

**Hydro-geological Site Assessment  
Proposed Student Focused Housing  
409 Huron Street  
Toronto, Ontario**

Prepared for  
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# 1. Introduction

This report presents the results of a hydro-geological study carried out in the property located at 409 Huron Street in Toronto, Ontario.

The project involves the proposed design and construction of four (4) level student residence with associated surface paved driveway and parking area. The proposed student residence will have one (1) to two (2) levels of basement. The upper and lower basement floor slab will be set at approximately 1 m and 3.65 m below street grade on Huron Street. The footprint of the upper and lower basement floor slab covers an area of about 666 m<sup>2</sup>. Site plan and sections of the proposed development is provided in Appendix A.

The Site is currently occupied in parts by a three (3) storey brick apartment, surface paved parking area and driveway. The on-site apartment building has a basement. The on-site brick apartment building will be demolished to accommodate the construction of the proposed student residence.

The hydro-geological site assessment was carried out in conjunction with the geotechnical investigation. Results of the geotechnical investigation are provided under separate cover.

The purpose of this hydro-geological study was to confirm whether or not groundwater will need to be pumped as part of the building design, to determine the elevations of the groundwater level, the quality and quantity of groundwater proposed to be discharged to a City sewer and, the proposed groundwater discharge method.

## 2. Site Conditions

### 2.1 Site Locations and Descriptions

The Site is located on the east side of Huron Street, approximately 54 m south of Bloor Street, in Toronto, Ontario. It is located in a mixed residential, commercial and institutional neighborhood.

The Site covers an area of about 1,090 m<sup>2</sup>. The Site is currently occupied in parts by a three (3) storey brick apartment and surface paved parking area and driveway. The on-site apartment building has a basement. The on-site building covers an area of about 262 m<sup>2</sup>.

### 2.2 Site Topography and Drainage

The Site and surrounding lands consist of an urban area of the City of Toronto. The Site is generally flat with an approximate ground surface at ± El.114 m. There are no permanent water courses present on the Site. Storm water at the Site is expected to drain towards the catch basins located within the Site and on municipal roads adjacent to the Site.

### 2.3 Site Geology and Hydrogeology

The following topographic, geological and soil maps were reviewed:

- Topographical Map, published by Natural Resources Canada dated 2015.
- "Quaternary Geology of Ontario" – Southern Sheet, Map 2556.
- "Bedrock Geology of Ontario" – Southern Sheet, Map 2554.
- "Metropolitan Toronto Bedrock Elevation Bedrock Contour" - Preliminary Map 102, dated 1961

The general area of the Site was developed for residential, commercial and institutional uses. Ground surfaces of the general area of the Site sloped down gently from north to south.

The Site is located within the physiographic region known as "Iroquois Plain" and the Lake Ontario Waterfront watershed.

The Site is not located in the wellhead protection area, Intake Protection zones, Municipal Surface Water Intakes and Significant Groundwater Recharge Areas (Approved and Updated Assessment Report, Toronto and Region Conservation Authority, dated July 24, 2015).

The Lake Ontario Waterfront watershed is made of a number of layers of successive glaciers over the thousand years: Lake Iroquois sand, Older Lake silt and clay, Older Lake silty clay till to silt till, Scarborough Formation sand (aquifer) and Georgian Bay Formation shale. The sand aquifer and shale bedrock is suited at least 75 m and 80 m below grade, respectively.

Edward Wong has completed a geotechnical investigation concurrently with this hydro-geological study. Three (3) boreholes were advanced to a depth of about 7.95 m below grade. All boreholes were completed with a 50 mm diameter monitoring well.

The subsoil profile, as revealed in the logs of borehole, consisted of a topsoil layer or pavement structure over a discontinuous fill stratum followed by native deposits of native deposits of silty sand, fine sand, silty sand till and silty clay.

Boreholes 1, 2 and 3 were dry, during drilling. Groundwater levels in Boreholes 2 and 3 were measured at a depth of about 4.78 m and 2.67 m below grade, thirty-one (31) days after drilling. Borehole 1 was dry, after completion of drilling.

## 3. Geotechnical Investigation

### 3.1 Soil Sampling

The fieldworks were carried out on December 7 and 8, 2018. Three (3) sampled boreholes (Boreholes 1, 2 and 3) were drilled to a depth of about 7.95 m below grade at the approximate locations shown on the attached Borehole Location Plan (Drawing No. 1).

The boreholes were advanced, using a truck-mounted drill rig equipped with continuous flight solid stem augers owned, supplied and operated by a specialist drilling contractor. The overburden soils were recovered using a conventional split spoon sampler in conjunction with standard penetration test (SPT). The fieldwork was supervised throughout by Edward Wong's geotechnical personnel who monitored the drilling and sampling operations and logged the borings.

Tests for the generation of methane gas and Total Organic Vapors were carried out in Boreholes 1, 2 and 3, using a portable combustible gas tester (RKI Eagle multi-gas detector).

The groundwater conditions in the open boreholes were closely monitored during and upon completion of drilling. Monitoring well, 50 mm in diameter, installed in Boreholes 1, 2 and 3 for subsequent groundwater level measurements and groundwater sampling and testing.

All recovered soil samples were transported to Edward Wong's laboratory for detailed visual examinations and soil classifications. Moisture content determinations were carried out on all recovered soil samples.

Soil and groundwater samples were submitted to Maxxam Analytics in Mississauga for chemical analysis. Results of the environmental soil and groundwater testing are discussed in Section 5 of the report.

Borehole locations were established in the field by Edward Wong & Associates Inc. Prior to the commencement of drilling, the borehole locations were cleared for underground utilities by a private locator retained by Edward Wong & Associates Inc. to minimize the potential of contacting them during drilling. Ground surface elevations at the borehole locations were interpolated from a Site Plan provided by Impression Group (the Client).

## **2.2 Development of Monitoring Well and Groundwater Sampling**

Monitoring wells were installed in Boreholes 1, 2 and 3 to a depth of 7.95 m below grades. The monitoring wells were completed with a flush mount well cover. The monitoring well construction was shown in the relevant logs of borehole.

Development of the monitoring well and sampling of groundwater was carried out on December 17, 2018 (10 days after completion of drilling). Boreholes 1 and 2 were dry. Groundwater level was measured at a depth of 2.78 m below grade on December 10, 2018.

Prior to groundwater sampling, Borehole 3 was developed and purged of more than three (3) well volumes of water, using clean polyethylene bailers. No free product or sheen was detected on the surface of the groundwater in Borehole 3.

Groundwater samples were collected and stored in laboratory supplied bottles and jars. The bottles and jars were kept in a portable cooler during field storage and transportation to Maxxam Analytics in Mississauga for chemical analysis.

Results of the groundwater testing are provided in Section 4.4 of the report.



## 4. Sub-surface Conditions

The subsurface stratigraphy at the Site, as revealed in the logs of borehole, consisted of a topsoil layer or pavement structure over a discontinuous fill stratum followed by native deposits of silty sand, fine sand, silty sand till and silty clay.

### 3.1 Subsoil

A brief description of the soil profiles, in order of depth, are as follow.

#### 3.1.1 Topsoil

Topsoil, about 75 mm thick, was encountered at the ground surface in Borehole 1 advanced in the landscaped area.

#### 3.1.2 Pavement Structure

Pavement structure was encountered at the ground surface in Boreholes 2 and 3 drilled on the driveway and parking area. The pavement structure consisted of about 65 mm of asphaltic concrete over about 185 mm of sand and gravel granular base materials. The granular materials were very moist. Moisture contents were about 15 percent and 13 percent.

#### 3.1.3 Fill

Fill was encountered below the pavement structure in Boreholes 2 and 3 and extended to a depth of about 1.5 m and 0.75 m below grade, respectively. The fill materials consisted of silty sand. Brick fragments and topsoil were noted in the fill samples recovered from Borehole 2 and 3, respectively. SPT "N" values ranged from 3 blows per 300 mm penetration to 7 blows per 300 mm penetration. Based on the "N" value, the fill materials were judged to be loose to very loose. The fill was very moist. Moisture contents ranged from 13 percent to 17 percent.

#### 3.1.4 Silty Sand

Silty sand was encountered below the topsoil in Borehole 1 and extended to a depth of 2.4 m below grade. Silty sand was also contacted below the fill in Borehole 2 and 3 at a depth of about 1.5 m and 0.75 m, respectively, and extended to a depth of about 3.0 m and 1.5 m, respectively. The relative density of the silty sand varied from very loose to compact. SPT "N" values ranged from 2 blows per 300 mm penetration to 20 blows per 300 mm penetration. Moisture contents ranged from 8 percent to 17 percent, indicating moist to very moist conditions.

### 3.1.5 Fine Sand

A localized fine sand layer was found below the silty sand at a depth of about 1.5 m below grade in Borehole 3 and extended to a depth of about 3 m. SPT "N" values were 18 blows per 300 mm penetration and 33 blows per 300 mm penetration. The relative density of the fine sand ranged from compact to dense. The fine sand was moist to wet. Moisture contents were 8 percent and 22 percent.

Grain size analysis and hydrometer test was carried out on one (1) selected silty sand sample. The test result is provided in Appendix B and summarized in Table 1 below.

**Table 1: Result of Grain Size Analysis and Hydrometer Test - Fine Sand**

Borehole No.	Depth	Composition (%) Gr, Sa, Si & Cl	Estimated Coefficient of Permeability (m/s)	Unified Soil Classification	Comments
3	1.5 - 1.95	0, 95.2, 4.8	*8.1 x 10 <sup>-5</sup>	SP (poorly grade sand)	Medium Permeable

Note: Gr, Sa, Si, Cl - Gravel, Sand, Silt and Clay

\* based on Haze Formula,  $k = 10^{-2} D_{10}^2$  m/s

### 3.1.6 Silty Sand Till

Dense silty sand till was contacted below the silty clay at a depth of 6 m below grade in Borehole 1 and extended to a depth of about 7.5 m. SPT "N" value was 37 blows per 300 mm penetration. Un-confined compressive strength measured from the pocket penetrometer gave the values of un-drained shear strength greater than 225 kPa. Moisture content was 8 percent, indicating a moist condition.

Grain size analysis and hydrometer test was carried out on one (1) silty sand till sample. The test result is provided in Appendix B and summarized in Table 2 below.

**Table 2: Result of Grain Size Analysis and Hydrometer Test - Silty Sand Till**

Borehole No.	Depth	Composition (%) Gr, Sa, Si & Cl	Estimated Coefficient of Permeability (m/s)	Unified Soil Classification	Comments
1	6.0 - 6.45	6, 59.6, 28, 6.4	1 x 10 <sup>-5</sup>	SC (sand-clay mixtures)	Low Permeable

Note: Gr, Sa, Si, Cl - Gravel, Sand, Silt, Clay

### 3.1.7 Silty Clay

Silty clay was encountered below the silty sand at depths of about 2.4 m and 3 m below grade in Boreholes 1 and 2 and extended to depth of 6 m and 7.95 m, respectively. Silty clay was found below the fine sand at a depth of about 3 m below grade in Borehole 3 and extended to termination depth of 7.95 m. In Borehole 1, a lower silty clay layer was contacted at a depth of 7.5 m below grade and extended to termination depth of 7.95 m. SPT "N" values ranged from 25 blows per 300 mm penetration to 39 blows per 300 mm penetration. Un-confined compressive strength measured from the pocket penetrometer gave the values of un-drained shear strength from 175 kPa to greater than 225 kPa, corresponding to very stiff to hard consistency. Moisture contents ranged from 8 percent to 12 percent.

## 4.2 Groundwater Elevations

Groundwater conditions were assessed in the open boreholes during the course of the fieldwork. Monitoring well, 50 mm in diameter, was installed in Boreholes 1, 2 and 3 for subsequent groundwater level measurements and groundwater sampling and testing. Short term groundwater level measurements are shown in Table 3 below.

**Table 3: Groundwater Level Measurements**

Borehole Location	Depth (Elevation (m))					
	Ground Surface Elevation (m)	During Drilling	Upon Completion of Drilling	Dec. 14, 2018 (7 days after completion of drilling)	Dec. 21, 2018 (14 days after completion of drilling)	January 10, 2109 (31 days after completion of Drilling)
1	114.7	Dry	Dry	Dry	Dry	Dry
2	114.6	Dry	Dry	Dry	Dry	4.78 (109.82)
3	114.37	Dry	2.25 (112.12)	1.8 (112.57)	2.78 (111.59)	2.76 (111.61)

The measured groundwater levels in Boreholes 2 and 3 were originated from water perched in the sand layers overlying the silty clay deposit. The groundwater flow direction is to the west/ southwest, based on Table 3 above.

The groundwater levels are expected to fluctuate on seasonal basis ( $\pm 1$  m) and could be higher in spring or after prolonged period of rain.

### 4.3 Slug Test

On December 22, 2018, slug test was carried out in Borehole 3 to assess the hydraulic conductivity of the in-situ conductivity of the subsoil. Screen of the monitoring well was placed within the native silty clay deposit. Groundwater level in Borehole 3 was likely originated from water perched in the fine sand deposit overlying the silty clay. At the time of the slug test, groundwater level in Borehole 3 was measured at about 2.78 m below grade.

Water level readings and results of the slug test are provided in Appendix C of the report. The hydraulic conductivity of the native silt clay was found to be  $6.82 \times 10^{-7}$  m/min ( $1.1 \times 10^{-8}$  m/ sec.). Water level readings and results of slug test analysis are provided in Appendix C.

### 4.4 Groundwater Quality

Samples of groundwater were collected by Edward Wong for chemical analysis. Sample locations and analytical data are listed in Table 4 below. Certificates of Chemical Analyses are provided in Appendix D.

**Table 4: Sample Locations and Analytical Data**

Sample I.D.	Borehole Location and Depth	Matrix	Analytical Data
I00971	BH 3	Groundwater	Toronto Storm and Sanitary Sewer By Law, soluble Sulphate, General and Inorganic Parameters, PHC (F - F4 Fractions) and VOCs.

**Notes:** PHC - Petroleum Hydrocarbons; VOC's - Volatile Organic Compounds

#### 4.4.1 Comparison to MOE's Document entitled "Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act", dated April 2011

The analytical concentrations of the tested groundwater sample complied with the applicable MOE Document Table 1 (Background Site Conditions) criteria for general and inorganic parameters, petroleum hydrocarbons and volatile organic compounds.

#### 4.4.2 Comparison to Toronto Sanitary and Storm Guidelines

The chemical quality of the tested groundwater sample recovered from Borehole 3 complied with both City of Toronto Sanitary and Storm Sewer By Law Guideline criteria.

### 4.3 Slug Test

On December 22, 2018, slug test was carried out in Borehole 3 to assess the hydraulic conductivity of the in-situ conductivity of the subsoil. Screen of the monitoring well was placed within the native silty clay deposit. Groundwater level in Borehole 3 was likely originated from water perched in the fine sand deposit overlying the silty clay. At the time of the slug test, groundwater level in Borehole 3 was measured at about 2.78 m below grade.

Water level readings and results of the slug test are provided in Appendix D of the report. The hydraulic conductivity of the native silt clay was found to be  $6.82 \times 10^{-7}$  m/min ( $1.1 \times 10^{-8}$  m/ sec.). Water level readings and results of slug test analysis are provided in Appendix C.

### 4.4 Groundwater Quality

Samples of groundwater were collected by Edward Wong for chemical analysis. Sample locations and analytical data are listed in Table 4 below. Certificates of Chemical Analyses are provided in Appendix E.

**Table 4: Sample Locations and Analytical Data**

Sample I.D.	Borehole Location and Depth	Matrix	Analytical Data
IOO971	BH 3	Groundwater	Toronto Storm and Sanitary Sewer By Law, soluble Sulphate, General and Inorganic Parameters, PHC (F - F4 Fractions) and VOCs.

**Notes:** PHC - Petroleum Hydrocarbons; VOC's - Volatile Organic Compounds

#### 4.4.1 Comparison to MOE's Document entitled "Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act", dated April 2011

The analytical concentrations of the tested groundwater sample complied with the applicable MOE Document Table 1 (Background Site Conditions) criteria for general and inorganic parameters, petroleum hydrocarbons and volatile organic compounds.

#### 4.4.2 Comparison to Toronto Sanitary and Storm Guidelines

The chemical quality of the tested groundwater sample recovered from Borehole 3 complied with both City of Toronto Sanitary and Storm Sewer By Law Guideline criteria.

#### 4.4.3 Comparison to CSA A23.1 Table 3

The results of sulphate content determination indicated negligible degree of sulphate attack on buried concrete structures. Normal Portland cement (Type 10) can be used in the sub-surface concrete.

#### 4.5 Subsoil Quality

Three (3) soil samples were submitted to Maxxam Analytics in Mississauga for chemical analysis. The results of the chemical analysis results were used to determine the disposal options for the excess soil materials.

Sample locations and analytical data are listed in Table 5 below. The Certificates of Chemical Analyses are provided in Appendix E.

**Table 5: Sample Locations and Analytical Data**

Sample I.D.	Borehole Location and Depth	Matrix	Analytical Data
IMX 964	BH 1, SS2 0.3 - 0.75 m depth	Soil	General and Inorganic Parameters
IMX 965	BH 2, SS3 1.5 - 2.25 m depth	Soil	General and Inorganic Parameters
IMX 966	BH 3, SS4 2.25 - 2.7 m depth	Soil	Petroleum Hydrocarbon (F1- F4) and Volatile Organic Compounds

##### 4.5.1 Assessment Criteria

Comparison with the criteria listed the MOE Document Table 2 (potable groundwater conditions) was chosen as being most appropriate for the purpose of this study. The selection of Table 2 was based on the following:

- The subject property has not been identified as a sensitive Site;
- The subject property is located in an area where local groundwater may still be in use for potable purposes; and
- Full depth restoration of contamination (if encountered) is assumed.

Based on the proposed property use (maintenance shop), industrial/ commercial/ community (ICC) property use criteria under the MOE Document were considered to be applicable. Soils at the subject Site were visually assessed and classified as fine to medium textured.

Since some receivers of excess soils require conformance with MOE Document Table 1 (Background Site Condition) criteria, a comparison to Table 1 "Residential/ Parkland/ Institutional/ Industry/ Commercial/ Community" (RPIICC) property use criteria were also made.

#### **4.5.2 Comparison to the MOE Document entitled "Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the *Environment Protection Act*"**

##### **4.5.2.1 General and Inorganic Parameters**

The analytical concentrations of the soil samples generally complied with the applicable MOE Document Table 1 and 3 criteria for general and inorganic parameters, with the following exceptions.

A Sodium Adsorption Ratio (SAR) value of 8.4 was recorded in the soil sample from Borehole 1. The recorded SAR value exceeded the MOE Document Table 1 RPIICC and Table 3 RPI property use criterion of 2.4 and 5 for SAR, respectively.

The measured concentration of Conductivity in the soil sample recovered from Borehole1 was 0.86 mS/cm, which exceeded the MOE Document Table 1 RPIICC and Table 3 RPI property use criterion of 0.57 mS/cm and 0.7 mS/cm for Conductivity, respectively.

##### **4.5.2.2 Petroleum Hydrocarbons (F1 - F4 Fractions)**

The analytical concentrations were below the laboratory detective limits and therefore complied the applicable MOE Document Table 1 and 3 criteria for Petroleum Hydrocarbons (F1- F4 Fractions)

##### **4.2.2.3 Benzene, Toluene, Ethyl-benzene and Xylene**

The measured concentrations were below the laboratory detective limits and complied the applicable MOE Document Table 1 and 3 criteria for Benzene, Toluene, Ethyl-benzene and Xylene.

##### **4.2.2.4 Volatile Organic Compounds**

The analytical concentrations were below the laboratory detective limits and therefore complied the applicable MOE Document Tables 1 and 3 criteria for Volatile Organic Compounds.

#### 4.5.3 Comments

The SAR and EC parameters were associated with winter road salting activities. It should be noted that the elevated SAR and EC level are not considered to be harmful for human health, but could interfere with the growth of certain species of plants and vegetation. Therefore, near surface placement of these materials are not recommended for landscaping, parkland or agricultural purposes. As such, elevated levels of SAR and EC do not automatically preclude disposal at development Sites accepting clean fill.

Excess soil generated at the above captioned site may be disposed of at any land based Sites in Ontario that are being developed for "Residential/ Institutional/ Commercial/ Industrial/ Community" land uses in the areas where landscaping is not intended, subject to approval from individual receiving Site authorities



## 5. Engineering Discussions and Recommendations

### 5.1 Short Term Groundwater Control Requirements (Construction Phase)

Groundwater levels in Boreholes 2 and 3 were measured at about 2.76 m to 4.78 m below grade. It is recommended that the groundwater levels be lowered to approximately 1 m below the bottom of excavation to provide a stable working base for construction. In view of the silty nature of the subsoil, no major groundwater problems are anticipated during construction. Groundwater entering into the excavation may be controlled by temporary sump pumps or deep wells. Detailed calculations are provided in Table F-1 in Appendix F.

The estimated factored dewatering flow rate ( $0.92 \text{ m}^3/\text{day}$ ) including direct precipitation ( $24.97 \text{ m}^3/\text{day}$ ) for the proposed apartment building is  $25.89 \text{ m}^3/\text{day}$ .

Under the new regulations, a Permit-To-Take Water (PTTW) is required from the Ministry of Environmental and Climate Change (MOECC) if a volume of water greater than  $400 \text{ m}^3/\text{day}$  is pumped from the excavations. If the volume of water to be pumped will be greater than  $50 \text{ m}^3/\text{day}$  but less than  $400 \text{ m}^3/\text{day}$ , the groundwater taking will not require a PPTW, but will need to be registered in the Environmental Activity and Sector Registry (EASR) as a prescribed activity.

Based on the results of dewatering calculations, no PTTW or registration in the EASR will be required.

### 5.2 Long Term Groundwater Control Requirements (Post-Construction Phase)

If the basement is a water-proofed structure, no long term dewatering is required. In this case, the dewatering flow rate is could be  $0 \text{ m}^3/\text{day}$ .

If the basement is a drained structure then a permanent dewatering system will be required. Weeping tiles may be installed along the perimeter wall footing and below the floor slab to control the groundwater. The estimated factored dewatering rate for the proposed apartment building is about  $0.72 \text{ m}^3/\text{day}$ . Detailed calculations are shown in Table E-1 in Appendix E.

### 5.3 Assessment of Potential Impacts

At the construction phase, the groundwater may be discharged to low lying area for percolation and evaporation. Should groundwater be discharged into the local storm or sanitary sewer system, a permit or approval from the City of Toronto is required. The chemical quality of the tested groundwater sample recovered from Borehole 3 complied with both City of Toronto Sanitary and Storm Sewer By Law Guideline criteria.

### **5.3.1 Geotechnical Considerations**

The on-site dewatering activities will lower down the local groundwater level, increase the effective stress on the existing footing founding level and increase the potential risk of consolidation.

The estimated zone of influence is 1.32 m during construction and 0.96 m at post construction stage. The estimated zone of influence will not extend beyond the property limits. The on-site dewatering activities will not compromise the stability and integrity of adjacent buildings, site services, landscaped and walkway. It is recommended that a pre-construction survey be carried out, prior to the construction.

### **5.3.2 Surface Water**

The closest surface water feature to the Site is the Don River, which is located at about 2 km to the east of the Site. The Lake Ontario is located at about 3.46 km to the south of the Site. The groundwater control activities will result in localized depression of the groundwater level. The zone of influence is not expected to extend beyond the property limits. The on-site dewatering activities will not have any negative impacts to surface water features.

### **5.3.3 Local Wells**

The Site and surrounding area are provided with municipal piped water and sewer supply. Groundwater is not used for water supply. There would be no impacts to drinking water wells.

### **5.3.4 Contamination Sources**

No gasoline stations and auto garages were noted in surrounding properties. A Dry Cleaner Store (St. George Dry Cleaner, 337 Bloor Street West) is located on north adjacent property. The drawdown resulting from the on-site dewatering activities will be localized. The on-site dewatering activities are not expected to draw contaminants from neighborhood properties towards the Site.

## 6. General Comments

The recommendations in this report have been based on the findings in the boreholes. Soil conditions may vary between and beyond the boreholes. Consequently, during the future development of the property, conditions not observed during this investigation may become apparent; should this occur, Edward Wong & Associates Inc. should be contacted to assess the situation and additional testing and reporting may be required. Edward Wong & Associates Inc. has qualified personnel to provide assistance in regards to future geotechnical, environmental and hydro-geological issues related to this property.

The comments given in this report are intended only for the guidance of design engineers. Edward Wong & Associates Inc. should be retained for a general review of the final design and specifications to verify that this report has been properly interpreted and implemented. If not accorded the privilege of making this review, Edward Wong & Associates Inc. will assume no responsibility for interpretation of the recommendations in the report.

We trust that this report is satisfactory for your purposes. Should you have any questions or comments, please do not hesitate to contact this office.

Yours truly,

**Edward Wong & Associates Inc.**



Edward B.H. Wong, M. Eng. P. Eng.



Distribution: Client

(2)

# Appendix A

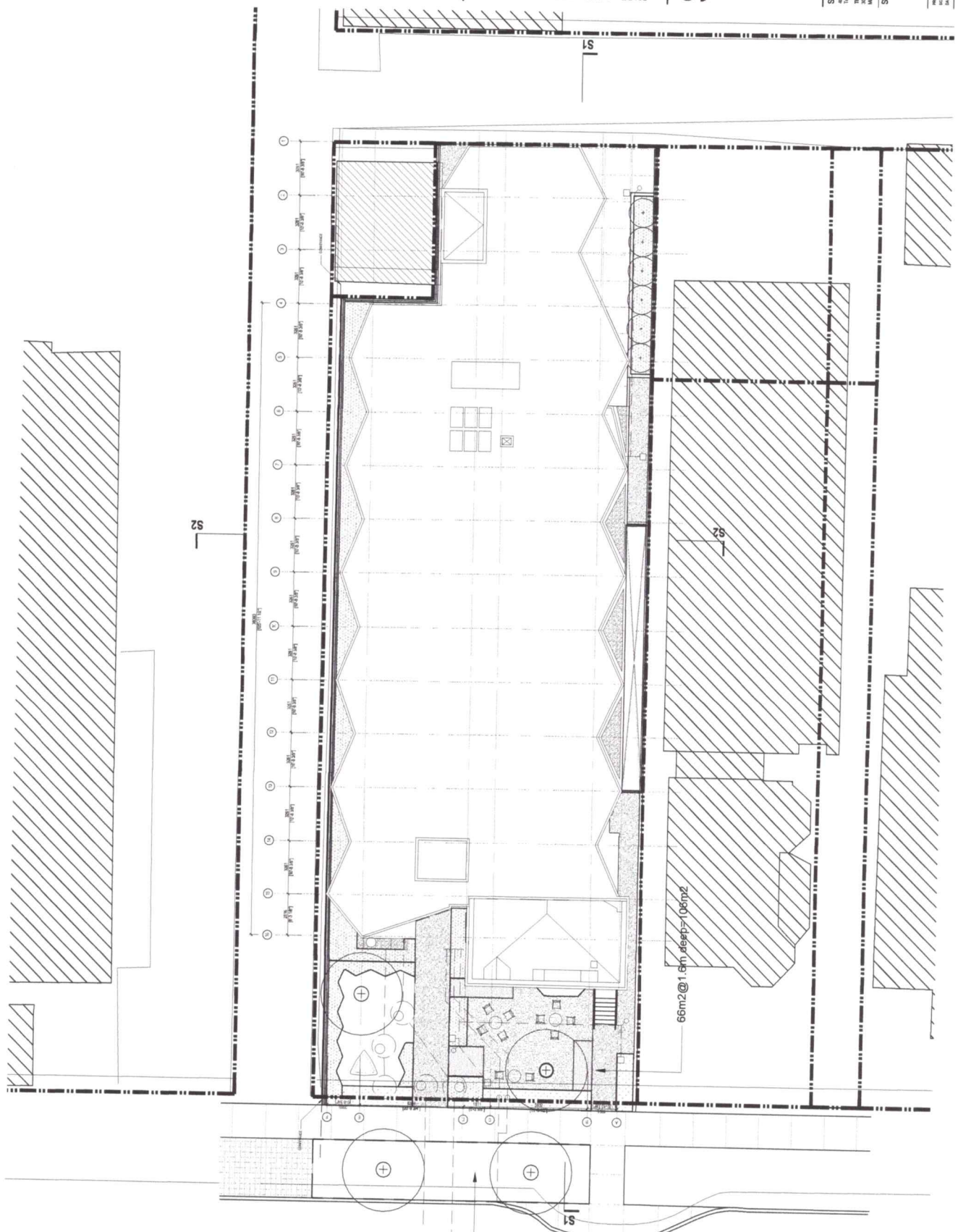
## Site Plan and Cross Sections

### Proposed Development

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 CHECKED BY: J. SMITH  
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 SHEET NO: 2018.02.08  
 SCALE: 1:100  
 PROJECT: 2018.02.08



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 PLUMBING ENGINEERING  
 112 MADISON ST. E.  
 SUITE 200  
 MARKHAM, ONTARIO L3R 9V7  
 TEL: (905) 477-8888  
 WWW.SVNARCHITECTURE.COM

**STRUCTURAL**  
 STRUCTURAL ENGINEERING  
 112 MADISON ST. E.  
 SUITE 200  
 MARKHAM, ONTARIO L3R 9V7  
 TEL: (905) 477-8888  
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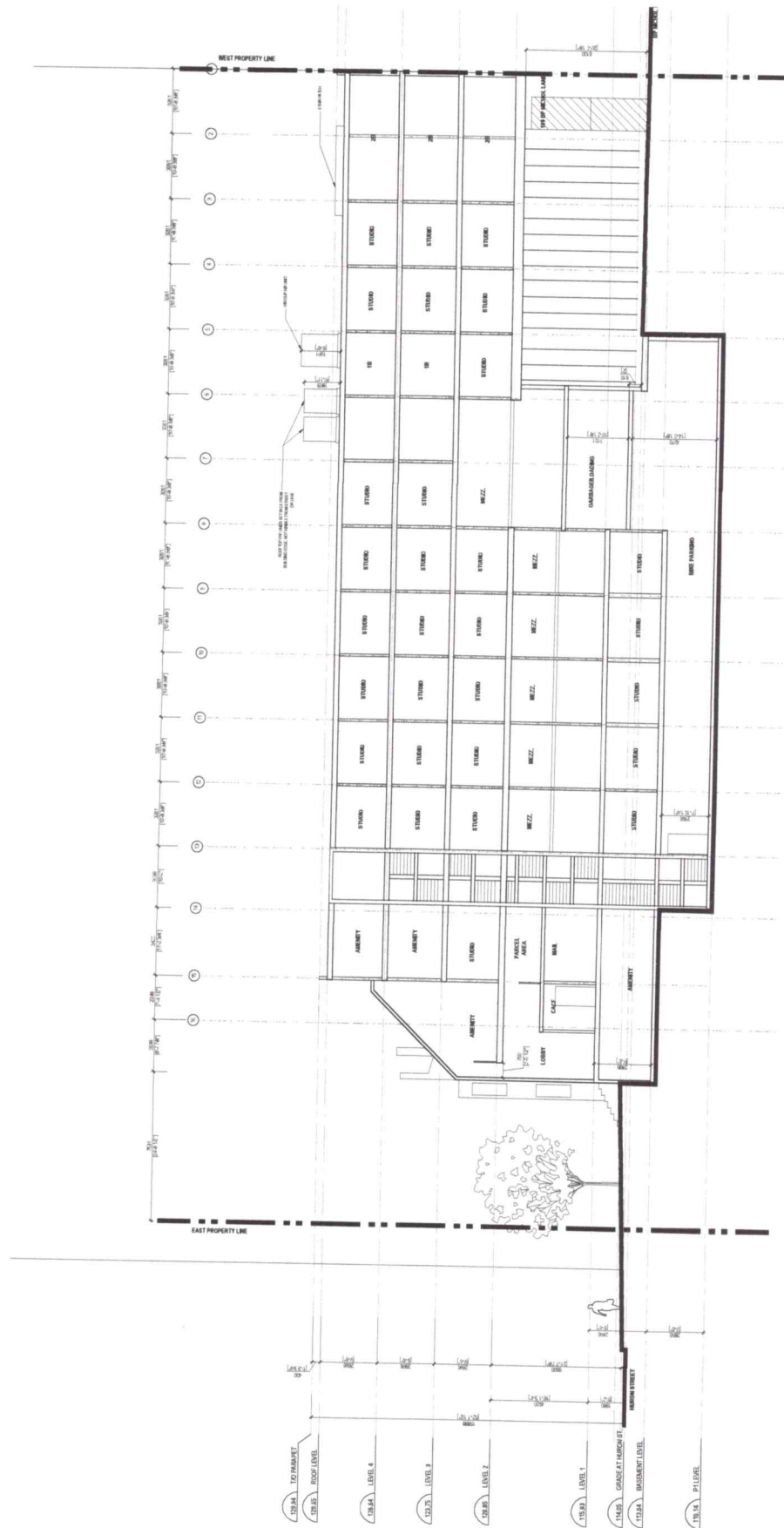
**STUDENT FOCUSED HOUSING**  
 4801 Huron Street  
 Markham, Ontario M3J 2S2  
 PROJECT NO: 2018.02.08  
 SHEET NO: 2018.02.08  
 SCALE: 1:100  
 PROJECT: 2018.02.08

**SITE PLAN**

DESIGNATION: This drawing shall be used to construct a building in accordance with the applicable building code requirements and shall be used to construct a building in accordance with the applicable building code requirements.

REVISIONS:

NO.	DATE	REVISION/REMARKS
01	2018.02.21	20% CONCEPT
02	2018.03.11	20% CONCEPT - REVISED
03	2018.03.28	20% CONCEPT - REVISED
04	2018.04.17	20% CONCEPT - SUBMISSION
05	2018.02.08	20% - SUBMISSION



**ADDRESS:** 3000 N. MARION ST., SUITE 1000, DENVER, CO 80202

**LANDSCAPE:** 3000 N. MARION ST., SUITE 1000, DENVER, CO 80202

**OWNER:** SVN

**ARCHITECT:** SVN ARCHITECTURE, 1110 SOUTH ALPINE STREET, DENVER, CO 80202

**PLANNING:** SVN ARCHITECTURE, 1110 SOUTH ALPINE STREET, DENVER, CO 80202

**TRANSPORTATION:** SVN ARCHITECTURE, 1110 SOUTH ALPINE STREET, DENVER, CO 80202

**PHOTO-GEOTECHNICAL ENERGY:** SVN ARCHITECTURE, 1110 SOUTH ALPINE STREET, DENVER, CO 80202



1110 SOUTH ALPINE STREET  
DENVER, CO 80202  
303.733.1111  
SVNARCHITECTURE.COM

**STUDENT FOCUSED HOUSING**

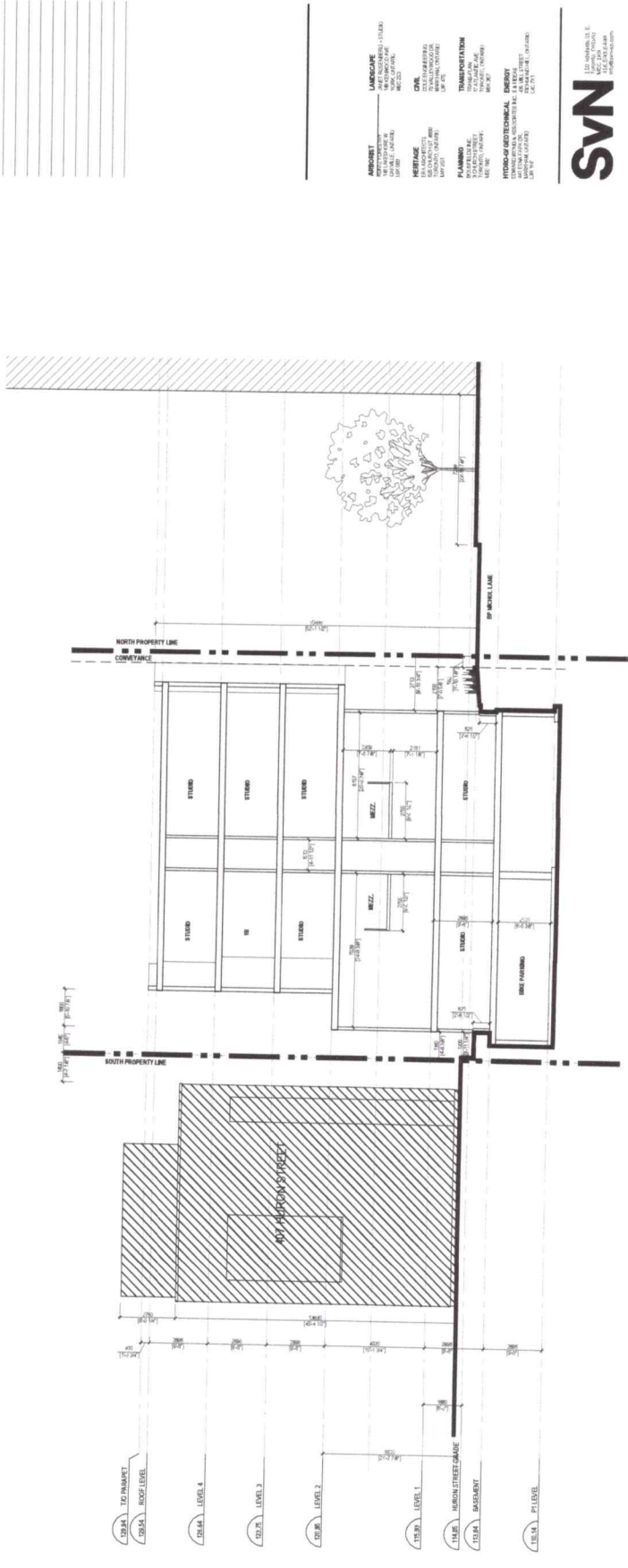
1110 South Alpine Street, Suite 1000  
Denver, Colorado 80202  
The Metropolitan Group  
1401 Pine Creek Blvd, Suite 111  
Boulder, Colorado 80501

**SECTION 01**

**PROJECT:** 4141  
**DRAWN:** DT  
**DATE:** 2/15/18  
**PERIOD:** 2018.02.01

THESE PLANS SHALL BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREIN. ANY OTHER USE OF THESE PLANS WITHOUT THE WRITTEN CONSENT OF SVN IS STRICTLY PROHIBITED. SVN SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THESE PLANS. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF ALL INFORMATION PROVIDED TO SVN AND FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. SVN SHALL NOT BE RESPONSIBLE FOR ANY CONSEQUENCES ARISING FROM THE USE OF THESE PLANS. THESE PLANS SHALL BE VOID IF NOT SIGNED AND SEALED BY THE REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. SVN SHALL NOT BE RESPONSIBLE FOR ANY CONSEQUENCES ARISING FROM THE USE OF THESE PLANS.

NO.	DATE	REVISIONS
01	2019.03.17	20A DRAFT - PLOTTED
02	2019.03.17	20A DRAFT - PLOTTED
03	2019.03.26	20A DRAFT - PLOTTED
04	2019.04.17	20A DRAFT - SUBMISSION
05	2019.06.08	20A - SUBMISSION



**ARCHITECT**  
 SVN ARCHITECTURE  
 1100 W. WASHINGTON ST., SUITE 100  
 CHICAGO, IL 60604  
 TEL: 312.467.1400  
 WWW.SVNARCHITECT.COM

**LANDSCAPE**  
 SVN LANDSCAPE ARCHITECTURE  
 1100 W. WASHINGTON ST., SUITE 100  
 CHICAGO, IL 60604  
 TEL: 312.467.1400  
 WWW.SVNARCHITECT.COM

**ENGINEER**  
 SVN ENGINEERING  
 1100 W. WASHINGTON ST., SUITE 100  
 CHICAGO, IL 60604  
 TEL: 312.467.1400  
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**MECHANICAL**  
 SVN MECHANICAL  
 1100 W. WASHINGTON ST., SUITE 100  
 CHICAGO, IL 60604  
 TEL: 312.467.1400  
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**ELECTRICAL**  
 SVN ELECTRICAL  
 1100 W. WASHINGTON ST., SUITE 100  
 CHICAGO, IL 60604  
 TEL: 312.467.1400  
 WWW.SVNARCHITECT.COM

**PLUMBING**  
 SVN PLUMBING  
 1100 W. WASHINGTON ST., SUITE 100  
 CHICAGO, IL 60604  
 TEL: 312.467.1400  
 WWW.SVNARCHITECT.COM

**TRANSPORTATION**  
 SVN TRANSPORTATION  
 1100 W. WASHINGTON ST., SUITE 100  
 CHICAGO, IL 60604  
 TEL: 312.467.1400  
 WWW.SVNARCHITECT.COM

**HYDRO-GEOTECHNICAL**  
 SVN HYDRO-GEOTECHNICAL  
 1100 W. WASHINGTON ST., SUITE 100  
 CHICAGO, IL 60604  
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 WWW.SVNARCHITECT.COM

**SVN**

1100 WASHINGTON ST. E.  
 CHICAGO, IL 60604  
 TEL: 312.467.1400  
 WWW.SVNARCHITECT.COM

**STUDENT FOCUSED HOUSING**  
 400 Heron Street  
 Chicago, Illinois 60604  
 The New Center Building  
 300 West Center Street, Suite 101  
 Northbrook, Illinois 60062

**SECTION 02**

**PROJECT** 400 HERON STREET  
**OWNER** THE NEW CENTER BUILDING  
**DATE** 2019.03.17  
**DESIGNED BY** SVN ARCHITECTURE  
**SCALE** 1/8" = 1'-0"

**A401**

# Appendix B

## Logs of Borehole



CLIENT The Impressive Group

PROJECT NAME 409 Huron Street

PROJECT NUMBER Ma002568b

PROJECT LOCATION Toronto

DATE STARTED 12/7/18 COMPLETED 12/7/18

GROUND ELEVATION 114.7 m HOLE SIZE 150 mm

DRILLING CONTRACTOR Terra Firma

GROUND WATER LEVELS:

DRILLING METHOD Hollow Stem Augers

AT TIME OF DRILLING Dry

LOGGED BY J.T. CHECKED BY E.W.

AT END OF DRILLING Dry

NOTES

AFTER DRILLING ---

DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
2	SS 1	2-1-1 (2)	MC = 14%	0.087	TOPSOIL - ~75 mm thick.	114.63
	SS 2	2-3-3 (6)	MC = 9%		SILTY SAND - brown, moist, very loose.	
4	SS 3	5-7-10 (17)	MC = 8%	2.40	-becoming loose below ~0.75 m depth	112.30
	SS 4	10-11-15 (26)	PP >450 kPa MC = 7%		-becoming compact below ~1.5 m depth	
	SS 5	10-17-18 (35)	PP >450 kPa MC = 8%		SILTY CLAY - brown, trace sand, occasional gravel, scattered sand seams, brown, moist, hard.	
6	SS 6	13-20-19 (39)	PP >450 kPa MC = 8%	6.00	-becoming grey below ~3.0 m depth	108.70
	SS 7	12-20-17 (37)	PP >450 kPa MC = 8%		SILTY SAND TILL - trace silt, trace gravel, grey, moist, dense.	
	SS 8	8-13-19 (32)	PP >450 kPa MC = 8%	7.50	SILTY CLAY - grey, moist, hard.	107.20
				7.95	Bottom of hole at 7.95 m.	106.75

GENERAL BH / TP / WELL / WELL 02568B-409 HURON BH LOGS.GPJ GINT CANADA GDT 8/13/02

Protective Cap, Portland Cement Concrete  
Bentonite

Filter Sand, 50 mm dia. PVC Riser

Filter Sand, Filter Sock, 50 mm dia. PVC Slotted Pipe

CLIENT The Impressive Group

PROJECT NAME 409 Huron Street

PROJECT NUMBER Ma002568b

PROJECT LOCATION Toronto

DATE STARTED 12/7/18 COMPLETED 12/7/18

GROUND ELEVATION 114.6 m HOLE SIZE 150 mm

DRILLING CONTRACTOR Terra Firma

GROUND WATER LEVELS:

DRILLING METHOD Hollow Stem Augers

AT TIME OF DRILLING Dry

LOGGED BY J.T. CHECKED BY E.W.

AT END OF DRILLING Dry

NOTES

▼ AFTER DRILLING 4.78 m / Elev 109.82 m

DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM	
2       4       6	AU SS 1	5-3-2 (5)	MC = 15%	0.25	PAVEMENT STRUCTURE - ~65 mm of asphaltic concrete over ~185 mm of brown sand and gravel, very moist.	<p>Protective Cap, Portland Cement Concrete Bentonite</p> <p>Filter Sand, 50 mm dia, PVC Riser</p> <p>Filter Sand, Filter Sock, PVC Slotted Pipe</p>	
	SS 2	2-1-2 (3)	MC = 18%		FILL - silty sand, brick fragments, brown, very moist.		
	SS 3	2-1-3 (4)	MC = 17%	1.50	SILTY SAND - brown, very moist, very loose.		
	SS 4	8-12-8 (20)	MC = 15%		-becoming compact below ~2.25 m depth		
	SS 5	8-15-16 (31)	PP >450 kPa MC = 9%	3.00	SILTY CLAY- trace sand, occasional gravel, grey, moist, hard.		
	SS 6	6-14-16 (30)	PP = 300 kPa MC = 10%		▼ -becoming very stiff and very moist below ~4.5 m depth		
	SS 7	7-21-16 (37)	PP >450 kPa MC = 10%		-becoming hard below ~7.5 m depth		
	SS 8	9-21-17 (38)	PP >450 kPa MC = 10%	7.95	Bottom of hole at 7.95 m.		
					114.35		
						113.10	
						111.60	
						106.65	

GENERAL BH / TP / WELL 02568B-409 HURON BH LOGS.GPJ GINT CANADA.GDT 8/13/02

CLIENT The Impressive Group

PROJECT NAME 409 Huron Street

PROJECT NUMBER Ma002568b

PROJECT LOCATION Toronto

DATE STARTED 12/7/18 COMPLETED 12/7/18

GROUND ELEVATION 114.37 m HOLE SIZE 150 mm

DRILLING CONTRACTOR Terra Firma

GROUND WATER LEVELS:

DRILLING METHOD Hollow Stem Augers

AT TIME OF DRILLING Dry

LOGGED BY J.T. CHECKED BY E.W.

▼ AT END OF DRILLING 2.25 m / Elev 112.12 m

NOTES

▼ AFTER DRILLING 2.57 m / Elev 111.80 m

GENERAL BH / TP / WELL 025688B-409 HURON BH LOGS.GPJ GINT CANADA.GDT 8/13/02

DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM			
2       6	AU SS 1	5-4-3 (7)	MC = 13%	0.25	PAVEMENT STRUCTURE - ~65 mm of asphaltic concrete over ~185 mm of brown sand and gravel, very moist.	<p>Protective Cap, Portland Cement Concrete Bentonite</p> <p>Filter Sand, 50 mm dia. PVC Riser</p> <p>Filter Sand, Filter Sock, 50 mm dia., PVC Slotted Pipe</p>			
	SS 2	3-1-1 (2)	MC = 15%	0.75	FILL - silty sand, topsoil inclusions, dark brown, very moist. SILTY SAND - brown, very moist, very loose.				
	SS 3	5-8-10 (18)	MC = 6%	1.50	FINE SAND - trace silt, brown, moist, compact.				
	SS 4	9-11-22 (33)	MC = 22%		▼ - groundwater was first encountered at ~2.25 m depth ▼ - becoming dense and wet below ~2.25 m depth				
	SS 5	6-12-13 (25)	PP >450 kPa MC = 11%	3.00	SILTY CLAY - trace sand, occasional gravel, scattered sand seams, brown, very moist, hard.				
	SS 6	11-13-15 (28)	PP >450 kPa MC = 12%		-becoming grey below ~3.0 m depth				
	SS 7	8-14-18 (32)	PP >450 kPa MC = 10%						
	SS 8	12-15-13 (28)	PP >450 kPa MC = 12%	7.95	Bottom of hole at 7.95 m.				
					114.12	113.62	112.87	111.37	106.42

# Appendix C

## Results of Grain Size Analysis and Hydrometer Tests

---

# Grain Size Analysis and Hydrometer Test

**Sample Test No.:** S1                      **Report No.:** 1                      **Date Reported:** 23-Dec-18

**Project No.:** Ma002568a  
**Project Name:** 409 Huron Street, Toronto

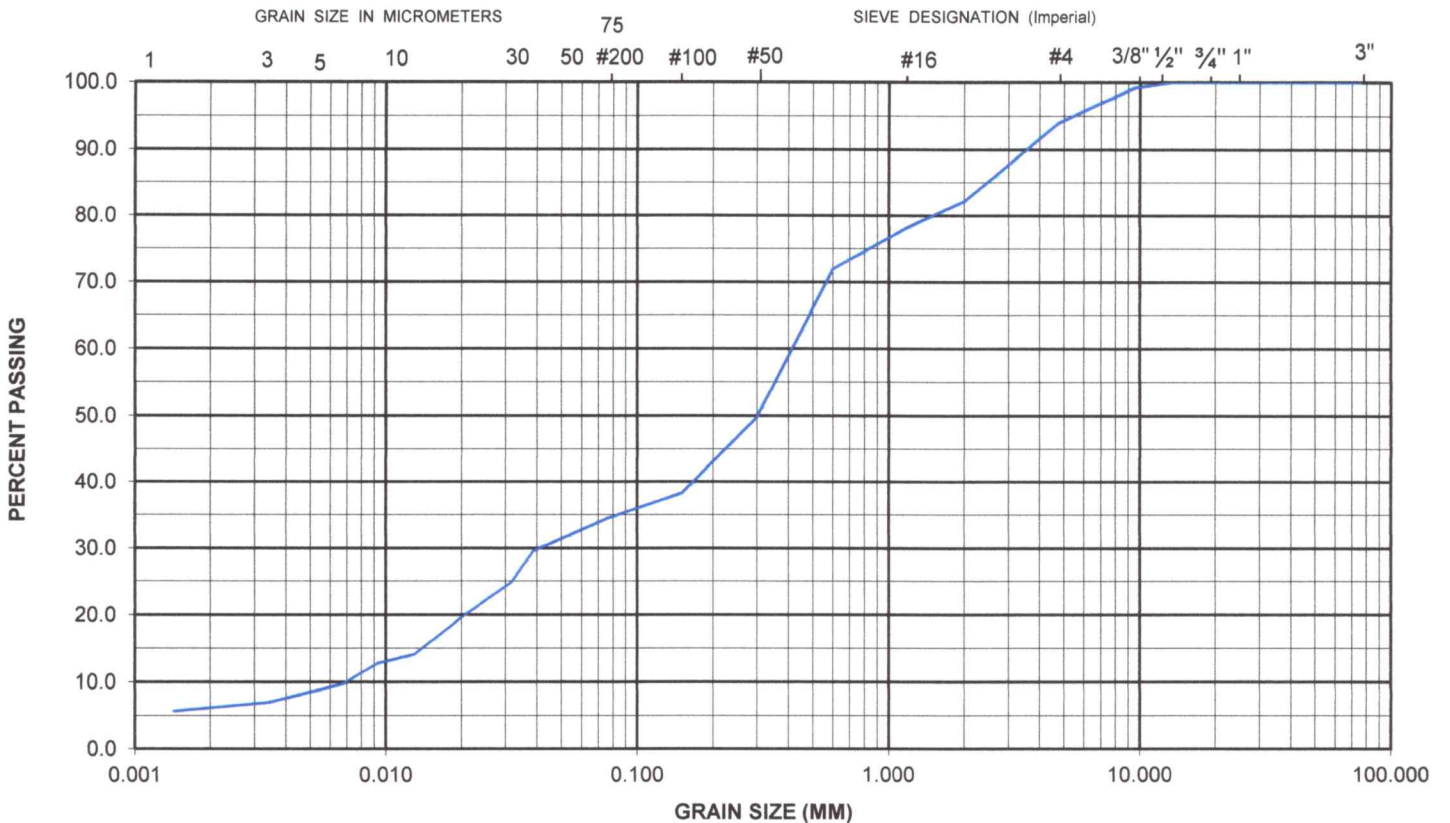
**Grain Size Proportion (%)**  
**Gravel (> 4.75mm):** 6.0  
**Sand (> 75µm, < 4.75mm):** 59.6  
**Silt (> 2µm, < 75µm):** 28.0  
**Clay (< 2µm):** 6.4

Grain Size (mm)	% Passing	Grain Size (mm)	% Passing
75.00	100.0	0.092	12.8
26.50	100.0	0.007	9.8
19.00	100.0	0.003	7.0
13.25	100.0	0.014	5.7
9.50	99.2		
4.75	94.0		
2.00	82.2		
1.180	78.2		
0.600	71.9		
0.300	49.9		
0.150	38.3		
0.075	34.4		
0.039	29.6		
0.032	24.8		
0.021	20.0		
0.013	14.1		

**Sample Information**  
**Sample Location:** BH 1  
**Sample No.:** 7  
**Sample Method:** SPT  
**Depth (m):** 6.0 - 6.45  
**Sample Description:** Grey Silty Sand Till  
 trace silt trace gravel  
  
**Sampled By:** J.T.  
**Sampling Date:** 7-Dec-18  
**Client Sample ID:**  
**Comments:**

**UNIFIED SOIL CLASSIFICATION SYSTEM**

CLAY AND SILT	SAND			GRAVEL	
	Fine	Medium	Coarse	Fine	Coarse



# Grain Size Analysis and Hydrometer Test

**Sample Test No.:** S2 **Report No.:** 2 **Date Reported:** 23-Dec-18

**Project No.:** Ma002568a  
**Project Name:** 409 Huron Street, Toronto

**Grain Size Proportion (%)**

**Gravel (> 4.75mm):**  
**Sand (> 75 $\mu$ m, < 4.75mm):** 95.2  
**Silt (> 2 $\mu$ m), < 75 $\mu$ m):** 4.8  
**Clay (< 2 $\mu$ m):**

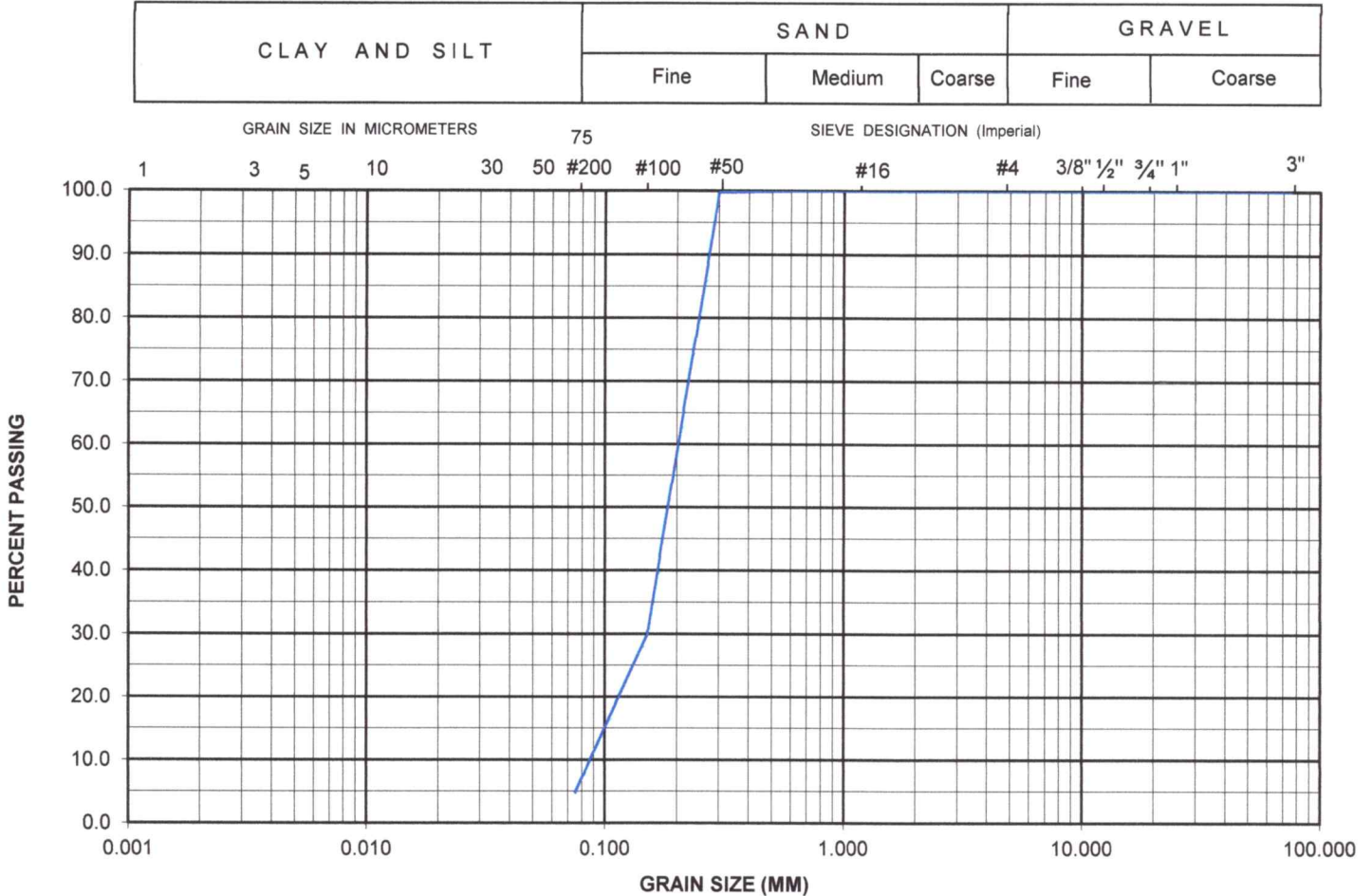
**Sample Information**

**Sample Location:** BH 3  
**Sample No.:** 3  
**Sample Method:** SPT  
**Depth (m):** 1.5 - 1.95  
**Sample Description:** Brown Fine Sand, trace silt

**Sampled By:** J.T.  
**Sampling Date:** 7-Dec-18  
**Client Sample ID:**  
**Comments:**

Grain Size (mm)	% Passing	Grain Size (mm)	% Passing
75.00	100.0		
26.50	100.0		
19.00	100.0		
13.25	100.0		
9.50	100.0		
4.75	100.0		
2.00	100.0		
1.180	100.0		
0.600	100.0		
0.300	99.8		
0.150	29.8		
0.075	4.8		

### UNIFIED SOIL CLASSIFICATION SYSTEM



100% Sand (75µm to 4.75mm), 4.8% Silt (2µm to 75µm), 0% Clay (<2µm)

# Appendix D

## Results of Slug Test

**Edward Wong & Associates Inc.**  
**441 Esna Park Drive, Unit 19**  
**Markham, Ontario**  
**L3R 1H7**

**Slug Test - Water Level Data**

Project: 409 Huron Street

Number: Ma002568b

Client: The Impression Group

Location: Toronto, Ontario

Slug Test: Slug Test 1

Test Well: BH 3

Test conducted by: J.T.

Test date: 12/22/2018

Water level at t=0 [m]: 7.68

Static water level [m]: 2.76

Water level change at t=0 [m]: 4.92

	Time [s]	Water Level [m]	WL Change [m]
1	41	7.46	4.70
2	113	7.38	4.62
3	174	7.30	4.54
4	334	7.24	4.48
5	497	7.18	4.42
6	590	7.165	4.405
7	749	7.13	4.37
8	2820	6.83	4.07
9	3783	6.705	3.945
10	5786	6.565	3.805
11	6341	6.45	3.69
12	7365	6.38	3.62
13	8432	6.29	3.53
14	9562	6.21	3.45
15	10374	6.14	3.38
16	11292	6.08	3.32
17	12282	6.03	3.27
18	13651	5.875	3.115
19	14430	5.82	3.06
20	15368	5.75	2.99
21	16290	5.665	2.905
22	17135	5.61	2.85
23	17837	5.56	2.80
24	18403	5.52	2.76
25	19132	5.465	2.705
26	19665	5.44	2.68
27	20113	5.42	2.66
28	20826	5.39	2.63



Edward Wong & Associates Inc.  
 441 Esna Park Drive, Unit 19  
 Markham, Ontario  
 L3R 1H7

**Slug Test Analysis Report**

Project: 409 Huron Street

Number: Ma002568b

Client: The Impression Group

Location: Toronto, Ontario

Slug Test: Slug Test 1

Test Well: BH 3

Test conducted by: J.T.

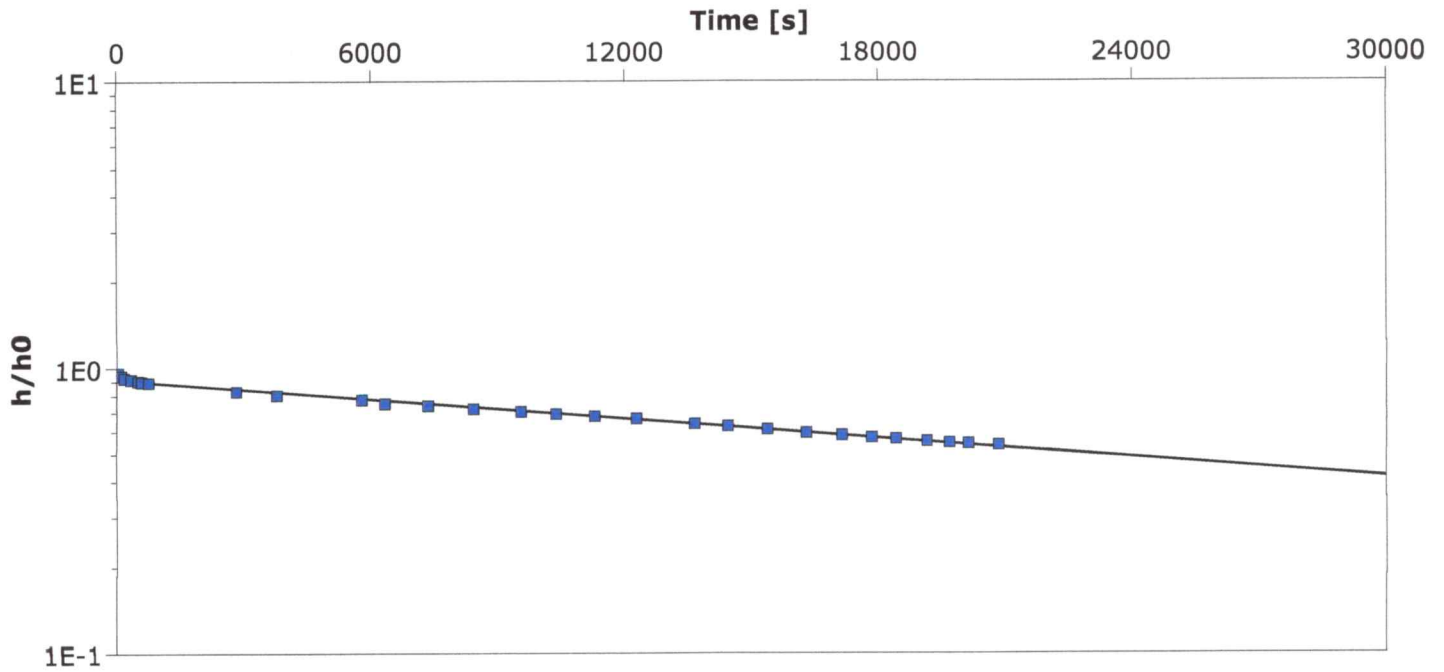
Test date: 12/22/2018

Analysis performed by:

New analysis 1

Analysis date: 12/22/2018

Aquifer Thickness: 7.95 m



Calculation after Hvorslev

Observation well

Hydraulic Conductivity  
[m/min]

BH 3

$6.82 \times 10^{-7}$

# Appendix E

## Certificate of Chemical Analysis

Your Project #: MA0025686  
Site Location: 409 HURON STREET, TORONTO  
Your C.O.C. #: 115023

**Attention: Edward Wong**

Edward Wong & Associates Inc  
441 Esna Park Dr  
Unit 19  
Markham, ON  
CANADA L3R 1H7

**Report Date: 2018/12/17**  
Report #: R5528985  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B8W9612**

**Received: 2018/12/10, 11:25**

Sample Matrix: Soil  
# Samples Received: 3

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
Hot Water Extractable Boron	2	2018/12/14	2018/12/14	CAM SOP-00408	R153 Ana. Prot. 2011
Free (WAD) Cyanide	2	2018/12/13	2018/12/14	CAM SOP-00457	OMOE E3015 m
Conductivity	2	2018/12/14	2018/12/14	CAM SOP-00414	OMOE E3530 v1 m
Hexavalent Chromium in Soil by IC (1)	2	2018/12/14	2018/12/14	CAM SOP-00436	EPA 3060/7199 m
Petroleum Hydro. CCME F1 & BTEX in Soil (2)	1	N/A	2018/12/13	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (3)	1	2018/12/12	2018/12/13	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS	2	2018/12/14	2018/12/14	CAM SOP-00447	EPA 6020B m
Moisture	1	N/A	2018/12/11	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture	2	N/A	2018/12/13	CAM SOP-00445	Carter 2nd ed 51.2 m
pH CaCl2 EXTRACT	2	2018/12/14	2018/12/14	CAM SOP-00413	EPA 9045 D m
Sodium Adsorption Ratio (SAR)	2	N/A	2018/12/14	CAM SOP-00102	EPA 6010C

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: MA0025686  
Site Location: 409 HURON STREET, TORONTO  
Your C.O.C. #: 115023

**Attention: Edward Wong**

Edward Wong & Associates Inc  
441 Esna Park Dr  
Unit 19  
Markham, ON  
CANADA L3R 1H7

**Report Date: 2018/12/17**  
Report #: R5528985  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B8W9612**

**Received: 2018/12/10, 11:25**

- (1) Soils are reported on a dry weight basis unless otherwise specified.
- (2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
- (3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key



Gina Baybayan  
Project Manager  
18 Dec 2018 15:30:55

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Gina Baybayan, Project Manager

Email: GBaybayan@maxxam.ca

Phone# (905)817-5766

=====  
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

**O.REG 153 METALS & INORGANICS PKG (SOIL)**

Maxxam ID			IMX964	IMX964	IMX965		
Sampling Date			2018/12/07	2018/12/07	2018/12/06		
COC Number			115023	115023	115023		
	UNITS	Criteria	1-2	1-2 Lab-Dup	2-3	RDL	QC Batch
<b>Calculated Parameters</b>							
Sodium Adsorption Ratio	N/A	2.4	1.1	N/A	<b>8.4</b>	N/A	5879803
<b>Inorganics</b>							
Conductivity	mS/cm	0.57	0.11	0.11	<b>0.86</b>	0.002	5888922
Moisture	%	-	8.5	8.1	9.0	1.0	5886262
Available (CaCl2) pH	pH	-	7.72	N/A	8.24	N/A	5887099
WAD Cyanide (Free)	ug/g	0.051	<0.01	N/A	<0.01	0.01	5886602
Chromium (VI)	ug/g	0.66	0.3	N/A	<0.2	0.2	5888446
<b>Metals</b>							
Hot Water Ext. Boron (B)	ug/g	-	0.13	N/A	0.62	0.050	5888649
Acid Extractable Antimony (Sb)	ug/g	1.3	<0.20	N/A	0.26	0.20	5888629
Acid Extractable Arsenic (As)	ug/g	18	<1.0	N/A	5.7	1.0	5888629
Acid Extractable Barium (Ba)	ug/g	220	13	N/A	31	0.50	5888629
Acid Extractable Beryllium (Be)	ug/g	2.5	<0.20	N/A	0.27	0.20	5888629
Acid Extractable Boron (B)	ug/g	36	<5.0	N/A	<5.0	5.0	5888629
Acid Extractable Cadmium (Cd)	ug/g	1.2	<0.10	N/A	<0.10	0.10	5888629
Acid Extractable Chromium (Cr)	ug/g	70	14	N/A	10	1.0	5888629
Acid Extractable Cobalt (Co)	ug/g	21	2.4	N/A	2.9	0.10	5888629
Acid Extractable Copper (Cu)	ug/g	92	2.8	N/A	7.0	0.50	5888629
Acid Extractable Lead (Pb)	ug/g	120	2.4	N/A	29	1.0	5888629
Acid Extractable Molybdenum (Mo)	ug/g	2	<0.50	N/A	0.58	0.50	5888629
Acid Extractable Nickel (Ni)	ug/g	82	4.9	N/A	6.7	0.50	5888629
Acid Extractable Selenium (Se)	ug/g	1.5	<0.50	N/A	<0.50	0.50	5888629
Acid Extractable Silver (Ag)	ug/g	0.5	<0.20	N/A	<0.20	0.20	5888629
Acid Extractable Thallium (Tl)	ug/g	1	<0.050	N/A	0.079	0.050	5888629
Acid Extractable Uranium (U)	ug/g	2.5	0.49	N/A	0.50	0.050	5888629
Acid Extractable Vanadium (V)	ug/g	86	43	N/A	28	5.0	5888629
Acid Extractable Zinc (Zn)	ug/g	290	9.1	N/A	22	5.0	5888629
No Fill	No Exceedance						
Grey	Exceeds 1 criteria policy/level						
Black	Exceeds both criteria/levels						
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Lab-Dup = Laboratory Initiated Duplicate							
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)							
Table 1: Full Depth Background Site Condition Standards							
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use							
N/A = Not Applicable							

**O.REG 153 METALS & INORGANICS PKG (SOIL)**

Maxxam ID			IMX964	IMX964	IMX965		
Sampling Date			2018/12/07	2018/12/07	2018/12/06		
COC Number			115023	115023	115023		
	UNITS	Criteria	1-2	1-2 Lab-Dup	2-3	RDL	QC Batch
Acid Extractable Mercury (Hg)	ug/g	0.27	<0.050	N/A	<0.050	0.050	5888629
No Fill	No Exceedance						
Grey	Exceeds 1 criteria policy/level						
Black	Exceeds both criteria/levels						
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Lab-Dup = Laboratory Initiated Duplicate							
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)							
Table 1: Full Depth Background Site Condition Standards							
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use							
N/A = Not Applicable							

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			IMX966	IMX966		
Sampling Date			2018/12/07	2018/12/07		
COC Number			115023	115023		
	UNITS	Criteria	3-4	3-4 Lab-Dup	RDL	QC Batch
<b>Inorganics</b>						
Moisture	%	-	17	17	1.0	5882040
<b>BTEX &amp; F1 Hydrocarbons</b>						
Benzene	ug/g	0.02	<0.020	N/A	0.020	5885401
Toluene	ug/g	0.2	<0.020	N/A	0.020	5885401
Ethylbenzene	ug/g	0.05	<0.020	N/A	0.020	5885401
o-Xylene	ug/g	-	<0.020	N/A	0.020	5885401
p+m-Xylene	ug/g	-	<0.040	N/A	0.040	5885401
Total Xylenes	ug/g	0.05	<0.040	N/A	0.040	5885401
F1 (C6-C10)	ug/g	25	<10	N/A	10	5885401
F1 (C6-C10) - BTEX	ug/g	25	<10	N/A	10	5885401
<b>F2-F4 Hydrocarbons</b>						
F2 (C10-C16 Hydrocarbons)	ug/g	10	<10	N/A	10	5884033
F3 (C16-C34 Hydrocarbons)	ug/g	240	<50	N/A	50	5884033
F4 (C34-C50 Hydrocarbons)	ug/g	120	<50	N/A	50	5884033
Reached Baseline at C50	ug/g	-	Yes	N/A	N/A	5884033
<b>Surrogate Recovery (%)</b>						
1,4-Difluorobenzene	%	-	103	N/A	N/A	5885401
4-Bromofluorobenzene	%	-	97	N/A	N/A	5885401
D10-Ethylbenzene	%	-	81	N/A	N/A	5885401
D4-1,2-Dichloroethane	%	-	102	N/A	N/A	5885401
o-Terphenyl	%	-	105	N/A	N/A	5884033
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						
Lab-Dup = Laboratory Initiated Duplicate						
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)						
Table 1: Full Depth Background Site Condition Standards						
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use						
N/A = Not Applicable						

Maxxam Job #: B8W9612  
Report Date: 2018/12/17

Edward Wong & Associates Inc  
Client Project #: MA0025686  
Site Location: 409 HURON STREET, TORONTO  
Sampler Initials: JT

### TEST SUMMARY

**Maxxam ID:** IMX964  
**Sample ID:** 1-2  
**Matrix:** Soil

**Collected:** 2018/12/07  
**Shipped:**  
**Received:** 2018/12/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	5888649	2018/12/14	2018/12/14	Suban Kanapathippillai
Free (WAD) Cyanide	TECH	5886602	2018/12/13	2018/12/14	Louise Harding
Conductivity	AT	5888922	2018/12/14	2018/12/14	Kazzandra Adeva
Hexavalent Chromium in Soil by IC	IC/SPEC	5888446	2018/12/14	2018/12/14	Sally Norouz
Strong Acid Leachable Metals by ICPMS	ICP/MS	5888629	2018/12/14	2018/12/14	Daniel Teclu
Moisture	BAL	5886262	N/A	2018/12/13	Jatinder Ghumann
pH CaCl2 EXTRACT	AT	5887099	2018/12/14	2018/12/14	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	5879803	N/A	2018/12/14	Automated Statchk

**Maxxam ID:** IMX964 Dup  
**Sample ID:** 1-2  
**Matrix:** Soil

**Collected:** 2018/12/07  
**Shipped:**  
**Received:** 2018/12/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	5888922	2018/12/14	2018/12/14	Kazzandra Adeva
Moisture	BAL	5886262	N/A	2018/12/13	Jatinder Ghumann

**Maxxam ID:** IMX965  
**Sample ID:** 2-3  
**Matrix:** Soil

**Collected:** 2018/12/06  
**Shipped:**  
**Received:** 2018/12/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	5888649	2018/12/14	2018/12/14	Suban Kanapathippillai
Free (WAD) Cyanide	TECH	5886602	2018/12/13	2018/12/14	Louise Harding
Conductivity	AT	5888922	2018/12/14	2018/12/14	Kazzandra Adeva
Hexavalent Chromium in Soil by IC	IC/SPEC	5888446	2018/12/14	2018/12/14	Sally Norouz
Strong Acid Leachable Metals by ICPMS	ICP/MS	5888629	2018/12/14	2018/12/14	Daniel Teclu
Moisture	BAL	5886262	N/A	2018/12/13	Jatinder Ghumann
pH CaCl2 EXTRACT	AT	5887099	2018/12/14	2018/12/14	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	5879803	N/A	2018/12/14	Automated Statchk

**Maxxam ID:** IMX966  
**Sample ID:** 3-4  
**Matrix:** Soil

**Collected:** 2018/12/07  
**Shipped:**  
**Received:** 2018/12/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5885401	N/A	2018/12/13	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5884033	2018/12/12	2018/12/13	Prabhjot Gulati
Moisture	BAL	5882040	N/A	2018/12/11	Prgya Panchal

**Maxxam ID:** IMX966 Dup  
**Sample ID:** 3-4  
**Matrix:** Soil

**Collected:** 2018/12/07  
**Shipped:**  
**Received:** 2018/12/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	5882040	N/A	2018/12/11	Prgya Panchal



Maxxam Job #: B8W9612  
Report Date: 2018/12/17

Edward Wong & Associates Inc  
Client Project #: MA0025686  
Site Location: 409 HURON STREET, TORONTO  
Sampler Initials: JT

**GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	12.0°C
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**Results relate only to the items tested.**

**QUALITY ASSURANCE REPORT**

Edward Wong & Associates Inc  
Client Project #: MA0025686  
Site Location: 409 HURON STREET, TORONTO  
Sampler Initials: JT

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5884033	o-Terphenyl	2018/12/12	96	60 - 130	104	60 - 130	101	%		
5885401	1,4-Difluorobenzene	2018/12/13	102	60 - 140	103	60 - 140	106	%		
5885401	4-Bromofluorobenzene	2018/12/13	96	60 - 140	99	60 - 140	99	%		
5885401	D10-Ethylbenzene	2018/12/13	89	60 - 140	86	60 - 140	81	%		
5885401	D4-1,2-Dichloroethane	2018/12/13	100	60 - 140	101	60 - 140	104	%		
5882040	Moisture	2018/12/11							0	20
5884033	F2 (C10-C16 Hydrocarbons)	2018/12/13	93	50 - 130	100	80 - 120	<10	ug/g	NC	30
5884033	F3 (C16-C34 Hydrocarbons)	2018/12/13	95	50 - 130	103	80 - 120	<50	ug/g	NC	30
5884033	F4 (C34-C50 Hydrocarbons)	2018/12/13	97	50 - 130	104	80 - 120	<50	ug/g	NC	30
5885401	Benzene	2018/12/13	83	60 - 140	90	60 - 140	<0.020	ug/g	NC	50
5885401	Ethylbenzene	2018/12/13	86	60 - 140	90	60 - 140	<0.020	ug/g	NC	50
5885401	F1 (C6-C10) - BTEX	2018/12/13					<10	ug/g	NC	30
5885401	F1 (C6-C10)	2018/12/13	103	60 - 140	106	80 - 120	<10	ug/g	NC	30
5885401	o-Xylene	2018/12/13	84	60 - 140	89	60 - 140	<0.020	ug/g	NC	50
5885401	p+m-Xylene	2018/12/13	85	60 - 140	90	60 - 140	<0.040	ug/g	NC	50
5885401	Toluene	2018/12/13	88	60 - 140	92	60 - 140	<0.020	ug/g	NC	50
5885401	Total Xylenes	2018/12/13					<0.040	ug/g	NC	50
5886262	Moisture	2018/12/13							4.8	20
5886602	WAD Cyanide (Free)	2018/12/14	60 (1)	75 - 125	100	80 - 120	<0.01	ug/g	NC	35
5887099	Available (CaCl2) pH	2018/12/14			98	97 - 103			0.81	N/A
5888446	Chromium (VI)	2018/12/14	49 (2)	70 - 130	87	80 - 120	<0.2	ug/g	NC	35
5888629	Acid Extractable Antimony (Sb)	2018/12/14	96	75 - 125	103	80 - 120	<0.20	ug/g	NC	30
5888629	Acid Extractable Arsenic (As)	2018/12/14	97	75 - 125	101	80 - 120	<1.0	ug/g	11	30
5888629	Acid Extractable Barium (Ba)	2018/12/14	NC	75 - 125	100	80 - 120	<0.50	ug/g	0.27	30
5888629	Acid Extractable Beryllium (Be)	2018/12/14	102	75 - 125	103	80 - 120	<0.20	ug/g	4.3	30
5888629	Acid Extractable Boron (B)	2018/12/14	94	75 - 125	103	80 - 120	<5.0	ug/g	NC	30
5888629	Acid Extractable Cadmium (Cd)	2018/12/14	105	75 - 125	108	80 - 120	<0.10	ug/g	15	30
5888629	Acid Extractable Chromium (Cr)	2018/12/14	100	75 - 125	109	80 - 120	<1.0	ug/g	7.6	30
5888629	Acid Extractable Cobalt (Co)	2018/12/14	99	75 - 125	106	80 - 120	<0.10	ug/g	6.3	30
5888629	Acid Extractable Copper (Cu)	2018/12/14	94	75 - 125	107	80 - 120	<0.50	ug/g	0.89	30
5888629	Acid Extractable Lead (Pb)	2018/12/14	97	75 - 125	102	80 - 120	<1.0	ug/g	5.4	30
5888629	Acid Extractable Mercury (Hg)	2018/12/14	96	75 - 125	97	80 - 120	<0.050	ug/g	NC	30

**QUALITY ASSURANCE REPORT(CONT'D)**

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5888629	Acid Extractable Molybdenum (Mo)	2018/12/14	102	75 - 125	107	80 - 120	<0.50	ug/g	5.6	30
5888629	Acid Extractable Nickel (Ni)	2018/12/14	99	75 - 125	108	80 - 120	<0.50	ug/g	5.6	30
5888629	Acid Extractable Selenium (Se)	2018/12/14	101	75 - 125	106	80 - 120	<0.50	ug/g	NC	30
5888629	Acid Extractable Silver (Ag)	2018/12/14	102	75 - 125	103	80 - 120	<0.20	ug/g	NC	30
5888629	Acid Extractable Thallium (Tl)	2018/12/14	99	75 - 125	102	80 - 120	<0.050	ug/g	19	30
5888629	Acid Extractable Uranium (U)	2018/12/14	93	75 - 125	93	80 - 120	<0.050	ug/g	0.39	30
5888629	Acid Extractable Vanadium (V)	2018/12/14	102	75 - 125	107	80 - 120	<5.0	ug/g	0.65	30
5888629	Acid Extractable Zinc (Zn)	2018/12/14	NC	75 - 125	107	80 - 120	<5.0	ug/g	0.77	30
5888649	Hot Water Ext. Boron (B)	2018/12/14	94	75 - 125	96	75 - 125	<0.050	ug/B	NC	40
5888922	Conductivity	2018/12/14			102	90 - 110	<0.002	mS/cm	0.093	10

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

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

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(2) The matrix spike recovery was below the lower control limit. This may be due in part to the reducing environment of the sample. The sample was reanalyzed with the same results.

**VALIDATION SIGNATURE PAGE**

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



\_\_\_\_\_  
Anastassia Hamanov, Scientific Specialist

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

<b>Invoice Information</b> Company Name: <u>Edward Hong Associates</u> Contact Name: <u>Edward Hong</u> Address: <u>441 Esna Park Drive</u> <u>Unit 109, Markham</u> Phone: <u>416-903-4288</u> Fax: <u>    </u> Email: <u>edward.hong@edhassociates.com</u>		<b>Report Information (if differs from invoice)</b> Company Name: <u>    </u> Contact Name: <u>    </u> Address: <u>    </u> Phone: <u>    </u> Fax: <u>    </u> Email: <u>    </u>	
<b>Project Information (where applicable)</b> Quotation #: <u>    </u> PO # / A/E/R: <u>MAC025686</u> Project #: <u>    </u> Site Location: <u>409 Huron Street</u> Site #: <u>Toronto</u> Sampled By: <u>J.T.</u>		<b>Turnaround Time (TAT) Required</b> <input checked="" type="checkbox"/> Regular (in <u>  </u> days) Most analyses PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS Rush TAT (Surcharges will be applied) <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3-4 Days	

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

<b>Regulation 153</b> Table 1 <input checked="" type="checkbox"/> Res/Park <input type="checkbox"/> Med/Fine Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Course Table 3 <input type="checkbox"/> Agri/Other Table <u>    </u> <input type="checkbox"/> Other (Specify) <u>    </u> FOR RSC (PLEASE CIRCLE) Y / N <u>    </u>		<b>Other Regulations</b> <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> MISA <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> PWQO <input type="checkbox"/> Region <u>    </u> <input type="checkbox"/> Other (Specify) <u>    </u> <input type="checkbox"/> REG 558 (MIN. 3 DAY TAT REQUIRED)	
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SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED		FIELD FILTERED (CIRCLE) Metals / Hg / CVI		BTEX / PHE / PAH		VOCs		REG 153 METALS & INORGANICS		REG 153 METALS		HEG, Cr VI, ICMS METALS, HVS - B		Pesticides and Mycotoxins		PHE (FI - F4)		Fragrances		HOLD - DO NOT ANALYZE	COMMENTS	
				Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N			
1-2	Dec 7, 18	9 AM	Soil																							
2-3	Dec 18	9 AM																								
3-4	Dec 7, 18	PM																								
4																										
5																										
6																										
7																										
8																										
9																										
10																										

LABORATORY USE ONLY

CUSTOMER SEAL Y / N       
 Present  Intact

COOLING MEDIA PRESENT: Y / N     

COOLER TEMPERATURES 12 / 12 / 12

RELINQUISHED BY: (Signature/Print) [Signature] DATE: (YYYY/MM/DD) Dec 10, 2018 TIME: (HH:MM) 9 AM

RECEIVED BY: (Signature/Print) [Signature] DATE: (YYYY/MM/DD) 201812101125 TIME: (HH:MM)     

10-Dec-18 11:25  
 Gina Baybayan  
 B8W9612

RPC ENV-856

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment for viewing at [www.maxxam.ca/terms](http://www.maxxam.ca/terms). Sample container, preservation, hold time and packages information can be viewed at <http://maxxam.ca/wp-content/uploads/Ontario-COC-4>

COC-1004 (03/17)

White: Maxxam - Yellow: Client

Your Project #: 469 HURON ST, TORONTO  
 Site Location: MA002568  
 Your C.O.C. #: 696646-01-01

**Attention: Edward Wong**

Edward Wong & Associates Inc  
 441 Esna Park Dr  
 Unit 19  
 Markham, ON  
 CANADA L3R 1H7

**Report Date: 2018/12/28**  
 Report #: R5541487  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B8X7317**

**Received: 2018/12/17, 14:57**

Sample Matrix: Water  
 # Samples Received: 1

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Sewer Use By-Law Semivolatile Organics	1	2018/12/19	2018/12/20	CAM SOP 00301	EPA 8270 m
Biochemical Oxygen Demand (BOD)	1	2018/12/18	2018/12/23	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	1	N/A	2018/12/19	CAM SOP-00463	EPA 325.2 m
Chromium (VI) in Water	1	N/A	2018/12/21	CAM SOP-00436	EPA 7199 m
Free (WAD) Cyanide	1	N/A	2018/12/18	CAM SOP-00457	OMOE E3015 m
Total Cyanide	1	2018/12/18	2018/12/18	CAM SOP-00457	OMOE E3015 5 m
Fluoride	1	2018/12/18	2018/12/19	CAM SOP-00449	SM 23 4500-F C m
Mercury in Water by CVAA	1	2018/12/21	2018/12/21	CAM SOP-00453	EPA 7470A m
Mercury	1	2018/12/21	2018/12/21	CAM SOP-00453	EPA 7470A m
Dissolved Metals by ICPMS	1	N/A	2018/12/21	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	1	N/A	2018/12/20	CAM SOP-00447	EPA 6020B m
E.coli, (CFU/100mL)	1	N/A	2018/12/17	CAM SOP-00552	MOE LSB E3371
Total Nonylphenol in Liquids by HPLC	1	2018/12/21	2018/12/22	CAM SOP-00313	In-house Method
Nonylphenol Ethoxylates in Liquids: HPLC	1	2018/12/21	2018/12/22	CAM SOP-00313	In-house Method
Animal and Vegetable Oil and Grease	1	N/A	2018/12/20	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2018/12/20	2018/12/20	CAM SOP-00326	EPA1664B m,SM5520A m
Polychlorinated Biphenyl in Water	1	2018/12/18	2018/12/19	CAM SOP-00309	EPA 8082A m
pH	1	N/A	2018/12/19	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2018/12/20	CAM SOP-00444	OMOE E3179 m
Sulphate by Automated Colourimetry	1	N/A	2018/12/19	CAM SOP-00464	EPA 375.4 m
Total Kjeldahl Nitrogen in Water	1	2018/12/18	2018/12/19	CAM SOP-00938	OMOE E3516 m
Total PAHs (1)	1	N/A	2018/12/20	CAM SOP - 00301	EPA 8270 m
Mineral/Synthetic O & G (TPH Heavy Oil) (2)	1	2018/12/20	2018/12/20	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	1	2018/12/18	2018/12/19	CAM SOP-00428	SM 23 2540D m
Volatile Organic Compounds in Water	1	N/A	2018/12/20	CAM SOP-00228	EPA 8260C m

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All

Your Project #: 469 HURON ST, TORONTO  
Site Location: MA002568  
Your C.O.C. #: 696646-01-01

**Attention: Edward Wong**

Edward Wong & Associates Inc  
441 Esna Park Dr  
Unit 19  
Markham, ON  
CANADA L3R 1H7

**Report Date: 2018/12/28**  
Report #: R5541487  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B8X7317**

**Received: 2018/12/17, 14:57**

data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Total PAHs include only those PAHs specified in the sewer use by-law.

(2) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key



Gina Baybayan  
Project Manager  
03 Jan 2019 09:21:46

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Gina Baybayan, Project Manager

Email: GBaybayan@maxxam.ca

Phone# (905)817-5766

=====  
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

**TORONTO SANITARY & STORM SEWER PACKAGE (WATER)**

<b>Maxxam ID</b>				I00971		
<b>Sampling Date</b>				2018/12/17		
<b>COC Number</b>				696646-01-01		
	<b>UNITS</b>	<b>San</b>	<b>Stm</b>	<b>BH3</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>						
Total Animal/Vegetable Oil and Grease	mg/L	150	-	<0.50	0.50	5891841
<b>Inorganics</b>						
Total BOD	mg/L	300	15	5	2	5894324
Fluoride (F-)	mg/L	10	-	0.20	0.10	5895291
Total Kjeldahl Nitrogen (TKN)	mg/L	100	-	0.48	0.10	5895567
pH	pH	6.0:11.5	6.0:9.5	8.03	N/A	5895295
Phenols-4AAP	mg/L	1.0	0.008	<0.0010	0.0010	5896525
Total Suspended Solids	mg/L	350	15	<10	10	5894051
Total Cyanide (CN)	mg/L	2	0.02	<0.0050	0.0050	5894364
<b>Petroleum Hydrocarbons</b>						
Total Oil & Grease	mg/L	-	-	<0.50	0.50	5899489
Total Oil & Grease Mineral/Synthetic	mg/L	15	-	<0.50	0.50	5899493
<b>Miscellaneous Parameters</b>						
Nonylphenol Ethoxylate (Total)	mg/L	0.2	0.01	<0.005	0.005	5900941
Nonylphenol (Total)	mg/L	0.02	0.001	<0.001	0.001	5900939
<b>Metals</b>						
Chromium (VI)	ug/L	2000	40	<0.50	0.50	5892920
Mercury (Hg)	mg/L	0.01	0.0004	<0.0001	0.0001	5900659
Total Aluminum (Al)	ug/L	50000	-	14	5.0	5898904
Total Antimony (Sb)	ug/L	5000	-	2.2	0.50	5898904
Total Arsenic (As)	ug/L	1000	20	1.5	1.0	5898904
Total Cadmium (Cd)	ug/L	700	8	<0.10	0.10	5898904
Total Chromium (Cr)	ug/L	4000	80	<5.0	5.0	5898904
Total Cobalt (Co)	ug/L	5000	-	<0.50	0.50	5898904
Total Copper (Cu)	ug/L	2000	40	<1.0	1.0	5898904
Total Lead (Pb)	ug/L	1000	120	<0.50	0.50	5898904
Total Manganese (Mn)	ug/L	5000	50	42	2.0	5898904
Total Molybdenum (Mo)	ug/L	5000	-	7.4	0.50	5898904
Total Nickel (Ni)	ug/L	2000	80	1.0	1.0	5898904
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						
San,Stm: Toronto Sanitary and Storm Sewer Use By Law Guidelines, respectively. Referenced to Chapter 681						
N/A = Not Applicable						



**TORONTO SANITARY & STORM SEWER PACKAGE (WATER)**

<b>Maxxam ID</b>				I00971		
<b>Sampling Date</b>				2018/12/17		
<b>COC Number</b>				696646-01-01		
	<b>UNITS</b>	<b>San</b>	<b>Stm</b>	<b>BH3</b>	<b>RDL</b>	<b>QC Batch</b>
Total Phosphorus (P)	ug/L	10000	400	<100	100	5898904
Total Selenium (Se)	ug/L	1000	20	2.8	2.0	5898904
Total Silver (Ag)	ug/L	5000	120	<0.10	0.10	5898904
Total Tin (Sn)	ug/L	5000	-	<1.0	1.0	5898904
Total Titanium (Ti)	ug/L	5000	-	5.4	5.0	5898904
Total Zinc (Zn)	ug/L	2000	40	6.2	5.0	5898904
<b>Semivolatile Organics</b>						
Di-N-butyl phthalate	ug/L	80	15	<2	2	5896960
Bis(2-ethylhexyl)phthalate	ug/L	12	8.8	<2	2	5896960
3,3'-Dichlorobenzidine	ug/L	2	0.8	<0.8	0.8	5896960
Pentachlorophenol	ug/L	5	2	<1	1	5896960
Phenanthrene	ug/L	-	-	<0.2	0.2	5896960
Anthracene	ug/L	-	-	<0.2	0.2	5896960
Fluoranthene	ug/L	-	-	<0.2	0.2	5896960
Pyrene	ug/L	-	-	<0.2	0.2	5896960
Benzo(a)anthracene	ug/L	-	-	<0.2	0.2	5896960
Chrysene	ug/L	-	-	<0.2	0.2	5896960
Benzo(b/j)fluoranthene	ug/L	-	-	<0.2	0.2	5896960
Benzo(k)fluoranthene	ug/L	-	-	<0.2	0.2	5896960
Benzo(a)pyrene	ug/L	-	-	<0.2	0.2	5896960
Indeno(1,2,3-cd)pyrene	ug/L	-	-	<0.2	0.2	5896960
Dibenz(a,h)anthracene	ug/L	-	-	<0.2	0.2	5896960
Benzo(g,h,i)perylene	ug/L	-	-	<0.2	0.2	5896960
Dibenzo(a,i)pyrene	ug/L	-	-	<0.2	0.2	5896960
Benzo(e)pyrene	ug/L	-	-	<0.2	0.2	5896960
Perylene	ug/L	-	-	<0.2	0.2	5896960
Dibenzo(a,j) acridine	ug/L	-	-	<0.4	0.4	5896960
7H-Dibenzo(c,g) Carbazole	ug/L	-	-	<0.4	0.4	5896960
1,6-Dinitropyrene	ug/L	-	-	<0.4	0.4	5896960
1,3-Dinitropyrene	ug/L	-	-	<0.4	0.4	5896960
1,8-Dinitropyrene	ug/L	-	-	<0.4	0.4	5896960
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						
San,Stm: Toronto Sanitary and Storm Sewer Use By Law Guidelines, respectively. Referenced to Chapter 681						

**TORONTO SANITARY & STORM SEWER PACKAGE (WATER)**

Maxxam ID				IO0971		
Sampling Date				2018/12/17		
COC Number				696646-01-01		
	UNITS	San	Stm	BH3	RDL	QC Batch
<b>Calculated Parameters</b>						
Total PAHs (18 PAHs)	ug/L	5	2	<1	1	5892469
<b>Volatile Organics</b>						
Benzene	ug/L	10	2	<0.20	0.20	5889554
Chloroform	ug/L	40	2	<0.20	0.20	5889554
1,2-Dichlorobenzene	ug/L	50	5.6	<0.50	0.50	5889554
1,4-Dichlorobenzene	ug/L	80	6.8	<0.50	0.50	5889554
cis-1,2-Dichloroethylene	ug/L	4000	5.6	<0.50	0.50	5889554
trans-1,3-Dichloropropene	ug/L	140	5.6	<0.40	0.40	5889554
Ethylbenzene	ug/L	160	2	<0.20	0.20	5889554
Methylene Chloride(Dichloromethane)	ug/L	2000	5.2	<2.0	2.0	5889554
1,1,2,2-Tetrachloroethane	ug/L	1400	17	<0.50	0.50	5889554
Tetrachloroethylene	ug/L	1000	4.4	<0.20	0.20	5889554
Toluene	ug/L	16	2	0.72	0.20	5889554
Trichloroethylene	ug/L	400	7.6	<0.20	0.20	5889554
p+m-Xylene	ug/L	1400	4.4	<0.20	0.20	5889554
o-Xylene	ug/L	1400	4.4	<0.20	0.20	5889554
Total Xylenes	ug/L	1400	4.4	<0.20	0.20	5889554
<b>PCBs</b>						
Total PCB	ug/L	1	0.4	<0.05	0.05	5894872
<b>Microbiological</b>						
Escherichia coli	CFU/100mL	-	200	<10	10	5893343
<b>Surrogate Recovery (%)</b>						
2,4,6-Tribromophenol	%	-	-	20	N/A	5896960
2-Fluorobiphenyl	%	-	-	71	N/A	5896960
D14-Terphenyl (FS)	%	-	-	84	N/A	5896960
D5-Nitrobenzene	%	-	-	70	N/A	5896960
D8-Acenaphthylene	%	-	-	74	N/A	5896960
Decachlorobiphenyl	%	-	-	78	N/A	5894872
4-Bromofluorobenzene	%	-	-	87	N/A	5889554
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						
San,Stm: Toronto Sanitary and Storm Sewer Use By Law Guidelines, respectively. Referenced to Chapter 681						
N/A = Not Applicable						

**TORONTO SANITARY & STORM SEWER PACKAGE (WATER)**

<b>Maxxam ID</b>				100971		
<b>Sampling Date</b>				2018/12/17		
<b>COC Number</b>				696646-01-01		
	<b>UNITS</b>	<b>San</b>	<b>Stm</b>	<b>BH3</b>	<b>RDL</b>	<b>QC Batch</b>
D4-1,2-Dichloroethane	%	-	-	116	N/A	5889554
D8-Toluene	%	-	-	95	N/A	5889554
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						
San,Stm: Toronto Sanitary and Storm Sewer Use By Law Guidelines, respectively. Referenced to Chapter 681						
N/A = Not Applicable						

**RESULTS OF ANALYSES OF WATER**

<b>Maxxam ID</b>		100971	100971		
<b>Sampling Date</b>		2018/12/17	2018/12/17		
<b>COC Number</b>		696646-01-01	696646-01-01		
	<b>UNITS</b>	<b>BH3</b>	<b>BH3 Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Inorganics</b>					
Dissolved Sulphate (SO4)	mg/L	47	47	1.0	5894885
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate					

**O.REG 153 METALS & INORGANICS PKG (WTR)**

Maxxam ID				IOO971	IOO971		
Sampling Date				2018/12/17	2018/12/17		
COC Number				696646-01-01	696646-01-01		
	UNITS	San	Stm	BH3	BH3 Lab-Dup	RDL	QC Batch
<b>Inorganics</b>							
WAD Cyanide (Free)	ug/L	-	-	<1	N/A	1	5894029
Dissolved Chloride (Cl-)	mg/L	-	-	90	90	1.0	5894899
<b>Metals</b>							
Mercury (Hg)	ug/L	10	0.4	<0.1	<0.1	0.1	5901230
Dissolved Antimony (Sb)	ug/L	5000	-	1.4	N/A	0.50	5895010
Dissolved Arsenic (As)	ug/L	1000	20	2.4	N/A	1.0	5895010
Dissolved Barium (Ba)	ug/L	-	-	160	N/A	2.0	5895010
Dissolved Beryllium (Be)	ug/L	-	-	<0.50	N/A	0.50	5895010
Dissolved Boron (B)	ug/L	-	-	83	N/A	10	5895010
Dissolved Cadmium (Cd)	ug/L	700	8	<0.10	N/A	0.10	5895010
Dissolved Chromium (Cr)	ug/L	4000	80	<5.0	N/A	5.0	5895010
Dissolved Cobalt (Co)	ug/L	5000	-	<0.50	N/A	0.50	5895010
Dissolved Copper (Cu)	ug/L	2000	40	<1.0	N/A	1.0	5895010
Dissolved Lead (Pb)	ug/L	1000	120	<0.50	N/A	0.50	5895010
Dissolved Molybdenum (Mo)	ug/L	5000	-	4.1	N/A	0.50	5895010
Dissolved Nickel (Ni)	ug/L	2000	80	<1.0	N/A	1.0	5895010
Dissolved Selenium (Se)	ug/L	1000	20	<2.0	N/A	2.0	5895010
Dissolved Silver (Ag)	ug/L	5000	120	<0.10	N/A	0.10	5895010
Dissolved Sodium (Na)	ug/L	-	-	99000	N/A	100	5895010
Dissolved Thallium (Tl)	ug/L	-	-	<0.050	N/A	0.050	5895010
Dissolved Uranium (U)	ug/L	-	-	1.1	N/A	0.10	5895010
Dissolved Vanadium (V)	ug/L	-	-	1.1	N/A	0.50	5895010
Dissolved Zinc (Zn)	ug/L	2000	40	5.7	N/A	5.0	5895010
No Fill	No Exceedance						
Grey	Exceeds 1 criteria policy/level						
Black	Exceeds both criteria/levels						
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Lab-Dup = Laboratory Initiated Duplicate							
San,Stm: Toronto Sanitary and Storm Sewer Use By Law Guidelines, respectively. Referenced to Chapter 681							
N/A = Not Applicable							

Maxxam Job #: B8X7317  
Report Date: 2018/12/28

Edward Wong & Associates Inc  
Client Project #: 469 HURON ST, TORONTO  
Site Location: MA002568  
Sampler Initials: JT

### TEST SUMMARY

**Maxxam ID:** IO0971  
**Sample ID:** BH3  
**Matrix:** Water

**Collected:** 2018/12/17  
**Shipped:**  
**Received:** 2018/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sewer Use By-Law Semivolatile Organics	GC/MS	5896960	2018/12/19	2018/12/20	Kathy Horvat
Biochemical Oxygen Demand (BOD)	DO	5894324	2018/12/18	2018/12/23	Nusrat Naz
Chloride by Automated Colourimetry	KONE	5894899	N/A	2018/12/19	Deonarine Ramnarine
Chromium (VI) in Water	IC	5892920	N/A	2018/12/21	Lang Le
Free (WAD) Cyanide	SKAL/CN	5894029	N/A	2018/12/18	Christine Pham
Total Cyanide	SKAL/CN	5894364	2018/12/18	2018/12/18	Christine Pham
Fluoride	ISE	5895291	2018/12/18	2018/12/19	Surinder Rai
Mercury in Water by CVAA	CV/AA	5900659	2018/12/21	2018/12/21	Medhat Nasr
Mercury	CV/AA	5901230	2018/12/21	2018/12/21	Medhat Nasr
Dissolved Metals by ICPMS	ICP/MS	5895010	N/A	2018/12/21	Arefa Dabhad
Total Metals Analysis by ICPMS	ICP/MS	5898904	N/A	2018/12/20	Thao Nguyen
E.coli, (CFU/100mL)	PL	5893343	N/A	2018/12/17	Sirimathie Aluthwala
Total Nonylphenol in Liquids by HPLC	LC/FLU	5900939	2018/12/21	2018/12/22	Tonghui ( Jenny) Chen
Nonylphenol Ethoxylates in Liquids: HPLC	LC/FLU	5900941	2018/12/21	2018/12/22	Tonghui ( Jenny) Chen
Animal and Vegetable Oil and Grease	BAL	5891841	N/A	2018/12/20	Automated Statchk
Total Oil and Grease	BAL	5899489	2018/12/20	2018/12/20	Mansoor Ahmed
Polychlorinated Biphenyl in Water	GC/ECD	5894872	2018/12/18	2018/12/19	Svitlana Shaula
pH	AT	5895295	N/A	2018/12/19	Surinder Rai
Phenols (4AAP)	TECH/PHEN	5896525	N/A	2018/12/20	Bramdeo Motiram
Sulphate by Automated Colourimetry	KONE	5894885	N/A	2018/12/19	Deonarine Ramnarine
Total Kjeldahl Nitrogen in Water	SKAL	5895567	2018/12/18	2018/12/19	Rajni Tyagi
Total PAHs	CALC	5892469	N/A	2018/12/20	Automated Statchk
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	5899493	2018/12/20	2018/12/20	Mansoor Ahmed
Total Suspended Solids	BAL	5894051	2018/12/18	2018/12/19	Mandeep Kaur
Volatile Organic Compounds in Water	GC/MS	5889554	N/A	2018/12/20	Blair Gannon

**Maxxam ID:** IO0971 Dup  
**Sample ID:** BH3  
**Matrix:** Water

**Collected:** 2018/12/17  
**Shipped:**  
**Received:** 2018/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE	5894899	N/A	2018/12/19	Deonarine Ramnarine
Mercury	CV/AA	5901230	2018/12/21	2018/12/21	Medhat Nasr
Sulphate by Automated Colourimetry	KONE	5894885	N/A	2018/12/19	Deonarine Ramnarine

Maxxam Job #: B8X7317  
Report Date: 2018/12/28

Edward Wong & Associates Inc  
Client Project #: 469 HURON ST, TORONTO  
Site Location: MA002568  
Sampler Initials: JT

**GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	7.7°C
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**Results relate only to the items tested.**

**QUALITY ASSURANCE REPORT**

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
5889554	4-Bromofluorobenzene	2018/12/19	96	70 - 130	97	70 - 130	91	%				
5889554	D4-1,2-Dichloroethane	2018/12/19	111	70 - 130	107	70 - 130	112	%				
5889554	D8-Toluene	2018/12/19	126	70 - 130	105	70 - 130	95	%				
5894872	Decachlorobiphenyl	2018/12/19	89	60 - 130	87	60 - 130	86	%				
5896960	2,4,6-Tribromophenol	2018/12/20	104	10 - 130	91	10 - 130	59	%				
5896960	2-Fluorobiphenyl	2018/12/20	63	30 - 130	59	30 - 130	62	%				
5896960	D14-Terphenyl (FS)	2018/12/20	83	30 - 130	82	30 - 130	84	%				
5896960	D5-Nitrobenzene	2018/12/20	115	30 - 130	93	30 - 130	99	%				
5896960	D8-Acenaphthylene	2018/12/20	74	30 - 130	68	30 - 130	69	%				
5889554	1,1,2,2-Tetrachloroethane	2018/12/19	107	70 - 130	100	70 - 130	<0.50	ug/L	NC	30		
5889554	1,2-Dichlorobenzene	2018/12/19	94	70 - 130	91	70 - 130	<0.50	ug/L	NC	30		
5889554	1,4-Dichlorobenzene	2018/12/19	94	70 - 130	92	70 - 130	<0.50	ug/L	NC	30		
5889554	Benzene	2018/12/19	96	70 - 130	93	70 - 130	<0.20	ug/L	1.7	30		
5889554	Chloroform	2018/12/19	98	70 - 130	95	70 - 130	<0.20	ug/L	NC	30		
5889554	cis-1,2-Dichloroethylene	2018/12/19	100	70 - 130	95	70 - 130	<0.50	ug/L	NC	30		
5889554	Ethylbenzene	2018/12/19	93	70 - 130	91	70 - 130	<0.20	ug/L	0.20	30		
5889554	Methylene Chloride(Dichloromethane)	2018/12/19	108	70 - 130	102	70 - 130	<2.0	ug/L	NC	30		
5889554	o-Xylene	2018/12/19	92	70 - 130	92	70 - 130	<0.20	ug/L	1.5	30		
5889554	p+m-Xylene	2018/12/19	95	70 - 130	92	70 - 130	<0.20	ug/L	0.98	30		
5889554	Tetrachloroethylene	2018/12/19	89	70 - 130	89	70 - 130	<0.20	ug/L	NC	30		
5889554	Toluene	2018/12/19	NC	70 - 130	92	70 - 130	<0.20	ug/L	1.2	30		
5889554	Total Xylenes	2018/12/19					<0.20	ug/L	1.2	30		
5889554	trans-1,3-Dichloropropene	2018/12/19	112	70 - 130	88	70 - 130	<0.40	ug/L	NC	30		
5889554	Trichloroethylene	2018/12/19	90	70 - 130	89	70 - 130	<0.20	ug/L	NC	30		
5892920	Chromium (VI)	2018/12/21	105	80 - 120	107	80 - 120	<0.50	ug/L	NC	20		
5894029	WAD Cyanide (Free)	2018/12/18	109	80 - 120	103	80 - 120	<1	ug/L	NC	20		
5894051	Total Suspended Solids	2018/12/19					<10	mg/L	NC	25	97	85 - 115
5894324	Total BOD	2018/12/23					<2	mg/L	8.6	30	107	80 - 120
5894364	Total Cyanide (CN)	2018/12/18	105	80 - 120	104	80 - 120	<0.0050	mg/L	NC	20		
5894872	Total PCB	2018/12/19	103	60 - 130	88	60 - 130	<0.05	ug/L	NC	40		
5894885	Dissolved Sulphate (SO4)	2018/12/19	NC	75 - 125	105	80 - 120	<1.0	mg/L	0.33	20		
5894899	Dissolved Chloride (Cl-)	2018/12/19	NC	80 - 120	102	80 - 120	<1.0	mg/L	0.62	20		



**QUALITY ASSURANCE REPORT(CONT'D)**

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
5895010	Dissolved Antimony (Sb)	2018/12/21	120	80 - 120	105	80 - 120	<0.50	ug/L	NC	20		
5895010	Dissolved Arsenic (As)	2018/12/21	113	80 - 120	102	80 - 120	<1.0	ug/L	NC	20		
5895010	Dissolved Barium (Ba)	2018/12/21	114	80 - 120	100	80 - 120	<2.0	ug/L	0.28	20		
5895010	Dissolved Beryllium (Be)	2018/12/21	108	80 - 120	99	80 - 120	<0.50	ug/L	NC	20		
5895010	Dissolved Boron (B)	2018/12/21	104	80 - 120	100	80 - 120	<1.0	ug/L	1.8	20		
5895010	Dissolved Cadmium (Cd)	2018/12/21	116	80 - 120	103	80 - 120	<0.10	ug/L	NC	20		
5895010	Dissolved Chromium (Cr)	2018/12/21	106	80 - 120	97	80 - 120	<5.0	ug/L	NC	20		
5895010	Dissolved Cobalt (Co)	2018/12/21	110	80 - 120	101	80 - 120	<0.50	ug/L	NC	20		
5895010	Dissolved Copper (Cu)	2018/12/21	116	80 - 120	104	80 - 120	<1.0	ug/L	20	20		
5895010	Dissolved Lead (Pb)	2018/12/21	112	80 - 120	100	80 - 120	<0.50	ug/L	NC	20		
5895010	Dissolved Molybdenum (Mo)	2018/12/21	115	80 - 120	99	80 - 120	<0.50	ug/L	1.6	20		
5895010	Dissolved Nickel (Ni)	2018/12/21	106	80 - 120	98	80 - 120	<1.0	ug/L	16	20		
5895010	Dissolved Selenium (Se)	2018/12/21	112	80 - 120	103	80 - 120	<2.0	ug/L	NC	20		
5895010	Dissolved Silver (Ag)	2018/12/21	54 (1)	80 - 120	98	80 - 120	<0.10	ug/L	NC	20		
5895010	Dissolved Sodium (Na)	2018/12/21	NC	80 - 120	102	80 - 120	<100	ug/L	3.4	20		
5895010	Dissolved Thallium (Tl)	2018/12/21	112	80 - 120	98	80 - 120	<0.050	ug/L	NC	20		
5895010	Dissolved Uranium (U)	2018/12/21	111	80 - 120	101	80 - 120	<0.10	ug/L	1.5	20		
5895010	Dissolved Vanadium (V)	2018/12/21	109	80 - 120	97	80 - 120	<0.50	ug/L	0	20		
5895010	Dissolved Zinc (Zn)	2018/12/21	111	80 - 120	101	80 - 120	<5.0	ug/L	NC	20		
5895291	Fluoride (F-)	2018/12/19	102	80 - 120	105	80 - 120	<0.10	mg/L	4.2	20		
5895295	pH	2018/12/19			102	98 - 103			0.59	N/A		
5895567	Total Kjeldahl Nitrogen (TKN)	2018/12/19	NC	80 - 120	100	80 - 120	<0.10	mg/L	2.6	20	97	80 - 120
5896525	Phenols-4AAP	2018/12/19	99	80 - 120	102	80 - 120	<0.0010	mg/L	NC	20		
5896960	1,3-Dinitropyrene	2018/12/20	11 (1)	30 - 130	70	30 - 130	<0.4	ug/L	NC	40		
5896960	1,6-Dinitropyrene	2018/12/20	16 (1)	30 - 130	72	30 - 130	<0.4	ug/L	NC	40		
5896960	1,8-Dinitropyrene	2018/12/20	11 (1)	30 - 130	67	30 - 130	<0.4	ug/L	NC	40		
5896960	3,3'-Dichlorobenzidine	2018/12/20	2.0 (2)	30 - 130	75	30 - 130	<0.8	ug/L	NC	40		
5896960	7H-Dibenzo(c,g) Carbazole	2018/12/20	69	30 - 130	60	30 - 130	<0.4	ug/L	NC	40		
5896960	Anthracene	2018/12/20	87	30 - 130	85	30 - 130	<0.2	ug/L	NC	40		
5896960	Benzo(a)anthracene	2018/12/20	80	30 - 130	80	30 - 130	<0.2	ug/L	NC	40		
5896960	Benzo(a)pyrene	2018/12/20	82	30 - 130	88	30 - 130	<0.2	ug/L	NC	40		
5896960	Benzo(b)fluoranthene	2018/12/20	91	30 - 130	88	30 - 130	<0.2	ug/L	NC	40		

**QUALITY ASSURANCE REPORT(CONT'D)**

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
5896960	Benzo(e)pyrene	2018/12/20	91	30 - 130	95	30 - 130	<0.2	ug/L	NC	40		
5896960	Benzo(g,h,i)perylene	2018/12/20	85	30 - 130	84	30 - 130	<0.2	ug/L	NC	40		
5896960	Benzo(k)fluoranthene	2018/12/20	76	30 - 130	92	30 - 130	<0.2	ug/L	NC	40		
5896960	Bis(2-ethylhexyl)phthalate	2018/12/20	95	30 - 130	104	30 - 130	2,RDL=2	ug/L	NC	40		
5896960	Chrysene	2018/12/20	103	30 - 130	104	30 - 130	<0.2	ug/L	NC	40		
5896960	Dibenz(a,h)anthracene	2018/12/20	91	30 - 130	89	30 - 130	<0.2	ug/L	NC	40		
5896960	Dibenzo(a,i)pyrene	2018/12/20	79	30 - 130	72	30 - 130	<0.2	ug/L	NC	40		
5896960	Dibenzo(a,j)acridine	2018/12/20	81	30 - 130	79	30 - 130	<0.4	ug/L	NC	40		
5896960	Di-N-butyl phthalate	2018/12/20	101	30 - 130	100	30 - 130	<2	ug/L	NC	40		
5896960	Fluoranthene	2018/12/20	92	30 - 130	92	30 - 130	<0.2	ug/L	NC	40		
5896960	Indeno(1,2,3-cd)pyrene	2018/12/20	86	30 - 130	86	30 - 130	<0.2	ug/L	NC	40		
5896960	Pentachlorophenol	2018/12/20	98	30 - 130	57	30 - 130	<1	ug/L	NC	40		
5896960	Perylene	2018/12/20	100	30 - 130	101	30 - 130	<0.2	ug/L	NC	40		
5896960	Phenanthrene	2018/12/20	94	30 - 130	87	30 - 130	<0.2	ug/L	NC	40		
5896960	Pyrene	2018/12/20	93	30 - 130	92	30 - 130	<0.2	ug/L	NC	40		
5898904	Total Aluminum (Al)	2018/12/21	97	80 - 120	99	80 - 120	<5.0	ug/L	7.4	20		
5898904	Total Antimony (Sb)	2018/12/21	107	80 - 120	104	80 - 120	<0.50	ug/L	13	20		
5898904	Total Arsenic (As)	2018/12/21	100	80 - 120	100	80 - 120	<1.0	ug/L	18	20		
5898904	Total Cadmium (Cd)	2018/12/21	100	80 - 120	101	80 - 120	<0.10	ug/L	NC	20		
5898904	Total Chromium (Cr)	2018/12/21	94	80 - 120	95	80 - 120	<5.0	ug/L	NC	20		
5898904	Total Cobalt (Co)	2018/12/21	93	80 - 120	96	80 - 120	<0.50	ug/L	NC	20		
5898904	Total Copper (Cu)	2018/12/21	96	80 - 120	97	80 - 120	<1.0	ug/L	3.9	20		
5898904	Total Lead (Pb)	2018/12/21	90	80 - 120	94	80 - 120	<0.50	ug/L	0.45	20		
5898904	Total Manganese (Mn)	2018/12/21	93	80 - 120	95	80 - 120	<2.0	ug/L	4.8	20		
5898904	Total Molybdenum (Mo)	2018/12/21	104	80 - 120	101	80 - 120	<0.50	ug/L	0.55	20		
5898904	Total Nickel (Ni)	2018/12/21	91	80 - 120	95	80 - 120	<1.0	ug/L	0.59	20		
5898904	Total Phosphorus (P)	2018/12/21	105	80 - 120	110	80 - 120	<100	ug/L	2.2	20		
5898904	Total Selenium (Se)	2018/12/21	105	80 - 120	107	80 - 120	<2.0	ug/L	NC	20		
5898904	Total Silver (Ag)	2018/12/21	94	80 - 120	97	80 - 120	<0.10	ug/L	NC	20		
5898904	Total Tin (Sn)	2018/12/21	102	80 - 120	99	80 - 120	<1.0	ug/L	NC	20		
5898904	Total Titanium (Ti)	2018/12/21	92	80 - 120	100	80 - 120	<5.0	ug/L	NC	20		
5898904	Total Zinc (Zn)	2018/12/21	97	80 - 120	101	80 - 120	<5.0	ug/L	11	20		

**QUALITY ASSURANCE REPORT(CONT'D)**

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
5899489	Total Oil & Grease	2018/12/20			97	85 - 115	<0.50	mg/L	2.8	25		
5899493	Total Oil & Grease Mineral/Synthetic	2018/12/20			92	85 - 115	<0.50	mg/L	4.3	25		
5900659	Mercury (Hg)	2018/12/21	97	75 - 125	99	80 - 120	<0.0001	mg/L	NC	20		
5900939	Nonylphenol (Total)	2018/12/22	108	50 - 130	105	50 - 130	<0.001	mg/L	1.2	40		
5900941	Nonylphenol Ethoxylate (Total)	2018/12/22	91	50 - 130	101	50 - 130	<0.005	mg/L	NC	40		
5901230	Mercury (Hg)	2018/12/21	100	75 - 125	98	80 - 120	<0.1	ug/L	NC	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

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

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)



NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference  $\leq 2x$  RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

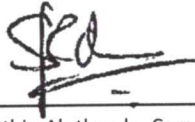
(2) Some recoveries were below the lower control limits. This may represent a low bias in some results for these flagged analytes.

**VALIDATION SIGNATURE PAGE**

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

\_\_\_\_\_  
Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist



\_\_\_\_\_  
Sirimathie Aluthwala, Campobello Micro

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Maxxam Analytics International Corporation (a Maxxam Analytics Company)  
 400 Campbell Road, Mississauga, Ontario Canada L4N 2L8  
 Tel: (905) 817-5700 Fax: (905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page of

**REPORT TO:** Company Name: Edward Wong & Associates Inc  
 Attention: Edward Wong  
 Address: 441 Esna Park Dr Unit 19 Markham ON L3R 1H7  
 Tel: (416) 903-4298 Fax: (416) 221-0795  
 Email: edwardwongassociates.com, edwardwong58@gmail.com

**REPORT TO:** Duration #  
 P.O. #  
 Project Name  
 Site #  
 Sampled By

**LABORATORY USE ONLY:** Maxxam Job #  
 Bottle Order #  
 Project Manager: Gina Baybayan  
 COC #: C49956-46-01-01

**MODE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY**

**REGULATION 153 (2011)**

Other Regulations:  CCME  Sanitary Sewer Bylaw  Reg 558  Storm Sewer Bylaw  MISA  Municipality  PWDO  Other

Table 1:  Rest Park  Medium Fine  Table 2:  Soft Comm  Coarse  Table 3:  Agri/Other  For RSC  Table 4:  Table

Include Criteria on Certificate of Analysis (Y/N)?

Sample Barcode Label: 1: 2: 3: 4: 5: 6: 7: 8: 9: 10:

Sample Location Identification	Date Sampled	Time Sampled	Matrix	Special Instructions
1: 2: 3: 4: 5: 6: 7: 8: 9: 10:				

Field Filtered (please circle) Metals / Hg / Cr / VI

Formic Sulfate & Storm Sewer

Sulphate by Automated Colourmetry

(O) Reg 153 Metals & Inorganics Pig

Time Sensitive

# jars used and not submitted

Date: (YYMMDD) 17/12/17

Time 14:57

RECEIVED BY: (Signature/Print) Gina Baybayan

Date: (YYMMDD) 17/12/17

Time 14:57

Regular (Standard) TAT: (will be applied if Rush TAT is not specified)  
 Standard TAT = 5.7 Working days for most tests  
 Please note: Standard TAT for certain tests such as BOD and Dissolved Solids are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission)  
 Date Required: 17-Dec-18 14:57  
 Time Required: Gina Baybayan  
 Rush Confirmation Number: B8X7317  
 (call job for #) THP ENV-700

# of factors: 84

Comments: Contact Gina

LABORATORY USE ONLY

Temperature (°C) on Receipt: 8.57 ice

Custody Seal intact: Yes

White: Maxxa Yellow: Client

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Maxxam Analytics International Corporation or Maxxam Analytics

# Appendix F

## Dewatering Flow Rate Calculations

**Project No.:** Ma002568c

**Location:** 409 Huron Street, Toronto

**Title:** Flow Rate, Construction and Post Construction

**Data**

Ground Surface (masl) 114.05  
Highest W.L. (masl) 112.61 (1 m above highest measured groundwater level)  
Base of Excavation (m) 109.4 (1 m below top of P1 slab)  
Draw down target (m) 108.4 (during construction)  
Aquifer Bottom (masl) 108.4 tip of pump during construction  
Draw down target (m) 109.4 (post construction)  
Aquifer Bottom (masl) 109.4 invert of weeping tile, post construction  
Rainfall (mm) 25  
Factor of Safety 1.5

Coefficient of Permeability  $K = 1.1 \times 10^{-8}$  m/s

Zone of Influence,  $R_0 = 3000 s \sqrt{k}$

$s =$  drawdown in borehole = 4.21 m during construction

$s =$  drawdown in borehole = 3.21 m during construction

$R_0 = 1.32$  m during construction

$R_0 = 0.96$  m post construction

Equivalent Radius of Excavation

$r_s = \sqrt{\text{area}} / 3.14$

Area = 666 m<sup>2</sup>

$r_s = 14.6$

Dewatering Rate,  $Q = \frac{3.14 \times K \times (H^2 - h^2)}{\ln(R_0 + r_s) / r_s}$

**Dewatering**

**Pre-construction      Post-construction**

K (m/s)	1.1 x 10 <sup>-8</sup>	1.1x 10 <sup>-8</sup>
H (m)	4.21	3.21
h (m)	0	0
dH (m)	4.21	3.21
R <sub>0</sub> (m)	1.32	0.96
r <sub>s</sub> (m)	14.6	14.6
r <sub>s</sub> +R <sub>0</sub> (m)	15.92	15.56
Q (m <sup>3</sup> / sec.)	7.07 x 10 <sup>-6</sup>	5.587 x 10 <sup>-6</sup>
Q (m <sup>3</sup> / day)	0.61	0.48
Q <sub>f</sub> (m <sup>3</sup> / day)	0.92	0.72
Q rain (m <sup>3</sup> / day)	16.65	0
Q <sub>f</sub> rain (m <sup>3</sup> /day)	24.97	0
<b>Q total (m<sup>3</sup> /day)</b>	<b>25.89</b>	<b>0.72</b>

Reference : J.Patrick Powers, Construction Dewatering and Groundwater Control, 2007

**Drawings**  
Site Location Plan  
Borehole and Section Location Plan  
Sections A-A  
Topographical Map

---





Imagery ©2019 Google, Map data ©2019 Google 20 m

Drawing No. : 1  
 Date: December 17, 2018  
 Scale: As shown

Title: Site Location Plan  
 Project No.: M002568c  
 Project: Proposed Student Focusing Housing  
 Location: 409 Huron Street, Toronto

3 STOREY BRICK UNIVERSITY BUILDING 2.83 M SOUTH FROM NORTHWEST  
CORNER 0.46 M ABOVE GRADE

## REGISTERED PLAN D-207 CITY OF TORONTO

SCALE: 1:200  
0 1 2 3 4 5 10 15m

MANDARIN SURVEYORS LIMITED, O.L.S. ©

METRIC  
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE  
CONVERTED TO FEET BY DIVIDING BY 0.3048

### PART 2 (SURVEY REPORT)

- REGISTERED EASEMENTS AND/OR RIGHT OF WAYS: NONE
- ADDITIONAL COMMENTS: NOTE THE LOCATION OF THE PER  
LIMITS OF THE SUBJECT PROPERTY NOTE THE LOCAL  
CONCRETE RETAINING WALLS OF NO. 409 BPNICHOL LANE, NO  
LOCATION OF THE GARAGE ROOM
- THIS PLAN DOES NOT CERTIFY COMPLIANCE WITH ZONING

THIS REPORT WAS PREPARED FOR IMPRESSIONS GROUP AND  
ACCEPTS NO RESPONSIBILITY FOR ITS USE BY OTHER PARTIES

### LEGEND

- DENOTES MONUMENT SET
- DENOTES MONUMENT FOUND
- ▨ DENOTES IRON BAR
- DENOTES CUT CROSS
- DENOTES REGISTERED PLAN D-207
- DENOTES PLAN OF SURVEY BY WINTERS, MAUGHAN  
DATED APRIL 7, 1981
- DENOTES PLAN OF SURVEY BY C.E. DOTTERILL LTD.  
DATED OCTOBER 12, 1994
- P3 DENOTES PLAN 66R-23543
- P1 DENOTES INSTRUMENT NO. EP129890
- D2 DENOTES INSTRUMENT NO. EP147720
- D3 DENOTES INSTRUMENT NO. CA314640
- M.P DENOTES WILLIAM J. PLATON, O.L.S.
- SWN DENOTES SPIGHT & VAN NOSTRAND, O.L.S.
- CD DENOTES C.E. DOTTERILL, O.L.S.
- CD DENOTES PROPERTY IDENTIFIER NUMBER
- DENOTES NOT IDENTIFIABLE
- (N.S.E.W) DENOTES NORTH, SOUTH, EAST, WEST
- N.S.E.W DENOTES NORTH, SOUTH, EAST, WEST
- LF DENOTES CHAIN LINK FENCE
- CL.F DENOTES CONCRETE RETAINING WALL
- R.W.C DENOTES WITNESSES ESTABLISHED BY INTERSECTION MET
- WIT DENOTES WITNESSES ESTABLISHED BY INTERSECTION MET
- D.S. DENOTES FINISHED SILL ELEVATION AT ENTRY
- CONC. DENOTES CONCRETE
- UNB DENOTES UNDERGROUND UTILITY BOX
- U.P. DENOTES UTILITY POLE
- W.V. DENOTES WATER VALVE
- W.S. DENOTES WATER SIGN
- Q.M.H. DENOTES MAN HOLE
- MC.B. DENOTES CATCH BASIN
- DENOTES CONIFEROUS TREE
- DENOTES DECIDUOUS TREE

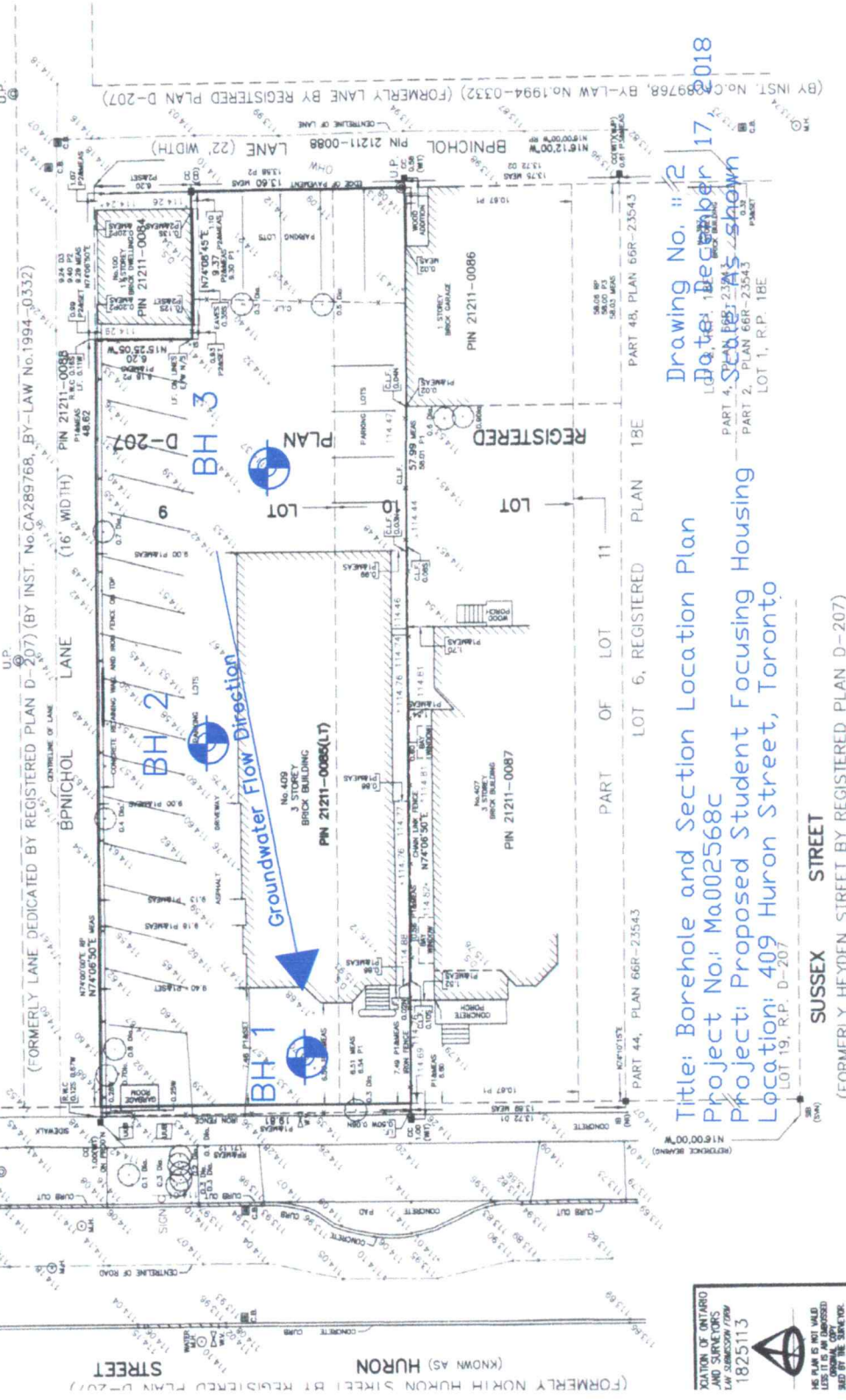
ALL TIES TO FOUNDATION, UNLESS NOTED OTHERWISE.  
BEARINGS SHOWN HEREON ARE ASTROMERIC AND ARE REFER  
EASTERLY LIMIT OF HURON STREET (FORMERLY NORTH HURON  
SHOWN ON REGISTERED PLAN D-207 HAVING A BEARING OF

### SURVEYOR'S CERTIFICATE

- I CERTIFY THAT:
- THIS SURVEY AND PLAN ARE CORRECT AND IN ACCOR  
WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE  
REGULATIONS MADE UNDER THEM.
  - THE SURVEY WAS COMPLETED ON THE 17TH DAY OF  
AUGUST 19, 2018

DATE  
Z. ZEN  
SURVEYOR

MANDARIN SURVEYORS LTD  
ONTARIO LAND SURVEYOR  
WWW.MANDARINSURVEYOR.COM  
42 RAVENCLIFF CRESCENT PH. (416) 497-1366 F  
TORONTO, ONTARIO, M1T 1R8 E-MAIL: MANDARINS  
SURVEY@YR.BZ CAD No. 12-02696PFC 408



STREET (FORMERLY NORTH HURON STREET) BY REGISTERED PLAN D-207  
(KNOWN AS HURON STREET)

STREETS (FORMERLY LANE DEDICATED BY REGISTERED PLAN D-207) (BY INST. NO. CA289768, BY-LAW No. 1994-0332)

UP. (FORMERLY LANE DEDICATED BY REGISTERED PLAN D-207) (BY INST. NO. CA289768, BY-LAW No. 1994-0332)

REGISTRATION NO. 17, 2018  
DATE: DECEMBER 17, 2018  
PART 4, SECTIONS SHOWN  
PART 2, PLAN 66R-23543  
LOT 1, R.P. 18E

**Project:** Proposed Student Focusing Housing

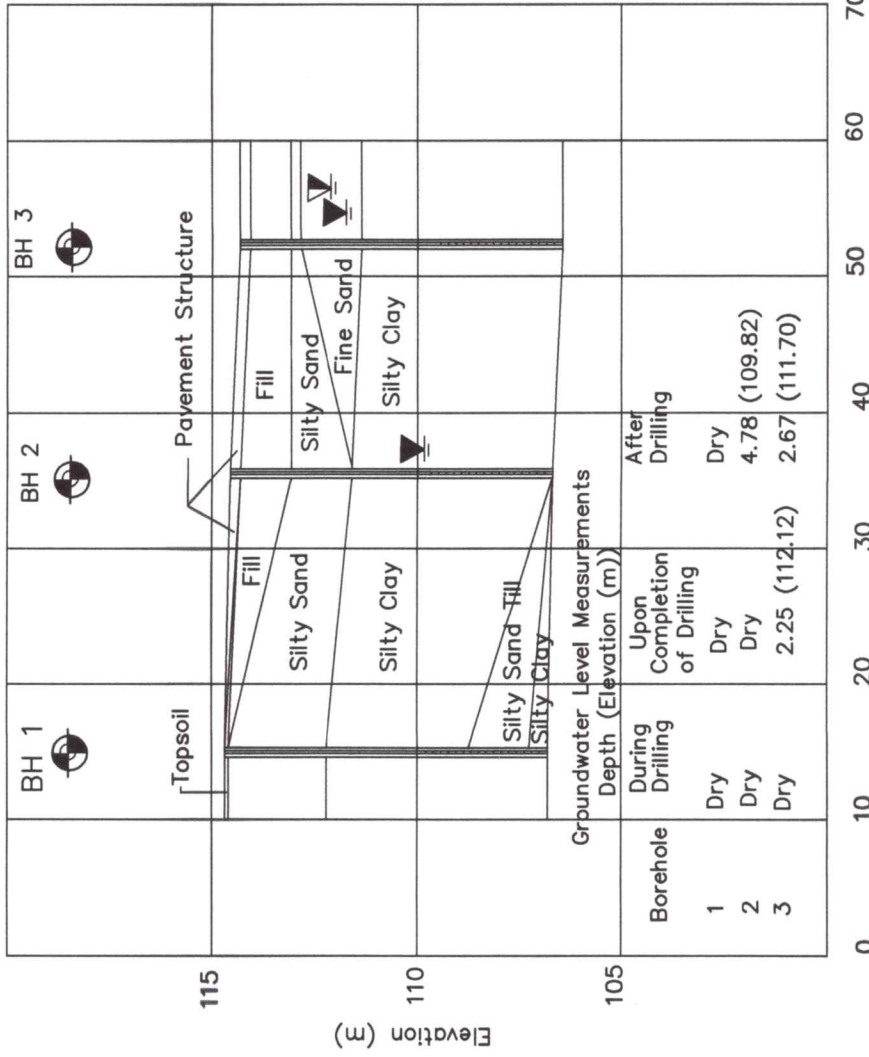
**Location:** 409 Huron Street, Toronto

REGISTRATION NO. 17, 2018  
DATE: DECEMBER 17, 2018

REGISTRATION NO. 17, 2018  
DATE: DECEMBER 17, 2018

SUSSEX STREET (FORMERLY HEYDEN STREET BY REGISTERED PLAN D-207)

THE PLAN IS NOT VALID UNLESS IT IS APPROVED BY THE SURVEYOR.  
DATE: 10/05/2008, REVISED: 20/10/2011



Title: Section A-A  
 Project No.: Ma002568c  
 Project: Proposed Student Focusing Housing  
 Location: 409 Huron Street, Toronto

Drawing No.: 3  
 Date: December 17, 2018  
 Scale: As shown



Title: Topographical Map  
 Project No: Ma002568c  
 Project: Proposed Student Focusing Housing  
 Location: 409 Huron Street, Toronto

Drawing No. #: 4  
 Date: December 17, 2018  
 Scale: As shown