001
Strontium	mg/L		0.005	0.517
Thallium	mg/L	0.0003	0.0003	<0.0003
Titanium	mg/L		0.002	<0.002
Tungsten	mg/L	0.03	0.010	<0.010
Uranium	mg/L	0.005	0.002	<0.002
Vanadium	mg/L	0.006	0.002	<0.002
Zinc	mg/L	0.02	0.005	<0.005
Zirconium	mg/L	0.004	0.004	<0.004

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PROJECT: 161-15952-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

Metals Scan - PWQO

DATE RECEIVED: 2016-12-19

DATE REPORTED: 2016-12-29

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO (mg/L)

8098686-8098711 Please note that some dissolved metals parameters are higher than the corresponding unfiltered metals parameters; all such values were confirmed by re-analysis.
Elevated RDL for Strontium indicates the degree of sample dilutions prior to analysis in order to keep the analyte within the calibration range of the instrument and to reduce matrix interferences.

8098734-8098818 Please note that some dissolved metals parameters are higher than the corresponding unfiltered metals parameters; all such values were confirmed by re-analysis.

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AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Ground Water Samples (PWQO)

DATE RECEIVED: 2016-12-19

DATE REPORTED: 2016-12-29

		SAMPLE DESCRIPTION:		BH16-1		BH16-3		BH16-6		BH16-7
		SAMPLE TYPE:		Water		Water		Water		Water
		DATE SAMPLED:		2016-12-16		2016-12-16		2016-12-16		2016-12-16
Parameter	Unit	G / S	RDL	8098668	RDL	8098691	RDL	8098716	RDL	8098735
Electrical Conductivity	uS/cm		2	8920	2	11800	2	3680	2	2170
pH	pH Units	6.5-8.5	NA	7.26	NA	7.66	NA	8.08	NA	7.88
Saturation pH				6.97		6.52		6.63		6.74
Langelier Index				0.29		1.14		1.45		1.14
Total Hardness (as CaCO3)	mg/L		0.5	1550	0.5	2610	0.5	463	0.5	522
Total Dissolved Solids	mg/L		20	5280	20	7330	20	2040	20	1340
Alkalinity (as CaCO3)	mg/L		5	55	5	93	5	406	5	274
Bicarbonate (as CaCO3)	mg/L		5	55	5	93	5	406	5	274
Carbonate (as CaCO3)	mg/L		5	<5	5	<5	5	<5	5	<5
Hydroxide (as CaCO3)	mg/L		5	<5	5	<5	5	<5	5	<5
Fluoride	mg/L		5	<5	5	<5	2.5	<2.5	1.0	<1.0
Chloride	mg/L		10	3260	10	4560	5.0	963	2.0	531
Nitrate as N	mg/L		5	<5	5	<5	2.5	5.7	1.0	2.1
Nitrite as N	mg/L		5	<5	5	<5	2.5	<2.5	1.0	<1.0
Bromide	mg/L		5	62	5	135	2.5	<2.5	1.0	<1.0
Sulphate	mg/L		10	65	10	19	5.0	134	2.0	67.0
Ortho Phosphate as P	mg/L		10	<10	10	<10	5.0	<5.0	2.0	<2.0
Reactive Silica	mg/L		0.05	8.27	0.05	9.57	0.10	16.4	0.05	12.7
Ammonia as N	mg/L		0.04	2.47	0.2	4.7	0.02	0.40	0.02	0.33
Ammonia-Un-ionized	mg/L	0.02	NA	**0.022**	NA	**0.11**	NA	**0.024**	NA	0.013
Total Phosphorus	mg/L	0.03	0.01	**0.15**	0.01	**0.12**	**0.05**	**1.67**	0.01	**0.10**
Total Organic Carbon	mg/L		0.5	4.4	0.5	3.3	0.5	3.1	0.5	2.3
Colour	TCU		5	<5	5	<5	5	<5	5	<5
Turbidity	NTU		0.5	154	0.5	221	15	6750	0.5	1550
Calcium	mg/L		0.5	352	1.0	586	0.25	148	0.25	148
Magnesium	mg/L		0.5	163	1.0	278	0.25	22.8	0.25	37.0
Sodium	mg/L		0.5	1240	1.0	1380	0.25	602	0.25	218
Potassium	mg/L		0.5	28.9	1.0	93.9	0.25	8.08	0.25	24.4
Aluminum (dissolved)	mg/L	0.075	0.004	<0.004	0.004	<0.004	0.004	<0.004	0.004	<0.004
Antimony	mg/L	0.020	0.003	<0.003	0.003	<0.003	0.003	<0.003	0.003	<0.003

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Certificate of Analysis

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Ground Water Samples (PWQO)

DATE RECEIVED: 2016-12-19

DATE REPORTED: 2016-12-29

		SAMPLE DESCRIPTION:		BH16-1		BH16-3		BH16-6		BH16-7
		SAMPLE TYPE:		Water		Water		Water		Water
		DATE SAMPLED:		2016-12-16		2016-12-16		2016-12-16		2016-12-16
Parameter	Unit	G / S	RDL	8098668	RDL	8098691	RDL	8098716	RDL	8098735
Arsenic	mg/L	0.1	0.003	<0.003	0.003	<0.003	0.003	0.016	0.003	<0.003
Barium	mg/L		0.002	0.344	0.002	9.51	0.002	0.355	0.002	0.373
Beryllium	mg/L	0.011	0.001	<0.001	0.001	<0.001	0.001	0.002	0.001	<0.001
Boron	mg/L	0.20	0.010	**2.03**	0.010	**3.18**	0.010	**0.203**	0.010	0.186
Cadmium	mg/L	0.0002	0.0001	<0.0001	0.0001	0.0001	0.0001	**0.0006**	0.0001	<0.0001
Chromium	mg/L		0.003	<0.003	0.003	<0.003	0.003	0.017	0.003	0.005
Cobalt	mg/L	0.0009	0.0005	**0.0011**	0.0005	**0.0024**	0.0005	**0.0203**	0.0005	**0.0016**
Copper	mg/L	0.005	0.002	0.002	0.002	0.004	0.002	**0.086**	0.002	**0.010**
Iron	mg/L	0.3	0.01	**0.79**	0.01	**0.96**	0.01	**28.4**	0.01	**2.02**
Lead	mg/L	0.005	0.001	<0.001	0.001	0.001	0.001	**0.043**	0.001	0.004
Manganese	mg/L		0.002	0.254	0.002	0.401	0.002	3.94	0.002	0.229
Dissolved Mercury	mg/L	0.0002	0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001
Molybdenum	mg/L	0.04	0.002	0.010	0.002	0.016	0.002	0.025	0.002	0.004
Nickel	mg/L	0.025	0.003	<0.003	0.003	<0.003	0.003	0.018	0.003	0.005
Selenium	mg/L	0.1	0.004	<0.004	0.004	<0.004	0.004	<0.004	0.004	<0.004
Silver	mg/L	0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001
Strontium	mg/L		0.010	26.8	0.010	79.2	0.005	1.64	0.005	1.97
Thallium	mg/L	0.0003	0.0003	<0.0003	0.0003	<0.0003	0.0003	<0.0003	0.0003	<0.0003
Tin	mg/L		0.002	<0.002	0.002	<0.002	0.002	<0.002	0.002	<0.002
Titanium	mg/L		0.002	0.017	0.002	0.015	0.002	0.048	0.002	0.022
Tungsten	mg/L	0.03	0.010	<0.010	0.010	<0.010	0.010	<0.010	0.010	<0.010
Uranium	mg/L	0.005	0.002	<0.002	0.002	0.002	0.002	**0.011**	0.002	<0.002
Vanadium	mg/L	0.006	0.002	<0.002	0.002	<0.002	0.002	**0.034**	0.002	0.004
Zinc	mg/L	0.02	0.005	0.007	0.005	0.008	0.005	**0.080**	0.005	0.013
Zirconium	mg/L	0.004	0.004	<0.004	0.004	<0.004	0.004	<0.004	0.004	<0.004
Cation Sum	meq/L		NA	85.8	NA	115	NA	35.7	NA	20.6
Anion Sum	meq/L			94.4		131		38.5		22.0
% Difference/ Ion Balance	%		NA	4.79	NA	6.54	NA	3.78	NA	3.39

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Certificate of Analysis

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Ground Water Samples (PWQO)

DATE RECEIVED: 2016-12-19

DATE REPORTED: 2016-12-29

		SAMPLE DESCRIPTION:		BH16-11		BH16-16		BH16-17
		SAMPLE TYPE:		Water		Water		Water
		DATE SAMPLED:		2016-12-16		2016-12-16		2016-12-16
Parameter	Unit	G / S	RDL	8098760	RDL	8098783	RDL	8098800
Electrical Conductivity	uS/cm		2	2160	2	2070	2	2220
pH	pH Units	6.5-8.5	NA	7.97	NA	7.93	NA	7.93
Saturation pH				6.71		6.62		6.65
Langelier Index				1.26		1.31		1.28
Total Hardness (as CaCO3)	mg/L		0.5	487	0.5	576	0.5	521
Total Dissolved Solids	mg/L		20	1260	20	1240	20	1270
Alkalinity (as CaCO3)	mg/L		5	321	5	334	5	342
Bicarbonate (as CaCO3)	mg/L		5	321	5	334	5	342
Carbonate (as CaCO3)	mg/L		5	<5	5	<5	5	<5
Hydroxide (as CaCO3)	mg/L		5	<5	5	<5	5	<5
Fluoride	mg/L		0.5	<0.5	0.5	<0.5	1.0	<1.0
Chloride	mg/L		1.0	508	1.0	448	2.0	477
Nitrate as N	mg/L		0.5	7.7	0.5	7.5	1.0	6.4
Nitrite as N	mg/L		0.5	<0.5	0.5	<0.5	1.0	<1.0
Bromide	mg/L		0.5	<0.5	0.5	<0.5	1.0	<1.0
Sulphate	mg/L		1.0	59.1	1.0	94.8	2.0	111
Ortho Phosphate as P	mg/L		1.0	<1.0	1.0	<1.0	2.0	<2.0
Reactive Silica	mg/L		0.10	15.4	0.10	16.8	0.10	15.6
Ammonia as N	mg/L		0.02	0.04	0.02	0.09	0.02	<0.02
Ammonia-Un-ionized	mg/L	0.02	NA	0.002	NA	0.0042	NA	NR
Total Phosphorus	mg/L	0.03	**0.05**	**0.84**	0.01	**0.12**	**0.05**	**1.03**
Total Organic Carbon	mg/L		0.5	2.8	0.5	2.8	0.5	2.9
Colour	TCU		5	<5	5	<5	5	<5
Turbidity	NTU		15	5910	0.5	273	15	6390
Calcium	mg/L		0.25	163	0.25	179	0.25	169
Magnesium	mg/L		0.25	19.4	0.25	31.4	0.25	24.1
Sodium	mg/L		0.25	250	0.25	196	0.25	277
Potassium	mg/L		0.25	11.8	0.25	9.08	0.25	12.4
Aluminum (dissolved)	mg/L	0.075	0.004	<0.004	0.004	<0.004	0.004	<0.004
Antimony	mg/L	0.020	0.003	<0.003	0.003	<0.003	0.003	<0.003

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PROJECT: 161-15952-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Ground Water Samples (PWQO)

DATE RECEIVED: 2016-12-19

DATE REPORTED: 2016-12-29

		SAMPLE DESCRIPTION:		BH16-11		BH16-16		BH16-17
		SAMPLE TYPE:		Water		Water		Water
		DATE SAMPLED:		2016-12-16		2016-12-16		2016-12-16
Parameter	Unit	G / S	RDL	8098760	RDL	8098783	RDL	8098800
Arsenic	mg/L	0.1	0.003	0.007	0.003	<0.003	0.003	0.009
Barium	mg/L		0.002	0.315	0.002	0.280	0.002	0.252
Beryllium	mg/L	0.011	0.001	0.001	0.001	<0.001	0.001	0.001
Boron	mg/L	0.20	0.010	0.067	0.010	0.114	0.010	0.096
Cadmium	mg/L	0.0002	0.0001	**0.0003**	0.0001	<0.0001	0.0001	**0.0006**
Chromium	mg/L		0.003	0.010	0.003	0.004	0.003	0.015
Cobalt	mg/L	0.0009	0.0005	**0.0119**	0.0005	**0.0017**	0.0005	**0.0270**
Copper	mg/L	0.005	0.002	**0.045**	0.002	**0.007**	0.002	**0.066**
Iron	mg/L	0.3	0.01	**10.9**	0.01	**1.43**	0.01	**17.0**
Lead	mg/L	0.005	0.001	**0.024**	0.001	0.003	0.001	**0.035**
Manganese	mg/L		0.002	2.15	0.002	0.387	0.002	4.33
Dissolved Mercury	mg/L	0.0002	0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001
Molybdenum	mg/L	0.04	0.002	<0.002	0.002	<0.002	0.002	<0.002
Nickel	mg/L	0.025	0.003	0.012	0.003	0.003	0.003	0.017
Selenium	mg/L	0.1	0.004	<0.004	0.004	<0.004	0.004	<0.004
Silver	mg/L	0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001
Strontium	mg/L		0.005	1.35	0.005	1.08	0.005	1.58
Thallium	mg/L	0.0003	0.0003	<0.0003	0.0003	<0.0003	0.0003	<0.0003
Tin	mg/L		0.002	<0.002	0.002	<0.002	0.002	<0.002
Titanium	mg/L		0.002	0.084	0.002	0.022	0.002	0.075
Tungsten	mg/L	0.03	0.010	<0.010	0.010	<0.010	0.010	<0.010
Uranium	mg/L	0.005	0.002	0.004	0.002	<0.002	0.002	0.005
Vanadium	mg/L	0.006	0.002	**0.021**	0.002	0.003	0.002	**0.046**
Zinc	mg/L	0.02	0.005	**0.044**	0.005	0.007	0.005	**0.056**
Zirconium	mg/L	0.004	0.004	<0.004	0.004	<0.004	0.004	<0.004
Cation Sum	meq/L		NA	20.9	NA	20.3	NA	22.8
Anion Sum	meq/L			22.5		21.8		23.1
% Difference/ Ion Balance	%		NA	3.72	NA	3.66	NA	0.604

Certified By:

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5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment - Ground Water Samples (PWQO)

DATE RECEIVED: 2016-12-19

DATE REPORTED: 2016-12-29

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO (mg/L)

8098668-8098800 Elevated RDLs indicate the degree of sample dilutions prior to analysis in order to keep the analytes within the calibration range of the instruments and to reduce matrix interferences.
The calculation of Un-ionized Ammonia was based on lab measured parameters (pH and temperature) rather than the field parameters, these were not provided to the lab.The temperature is recorded at the time of pH measurement. Values are reported as calculated.
For samples where the concentration of NH3-N is less than the MDL, Un-ionised Ammonia is reported as NR (Not Reportable).

Certified By:

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AGAT Laboratories

Guideline Violation

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	Unit	GUIDEVALUE	RESULT
8098668	BH16-1	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Ammonia-Un-ionized	mg/L	0.02	0.022
8098668	BH16-1	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Boron	mg/L	0.20	2.03
8098668	BH16-1	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Cobalt	mg/L	0.0009	0.0011
8098668	BH16-1	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Iron	mg/L	0.3	0.79
8098668	BH16-1	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Total Phosphorus	mg/L	0.03	0.15
8098686	BH16-1 (Filtered)	PWQO (mg/L)	Metals Scan - PWQO	Boron	mg/L	0.20	2.11
8098691	BH16-3	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Ammonia-Un-ionized	mg/L	0.02	0.11
8098691	BH16-3	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Boron	mg/L	0.20	3.18
8098691	BH16-3	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Cobalt	mg/L	0.0009	0.0024
8098691	BH16-3	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Iron	mg/L	0.3	0.96
8098691	BH16-3	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Total Phosphorus	mg/L	0.03	0.12
8098711	BH16-3 (Filtered)	PWQO (mg/L)	Metals Scan - PWQO	Boron	mg/L	0.20	3.26
8098711	BH16-3 (Filtered)	PWQO (mg/L)	Metals Scan - PWQO	Cobalt	mg/L	0.0009	0.0020
8098711	BH16-3 (Filtered)	PWQO (mg/L)	Metals Scan - PWQO	Vanadium	mg/L	0.006	0.016
8098716	BH16-6	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Ammonia-Un-ionized	mg/L	0.02	0.024
8098716	BH16-6	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Boron	mg/L	0.20	0.203
8098716	BH16-6	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Cadmium	mg/L	0.0002	0.0006
8098716	BH16-6	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Cobalt	mg/L	0.0009	0.0203
8098716	BH16-6	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Copper	mg/L	0.005	0.086
8098716	BH16-6	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Iron	mg/L	0.3	28.4
8098716	BH16-6	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Lead	mg/L	0.005	0.043
8098716	BH16-6	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Total Phosphorus	mg/L	0.03	1.67
8098716	BH16-6	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Uranium	mg/L	0.005	0.011
8098716	BH16-6	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Vanadium	mg/L	0.006	0.034
8098716	BH16-6	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Zinc	mg/L	0.02	0.080
8098734	BH16-6 (Filtered)	PWQO (mg/L)	Metals Scan - PWQO	Cobalt	mg/L	0.0009	0.0010

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CANADA L4Z 1Y2
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Guideline Violation

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	Unit	GUIDEVALUE	RESULT
8098734	BH16-6 (Filtered)	PWQO (mg/L)	Metals Scan - PWQO	Molybdenum	mg/L	0.04	0.041
8098734	BH16-6 (Filtered)	PWQO (mg/L)	Metals Scan - PWQO	Uranium	mg/L	0.005	0.008
8098735	BH16-7	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Cobalt	mg/L	0.0009	0.0016
8098735	BH16-7	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Copper	mg/L	0.005	0.010
8098735	BH16-7	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Iron	mg/L	0.3	2.02
8098735	BH16-7	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Total Phosphorus	mg/L	0.03	0.10
8098751	BH16-7 (Filtered)	PWQO (mg/L)	Metals Scan - PWQO	Boron	mg/L	0.20	0.22
8098760	BH16-11	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Cadmium	mg/L	0.0002	0.0003
8098760	BH16-11	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Cobalt	mg/L	0.0009	0.0119
8098760	BH16-11	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Copper	mg/L	0.005	0.045
8098760	BH16-11	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Iron	mg/L	0.3	10.9
8098760	BH16-11	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Lead	mg/L	0.005	0.024
8098760	BH16-11	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Total Phosphorus	mg/L	0.03	0.84
8098760	BH16-11	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Vanadium	mg/L	0.006	0.021
8098760	BH16-11	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Zinc	mg/L	0.02	0.044
8098783	BH16-16	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Cobalt	mg/L	0.0009	0.0017
8098783	BH16-16	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Copper	mg/L	0.005	0.007
8098783	BH16-16	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Iron	mg/L	0.3	1.43
8098783	BH16-16	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Total Phosphorus	mg/L	0.03	0.12
8098800	BH16-17	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Cadmium	mg/L	0.0002	0.0006
8098800	BH16-17	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Cobalt	mg/L	0.0009	0.0270
8098800	BH16-17	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Copper	mg/L	0.005	0.066
8098800	BH16-17	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Iron	mg/L	0.3	17.0
8098800	BH16-17	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Lead	mg/L	0.005	0.035
8098800	BH16-17	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Total Phosphorus	mg/L	0.03	1.03

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CANADA L4Z 1Y2
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FAX (905)712-5122
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Guideline Violation

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Adam Paquette

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	Unit	GUIDEVALUE	RESULT
8098800	BH16-17	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Vanadium	mg/L	0.006	0.046
8098800	BH16-17	PWQO (mg/L)	Water Quality Assessment - Ground Water Samples (PWQO)	Zinc	mg/L	0.02	0.056

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Quality Assurance

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Dec 29, 2016			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Oil and Grease (+Total) - water															
Oil and Grease (animal/vegetable)		TW	< 0.5	< 0.5	NA	< 0.5	NA	70%	130%	102%	70%	130%	103%	70%	130%
Oil and Grease (mineral) in water		TW	< 0.5	< 0.5	NA	< 0.5	NA	70%	130%	77%	70%	130%	81%	70%	130%
Oil and Grease (Total) in water		TW	< 0.5	< 0.5	NA	< 0.5	NA	70%	130%	89%	70%	130%	92%	70%	130%
Volatile Organic Compounds in Water															
Dichlorodifluoromethane	8100755		< 0.20	< 0.20	NA	< 0.20	117%	60%	130%	87%	60%	130%	99%	60%	130%
Chloromethane	8100755		< 0.40	< 0.40	NA	< 0.40	89%	60%	130%	79%	60%	130%	79%	60%	130%
Vinyl Chloride	8100755		< 0.17	< 0.17	NA	< 0.17	120%	60%	130%	94%	60%	130%	91%	60%	130%
Bromomethane	8100755		< 0.20	< 0.20	NA	< 0.20	103%	60%	130%	87%	60%	130%	94%	60%	130%
Chloroethane	8100755		< 0.20	< 0.20	NA	< 0.20	110%	60%	130%	97%	60%	130%	93%	60%	130%
Trichlorofluoromethane	8100755		< 0.40	< 0.40	NA	< 0.40	118%	60%	130%	117%	60%	130%	80%	60%	130%
Acetone	8100755		< 1.0	< 1.0	NA	< 1.0	88%	60%	130%	87%	60%	130%	93%	60%	130%
1,1 Dichloroethylene	8100755		< 0.30	< 0.30	NA	< 0.30	108%	60%	130%	112%	60%	130%	109%	60%	130%
Methylene Chloride	8100755		< 0.30	< 0.30	NA	< 0.30	127%	60%	130%	113%	60%	130%	86%	60%	130%
trans- 1,2-dichloroethylene	8100755		< 0.20	< 0.20	NA	< 0.20	94%	60%	130%	112%	60%	130%	93%	60%	130%
Methyl tert-butyl ether	8100755		< 0.20	< 0.20	NA	< 0.20	86%	60%	130%	79%	60%	130%	86%	60%	130%
1,1-Dichloroethane	8100755		< 0.30	< 0.30	NA	< 0.30	75%	60%	130%	105%	60%	130%	89%	60%	130%
Methyl Ethyl Ketone	8100755		< 1.0	< 1.0	NA	< 1.0	97%	60%	130%	98%	60%	130%	108%	60%	130%
cis- 1,2-Dichloroethylene	8100755		< 0.20	< 0.20	NA	< 0.20	74%	60%	130%	74%	60%	130%	73%	60%	130%
Chloroform	8100755		< 0.20	< 0.20	NA	< 0.20	84%	60%	130%	103%	60%	130%	78%	60%	130%
1,2 - Dichloroethane	8100755		< 0.20	< 0.20	NA	< 0.20	92%	60%	130%	105%	60%	130%	88%	60%	130%
1,1,1-Trichloroethane	8100755		< 0.30	< 0.30	NA	< 0.30	80%	60%	130%	104%	60%	130%	86%	60%	130%
Carbon Tetrachloride	8100755		< 0.20	< 0.20	NA	< 0.20	84%	60%	130%	116%	60%	130%	92%	60%	130%
Benzene	8100755		< 0.20	< 0.20	NA	< 0.20	72%	60%	130%	89%	60%	130%	75%	60%	130%
1,2-Dichloropropane	8100755		< 0.20	< 0.20	NA	< 0.20	72%	60%	130%	74%	60%	130%	98%	60%	130%
Trichloroethylene	8100755		9.9	10	NA	< 0.20	89%	60%	130%	104%	60%	130%	87%	60%	130%
Bromodichloromethane	8100755		< 0.20	< 0.20	NA	< 0.20	89%	60%	130%	82%	60%	130%	74%	60%	130%
cis-1,3-Dichloropropene	8100755		< 0.20	< 0.20	NA	< 0.20	74%	60%	130%	73%	60%	130%	94%	60%	130%
Methyl Isobutyl Ketone	8100755		< 1.0	< 1.0	NA	< 1.0	98%	60%	130%	88%	60%	130%	89%	60%	130%
trans-1,3-Dichloropropene	8100755		< 0.30	< 0.30	NA	< 0.30	87%	60%	130%	83%	60%	130%	73%	60%	130%
1,1,2-Trichloroethane	8100755		< 0.20	< 0.20	NA	< 0.20	97%	60%	130%	89%	60%	130%	72%	60%	130%
Toluene	8100755		0.51	0.47	NA	< 0.20	95%	60%	130%	110%	60%	130%	100%	60%	130%
2-Hexanone	8100755		< 1.0	< 1.0	NA	< 1.0	104%	60%	130%	91%	60%	130%	79%	60%	130%
Dibromochloromethane	8100755		< 0.10	< 0.10	NA	< 0.10	104%	60%	130%	88%	60%	130%	74%	60%	130%
Ethylene Dibromide	8100755		< 0.10	< 0.10	NA	< 0.10	82%	60%	130%	83%	60%	130%	70%	60%	130%
Tetrachloroethylene	8100755		< 0.20	< 0.20	NA	< 0.20	106%	60%	130%	122%	60%	130%	96%	60%	130%
1,1,1,2-Tetrachloroethane	8100755		< 0.10	< 0.10	NA	< 0.10	102%	60%	130%	91%	60%	130%	76%	60%	130%
Chlorobenzene	8100755		< 0.10	< 0.10	NA	< 0.10	95%	60%	130%	95%	60%	130%	79%	60%	130%
Ethylbenzene	8100755		< 0.10	< 0.10	NA	< 0.10	96%	60%	130%	99%	60%	130%	81%	60%	130%

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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Quality Assurance

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Dec 29, 2016			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
m & p-Xylene	8100755		< 0.20	< 0.20	NA	< 0.20	101%	60%	130%	103%	60%	130%	87%	60%	130%
Bromoform	8100755		< 0.10	< 0.10	NA	< 0.10	101%	60%	130%	82%	60%	130%	70%	60%	130%
Styrene	8100755		< 0.10	< 0.10	NA	< 0.10	114%	60%	130%	110%	60%	130%	114%	60%	130%
1,1,2,2-Tetrachloroethane	8100755		< 0.10	< 0.10	NA	< 0.10	97%	60%	130%	80%	60%	130%	70%	60%	130%
o-Xylene	8100755		< 0.10	< 0.10	NA	< 0.10	103%	60%	130%	102%	60%	130%	86%	60%	130%
1,3-Dichlorobenzene	8100755		< 0.10	< 0.10	NA	< 0.10	112%	60%	130%	100%	60%	130%	86%	60%	130%
1,4-Dichlorobenzene	8100755		< 0.10	< 0.10	NA	< 0.10	104%	60%	130%	97%	60%	130%	82%	60%	130%
1,2-Dichlorobenzene	8100755		< 0.10	< 0.10	NA	< 0.10	98%	60%	130%	88%	60%	130%	76%	60%	130%
1,2,4-Trichlorobenzene	8100755		< 0.30	< 0.30	NA	< 0.30	105%	60%	130%	85%	60%	130%	92%	60%	130%
1,3-Dichloropropene (Cis + Trans)	8100755		< 0.30	< 0.30	NA	< 0.30	81%	60%	130%	78%	60%	130%	84%	60%	130%
n-Hexane	8100755		< 0.20	< 0.20	NA	< 0.20	72%	60%	130%	102%	60%	130%	77%	60%	130%
O. Reg. 153(511) - PAHs (Water)															
Naphthalene		TW	< 0.20	< 0.20	NA	< 0.20	110%	50%	140%	79%	50%	140%	94%	50%	140%
Acenaphthylene		TW	< 0.20	< 0.20	NA	< 0.20	109%	50%	140%	80%	50%	140%	93%	50%	140%
Acenaphthene		TW	< 0.20	< 0.20	NA	< 0.20	110%	50%	140%	77%	50%	140%	93%	50%	140%
Fluorene		TW	< 0.20	< 0.20	NA	< 0.20	107%	50%	140%	87%	50%	140%	94%	50%	140%
Phenanthrene		TW	< 0.10	< 0.10	NA	< 0.10	106%	50%	140%	96%	50%	140%	98%	50%	140%
Anthracene		TW	< 0.10	< 0.10	NA	< 0.10	111%	50%	140%	90%	50%	140%	104%	50%	140%
Fluoranthene		TW	< 0.20	< 0.20	NA	< 0.20	108%	50%	140%	95%	50%	140%	100%	50%	140%
Pyrene		TW	< 0.20	< 0.20	NA	< 0.20	104%	50%	140%	94%	50%	140%	98%	50%	140%
Benz(a)anthracene		TW	< 0.20	< 0.20	NA	< 0.20	86%	50%	140%	100%	50%	140%	95%	50%	140%
Chrysene		TW	< 0.10	< 0.10	NA	< 0.10	103%	50%	140%	113%	50%	140%	105%	50%	140%
Benzo(b)fluoranthene		TW	< 0.10	< 0.10	NA	< 0.10	110%	50%	140%	82%	50%	140%	88%	50%	140%
Benzo(k)fluoranthene		TW	< 0.10	< 0.10	NA	< 0.10	135%	50%	140%	105%	50%	140%	101%	50%	140%
Benzo(a)pyrene		TW	< 0.01	< 0.01	NA	< 0.01	118%	50%	140%	103%	50%	140%	100%	50%	140%
Indeno(1,2,3-cd)pyrene		TW	< 0.20	< 0.20	NA	< 0.20	94%	50%	140%	71%	50%	140%	84%	50%	140%
Dibenz(a,h)anthracene		TW	< 0.20	< 0.20	NA	< 0.20	94%	50%	140%	75%	50%	140%	86%	50%	140%
Benzo(g,h,i)perylene		TW	< 0.20	< 0.20	NA	< 0.20	98%	50%	140%	67%	50%	140%	82%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Water)															
F1 (C6 to C10)	8098716	8098716	< 25	< 25	NA	< 25	74%	60%	140%	96%	60%	140%	99%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	97%	60%	140%	60%	60%	140%	63%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	98%	60%	140%	89%	60%	140%	81%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	86%	60%	140%	105%	60%	140%	90%	60%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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Quality Assurance

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Dec 29, 2016			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Certified By:

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SAMPLING SITE:

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Water Analysis

RPT Date: Dec 29, 2016			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Water Quality Assessment - Ground Water Samples (PWQO)															
Electrical Conductivity	8096299		233	232	0.4%	< 2	103%	80%	120%	NA			NA		
pH	8096299		7.94	7.93	0.1%	NA	100%	90%	110%	NA			NA		
Total Dissolved Solids	8098668	8098668	5280	5360	1.5%	< 20	96%	80%	120%	NA			NA		
Alkalinity (as CaCO3)	8096299		88	88	0.0%	< 5	96%	80%	120%	NA			NA		
Bicarbonate (as CaCO3)	8096299		88	88	0.0%	< 5	NA			NA			NA		
Carbonate (as CaCO3)	8096299		<5	<5	NA	< 5	NA			NA			NA		
Hydroxide (as CaCO3)	8096299		<5	<5	NA	< 5	NA			NA			NA		
Fluoride	8098783	8098783	< 0.5	<0.5	NA	< 0.05	97%	90%	110%	103%	90%	110%	97%	80%	120%
Chloride	8098783	8098783	448	449	0.2%	< 0.10	99%	90%	110%	104%	90%	110%	92%	80%	120%
Nitrate as N	8098783	8098783	7.5	7.4	1.3%	< 0.05	91%	90%	110%	106%	90%	110%	112%	80%	120%
Nitrite as N	8098783	8098783	< 0.5	<0.5	NA	< 0.05	NA	90%	110%	102%	90%	110%	107%	80%	120%
Bromide	8098783	8098783	< 0.5	<0.5	NA	< 0.05	107%	90%	110%	101%	90%	110%	101%	80%	120%
Sulphate	8098783	8098783	94.8	95.1	0.3%	< 0.10	91%	90%	110%	102%	90%	110%	103%	80%	120%
Ortho Phosphate as P	8098783	8098783	< 1.0	<1.0	NA	< 0.10	100%	90%	110%	106%	90%	110%	108%	80%	120%
Reactive Silica	8098668	8098668	8.27	8.13	1.7%	< 0.05	95%	90%	110%	103%	90%	110%	91%	80%	120%
Ammonia as N	8097612		<0.02	<0.02	NA	< 0.02	95%	90%	110%	101%	90%	110%	95%	80%	120%
Total Phosphorus	8098668	8098668	0.15	0.16	6.5%	< 0.01	108%	90%	110%	109%	90%	110%	110%	70%	130%
Total Organic Carbon	8098668	8098668	4.4	4.4	0.0%	< 0.5	97%	90%	110%	108%	90%	110%	91%	80%	120%
Colour	8096505		8	8	NA	< 5	101%	90%	110%	NA			NA		
Turbidity	8098906		<0.5	<0.5	NA	< 0.5	108%	90%	110%	NA			NA		
Calcium	8100535		96.5	99.1	2.7%	< 0.05	102%	90%	110%	101%	90%	110%	102%	70%	130%
Magnesium	8100535		30.4	30.7	1.0%	< 0.05	98%	90%	110%	98%	90%	110%	98%	70%	130%
Sodium	8100535		8.77	8.57	2.3%	< 0.05	98%	90%	110%	98%	90%	110%	97%	70%	130%
Potassium	8100535		1.47	1.46	0.7%	< 0.05	97%	90%	110%	97%	90%	110%	102%	70%	130%
Aluminum (dissolved)	8098668	8098668	< 0.004	<0.004	NA	< 0.004	100%	90%	110%	106%	90%	110%	84%	70%	130%
Dissolved Mercury	8098668	8098668	< 0.0001	<0.0001	NA	< 0.0001	104%	90%	110%	99%	90%	110%	96%	70%	130%
Metals Scan - PWQO															
Aluminum	8098668	8098668	0.343	0.337	1.8%	< 0.004	98%	90%	110%	101%	90%	110%	89%	70%	130%
Antimony	8098668	8098668	< 0.003	<0.003	NA	< 0.003	103%	90%	110%	99%	90%	110%	93%	70%	130%
Arsenic	8098668	8098668	< 0.003	0.004	NA	< 0.003	103%	90%	110%	103%	90%	110%	101%	70%	130%
Barium	8098668	8098668	0.344	0.343	0.3%	< 0.002	99%	90%	110%	104%	90%	110%	87%	70%	130%
Beryllium	8098668	8098668	< 0.001	<0.001	NA	< 0.001	96%	90%	110%	96%	90%	110%	85%	70%	130%
Boron	8098668	8098668	2.03	1.53	28.1%	< 0.01	95%	90%	110%	99%	90%	110%	95%	70%	130%
Cadmium	8098668	8098668	< 0.0001	<0.0001	NA	< 0.0001	101%	90%	110%	106%	90%	110%	90%	70%	130%
Chromium	8098668	8098668	< 0.003	<0.003	NA	< 0.003	103%	90%	110%	99%	90%	110%	90%	70%	130%
Cobalt	8098668	8098668	0.0011	0.0010	NA	< 0.0005	101%	90%	110%	102%	90%	110%	98%	70%	130%
Copper	8098668	8098668	0.002	0.003	NA	< 0.002	97%	90%	110%	101%	90%	110%	82%	70%	130%
Iron	8098668	8098668	0.79	0.81	2.5%	< 0.01	107%	90%	110%	106%	90%	110%	79%	70%	130%

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Quality Assurance

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

Water Analysis (Continued)

RPT Date: Dec 29, 2016			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Lead	8098668	8098668	< 0.001	<0.001	NA	< 0.001	93%	90%	110%	97%	90%	110%	76%	70%	130%
Manganese	8098668	8098668	0.254	0.259	1.9%	< 0.002	92%	90%	110%	92%	90%	110%	90%	70%	130%
Molybdenum	8098668	8098668	0.010	0.010	0.0%	< 0.002	94%	90%	110%	95%	90%	110%	101%	70%	130%
Nickel	8098668	8098668	< 0.003	<0.003	NA	< 0.003	104%	90%	110%	106%	90%	110%	94%	70%	130%
Selenium	8098668	8098668	< 0.004	0.139	NA	< 0.004	96%	90%	110%	98%	90%	110%	93%	70%	130%
Silver	8098668	8098668	< 0.0001	0.0004	NA	< 0.0001	97%	90%	110%	110%	90%	110%	84%	70%	130%
Strontium	8098668	8098668	26.8	27.2	1.5%	< 0.005	94%	90%	110%	97%	90%	110%	102%	70%	130%
Thallium	8098668	8098668	< 0.0003	<0.0003	NA	< 0.0003	98%	90%	110%	108%	90%	110%	87%	70%	130%
Titanium	8098668	8098668	0.017	0.017	0.0%	< 0.002	100%	90%	110%	99%	90%	110%	92%	70%	130%
Tungsten	8098668	8098668	< 0.010	<0.010	NA	< 0.010	100%	90%	110%	100%	90%	110%	91%	70%	130%
Uranium	8098668	8098668	< 0.002	<0.002	NA	< 0.002	96%	90%	110%	92%	90%	110%	84%	70%	130%
Vanadium	8098668	8098668	< 0.002	<0.002	NA	< 0.002	103%	90%	110%	100%	90%	110%	94%	70%	130%
Zinc	8098668	8098668	0.007	0.006	NA	< 0.005	102%	90%	110%	97%	90%	110%	81%	70%	130%
Zirconium	8098668	8098668	< 0.004	<0.004	NA	< 0.004	98%	90%	110%	99%	90%	110%	103%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate Qualifier: 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.

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Method Summary

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PROJECT: 161-15952-00

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Acenaphthylene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Acenaphthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Fluorene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Phenanthrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Chrysene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Chrysene-d12	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
F1 (C6 to C10)	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC E3421	GC / FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC E3421	GC / FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC E3421	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC E3421	GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5010	MOE PHC E3421	GC/FID
F4 (C34 to C50)	VOL -91- 5010	MOE PHC- E3421	GC/FID
Oil and Grease (animal/vegetable)	VOL-91- 5011	SM 5520 & EPA SW846 3510C & EPA 1664	GRAVIMETRIC
Oil and Grease (mineral) in water	VOL-91- 5011	SM 5520 & EPA SW846 3510C & EPA 1664	GRAVIMETRIC
Oil and Grease (Total) in water	VOL-91- 5011	SM 5520 & EPA SW846 3510C & EPA 1664	GRAVIMETRIC
Dichlorodifluoromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Chloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Chloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Acetone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1 Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
trans- 1,2-dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl tert-butyl ether	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
cis- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Chloroform	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2 - Dichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Benzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
cis-1,3-Dichloropropene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
trans-1,3-Dichloropropene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
2-Hexanone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Styrene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2,4-Trichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,3-Dichloropropene (Cis + Trans)	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Xylene Mixture (Total)	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS

Results relate only to the items tested and to all the items tested

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Aluminum	MET-93-6103	SW-846 6020A & 200.8	ICP-MS
Antimony	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Barium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Boron	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Chromium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Copper	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Iron	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Lead	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Manganese	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Nickel	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Selenium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Silver	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Strontium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Thallium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Titanium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Tungsten	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Uranium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Zinc	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Zirconium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Electrical Conductivity	INOR-93-6000	SM 2510 B	PC TITRATE
pH	INOR-93-6000	SM 4500-H+ B	PC TITRATE
Saturation pH			CALCULATION
Langelier Index		SM 2330B	CALCULATION
Total Hardness (as CaCO3)	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Total Dissolved Solids	INOR-93-6028	SM 2540 C	BALANCE
Alkalinity (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Bicarbonate (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Carbonate (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Hydroxide (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Reactive Silica	INOR-93-6047	AQ2 EPA-122A & SM 4500 SiO2 D	AQ2 DISCRETE ANALYSER
Ammonia as N	INOR-93-6059	QuikChem 10-107-06-1-J & SM 4500 NH3-F	LACHAT FIA
Ammonia-Un-ionized		MOE REFERENCE, PWQOs Tab 2	CALCULATION
Total Phosphorus	INOR-93-6022	SM 4500-P B&E	SPECTROPHOTOMETER
Total Organic Carbon	INOR-93-6049	EPA 415.1 & SM 5310 B	SHIMADZU CARBON ANALYZER
Colour	INOR-93-6046	SM 2120 B	SPECTROPHOTOMETER

Results relate only to the items tested and to all the items tested

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http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16T172187

PROJECT: 161-15952-00

ATTENTION TO: Adam Paquette

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Turbidity	INOR-93-6044	SM 2130 B	NEPHELOMETER
Calcium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Magnesium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Sodium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Potassium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Aluminum (dissolved)	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Dissolved Mercury	MET-93-6100	EPA SW 846 7470 & 245.1	CVAAS
Tin	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cation Sum		SM 1030 E	CALCULATION
Anion Sum		SM 1030 E	CALCULATION
% Difference/ Ion Balance		SM 1030 E	CALCULATION

Results relate only to the items tested and to all the items tested

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Laboratory Use Only

Work Order #: 16T172187

Cooler Quantity:

Arrival Temperatures: 5.9 16.1 16.1 / 4.9 15.1 15.1

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes:

Report Information:

Company: WSP Canada
Contact: Adam Paquette
Address: 190 Sheldon Cresc.
Comb ridge ON.
Phone: Fax:
Reports to be sent to:
1. Email: adam.paquette@wspgroup.com
2. Email: keith.clarke@wspgroup.com

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☑ Regulation 153/04 — Table: ☐ Indicate One ☐ Ind/Com ☑ AP ☐ Res/Park ☐ Agriculture

Soil Texture (Check One): ☐ Coarse ☐ Fine

☐ Sewer Use — ☐ Sanitary ☐ Storm

Region: Indicate One

☐ Regulation 558
☐ CCME
☑ Prov. Water Quality Objectives (PWQO)
☐ Other

Indicate One

Is this submission for a Record of Site Condition? ☐ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☑ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 161-15952-00
Site Location: Burlington ON.
Sampled By: Adam Paquette
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☑ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals)	O. Reg 153: ORPs (☐ B-HWS ☐ Cl ☐ CN ☐ Cr6+ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR)	Full Metals Scan	Regulation/Custom Metals	Nutrients (☐ TP ☐ NH3 ☐ TKN ☐ NO3 ☐ NO2 ☐ NO3+NO2)	Volatiles (☑ VOC ☑ BTEX ☐ THM)	CCME Fractions 1 to 4	ABNs	PAHs	PCBs (☐ Total ☐ Aroclors)	Organochlorine Pesticides	TCLP (☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs)	Sewer Use	WQA	Oil & Grease (AVM)
BH 16-1	Dec 16/16	800 2nd		GW		N			✓			✓	✓		✓					✓
BH 16-1						Y			✓											
BH 16-3						N						✓	✓							✓
BH 16-3						Y			✓											
BH 16-6						N						✓	✓							✓
BH 16-6						Y			✓											
BH 16-7						N						✓	✓							✓
BH 16-7						Y			✓											
BH 16-11						N						✓	✓		✓					✓
BH 16-11						Y			✓											

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
K. Clarke	Dec 19/16	11:30	2016/12/19		11:30
2016/12/19		12:20			

Page 1 of 2

N°: T 041265

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Report Information:

Company: WSP Canada
Contact: Adam Paquette
Address: 680 Sheldon Cresc. Cambridge ON
Phone: Fax:
Reports to be sent to:
1. Email: adam.paquette@wspgroup.com
2. Email: keith.clarke@wspgroup.com

Project Information:

Project: 161-15952-00
Site Location: Boring [illegible] ON.
Sampled By: Adam Paquette
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☑ No ☐
Company:
Contact:
Address:
Email:

Regulatory Requirements:

☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table (Indicate One): ☐ Ind/Com ☐ Res/Park ☐ Agriculture
Soil Texture (Check One): ☐ Coarse ☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region (Indicate One)

☐ Regulation 558
☐ CCME
☑ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a Record of Site Condition? ☐ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☐ No

Laboratory Use Only

Work Order #:
Cooler Quantity:
Arrival Temperatures: 4.9 | 6.1 | 6.1 / 4.9 | 5.1 | 5.1
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes:

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☑ 3 Business Days ☐ 2 Business Days ☐ Next Business Day
OR Date Required (Rush Surcharges May Apply):
Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays
For 'Same Day' analysis, please contact your AGAT CPM

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	All Metals ☐ 153 Metals (excl. Hydrides)	Hydride Metals	ORPs: ☐ B-HWS ☐ Cl ☐ CN	☐ Cr^{6+} ☐ EC ☐ FOC ☐ Hg	☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN	☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☑ VOC ☑ BTEX ☐ THM	CCME Fractions 1 to 4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use	WQA	10:1 Grease (AUM)
BH16-16	Dec16/16	800 - 2:00		GW		N											✓	✓							✓	✓
BH16-16						Y							✓													
BH16-17						N											✓	✓		✓					✓	✓
BH16-17						Y							✓													
Trip Blank						N/A											✓									
					① lab to filter for Dissolved Aluminum ①																						

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
K. Clarke	Dec19/16	11:39	[signature] 2016/12/19		11:30
[signature] 2016/12/19	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

Page 2 of 2

No: T 041266

APPENDIX E – DEWATERING CALCULATIONS

CONSTRUCTION DEWATERING CALCULATIONS
Georgian Court Redevelopment
Burlington ON

Worksheet 1a: Building Tower Foundation (BH16-1 to BH16-3)

$$Q_T = \left[\frac{K\left(H^2-h^2\right)}{5.31\times10^{-6}\ \ln{}^{R_o}/_{r_s}}\right]$$ (Powers et al., 2007)

		Dewatering parameters:	
Constant		5.31E-06	
Length	a	260	m
Width	b	70	m
Hydraulic conductivity (Anticipated)	K	8.30E-07	m/s
Hydraulic conductivity (Worst Case)		8.30E-06	m/s
Static Groundwater Elevation		91	masl
Excavation Base Elevation		81	masl
Aquifer Base Elevation		80	masl
Aquifer thickness	H	11	m
Height of bottom of excavation above bottom of aquifer	h	1	m
Radius of circle equivalent to area of the open trench	rs	105.04	m

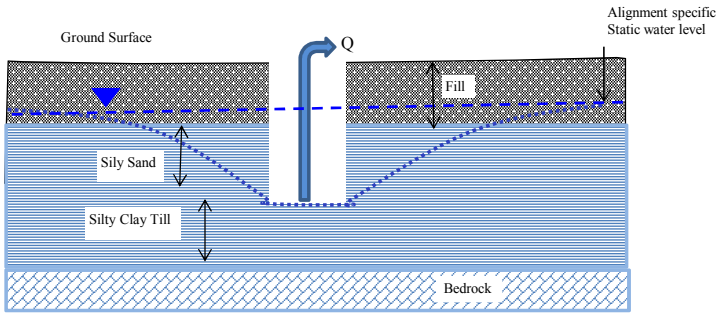
$$R_o = \left[3000(H-h)\sqrt{K}\right]$$ (Sichardt, 1930)

		Zone of Influence:	
Zone of Influence (Anticipated Case)		27.33	m
Zone of Influence (Worst Case)		86.43	m
Zone of Influence (Worst Case plus Factor of Safety of 2:1)		172.86	m
Zone of Influence Plus Zone of Circle (Anticipated)	Ro	132.37	m
Zone of Influence Plus Zone of Circle (Worst)	Ro	191.47	m
Zone of Influence Plus Zone of Circle (Safety 2:1)	Ro	277.90	m

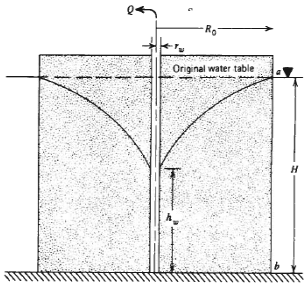
Q (Anticipated)	81.11	L/min
Q (Worst)	312.42	L/min
2x Factor of Safety	625	L/min

	Per Access Pit	
Q (Anticipated)	**116,793**	**L/day**
Q (Worst)	**449,888**	**L/day**
2x Factor of Safety	**899,775**	**L/day**

Hydrogeological Schematic Diagram:



Equation Schematic Diagram:



Assumptions for Construction Dewatering:
Groundwater levels measured by WSP (2017)
Construction dewatering rates are as calculated as per Powers, J.P. et al. (2007), based on groundwater inflow to a large diameter circular excavation, with equivalent area as per the roughly square excavation shape, as required for this project.
The aquifer base is defined as 1 m below excavation base

The **Anticipated Case Scenario** calculated dewatering rate is based on the geometric mean hydraulic conductivity estimated from the Hazen and Puckett methods.

The **Worst Case Scenario** calculated dewatering rate is based on an order of magnitude increase in the K from the Anticipated Case Scenario.
Hydraulic conductivity values used in these calculations were calculated from grain size distribution curves using the Hazen and Puckett approximations.

masl - meters above mean sea level
mbgs - meters below ground surface.

CONSTRUCTION DEWATERING CALCULATIONS
Georgian Court Redevelopment
Burlington ON

Worksheet 1b: Building Tower Foundation (BH16-4 to BH16-7)

$$Q_T = \left[\frac{K\left(H^2-h^2\right)}{5.31\times10^{-6}\ \ln{}^{R_o}/_{r_s}}\right]$$ (Powers et al., 2007)

		Dewatering parameters:	
Constant		5.31E-06	
Length	a	180	m
Width	b	180	m
Hydraulic conductivity (Anticipated)	K	8.30E-07	m/s
Hydraulic conductivity (Worst Case)		8.30E-06	m/s
Static Groundwater Elevation		90.4	masl
Excavation Base Elevation		80	masl
Aquifer Base Elevation		79	masl
Aquifer thickness	H	11.4	m
Height of bottom of excavation above bottom of aquifer	h	1	m
Radius of circle equivalent to area of the open trench	rs	114.59	m

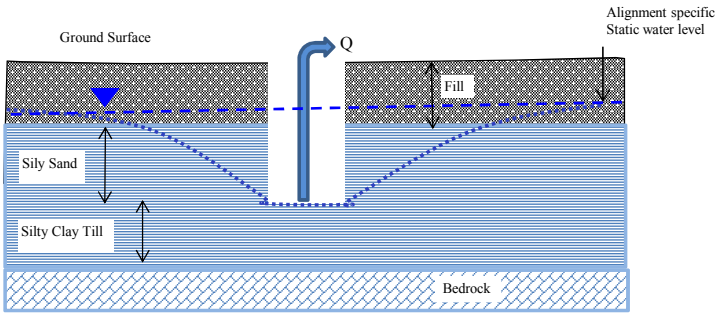
$$R_o = \left[3000(H-h)\sqrt{K}\right]$$ (Sichardt, 1930)

		Zone of Influence:	
Zone of Influence (Anticipated Case)		28.42	m
Zone of Influence (Worst Case)		89.89	m
Zone of Influence (Worst Case plus Factor of Safety of 2:1)		179.77	m
Zone of Influence Plus Zone of Circle (Anticipated)	Ro	143.02	m
Zone of Influence Plus Zone of Circle (Worst)	Ro	204.48	m
Zone of Influence Plus Zone of Circle (Safety 2:1)	Ro	294.36	m

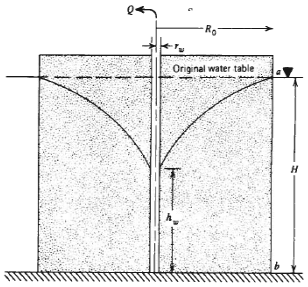
Q (Anticipated)	90.97	L/min
Q (Worst)	348.09	L/min
2x Factor of Safety	696	L/min

	Per Access Pit	
Q (Anticipated)	**130,998**	**L/day**
Q (Worst)	**501,254**	**L/day**
2x Factor of Safety	**1,002,509**	**L/day**

Hydrogeological Schematic Diagram:



Equation Schematic Diagram:



Assumptions for Construction Dewatering:
Groundwater levels measured by WSP (2017)
Construction dewatering rates are as calculated as per Powers, J.P. et al. (2007), based on groundwater inflow to a large diameter circular excavation, with equivalent area as per the roughly square excavation shape, as required for this project.
The aquifer base is defined as 1 m below excavation base

The **Anticipated Case Scenario** calculated dewatering rate is based on the geometric mean hydraulic conductivity estimated from the Hazen and Puckett methods.

The **Worst Case Scenario** calculated dewatering rate is based on an order of magnitude increase in the K from the Anticipated Case Scenario.
Hydraulic conductivity values used in these calculations were calculated from grain size distribution curves using the Hazen and Puckett approximations.

masl - meters above mean sea level
mbgs - meters below ground surface.

CONSTRUCTION DEWATERING CALCULATIONS
Georgian Court Redevelopment
Burlington ON

Worksheet 1c: Townhouse Foundation (BH16-8 to BH16-12)

$$Q_T = \left[\frac{K\left(H^2-h^2\right)}{5.31\times10^{-6}\ln{}^{Ro}/_{r_s}}\right]$$ (Powers et al., 2007)

		Dewatering parameters:	
Constant		5.31E-06	
Length	a	270	m
Width	b	70	m
Hydraulic conductivity (Anticipated)	K	8.30E-07	m/s
Hydraulic conductivity (Worst Case)		8.30E-06	m/s
Static Groundwater Elevation		89	masl
Excavation Base Elevation		85	masl
Aquifer Base Elevation		84	masl
Aquifer thickness	H	5	m
Height of bottom of excavation above bottom of aquifer	h	1	m
Radius of circle equivalent to area of the open trench	rs	108.23	m

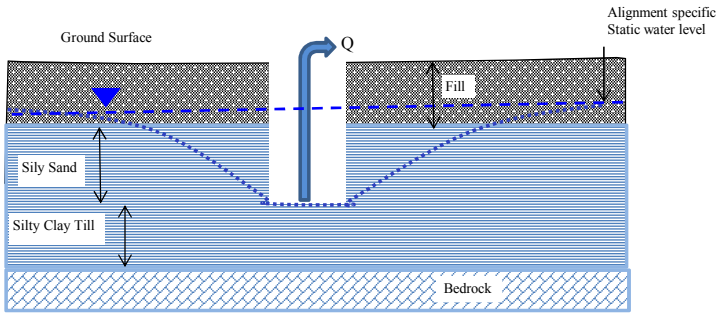
$$R_o = \left[3000(H-h)\sqrt{K}\right]$$ (Sichardt, 1930)

		Zone of Influence:	
Zone of Influence (Anticipated Case)		10.93	m
Zone of Influence (Worst Case)		34.57	m
Zone of Influence (Worst Case plus Factor of Safety of 2:1)		69.14	m
Zone of Influence Plus Zone of Circle (Anticipated)	Ro	119.16	m
Zone of Influence Plus Zone of Circle (Worst)	Ro	142.80	m
Zone of Influence Plus Zone of Circle (Safety 2:1)	Ro	177.37	m

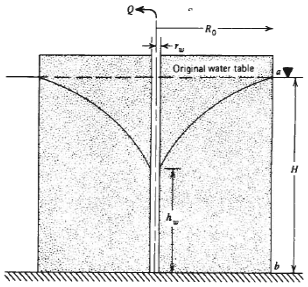
Q (Anticipated)	38.98	L/min
Q (Worst)	135.33	L/min
2x Factor of Safety	271	L/min

	Per Access Pit	
Q (Anticipated)	**56,135**	**L/day**
Q (Worst)	**194,873**	**L/day**
2x Factor of Safety	**389,745**	**L/day**

Hydrogeological Schematic Diagram:



Equation Schematic Diagram:



Assumptions for Construction Dewatering:
Groundwater levels measured by WSP (2017)
Construction dewatering rates are as calculated as per Powers, J.P. et al. (2007), based on groundwater inflow to a large diameter circular excavation, with equivalent area as per the roughly square excavation shape, as required for this project.
The aquifer base is defined as 1 m below excavation base

The **Anticipated Case Scenario** calculated dewatering rate is based on the geometric mean hydraulic conductivity estimated from the Hazen and Puckett methods.

The **Worst Case Scenario** calculated dewatering rate is based on an order of magnitude increase in the K from the Anticipated Case Scenario.
Hydraulic conductivity values used in these calculations were calculated from grain size distribution curves using the Hazen and Puckett approximations.

masl - meters above mean sea level
mbgs - meters below ground surface.

CONSTRUCTION DEWATERING CALCULATIONS
Georgian Court Redevelopment
Burlington ON

Worksheet 1d: Townhouse Foundation (BH16-8 to BH16-12)

$$Q_T = \left[\frac{K\left(H^2-h^2\right)}{5.31\times10^{-6}\ln{}^{Ro}/_{r_s}}\right]$$ (Powers et al., 2007)

		Dewatering parameters:	
Constant		5.31E-06	
Length	a	200	m
Width	b	110	m
Hydraulic conductivity (Anticipated)	K	8.30E-07	m/s
Hydraulic conductivity (Worst Case)		8.30E-06	m/s
Static Groundwater Elevation		90.8	masl
Excavation Base Elevation		87	masl
Aquifer Base Elevation		86	masl
Aquifer thickness	H	4.8	m
Height of bottom of excavation above bottom of aquifer	h	1	m
Radius of circle equivalent to area of the open trench	rs	98.68	m

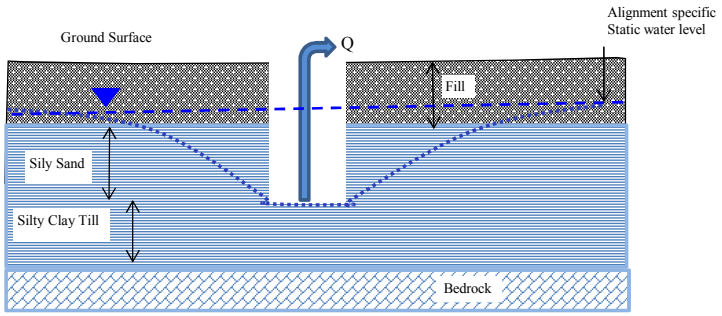
$$R_o = \left[3000(H-h)\sqrt{K}\right]$$ (Sichardt, 1930)

		Zone of Influence:	
Zone of Influence (Anticipated Case)		10.39	m
Zone of Influence (Worst Case)		32.84	m
Zone of Influence (Worst Case plus Factor of Safety of 2:1)		65.69	m
Zone of Influence Plus Zone of Circle (Anticipated)	Ro	109.06	m
Zone of Influence Plus Zone of Circle (Worst)	Ro	131.52	m
Zone of Influence Plus Zone of Circle (Safety 2:1)	Ro	164.36	m

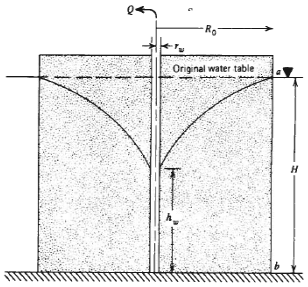
Q (Anticipated)	34.43	L/min
Q (Worst)	119.91	L/min
2x Factor of Safety	240	L/min

	Per Access Pit	
Q (Anticipated)	**49,572**	**L/day**
Q (Worst)	**172,666**	**L/day**
2x Factor of Safety	**345,332**	**L/day**

Hydrogeological Schematic Diagram:



Equation Schematic Diagram:



Assumptions for Construction Dewatering:
Groundwater levels measured by WSP (2017)
Construction dewatering rates are as calculated as per Powers, J.P. et al. (2007), based on groundwater inflow to a large diameter circular excavation, with equivalent area as per the roughly square excavation shape, as required for this project.
The aquifer base is defined as 1 m below excavation base

The **Anticipated Case Scenario** calculated dewatering rate is based on the geometric mean hydraulic conductivity estimated from the Hazen and Puckett methods.

The **Worst Case Scenario** calculated dewatering rate is based on an order of magnitude increase in the K from the Anticipated Case Scenario.
Hydraulic conductivity values used in these calculations were calculated from grain size distribution curves using the Hazen and Puckett approximations.

masl - meters above mean sea level
mbgs - meters below ground surface.

APPENDIX F – STANDARD CONDITIONS AND LIMITATIONS

STANDARD LIMITATIONS
ENVIRONMENTAL INVESTIGATIONS and CHARACTERIZATION PROGRAMS

These Standard Limitations form part of the Report to which they are appended and any use of the Report is subject to them.

1. Exclusive Use By Client

This Report was prepared for the exclusive use of the client identified as the intended recipient. Any use of the Report by any other party without the written consent of WSP Canada Group Limited is the sole responsibility of such party. WSP Canada Group Limited accepts no responsibility for damages that may be suffered by any third party as a result of decisions made or actions taken based on the Report.

2. Scope, Terms and Conditions of Contract

The observations and investigations (hereinafter referred to as the "Work") upon which this Report is based were carried out in accordance with the scope, terms and conditions of the contract or the proposal pursuant to which the Work was commissioned. The conclusions presented in the Report are based solely upon the scope of services described in the contract or the proposal and governed by the time and budgetary constraints imposed by them.

3. Standard of Care

The principles, procedures and standards relevant to the nature of the services performed are not universally the same. The Work has been carried out in accordance with generally accepted environmental study and/or professional practices, industry standards and environmental regulations, where applicable. No other warranties are either expressed or implied with respect to the professional services provided under the terms of the contract or the proposal and represented in this Report.

4. Scope of the Work

This Report may be based in part on information obtained at discrete sampling and/or monitoring locations. The conditions reported herein were those encountered at the subject property at the time the Work was performed and as present at the discrete sampling/monitoring locations, if any. Conditions between sampling/monitoring locations may be different than those encountered at the sampling/monitoring locations and WSP Canada Group Limited is not responsible for such differences.

5. Reasonable Conclusions

The conclusions contained in this Report are based on the Work and may also consider a review of information from other sources as identified in the Report. The accuracy of information from other sources was not verified unless specifically noted in the Report, nor was it determined if the reviewed information constituted all information that exists and pertains to the subject property.

The conclusions made are based on reasonable and professional interpretation of the information considered. If additional information concerning conditions of relevance to this Report is obtained during future work at the subject property, WSP Canada Group Limited should be notified in order that we may determine if modifications to the conclusions presented in this Report are necessary.

6. Report as a Complete Document

This Report must be read as a whole and sections taken out of context may be misleading. If discrepancies occur between the preliminary (draft) and final versions of the Report, the final version of the report shall take precedence.

7. Limits of Liability

WSP Canada Group Limited's liability with respect to the Work is limited to re-performing, without cost, any part of the Work that is unacceptable solely as a result of failure to comply with industry standards. WSP Canada Group Limited's maximum liability is limited in accordance with terms in the original contract, provided that notice of claim is made within regulated timelines as of the date of delivery of the Report.