HYDROGEOLOGICAL INVESTIGATION REPORT
PROPOSED HIGH-RISE MIX-USE BUILDING
65 & 71 AGNES STREET, MISSISSAUGA, ONTARIO

Prepared for:

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1.0. INTRODUCTION AND BACKGROUND

Sirati & Partners Consultants Ltd. (SIRATI) was retained by Mr. Bashar Ghreiwati (the Client) to conduct a hydrogeological investigation for a proposed high-rise mix-use building, located at 65 & 71 Agnes Street, Mississauga, Ontario (the Site or the Property).

The Site is a corner lot property located west of the intersection of Cook Street and Agnes Street in the City of Mississauga, Ontario. The approximate Site location is presented in Figure 1-1.

The Property consists of two (2) adjacent properties identified as 65 and 71 Agnes Street, Mississauga, Ontario. The Site has an approximate area of 3,609 m^2 (0.36 ha), with 71.0 m of frontage along Agnes Street. The Site is currently occupied by two (2) single detached homes.

It is understood that the Client intends to build a 28-storey high-rise residential building (278 units) with three (3) levels of underground parking at the Site. A copy of design drawings are included in Appendix A.

1.1. Objective

The purpose of the hydrogeological investigation was to characterize the soil/bedrock and groundwater conditions, assess the requirements for groundwater control, and assess any impacts on the surrounding environment due to the proposed development and provide recommendations or mitigative measures.

1.2. Scope of Work

This hydrogeological investigation was carried out concurrently with a geotechnical investigation at the Site by SIRATI, and consisted of the following completed scope of work:

- **Review of available background information**: a review of available geological and hydrogeological information for the Site and surrounding areas was conducted to understand the regional geological and hydrogeological settings.
- **Review of available investigation reports**: a review of available subsurface investigation reports completed for the Site was conducted to understand the local soil and groundwater conditions of the Site.
- **Site inspection and Water Well Inventory Survey**: an inspection of the Site was conducted to observe the existing site features. In addition, a well inventory survey was conducted via reviewing Ministry of the Environment, Conservation and Parks (MECP) database for the properties within approximately 500 m radius of the site boundary or the estimated zone of influence for assessment of potential impact on the water supply well due to the development.
- **Completion of boreholes/monitoring wells:** Boreholes and monitoring wells were completed across the Site to obtain the information of soil, bedrock and groundwater at the Site.
- **Groundwater monitoring:** Groundwater levels were measured in the monitoring wells installed at the Site to obtain the groundwater level conditions in the Site area for the interpretation of groundwater flow directions.

- **Groundwater Sampling and Testing**: groundwater samples were collected from a selected monitoring well for chemical analysis as per Peel Region Sewer Use Bylaw to assess the general water quality.
- **In-situ hydraulic conductivity tests:** In-situ hydraulic conductivity tests (or single well response tests) in the selected existing monitoring wells to estimate the hydraulic conductivity of the underlying soils.
- **Evaluating short-term and long-term water taking impacts**: Evaluating the need for permit-to-take-water (PTTW) and registration of Environmental Activity and Sector Registry (EASR).
- **Water balance (Preliminary):** a preliminary water balance assessment was completed using the Thornthwaite water balance method for the proposed development as part of the hydrogeological study. The water balance study was based on available climatic information associated with pre-development and proposed post-development conditions at the subject lands.
- **Data processing and report preparation:** the data obtained from this hydrogeological investigation was reviewed and processed, and a report was prepared summarizing the results and findings of the investigation.

2.0. DEVELOPMENT PLAN

Based on the site development drawings provided by the Client, the Site has a total area of 3,609 m^2, and is currently occupied by two (2) single detached houses, which will be demolished during the proposed development.

It is understood that the Property is to be developed with a 28-storey residential high-rise building (278 units) with three (3) levels (P1 to P3) of underground parking. A total of 237 vehicle parking spaces and 202 bicycle parking spaces have been proposed in the design. The current Site features and the design drawings are shown and provided in Appendix A.

3.0. ENVIRONMENTAL FEATURES

To assess environmental features, the databases maintained by the Ministry of Natural Resources and Forestry (MNRF), the Ministry of Environment, Conservation and Parks (MECP), and the Credit Valley Conservation (CVC) were reviewed.

Based on the data reviewed, the Site is located in the Lake Ontario East Tributaries Subwatershed in the Credit River Watershed under the jurisdiction of Credit River Conservation (CVC). As shown on Figure 3-1, the Site is located within the Cooksville Creek (tributary) Watershed. The Cooksville Creek drains into the Lake Ontario and is found to be flowing southeast and crossing Dundas Street West at the location about 450 m northeast of the Site. However, no creeks or waterbodies are present or adjacent to the Site. As a result, no CVC regulated area is located within the Site.

Based on the MNRF database, the Site is not located in an area of natural heritage & scientific interest (ANSI) or in a wetland or woodland area.

Based on review of the MECP's Source Protection Information Atlas, the Site is not located within a Wellhead Protection Area (WHPA), a Highly Vulnerable Aquifers (HVA) area, or surface water Intake Protection Zone (IPZ).

4.0. PHYSICAL SETTING

4.1. Topography and Drainage

Using the interactive topographic map generator (https://atlas.gc.ca), the topography in the vicinity of the Property is generally controlled by the distribution of the Cooksville Creek (tributary) watershed, and the Cooksville Creek surface drainage drains into the Lake Ontario. As shown in Figure 4-1, the topographic elevation at the Site ranges between 110 m above mean sea level (mAMSL) and 120 mAMSL, with a general slope towards the southeast.

Based on the borehole elevation survey carried out by SIRATI, the highest elevation was measured to be 113.8 mAMSL at BH4 while the lowest elevation was measured to be 112.6 mAMSL at BH3.

4.2. Physiography

According to Chapman and Putnam (1984), and the Physiography Map of Southern Ontario (Map P. 2715, Scale 1: 600,000) prepared by the Ontario Department of Mines and Northern Affairs, the Site is located in the boundary area between Iroquois Plain physiographical region and South Slope physiographical region.

Figure 4-2 shows the approximate location of the Site and the physiography regions.

4.3. Overburden

Based to the Map of Quaternary Geology of Ontario (Map 2556, Scale 1:1,000,000) prepared by the Ontario Department of Northern Development and Mines and database maintained by the Ontario Geological Survey, the Site is located in a Paleozoic Bedrock area with undifferentiated carbonate and clastic sedimentary rock, exposed at surface or covered by discontinuous, thin layer of drift.

Figure 4-3 shows the Quaternary Geology of the Site.

4.4. Bedrock Geology

According to the Map of Bedrock Geology of Ontario (Map 2544, Scale 1:1,000,000), prepared by the Ontario Department of Northern Development and Mines, the Site is underlain by the Upper Ordovician Georgian Bay Formation composed of blue-grey shales with interbeds of siltstone, sandstone, limestone and dolostone.

Figure 4-4 presents the approximate site location in Georgian Bay Formation bedrock area.

5.0. REGIONAL HYDROGEOLOGY

Water well records on file with the Ministry of the MECP were used as a database for this hydrogeological assessment. A total of seventy-one (71) water well records were found within a radius of 500 m from the Site, which are summarized in Appendix B. The approximate locations of the recorded MECP water wells are shown on Figure 5-1.

Based on the MECP's well records, one (1) record (Well ID# 4902212) was filed for water supply use, and the other records were filed for monitoring wells, observation wells, abandoned wells or were records with no detailed well use information. One (1) well record (#7241290) recorded as a monitoring/observation well was found to be located on Site. A summary of the water supply well and on-site monitoring well is presented in Table 5-1 below.

Table 5-1: Summary of Recorded MECP Water Supply Well and on-site Monitoring Well

Well ID	Well Use	Location	Screen Depth	Soil/bedrock	Groundwater
4902212	Domestic	About 450 m southwest of the Site	Open hole: 4.6 ~ 16.5 mbgs, shale	0 ~ 0.6 mbgs: fill 0.6 ~ 2.4 mbgs: clay 2.4 ~ 16.5 mbgs: shale	Fresh water found at 15.5 mbgs; static water level at 2.1 mbgs
7241290	monitoring/ observation well	On -site	Screen: 6.5 ~ 9.5 mbgs, shale	0 ~ 0.3 mbgs: loam 0.3 ~ 3.1 mbgs: fine sand 3.1 ~ 9.5 mbgs: shale	No information

Based on the details in the water well records, the overburden material encountered consisted of sand, silt and/ clay. Bedrock (shale) was encountered at a number of the well locations at the depth from the surface to about 6.1 mbgs.

6.0. FIELD WORK METHODOLOGY

6.1. Borehole Drilling and Monitoring Well Installation

Borehole drillings and well installations were carried out at the Site, between April 26th and 29th, 2021, as part of geotechnical investigation conducted by SIRATI. A total of five (5) boreholes (BH1 through BH5) were advanced into bedrock to depths ranging from 5.2 mbgs to 21.0 mbgs (BH1 was cored to a depth of 21.0 mbgs). Three (3) monitoring wells identified as BH/MW1, BH/MW3 and BH/MW4 were installed in Boreholes BH1, BH3 and BH5, respectively. The monitoring wells consisted of 50 mm diameter, 1.5 m or 3 m long, PVC screens. The approximate borehole and monitoring well locations are shown in Figure 6-1. Details of the boreholes and monitoring wells are included in borehole logs in Appendix C.

As discussed in Section 5.0, one (1) MECP water well recorded as monitoring well was found on Site, which is labeled as EMW and shown on Figure 6-1.

The soil and bedrock features encountered in the borehole locations are provided in Borehole Logs in Appendix C and in MECP water well records in Appendix B. The construction details for the monitoring wells are presented in Table 6-1 below.

Table 6-1 Monitoring Well Construction Details

Monitoring Well	Ground Elevation (mAMSL)	Borehole Depth (mbgs)	MW Depth (mbgs)	Screen Interval (mbgs)	Screened Soil/Bedrock
BH/MW1	113.35	21	21	18 ~ 21	Shale Bedrock
BH/MW3	112.57	5.2	5.2	3.7 ~ 5.2	Shale Bedrock
BH/MW4	113.79	5.5	5.5	2.4 ~ 5.5	Sand, Shale Bedrock
EMW	112.76	9.5	9.5	6.5 ~ 9.5	Shale Bedrock

Notes: mAMSL – metres above mean sea level; mbgs – metres below ground surface

6.2. Groundwater Monitoring and Elevation Survey

After the well installation, groundwater levels were measured on May 10, 2021, in the existing and newly installed monitoring wells. In addition, the location and elevation survey were conducted using a GPS unit on the boreholes and the monitoring wells completed at the Site.

6.3. Hydraulic Conductivity Test (Single Well Response Test/Slug Test)

In-situ hydraulic conductivity tests, also called as single well response test or slug test, were conducted on three (3) monitoring wells at BH/MW1, BH/MW3 and BH/MW4 on May 10, 2021. During the test, a datalogger was placed in the tested monitoring well after the initial water level was measured. Then, a certain amount of water was removed from the test well (for a rising head test) to create a water level drawdown in the well. The recovery of water level was recorded by the datalogger, and the data was then used for estimating the hydraulic conductivity of the screened soil or bedrock.

6.4. Groundwater Sampling and Chemical Testing

Groundwater sample was collected on May 10, 2021, from Monitoring Well BH/MW3 for chemical testing to assess the general water quality for the purpose of disposal of excess water potentially generated from the Site.

The groundwater samples were submitted to AGAT Laboratories (AGAT) for analysis as per Peel Region-law Region Sewer Use Bylaw. In addition, one (1) filtered water sample was analyzed for metals.

7.0. SUMMARIZED SITE CONDITIONS

7.1. Soil Stratigraphy

The soils retrieved during the borehole drilling were observed. The soils encountered at the borehole locations generally consisted of fill materials beneath topsoil, underlain by native soils and followed by shale bedrock. The fill materials were found to consist mainly of sand, trace to some silt. The native soils mainly consisted of cohesionless soils mainly composed of sand, locally with silt.

The main soil types encountered at the Site included the following:

- Topsoil: found at all locations with a thickness ranging between 100 mm and 300 mm.
- Fill materials: encountered in all the borehole locations, mainly consisting of sand, trace silt which extending to a maximum depth of 3.2 mbgs.
- Sand: found in all boreholes at depths from 1.5 mbgs to 3.2 mbgs.
- Silt: a thin layer of silt was encountered in BH/MW4 and BH5 from the depth ranging from 3.1 mbgs to 3.3 mbgs.
- Shale Bedrock (Georgian Bay Formation): encountered in all boreholes at depths ranging from 3.1 mbgs to 3.3 mbgs.

The details of the soil descriptions are presented in the Borehole Logs in Appendix C. A geological cross-section profile is presented in Figure 7-1.

7.2. Groundwater Conditions

Groundwater conditions were observed during the borehole drilling. Wet soil was noted in soil sample collected at BH5 only.

7.2.1.1. Groundwater Levels and Elevations

Groundwater levels were measured on May 10, 2021, in the existing and new monitoring wells installed at the Site. The measured and recorded groundwater levels are presented in Table 7-1 below.

Table 7-1 Measured Groundwater Levels in Monitoring Wells

Monitoring Well	Ground Elevation (mAMSL)	Screen Depth (mbgs)	Date: May 10, 2021	
			Depth to Groundwater (mbgs)	Groundwater Elevation (mAMSL)
BH/MW1	113.35	18 ~ 21	5.32	108.03
BH/MW3	112.57	3.7 ~ 5.2	3.19	109.38
BH/MW4	113.79	2.4 ~ 5.5	4.14	109.65
EMW	112.76	6.5 ~ 9.5	4.66	108.10

Notes: mAMSL – metres above mean sea level; mbgs – metres below ground surface.

As presented above, the groundwater levels measured in the monitoring wells across the Site ranged from 3.19 mbgs at BH/MW3 to 5.32 mbgs at BH/MW1, while elevations ranged from 108.03 mAMSL at BH/MW1 to 109.65 mAMSL at BH/MW4.

7.2.1.2. Groundwater Flow Direction

Based on the water level elevations dated May10, 2021, groundwater elevation contours were constructed. Accordingly, the groundwater flow direction was inferred to be towards the east to southeast, as shown on Figure 7-2.

7.3. Estimated Hydraulic Conductivity

The hydraulic conductivity (K-value) of the screen bedrock was estimated based on the results obtained from the single well response tests (slug tests).

Single well response tests or slug tests were conducted as part of this hydrogeological study in three monitoring wells (BH/MW1, BH/MW3 and BH/MW4) on May 10, 2021. A falling head test was performed in the tests. Based on the data obtained from the single well response test/slug test, the hydraulic conductivity for the screened bedrock was estimated utilizing the Aqtesolv pumping test software with the Hvorslev method. Records of the slug tests and the data processing are provided in Appendix D. The results of the estimated hydraulic conductivity are summarized in Table 7-2 below.

Table 7-2: Results of Estimated Hydraulic Conductivity as per Slug Tests

Monitoring Well	Screen Depth (mbgs)	Tested Soil Type	Hydraulic Conductivity (m/s)
BH/MW1	18 ~ 21	Shale Bedrock	7.8×10^{-7}
BH/MW3	3.7 ~ 5.2	Shale Bedrock	1.8×10^{-6}
BH/MW4	2.4 ~ 5.5	Shale Bedrock	9.5×10^{-7}
Geometric Mean			1.1×10^{-6}

As presented above, the estimated hydraulic conductivity ranged from 7.8×10^{-7} m/s to 1.8×10^{-6} m/s, with a geometric mean of 1.1×10^{-6} m/s.

7.4. Groundwater Quality

Groundwater samples were taken from BH/MW3 on May 10, 2021, and were submitted to AGAT for analysis as per the Peel Region Sewer Use By-Law (53-2010). For comparison purpose, one (1) water sample filtered in the laboratory was analyzed for metals. The analytical results for the analyzed groundwater samples are included in Appendix E.

The analytical results were compared with the Limits for Peel Region Sewer Use By-law, and exceedances were found for a number of parameters. The details of the exceedances are presented in Table 7-3 below.

Table 7-3 Guideline Violation of Peel Region Sewer Use By-Law 53-2010 (Unit in mg/L)

Filed Sample ID	Filtration	Parameter	Peel Storm Sewer Guideline Value	Peel Sanitary Sewer Guideline Value	Results
BH/MW03	Unfiltered	Total Manganese	**0.05**	5	4.00
		Total Nickel	**0.08**	3	0.35
		Total Phosphorus	**0.4**	10	0.67
		Total Suspended Solids	**15**	**350**	1310
		Total Zinc	**0.04**	3	1.09

Filed Sample ID	Filtration	Parameter	Peel Storm Sewer Guideline Value	Peel Sanitary Sewer Guideline Value	Results
		Total Aluminum	-	**50**	132
BH/MW03 DS	Filter	Total Manganese	**0.05**	5	0.449
		Total Zinc	**0.04**	3	0.054

Note: Bolded and Underlined standard value exceeded by the analyzed sample

Based on the results of the chemical analysis, the following comments on the groundwater quality could be made.

- Exceedances of the Peel Storm sewer standards were found for a number of parameters in both the unfiltered and the filtered groundwater samples.
- Exceedances of the Peel Sanitary sewer standards were found for total suspended solids (TSS) and total aluminum in the unfiltered groundwater samples. No exceedances were found for metals in the filtered groundwater samples.
- The groundwater generated from the construction dewatering at the Site may meet the sanitary sewer standards after filtration or settling treatment and can be considered to be discharged to the local sanitary sewer system.
- The groundwater generated from the construction dewatering at the Site may not meet the storm sewer standards without additional treatment for removal of manganese and zinc.

8.0. CONSTRUCTION DEWATERING

Construction dewatering is intended to lower the groundwater levels in the excavation area in order to ensure a dry working condition.

The requirements for construction dewatering generally depend on the Site's soil and groundwater conditions including soil type, soil/bedrock permeability or hydraulic conductivity, local groundwater levels, and the design of the proposed development such as the foundation and/or basement elevation, as well as the size of proposed structure, etc.

8.1. Proposed Development, Anticipated Excavation and Dewatering

As mentioned earlier, the Property is to be developed with a 28-storey high-rise mix-use building with three (3) levels (P1 to P3) of underground parking. As per the design, the finished floor elevation for P3 Level will be at 10.2 m below the ground floor.

Based on ground survey information on the borehole at the Site, the average ground elevation is calculated to be about 113.4 mAMSL. Assuming that the established ground floor elevation will be at 113.4 mAMSL, the finished floor elevation for P3 Level will be 103.2 mAMSL. Assuming that the excavation for footing construction will be 1 m below the finished floor of P3 Level, the excavation may extend to the elevation of 102.2 mAMSL for concrete slab P3 Level.

Based on the groundwater level records, the measured groundwater levels ranged from 108.03 mAMSL to 109.65 mAMSL, which is above the anticipated excavation. Therefore, groundwater control shall be considered during the construction. In addition, long-term subdrainage discharge will be considered assuming the sub-drainage systems are placed at the same level as the finished floor of the lowest P3 Level.

8.2. Construction Dewatering Rate Estimation (Short-term)

Based on the observed site condition and expected excavation, the excavation for P3 Level will cut through the overburden soils and into shale bedrock. As per the design drawings, the underground level area is almost the same as the site area (.

To estimate the construction dewatering volume, the following equation for an unconfined aquifer at a steady-state condition was used.

$$Q = K*(H^2-h_w^2) / [0.733 * \log (R/r_e)]$$

Where: Q = dewatering rate (m/s)

K = average hydraulic conductivity for silt (m/s)

H = aquifer thickness or initial water level to reference datum (m)

h_w = target water level to a reference datum (1 m)

r_e = effective radius = (excavation area/π)$^{1/2}$ (m)

R_o = zone of influence = 3000 x (H-h_w) x $K^{1/2}$ (m, from the edge of excavation)

R = zone of influence = r_e + R_o (m, from the centre of excavation)

The following assumptions or assumed parameters will be applied in estimating the construction dewatering rate.

- The initial groundwater elevation at 110 mAMSL (seasonal fluctuation considered on the highest groundwater level measured at 109.65 mAMSL)
- The target dewatering elevation at 101.2 mAMSL for P3 Level excavation (assuming 1 m below the target excavation)
- The dewatering area dimensions is 3,609 m^2 (same as site area).
- The hydraulic conductivity (3.3 x 10^{-6} m/s), three times the average of hydraulic conductivity estimated at three (3) locations.

Based on the assumptions, the dewatering rate for excavation and construction of the building foundation (including ground floor and underground level) was estimated to be approximately 193,044 L/day with a safety factor of 2 applied, for the purpose of temporary dewatering designing and permit application/registration. The estimated zone of influence was 82 m from the center of excavation, or about 48 m from the edge of excavation.

It should be noted that the application of a safety factor is considered for a more conservative assessment to cover or address some uncertainties in order to provide the reference for dewatering designing and/or for permit application. It is known that the equation used in dewatering rate estimation is applied for a steady state condition. In general, at the beginning of the pumping, the pumping rate may be greater than that at the steady state condition, because the water stored in the soils and bedrock shall be removed as well. Moreover, the overburden soils are usually more permeable than the bedrock, although the saturated thickness would be limited.

To account for the stormwater runoff on a rainy day during the construction at the Site, a 20 mm daily rainfall has been considered for the purpose of dewatering design. It is known that the gross excavation area is 2,790.3 m^2. The total runoff volume is given by the following formula:

Total Runoff Volume (V) per day = Excavation Area x Rainfall Intensity

= 3,609 m^2 x 0.02 m/day

= 72.18 m^3 /day or 72,180 L/day.

Hence, the maximum short-term dewatering volume including the stormwater to be accumulated inside the excavation is 265,224 L/day (or 193,044 L/day plus 72,180 L/day). The details of the calculations are provided in Appendix F.

8.3. Sub-drainage Dewatering (Long-term)

Given that the lower underground parking levels are anticipated to be below the groundwater table, the perimeter and/or underfloor drainage system would be installed for the proposed building to avoid hydrostatic pressure from groundwater on the footing walls, the lowest underground level floor as well as to achieve a dry condition for the underground parking levels.

As per the design, the footprint area for the underground levels is 3,380 m^2. To estimate the long term subdrainage system dewatering volume, the equation in Section 8.2 was used.

The following assumptions or assumed parameters will be applied in estimating the construction dewatering rate.

- The initial groundwater elevation at 110 mAMSL (seasonal fluctuation considered on the highest groundwater level measured at 109.65 mAMSL)
- The target dewatering elevation at 103.2 mAMSL for P3 Level excavation (assuming sub-drainage at the same level as P3 Level)
- The dewatering area dimensions is 3,609 m^2 (same as site area).
- The hydraulic conductivity (3.3 x 10^{-6} m/s), three times the average of hydraulic conductivity estimated at three (3) locations.

Based on the above assumptions, the long-term sub-drain dewatering discharge was estimated to be 84,068 L/day with a safety factor of 1.5 applied. The zone of influence was calculated to be 37 m from the edge of the building (Appendix F).

It should be noted that should details of weeping tile or sub-drain system be made available, the long-term dewatering estimation should be re-evaluated accordingly. The civil engineers should at their discretion consider a safety factor when doing the design.

8.4. Regulatory Permits or Registration

Any construction dewatering or water taking in Ontario are governed by Ontario Regulation 387/04 – Water Taking and Transfer, an Ontario regulation made under the Ontario Water Resource Act (OWRA), and/or Ontario Regulation 63/16 – Registration under Part II.2 of the Act – Water Taking, made under Environmental Protection Act and/or Section 34 of the Ontario Water Resources Act (OWRA).

According to Section 34 of the OWRA, any water taking over 50,000 litres per day may not take place without a valid permit, which shall be applied and obtained in accordance with the MECP's permit-to-take-water (PTTW) Manual, dated April 2005.

According to O. Reg. 63/16, a PTTW will not be required for temporary construction dewatering (for six months or less) in an amount greater than 50,000 L/day but less than 400,000 L/day. However, a registration or posting shall be processed through Environmental Activity and Sector Registry (EASR).

Based on the dewatering rate estimation, the temporary construction dewatering will be 265,224 L/day with 193,044 L/day of groundwater. Therefore, a PTTW will not be required for the short-term dewatering. However, an EASR registration will be required for temporary construction dewatering.

The estimated long-term drainage discharge is 84,068 L/day, which exceeds the limit of 50,000 L/day. Therefore, a PTTW will be required for the long-term drainage.

9.0. WATER BALANCE (PRELIMINARY)

A preliminary water balance for the Site was calculated for both pre-development and post-development conditions in order to assess the change in overall rate of infiltration.

9.1. Site Condition

The Site is currently occupied with two (2) residential buildings which will be demolished for the proposed development. There are no creeks, woodlands and wetlands located on the Site.

Based on the design drawings, the proposed development consists of a 28-storey building with three (3) levels of underground parking.

For the purpose of water balance assessment, the development area can be categorized into three (3) types of areas: paved area, building/roof area and landscape area, which are shown on Figures 9-1 and 9-2. A summary of the surface areas of the development site is presented in Table 9-1.

Table 9-1: Pre-and Post-Development Site Conditions

Areas	Type of Land Coverage	Pre-Development Area (m^2)	Post- Development Area (m^2)
Impervious Area	Paved Area	250	1,754
	Building/Roof Area	275	968
Pervious Area	Landscape Area	3,084	887
Total (m^2)		**3,609**	**3,609**

9.2. Site Level Water Balance

Based on the Thornthwaite and Mather methodology (1957), the water balance is an accounting of water in the hydrologic cycle. Precipitation (P) falls as rain and snow. It can run off towards lakes and streams (R), infiltrate to the groundwater table (I), or evaporate from ground or evapotranspiration by vegetation (ET). When long-term average values of P, R, I, and ET are used, there is minimal or no net change to groundwater storage (ΔS).

The annual water budget can be expressed as:

$$P = ET + R + I + \Delta S$$

Where:

P = Precipitation (mm/year)
ET = Evapotranspiration (mm/year)
R = Run-off (mm/year)
I = Infiltration (mm/year)
ΔS = Change in groundwater storage (taken as zero) (mm/year)

9.3. Climatic Data

The climatic data including monthly average temperature and precipitation were obtained from Environment Canada, for Toronto Island A weather station (Climate Identifier: 6158665, 43°38'N, 79°24'W) located at about 18.5 km distance from the Site.

Data was available between the years 1958 to 1994, i.e., 36 years. Temporal variations of mean annual temperature and precipitation are shown on Figures 9-3 and 9-4.

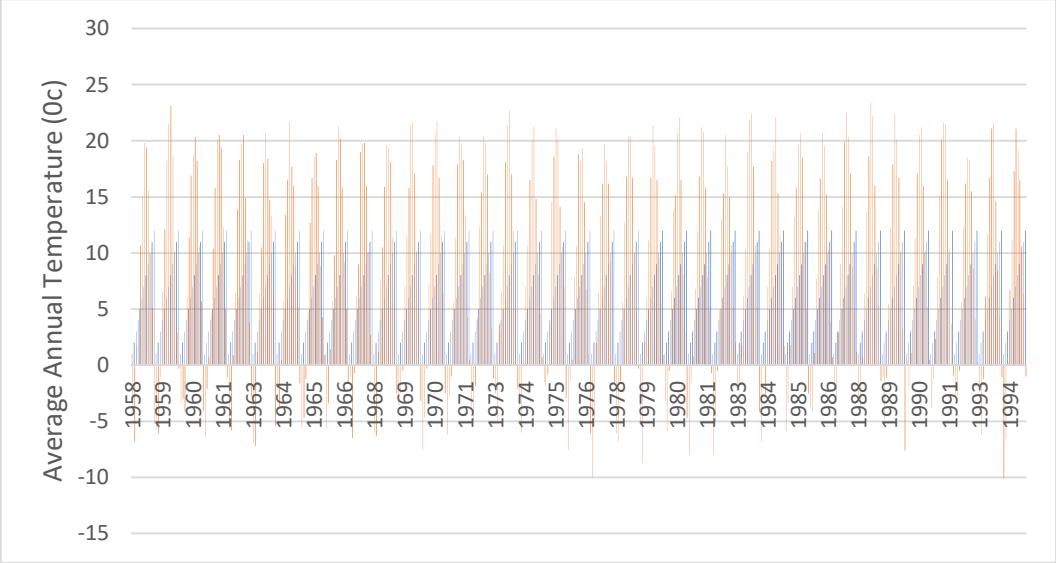

Figure 9-3: Mean Annual Temperature at the Site

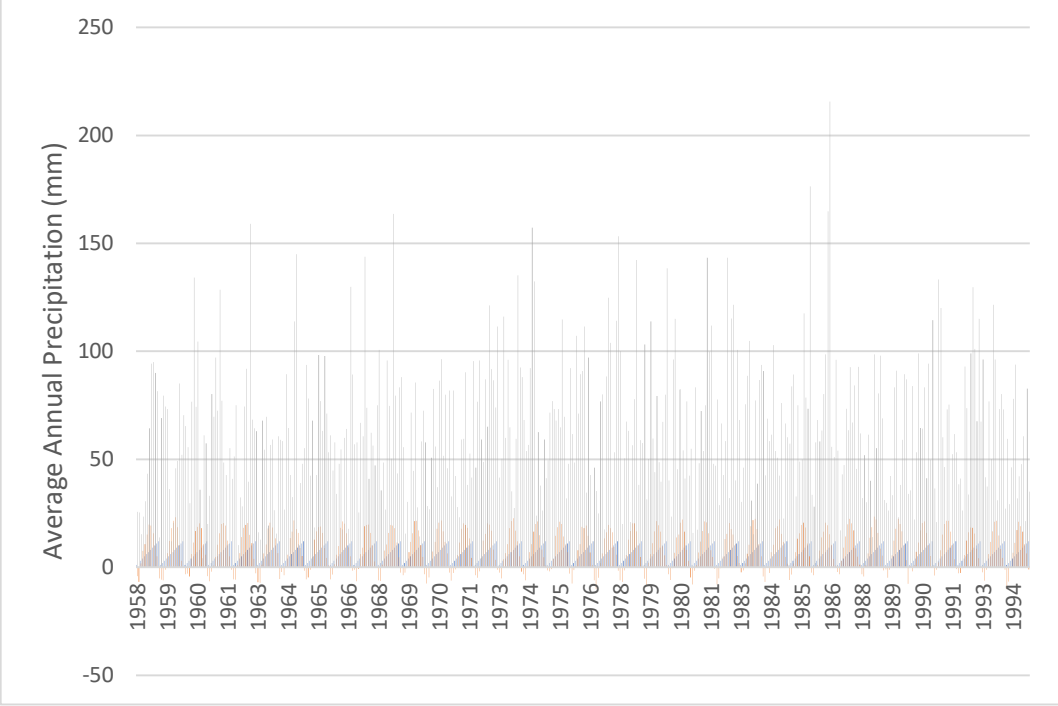

Figure 9-4: Mean Annual Precipitation at the Site

Average monthly variations of both temperature and precipitation were calculated for the period from 1958 to 1994 (36 years) and is presented below in Figure 9-5. The highest average temperature was recorded in the month of July, while the highest precipitation was in the month of August.

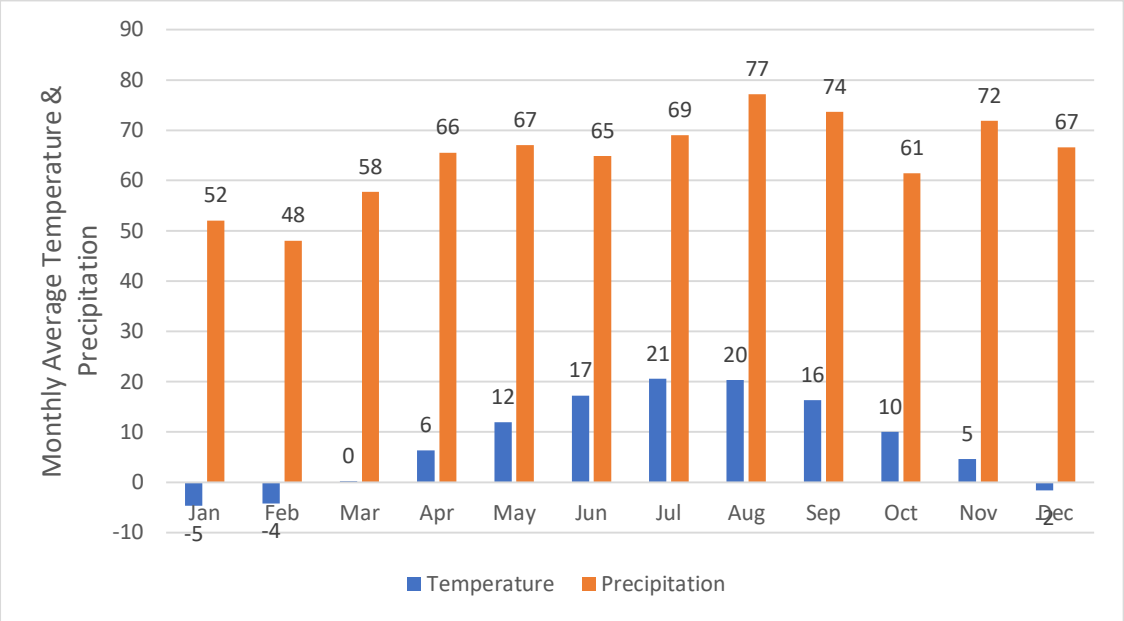

Figure 9-5: Mean Monthly Average Temperature and Precipitation at the Site

Based on the data for the precipitation and temperature, actual evapotranspiration was estimated to be about 572 mm/annum using the USGS Thornthwaite Monthly Water Balance software (Appendix G), and the average annual precipitation was recorded to be 844 mm/annum.

9.4. Infiltration and Run-off

As mentioned above, the actual evapotranspiration was estimated to be 572 mm/annum. Given the average annual precipitation of 844 mm/annum, there is a water surplus of 272 (=844-572) mm/annum occurring at the Site, which can either infiltrate into subsurface or go as run-off.

The rate of infiltration at a site is expected to vary, based on a number of factors to be considered in any infiltration model. To partition the available water surpluses into infiltration and surface run-off, the Ministry of Environment, Conservation and Parks (MECP) infiltration factor was used. The MECP Storm Water Management Planning and Design Manual (2003) methodology for calculating total infiltration based on topography, soil type and land cover was used, and a corresponding run-off component was calculated for the soil moisture storage conditions.

9.5. Water Balance/Budgets

The calculation of infiltration and runoff in the stages of pre-development and post-development is provided in Appendix G and are presented in Tables 9-2 to 9-4 below.

Table 9-2: Annual Pre-Development Water Balance

Land Use		Area (m^2)	Precipitation (m^3)	Evapotranspiration (m^3)	Infiltration (m^3)	Run-off (m^3)
Impervious Areas	Paved Area	250	211	21	0	190
	Building/Roof Area	275	232	23	0	209
Pervious Areas	Landscape Area	3,084	2,603	1,764	587	252
		3,609	**3,046**	**1,808**	**587**	**650**
Assuming no infiltration occurring in paved and roof areas, 10% of precipitation to be evaporated from paved and roof areas.						

Table 9-3: Annual Post-Development Water Balance

Land Use		Area (m^2)	Precipitation (m^3)	Evapotranspiration (m^3)	Infiltration (m^3)	Run-off (m^3)
Impervious Areas	Paved Area	1754	1,480	148	0	1,332
	Building/Roof Area	968	817	82	0	735
Pervious Areas	Landscape Area	887	749	507	169	72
		3,609	**3,046**	**737**	**169**	**2,140**
Assuming no infiltration occurring in paved and roof areas, 10% of precipitation to be evaporated from paved and general roof areas.						

Table 9-4: Comparison of Pre- and Post Development Water Balance Components

	Precipitation (m^3)	Evapotranspiration (m^3)	Infiltration (m^3)	Run-off (m^3)
Pre-Development	**3,046**	**1,808**	**587**	**650**
Post-Development	**3,046**	**737**	**169**	**2,140**
Change in Volume		**-1,071**	**-418**	**1,490**
Change in (%)			**-71**	**229**

9.6. Summary of Water Balance Calculation

Based on the above calculations, a summary could be made as follows:

1) There is a net increase in run-off at the Site of about 1,490 m^3/annum (or 229% increase), from 650 m^3/annum to 2,140 m^3/annum. This increase is a result of the development of the Site with more impervious areas such as roof and paved areas and reduction in pervious areas.
2) Without implementation of mitigation measures, there is a net deficit of about 418 m^3 /annum (71% decrease) in the post-development infiltration from 587 m^3 to 169 m^3 on a yearly basis.

10.0. ASSESSMENT OF POTENTIAL IMPACTS

An assessment was made on the potential impacts due to short-term construction dewatering or long-term drainage on the natural features and/or use of water wells.

10.1. Natural Features

As discussed, no natural features such as wetlands, woodlands, and creeks are present on or adjacent to the Site. Therefore, any impact on the natural features on or near the Site would not be anticipated.

10.2. Private Water Wells near the Site

The MECP water well database indicated that there are no water supply wells identified within 500 m of the Site. Given that the Site and its vicinity are located in an urban area of the City of Mississauga, where city water is provided, the impact due to the proposed development on the private water wells would not be anticipated.

10.3. Source Water Protection Area

The Site does not lie either in a groundwater wellhead protection area (WHPA), surface water intake protection zones, Significant Groundwater Recharge Area (SGRA) or a Highly Vulnerable Aquifer (HVA) area, and hence there should be no impacts on the water sources (surface water or groundwater) due to the proposed development. However, due to the proposed development, infiltration will be reduced because of the reduced pervious area at the Site.

10.4. Ground Settlement

Based on the dewatering requirement assessment, the maximum zone of influence was estimated to be 48 m from the edge of excavation due to short term construction dewatering and 37 m from the edge of the building. There are existing buildings located within the estimated one of influence, which include an apartment building on the property to the southwest of the Site and residential buildings located to the northwest of the Site.

As a result, the potential dewatering activities may likely cause a concern of ground settlement on the neighboring properties.

11.0. CONCLUSIONS AND RECOMMENDATIONS

This report was prepared by SIRATI in support of a proposed re-development at the Site located at 65 & 71 Agnes Street, in the City of Mississauga, Ontario. Based on the hydrogeological investigation conducted on the Site, the following conclusions and recommendations are presented:

- The Site and its vicinity falls within the Lake Ontario East Tributaries Subwatershed in Credit River Watershed under the jurisdiction of the Credit River Conservation (CVC). The Site is located within the Cooksville Creek (tributary) (sub)watershed, and the Cooksville Creek drains into the Lake Ontario at the location about 4.5 km southeast of the Site. No creeks or waterbodies are present at the Site.
- The Site is located in the boundary area between the Iroquois Plain physiographic region and the South Slope physiographic region, cover by thin layer of drift deposits and underlain by shale of the Upper Ordovician Georgian Bay Formation composed of blue-grey shales with interbeds of siltstone, sandstone, limestone and dolostone.
- The soil stratigraphy revealed at the Site generally consisted of fill materials under the topsoil, underlain by native soil of sand, locally with silt, and then by shale bedrock. The bedrock was encountered at the depths ranging from 3.1 mbgs to 3.3 mbgs.
- Groundwater levels measured in the monitoring wells ranged from 3.19 mbgs to 5.32 mbgs, while elevations ranged from 108.03 mAMSL to 109.65 mAMSL.
- The hydraulic conductivity estimated for the screened shale bedrock ranged from 7.8×10^{-7} cm/s to from 1.8×10^{-6} cm/s, with a geometric mean of 1.1×10^{-6} cm/s.
- Based on the soil and groundwater conditions and the proposed development design, the short-term dewatering rate is anticipated to be approximately 265,224 L/day with a safety factor of 2 considered, which includes the runoff accumulated due to 20 mm daily precipitation. A PTTW will not be required, but an EASR registration shall be processed for the anticipated temporary construction dewatering.
- The long-term sub-drain discharge is anticipated to be approximately 84,068 L/day (with a safety factor of 1.5 considered). A PTTW will be required for the proposed long-term sub-drainage discharge.
- The maximum zone of influence due to the construction dewatering was estimated to be approximately 48 m from the edge of the excavation or building.
- The water quality data of filtered groundwater samples met the Peel Region Sanitary Sewer Use By-Law, while the filtered and unfiltered samples exceeded the criteria of the Peel Region Storm Sewer Use By-Law. Therefore, the groundwater generated from the construction dewatering at the Site can be considered to be discharged to the local sanitary sewer system after filtration or settling treatment. Should the water generated be discharged to the storm water sewer system, additional treatment shall be applied.
- A permit or agreement to use the sewer system shall be obtained from the local government or agency prior to water discharge.

- Based on the water balance assessment, an infiltration deficit is anticipated in an amount of 418 m^3/year, while the runoff will increase by 1,490 m^3/year.
- The design and installation of a construction dewatering system is usually the responsibility of the construction contractor. The contractor should verify the information presented in this report. This may be done by examining the hydrogeological conditions in a large test pit or a full-range pumping test by the dewatering subcontractor.
- It is recommended to conduct surveying and monitoring prior to and during construction dewatering to monitor any settlement effects on existing buildings and structures on the neighbouring properties.
- During the period of active dewatering, water levels should be monitored within the excavation footprints and around the perimeter of the excavation to confirm the zone of influence from dewatering system. In addition, the discharge quality should be monitored.
- The records of all water taking must be maintained, including the dates and duration of water takings, and the total measured volume of water pumped per day for each day that water is taken. These records must be kept up to date and available at or near the Site of the water taking so that they can be produced for inspection if requested by Provincial or Municipal Officers.

12.0. SELECTED BIBLIOGRAPHY

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Surficial Geology of Southern Ontario; Ontario Ministry of Northern Development, Mines and Forestry; http://www.mndmf.gov.on.ca/mines/ogs_earth_e.asp; 2010

MECP on-line databases

TRCA on-line database

13.0. LIMITATIONS AND USE OF THE REPORT

This report was produced by SIRATI for the sole use of the Client for the Site and may not be relied upon by any other person or entity without the written authorization of SIRATI. The conclusions presented in this report are professional opinions based on the historical and current records search, visual observations and limited information provided by persons knowledgeable about past and current activities on this site. As such, SIRATI cannot be held responsible for environmental conditions at the Property that was not apparent from the available information. No investigation method can completely eliminate the possibility of obtaining partially imprecise or incomplete information; it can only reduce the possibility to an acceptable level.

Professional judgement was exercised in gathering and analyzing data and formulation of recommendations using current industry guidelines and standards. Similar to all professional persons rendering advice, SIRATI cannot act as absolute insurer of the conclusion we have reached. No additional warranty or representation, expressed or implied, is included or intended in this report other than stated herein the report.

The assessment should not be considered a comprehensive audit that eliminates all risks of encountering environmental problems. The information presented herein this report is primarily based on information collected during the hydrogeological study based on the condition of the Property at the time of site inspection/drilling followed by a review of historical data, as appended to this report.

In assessing the environmental setting of the Property, SIRATI has solely relied upon information supplied by others in good faith and has therefore assumed that the information supplied is factual and accurate. We accept no responsibility for any inaccurate information, misrepresentation or for any deficiency of the information supplied by any third party.

The scope of services performed in the execution of this investigation may not be appropriate to satisfy third parties. SIRATI accepts no responsibility for damages if any, suffered by any third party as a result of decisions made or action taken based on this report. Any use, copying or distribution of the report in whole or in part is not permitted without the express written permission of SIRATI and use of findings, conclusions and recommendations represented in this report, is at the sole risk of third parties.

In the event that during future work new information regarding the environmental condition of the Property is encountered, or in the event that the outstanding responses from the regulatory agencies indicate outstanding issues on file with respect to the Property, SIRATI should be notified in order that we may re-evaluate the findings of this assessment and provide amendments, as required.

14.0. SIGNATURES

Should you have any questions regarding the information presented or limitation set in this report, please do not hesitate to contact our office.

Yours truly,

Sirati and Partners Consultants Ltd.

Reza Khabbaznia

Reza Khabbaznia, B.Sc., P. Geo.
Hydrogeologist/Project Manager

Edwin Safari, Ph.D., P.Eng.
Senior Hydrogeologist/Environmental Specialist

FIGURES

SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

SIRATI & PARTNERS
Geotechnical Hydrogeological & Environmental Solutions
12700- Keele Street
King City, ON. L7B 1H5
Phone# 905 833 1582, Fax# 905 833 5360

North:

Legend:

Property Boundary

Project Title:
Hydrogeological Investigation

Site Location:
65 & 71 Agnes Street, Mississauga, ON

Figure Title:
Site Location Plan

Scale:	Project Number:
As Shown	SP21-826-30
Date:	**Figure Number:**
June 2021	1-1

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North:

Legend:

Subject Site

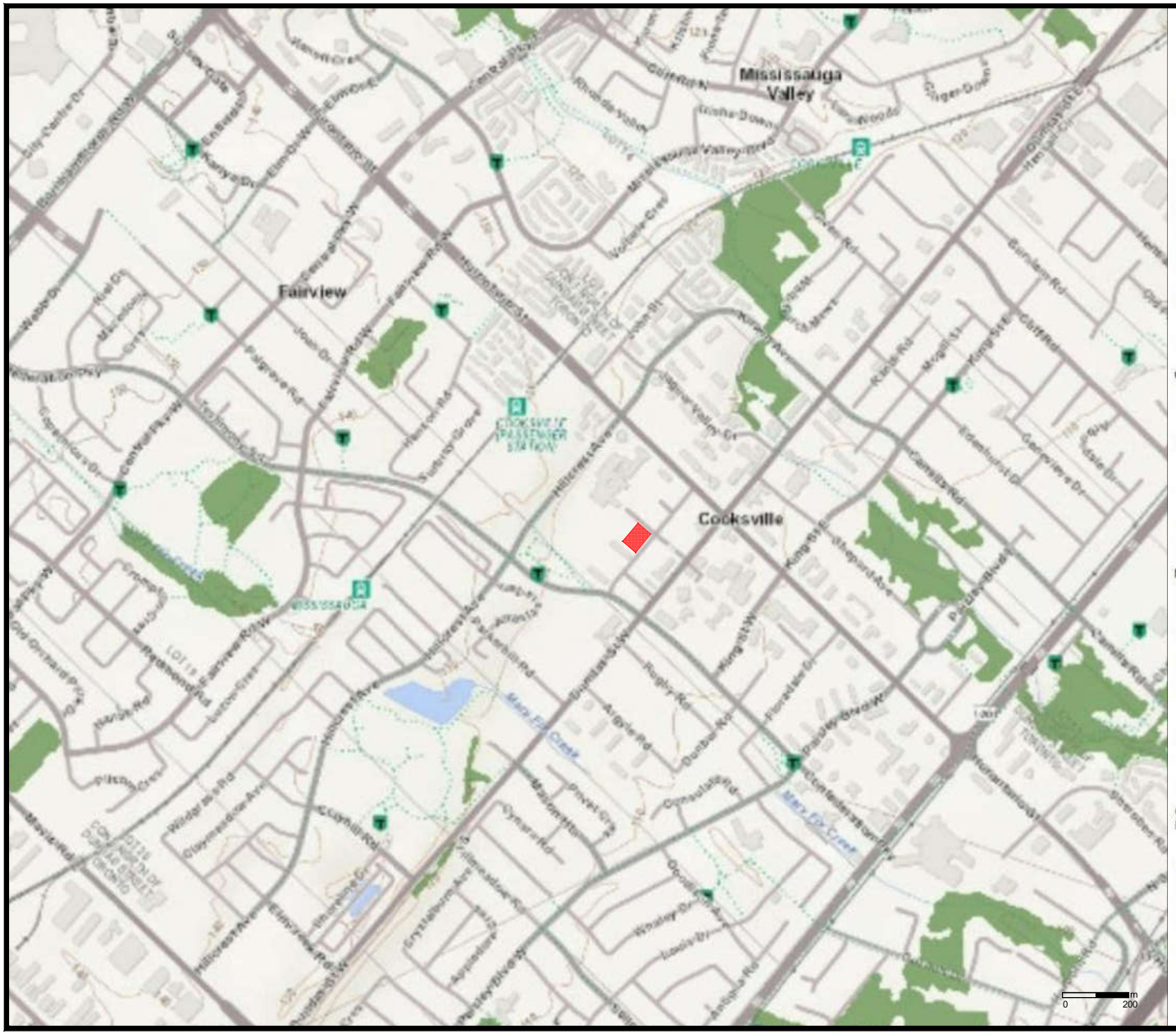
- CVC boundary
- Cooksville watershed
- Municipal boundary
- Highway
- Major road
- Railroad
- Secondary road
- Lake or pond

Project Title:
Hydrogeological Investigation

Site Location:
65 & 71 Agnes Street, Mississauga, ON

Figure Title:
Cooksville Creek Watershed Map

Scale:	Project Number:
As Shown	SP21-826-30
Date:	**Figure Number:**
June 2021	3-1



Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion

Wetland

- Provincially Significant Wetland Evaluated
- Non - Provincially Significant Wetland Evaluated
- Unevaluated Wetland

Area of Natural Heritage & Scientific Interest (ANSI)

- Provincially Significant Life Science ANSI
- Provincially Significant Earth Science ANSI

Greenbelt Plan

- Boundary
- Greenbelt External Connections

Land Use Designations

- Protected Countryside
- Greenbelt Towns and Villages
- Greenbelt Hamlets
- Urban River Valley
- Greenbelt Specialty Crop Area

Niagara Escarpment Plan (NEP)

- Boundary
- Parks and Open Space System

Land Use Designations

- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Mineral Resource Extraction Area
- Escarpment Recreation Area
- Urban Area
- Minor Urban Centre

Oak Ridges Moraine Conservation Plan (ORM)

- Boundary

Land Use Designations

- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement
- Palgrave Estates Residential Community
- Settlement Area

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North:

Legend:

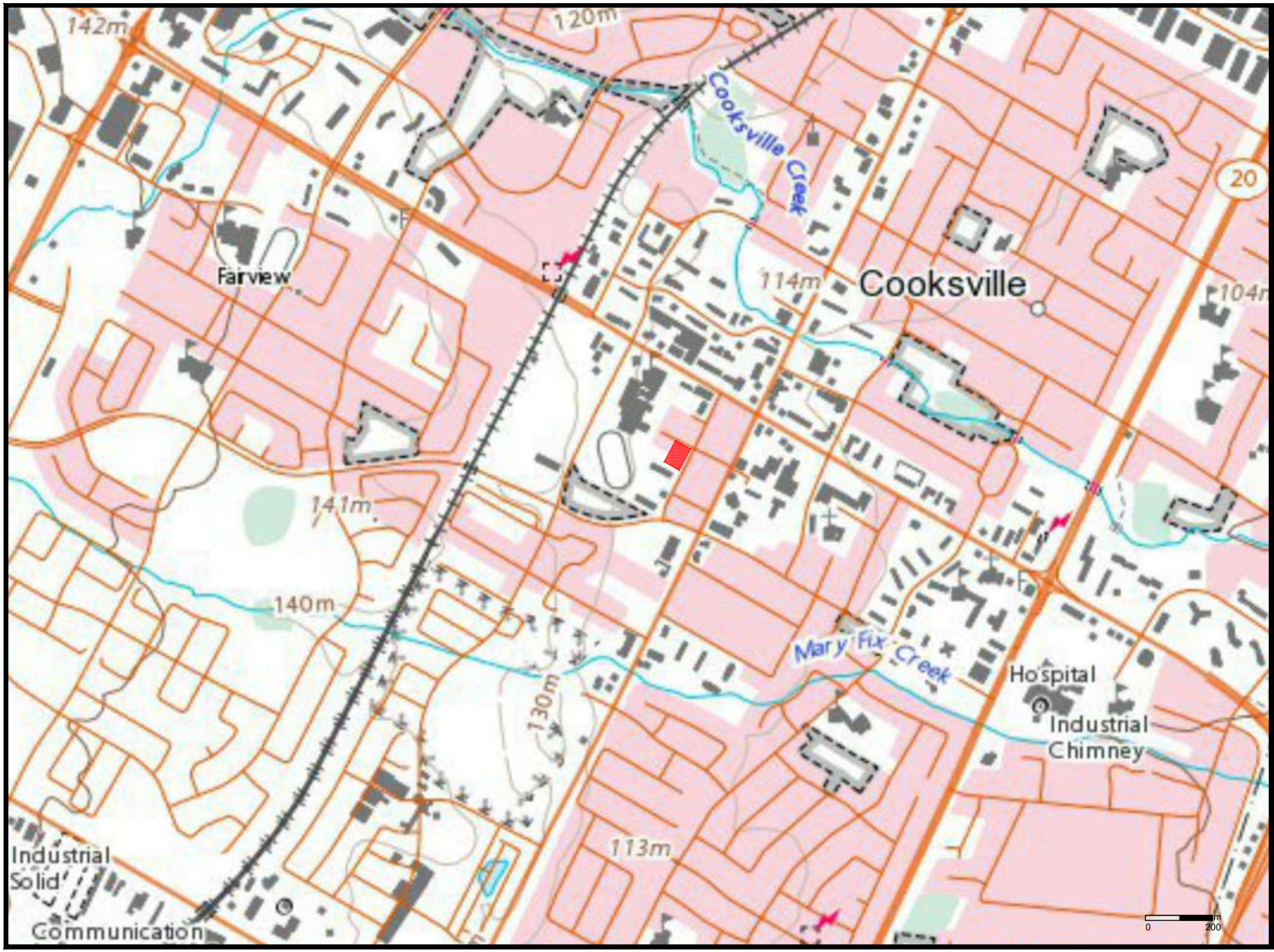
Subject Site

Project Title:
Hydrogeological Investigation

Site Location:
65 & 71 Agnes Street, Mississauga, ON

Figure Title:
Key Hydrological and Natural Heritage Features Map

Scale:	Project Number:
As Shown	SP21-826-30
Date:	**Figure Number:**
June 2021	3-2



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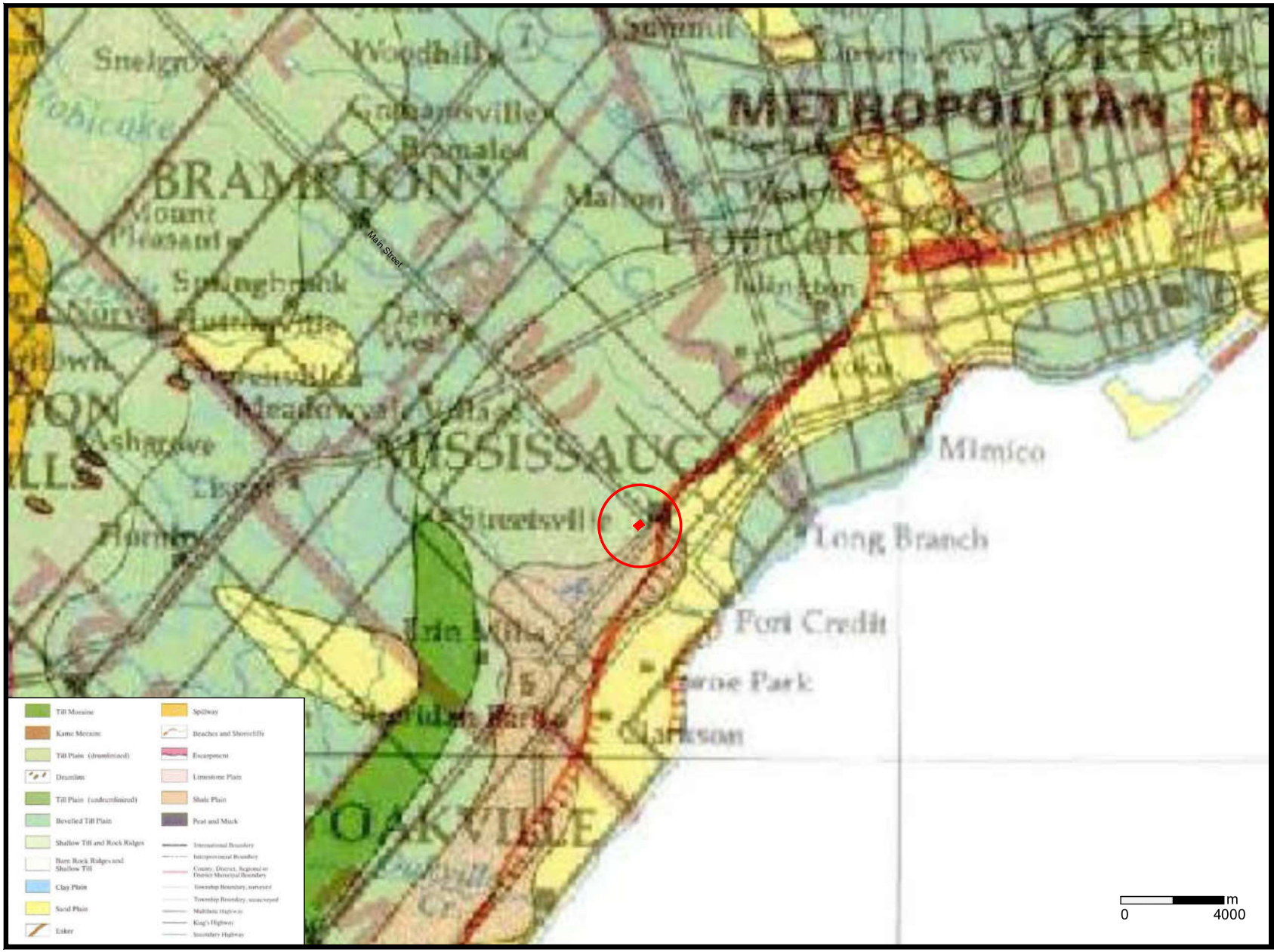
Subject Site

Project Title:
Hydrogeological Investigation

Site Location:
65 & 71 Agnes Street, Mississauga, ON

Figure Title:
Topographic Map

Scale:	Project Number:
As Shown	SP21-826-30
Date:	**Figure Number:**
June 2021	4-1



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North:

Legend:

Subject Site

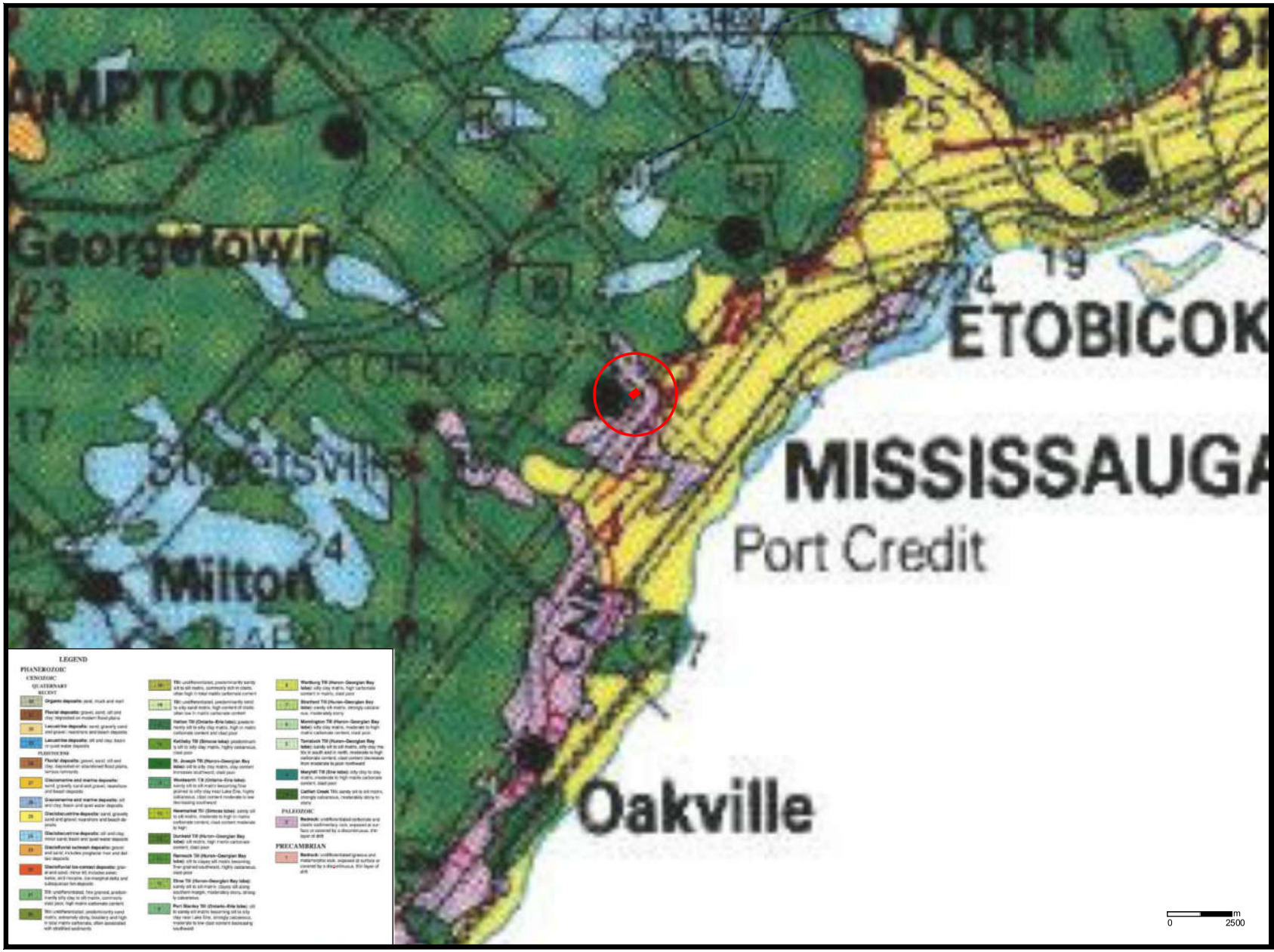
Approximate Site Location

Project Title:
Hydrogeological Investigation

Site Location:
65 & 71 Agnes Street, Mississauga, ON

Figure Title:
Physiography Map

Scale:	Project Number:
As Shown	SP21-826-30
Date:	**Figure Number:**
June 2021	4-2



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Legend:

- Subject Site
- Approximate Site Location

Project Title:
Hydrogeological Investigation

Site Location:
65 & 71 Agnes Street, Mississauga, ON

Figure Title:
Surficial Geology Map

Scale:	Project Number:
As Shown	SP21-826-30
Date:	**Figure Number:**
June 2021	4-3

ORDOVICIAN

UPPER ORDOVICIAN

52 **Shale, limestone, dolostone, siltstone**
- 52a Queenston Fm.
- 52b Georgian Bay Fm.; Blue Mountain Fm.; Billings Fm.; Collingwood Mb.; Eastview Mb.
- 52c Liskeard Gp.
- 52d Red Head Rapids Fm.
- 52e Churchill River Gp.
- 52f Bad Cache Rapids Gp.

MIDDLE ORDOVICIAN

51 **Limestone, dolostone, shale, arkose, sandstone**
- 51a Ottawa Gp.; Simcoe Gp.; Shadow Lake Fm.
- 51b Chazy Gp., Rockcliffe Fm.

LOWER ORDOVICIAN

50 **Dolostone, sandstone:** Beekmantown Gp.

CAMBRIAN

49 **Conglomerate, sandstone, shale, dolostone:** Potsdam Gp.; Nepean Fm., Covey Hill Fm.

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North:

Legend:

Subject Site

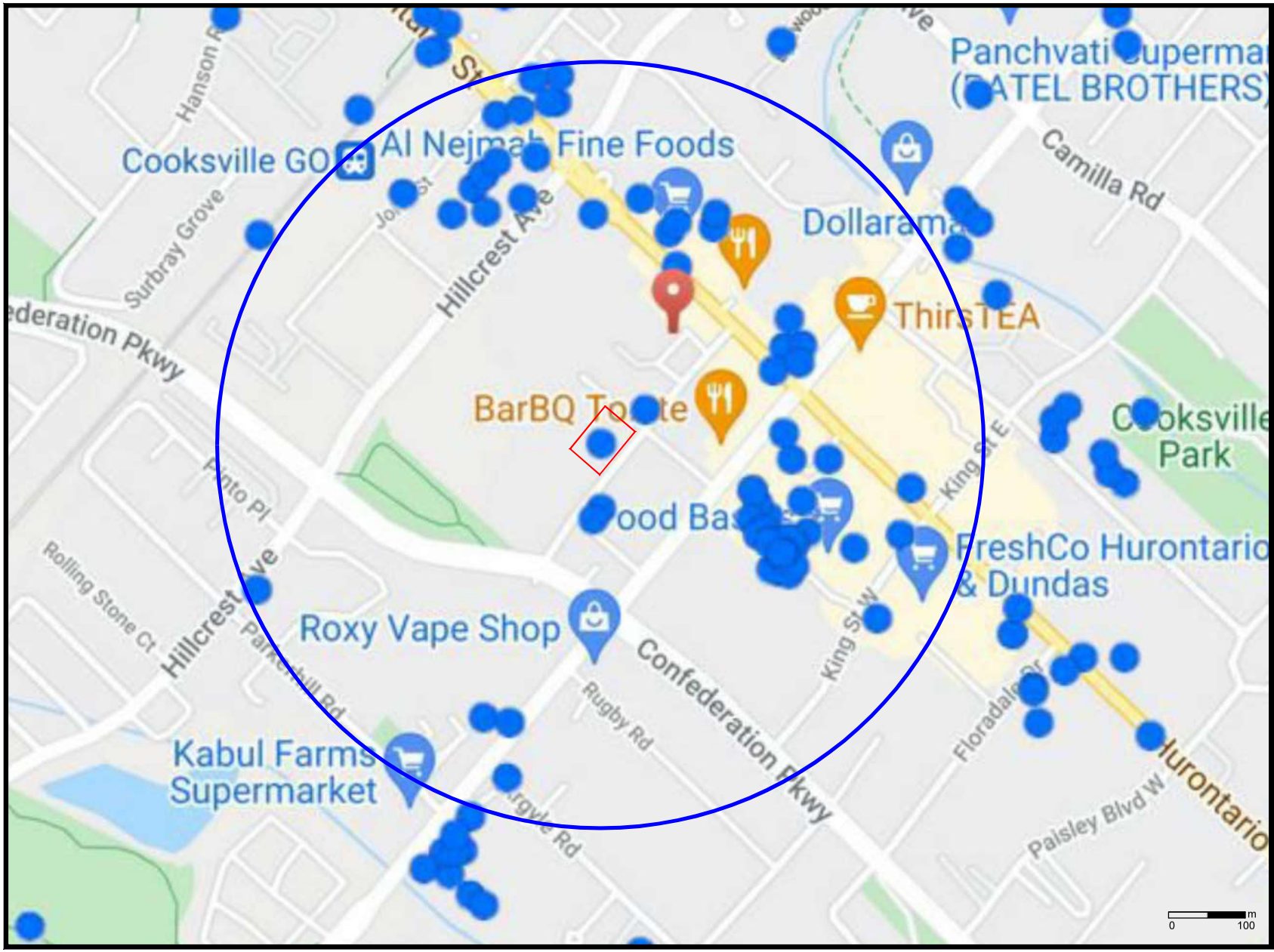
Approximate Site Location

Project Title:
Hydrogeological Investigation

Site Location:
65 & 71 Agnes Street, Mississauga, ON

Figure Title:
Bedrock Geology Map

Scale:	Project Number:
As Shown	SP21-826-30
Date:	**Figure Number:**
June 2021	4-4



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North:

Legend:

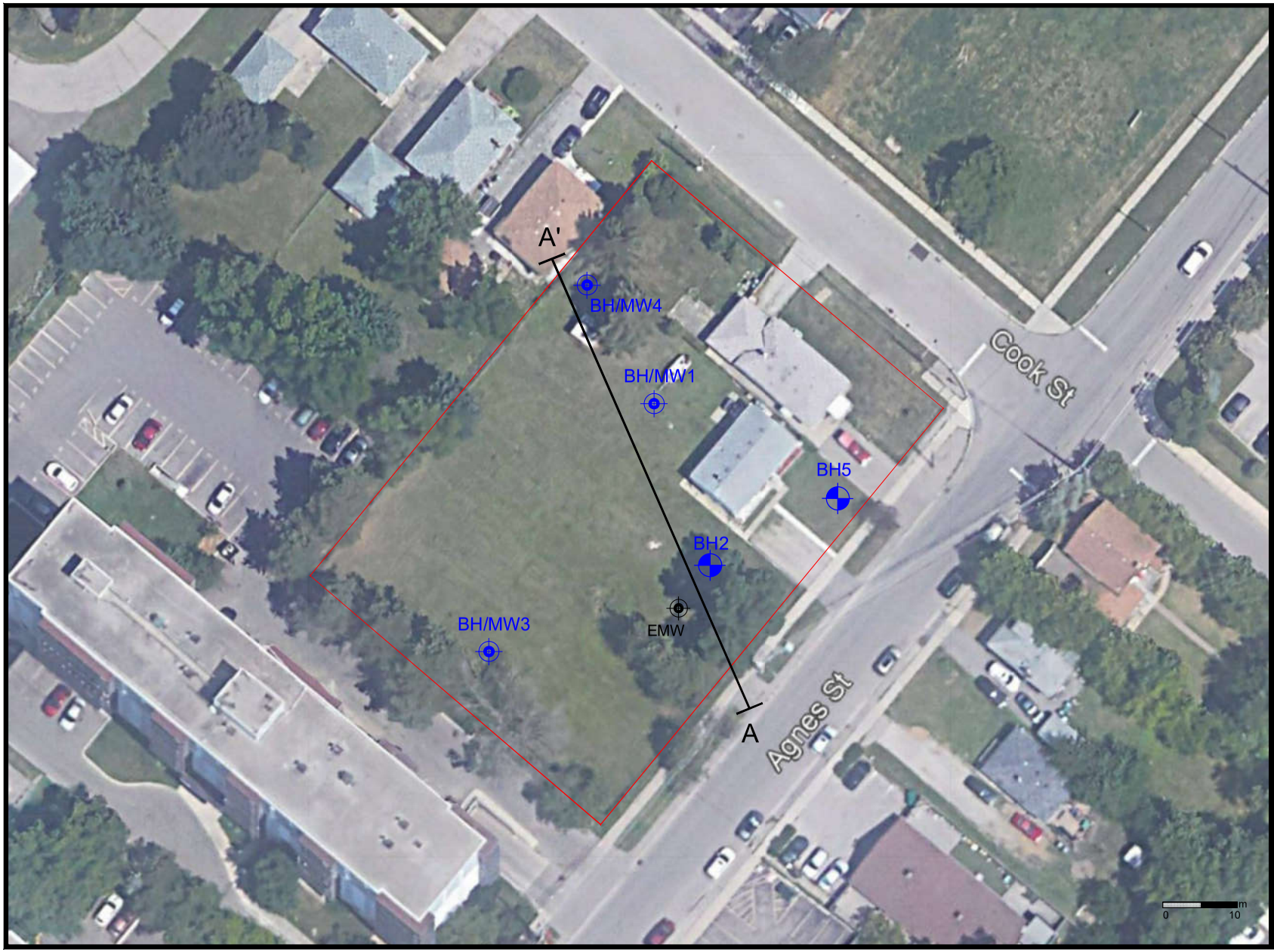
- Subject Site
- 500m Study Area
- MECP Water Well

Project Title: Hydrogeological Investigation

Site Location: 65 & 71 Agnes Street, Mississauga, ON

Figure Title: MECP Water Well Records Map

Scale:	Project Number:
As Shown	SP21-826-30
Date:	**Figure Number:**
June 2021	5-1



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North:

Legend:

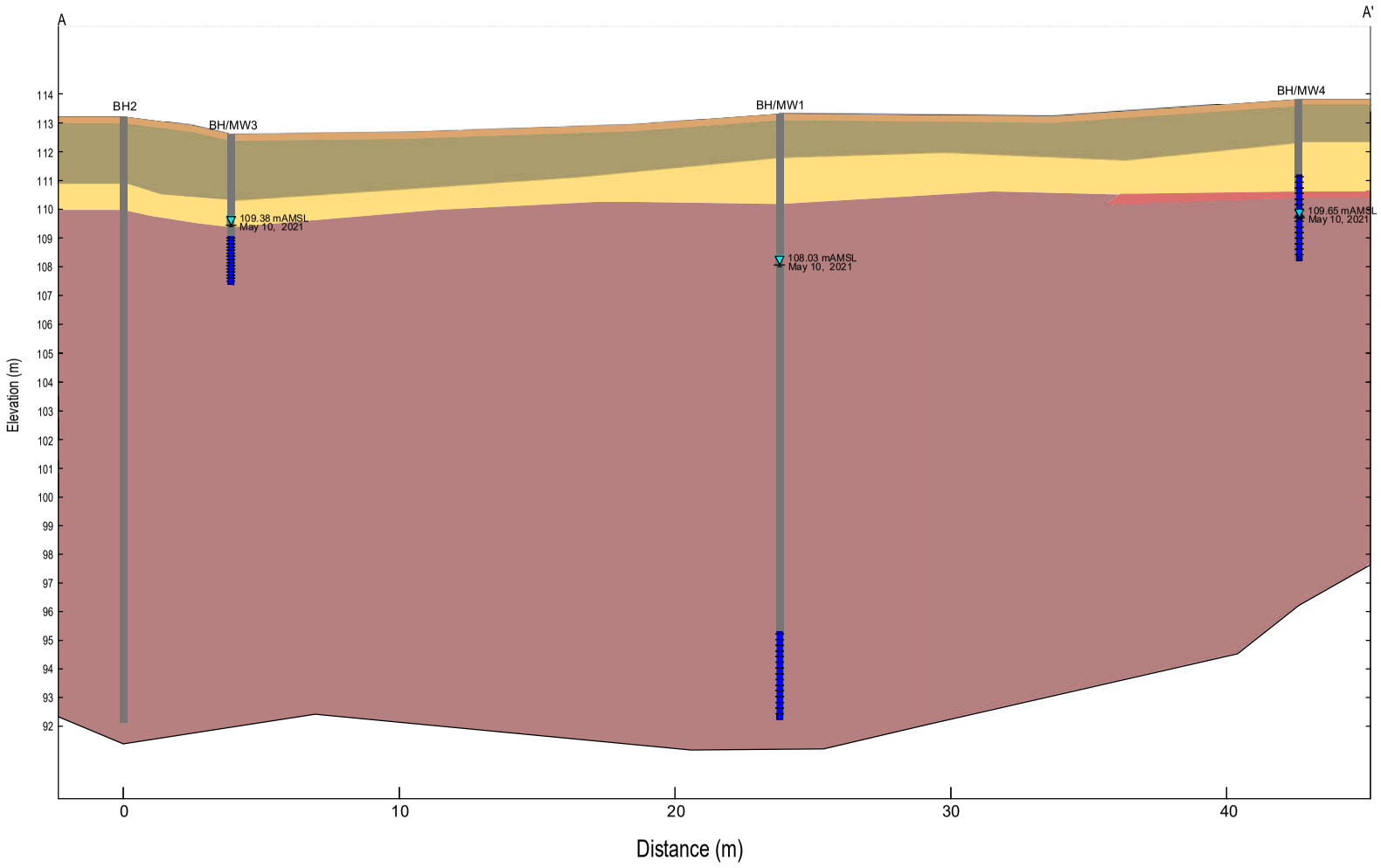
- Property Boundary
- Monitoring Wells by SIRATI
- Boreholes by SIRATI
- Existing MECP Well

Project Title:
Hydrogeological Investigation

Site Location:
65 & 71 Agnes Street, Mississauga, ON

Figure Title:
Borehole/Monitoring Well Location Plan

Scale:	Project Number:
As Shown	SP21-826-30
Date:	**Figure Number:**
June 2021	6-1



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Phone# 905 833 1582, Fax# 905 833 5360

North:

Legend:

- Topsoil
- Fill
- Sand
- Silt
- Bedrock

MW1 — Borehole / Well ID
Water Level
Well Screen

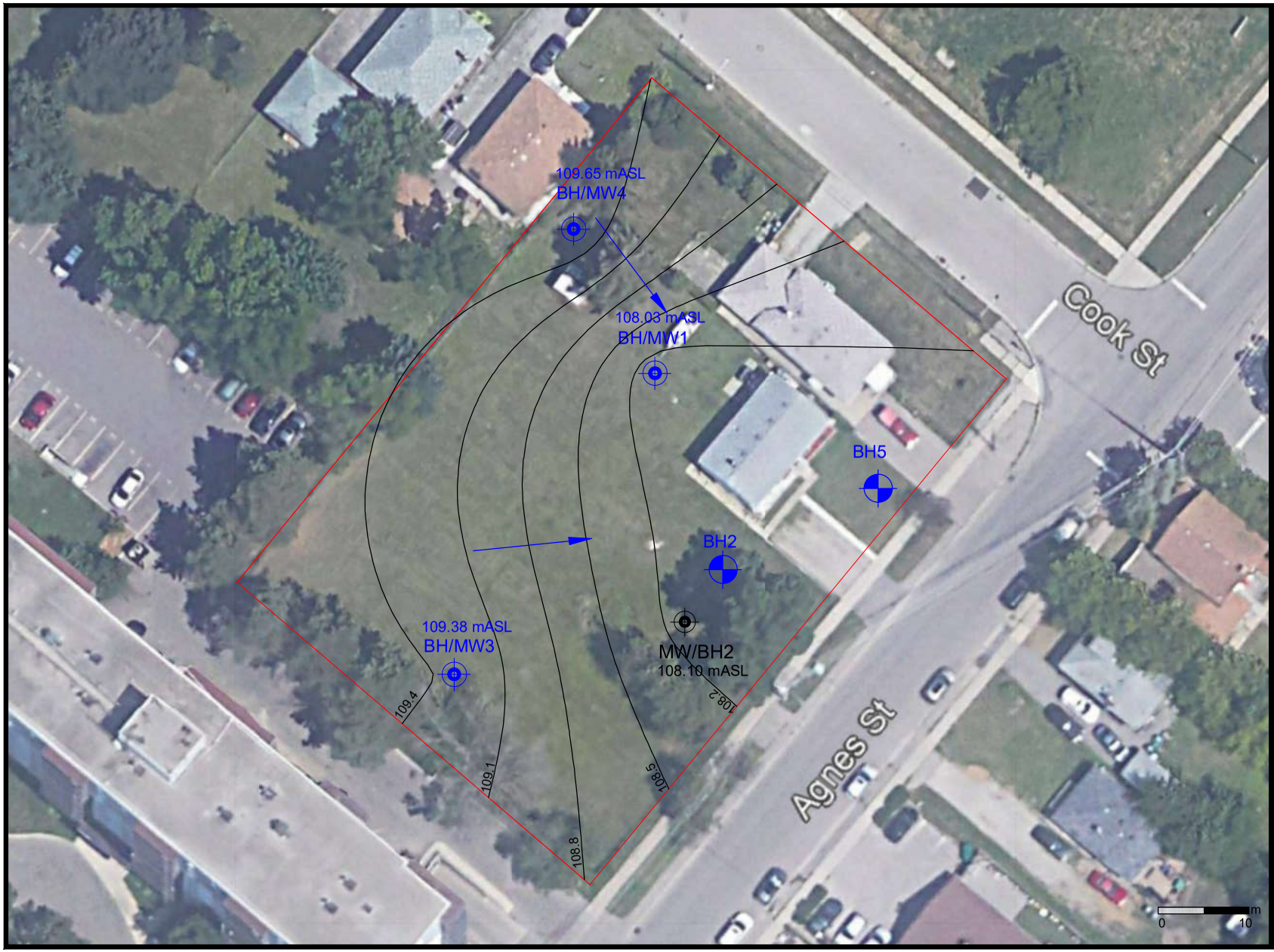
Note: Groundwater Elevations were obtained on May 10, 2021

Project Title:
Hydrogeological Investigation

Site Location:
65 & 71 Agnes Street, Mississauga, ON

Figure Title:
Geological Cross Section/Profile A-A'

Scale:	Project Number:
N.T.S	SP21-826-30
Date:	**Figure Number:**
June 2021	7-1



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12700- Keele Street
King City, ON. L7B 1H5
Phone# 905 833 1582, Fax# 905 833 5360

North:

Legend:

- Property Boundary
- Monitoring Wells
- Boreholes
- Contour Line
- Inferred Groundwater Flow Direction

Note: Groundwater Elevation were obtained on May 10, 2021

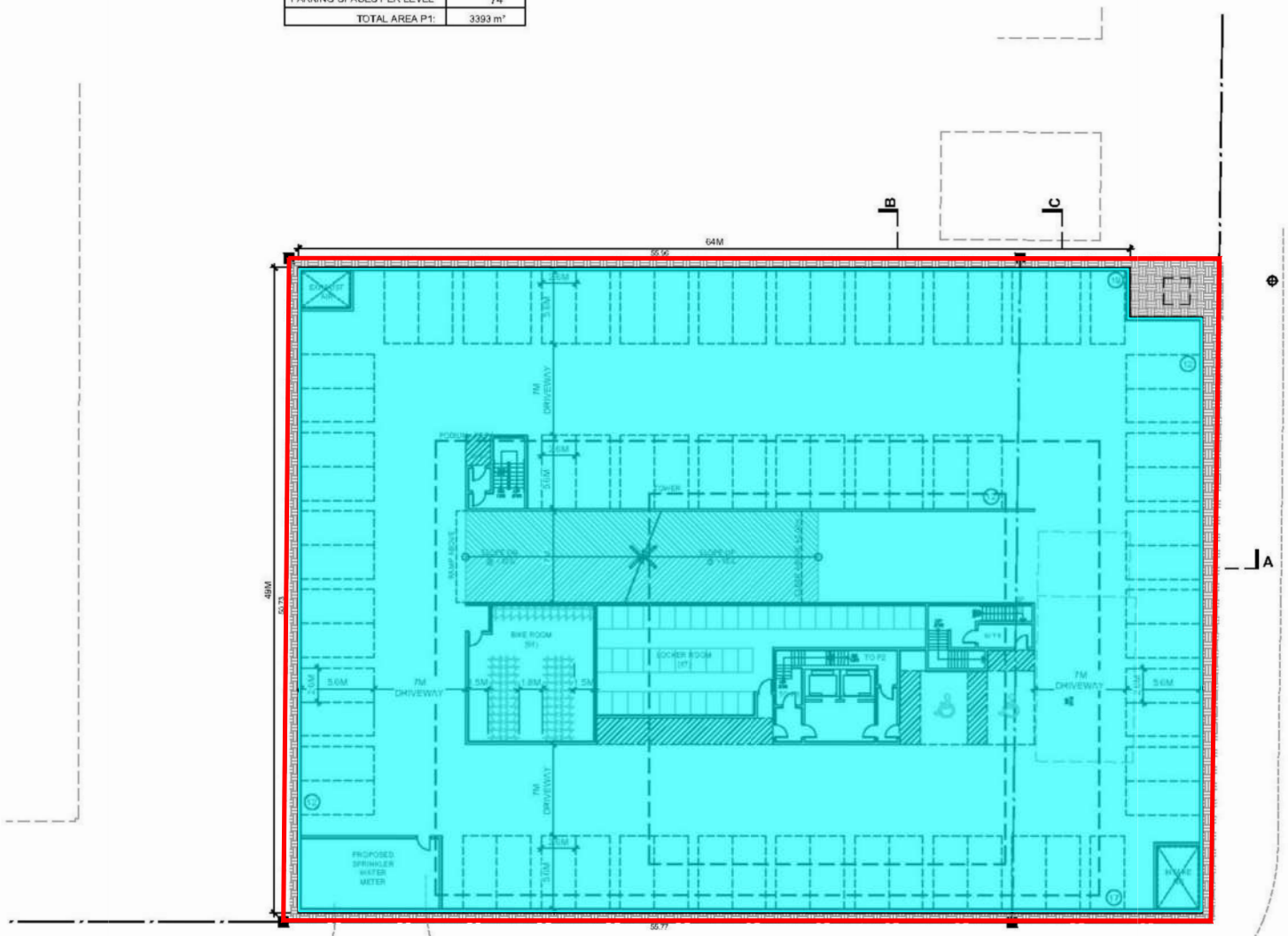
Project Title:
Hydrogeological Investigation

Site Location:
65 & 71 Agnes Street, Mississauga, ON

Figure Title:
Groundwater Elevations and Inferred Groundwater Flow Direction

Scale:	Project Number:
As Shown	SP21-826-30
Date:	**Figure Number:**
June 2021	7-2

P1 LEVEL	
PARKING SPACES PER LEVEL	74
TOTAL AREA P1:	3393 m²



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Phone# 905 833 1582, Fax# 905 833 5360

North:

Legend:

Property Boundary

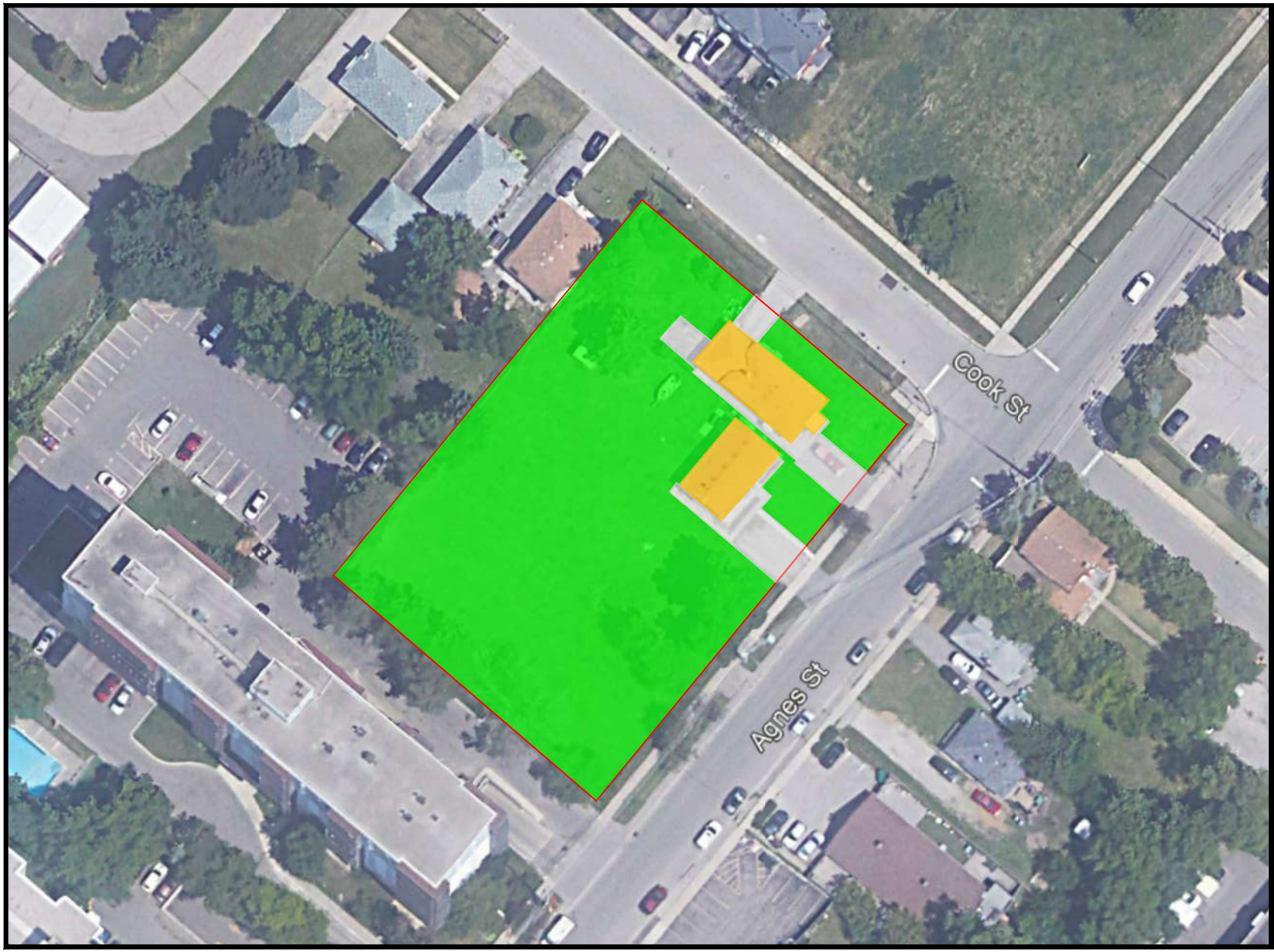
Dewatering Area

Project Title:
Hydrogeological Investigation

Site Location:
65 & 71 Agnes Street, Mississauga, ON

Figure Title:
Extent of Dewatering Area Map

Scale:	Project Number:
As Shown	SP21-826-30
Date:	**Figure Number:**
June 2021	8-1



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King City, ON. L7B 1H5
Phone# 905 833 1582, Fax# 905 833 5360

North:

Legend:

- Property Boundary
- Paved Area
- Roof
- Landscape

Site Statistics:

Paved Area:	250 sq.m
Roof:	275 sq.m
Landscape:	3084 sq.m
Total	3609 sq.m

Project Title:
Hydrogeological Investigation

Site Location:
65 & 71 Agnes Street, Mississauga, ON

Figure Title:
Pre-Development Plan - Site Statistics

Scale: As Shown	**Project Number:** SP21-826-30
Date: June 2021	**Figure Number:** 9-1

SIRATI & PARTNERS
Geotechnical Hydrogeological & Environmental Solutions
12700- Keele Street
King City, ON. L7B 1H5
Phone# 905 833 1582, Fax# 905 833 5360

North:

Legend:

- Property Boundary
- Paved Area
- Roof
- Landscape

Site Statistics:

Paved Area:	1754 sq.m
Roof:	968 sq.m
Landscape:	887 sq.m
Total	3609 sq.m

Project Title:
Hydrogeological Investigation

Site Location:
65 & 71 Agnes Street, Mississauga, ON

Figure Title:
Post-Development Plan - Site Statistics

Scale:	Project Number:
As Shown	SP21-826-30
Date:	**Figure Number:**
June 2021	9-2

APPENDICIES

SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

APPENDIX A

SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

71 & 65 AGNES ST - MISSISSAUGA, ON

TREGEBOV COGAN *ARCHITECTURE*

NOVEMBER 02, 2020

SITE DATA & ZONING NOTES

LEGAL DESCRIPTION
LOTS 46, 47 & Part of Lot 45
PLAN TOR-12
City of Mississauga - Regional Municipality of Peel
Survey prepared by Donald H. Brown Surveying Ltd. - 15/Jan/2014
Existing Zonning: D1
OFFICIAL PLAN DESIGNATION; High Rise Residential

Lot Area		**3609**	**SQ.M.**
Road Widening	-	**0**	**SQ.M.**
Net Lot Area		**3609**	**SQ.M.**
		0.36 HC	
Existing house (to be demolished) GFA		**95+129 = 224**	**SQ.M.**

Proposal : 28 STOREY Mixed use building

N.B. All areas are in sq. meters

FLOOR	GFA COMM	GFA RESID	1BR	2BR	3BR+	SUITES
F1	0	453	5	0	0	5
F2		1435	0	5	7	12
F3		1435	2	5	7	14
F4		665	5	2	0	7
TYP FLOOR (750x24)		18000	6x24 = 144	4x24 = 96	0	240
Total GFA	0	21988	156	108	14	278

Total GFA	**21988**
FSI	**6.1**
UPH	**770**
Average net area per suite	**80**
Floor Plate: Floor 4 to Floor 24	**750**
Underground Parking Floor area (P01+P02+P03)	**10179**

AMENITY AREA		
Indoor Amenity - F1	191	
Exterior Amenity - F1	277	
Indoor Amenity - F4	173	
Exterior Amenity - F4	636	
Total Amenity		1277
Amenity space per suite		4.59

SURFACE	SQ.M.	%
Building Area	1242	35%
Driveway	1283	36%
Landscape Area	1011	29%
TOTAL	**3536**	**100%**

SETBACKS		
East lot line to the building		
	Tower	**16m**
	Podium	**9m**
	Ground Floor	**6.4m**
North interior lot line to the building		
	Tower	**18m**
	Podium	**14m**
South Street line to the building		
	Tower	**4.4m**
	Podium	**2m**
West interior lot line to the building		
	Tower	**28m**
	Podium	**12m**
All sides interior lot line to the parking structure/retaining wall		**0.7m**

BUILDING HEIGHT		
From estimated stablished grade	90m	- 28 storeys

PARKING SPACE DIMENSIONS	
Typical	2.6 x 5.6m
Barrier Free PLUS 1.5M WALKWAY	3.6 x 5.6m
Driveway WIDTH	7.0m

PARKING REQUIRED - see Transportation report			
PARKING PROVIDED	**RESD.**	**VISITOR**	**TOTAL**
Exterior Surface - short term	0	15	15
P1 (INC. 2 B/F)	37	37	74
P2 (INC. 2 B/F)	73	0	73
P3 (INC. 2 B/F)	75	0	75
TOTAL	**185**	**52**	**237**

BIKE SPACES PROVIDED	
Exterior - short term	10
Interior First Floor	0
P1, P2 and P3 garage levels	192
TOTAL bicycle parking	202

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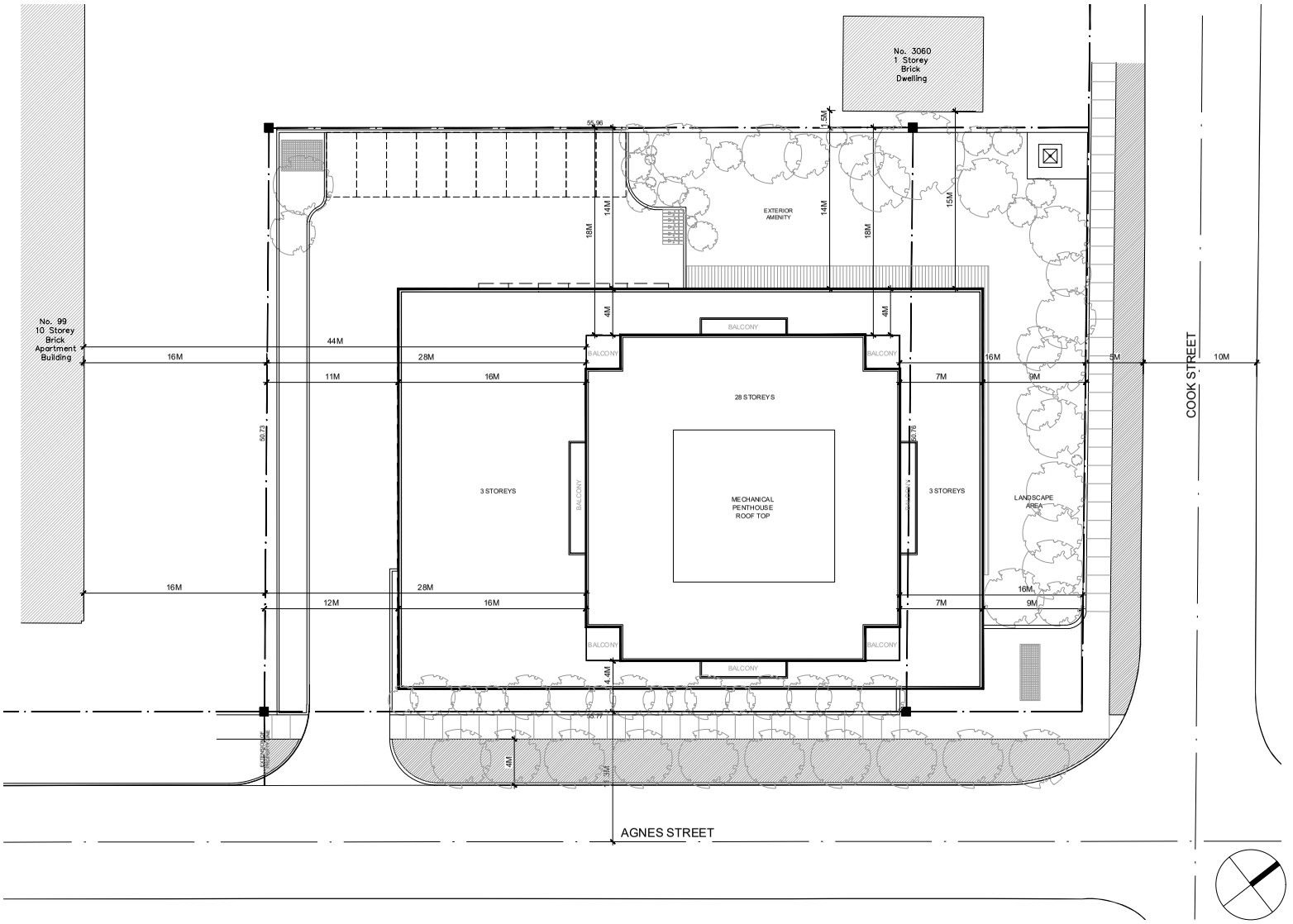
DRAWING TITLE:
- SITE STATISTICS
- CONTEXT PLAN

DRAWING TITLE:	SCALE:	PRINT DATE:	DRAWING NO:
	1:15 000	02-NOV-2020	A-1.1
DRAWING BY: AJT,PPR	DATE:		

SITE DATA & ZONING NOTES

LEGAL DESCRIPTION
LOTS 46, 47 & Part of Lot 45
PLAN TOR-12
City of Mississauga - Regional Municipality of Peel
Survey prepared by Donald H. Brown Surveying Ltd. - 15/Jan/2014
Existing Zoning: D1
OFFICIAL PLAN DESIGNATION; High Rise Residential

PARKING PROVIDED	RESD.	VISITOR	TOTAL
Exterior Surface - short term	0	15	15
P1 (INC. 2 B/F)	37	37	74
P2 (INC. 2 B/F)	73	0	73
P3 (INC. 2 B/F)	75	0	75
TOTAL	185	52	237



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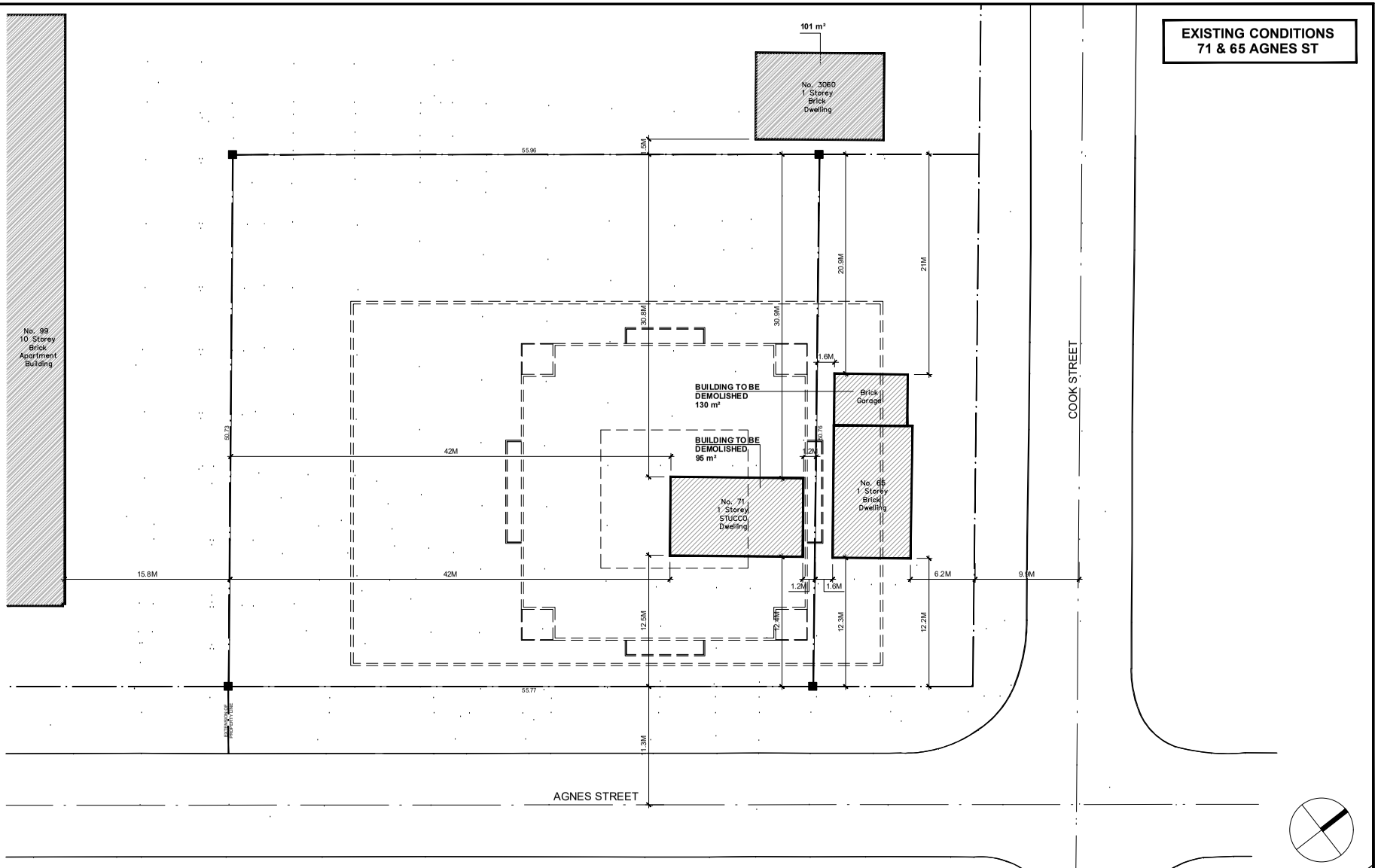
DRAWING BY: AJT,PPR	DATE:		



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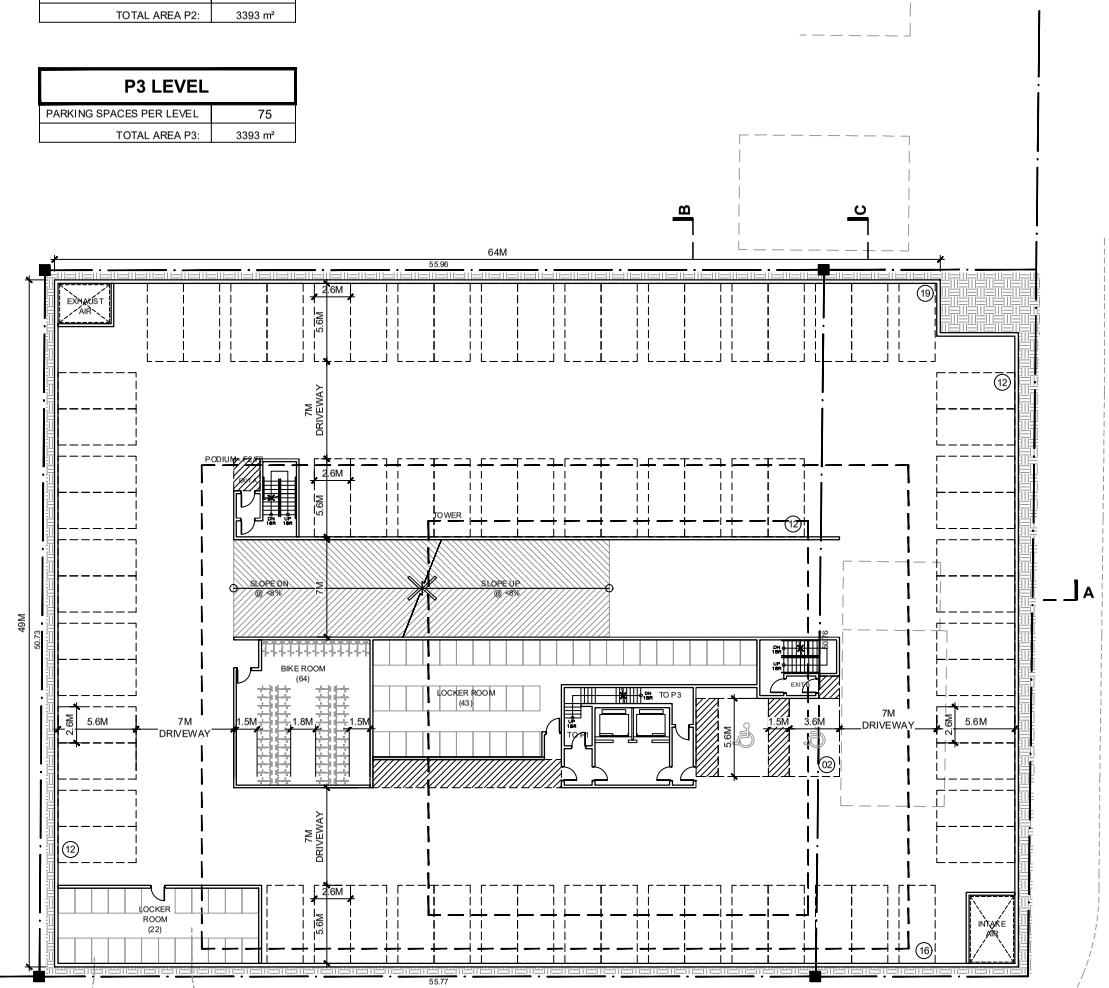
DRAWING TITLE:	SCALE: 1:350	PRINT DATE: 02-NOV-2020	DRAWING NO: A-1.3
DRAWING BY: AJT,PPR	DATE:		

P2 LEVEL	
PARKING SPACES PER LEVEL	73
TOTAL AREA P2:	3393 m²

P3 LEVEL	
PARKING SPACES PER LEVEL	75
TOTAL AREA P3:	3393 m²



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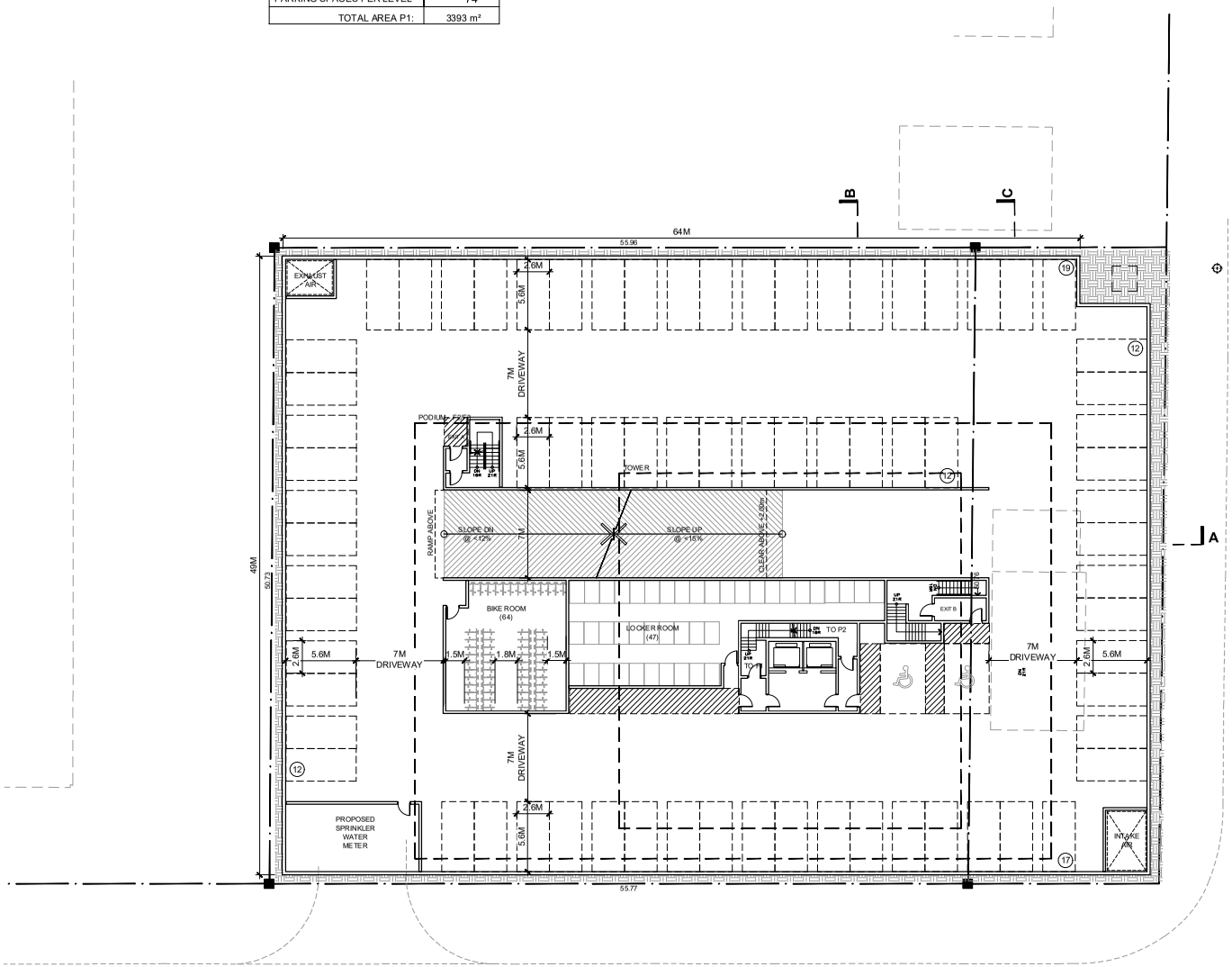
DRAWING TITLE:
- P2 Level
- P3 Level

DRAWING TITLE:	SCALE:	PRINT DATE:	DRAWING NO:
	1:350	02-NOV-2020	A-1.4
DRAWING BY: AJT,PPR	DATE:		

P1 LEVEL	
PARKING SPACES PER LEVEL	74
TOTAL AREA P1:	3393 m²



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DRAWING TITLE:			
- P1 Level			
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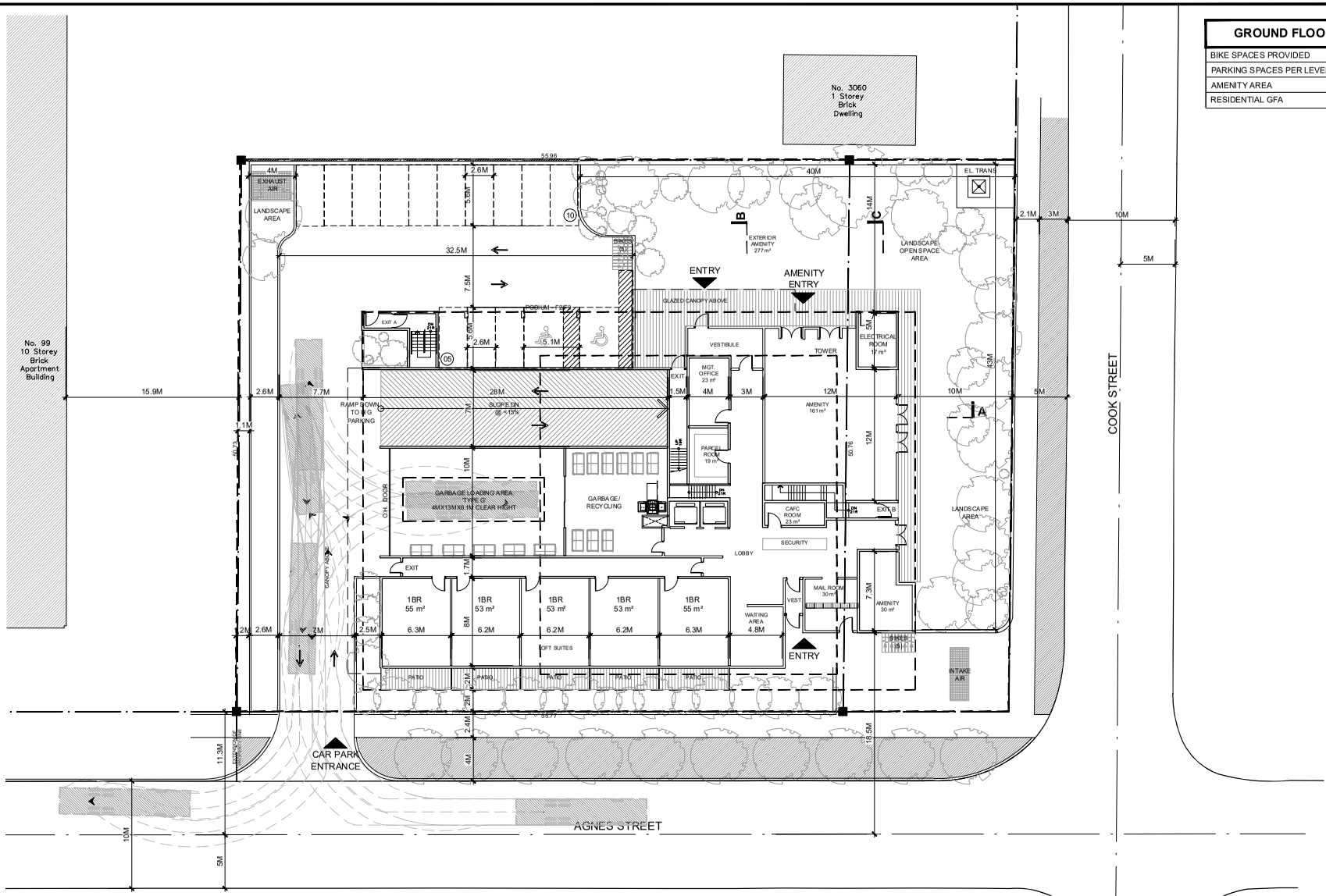
DRAWING BY: AJT,PPR	DATE:		



GROUND FLOOR LEVEL	
BIKE SPACES PROVIDED	10
PARKING SPACES PER LEVEL	15
AMENITY AREA	191 m²
RESIDENTIAL GFA	490 m²

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DRAWING TITLE: GROUND FLOOR LEVEL

DRAWING TITLE:	SCALE:	PRINT DATE:	DRAWING NO:
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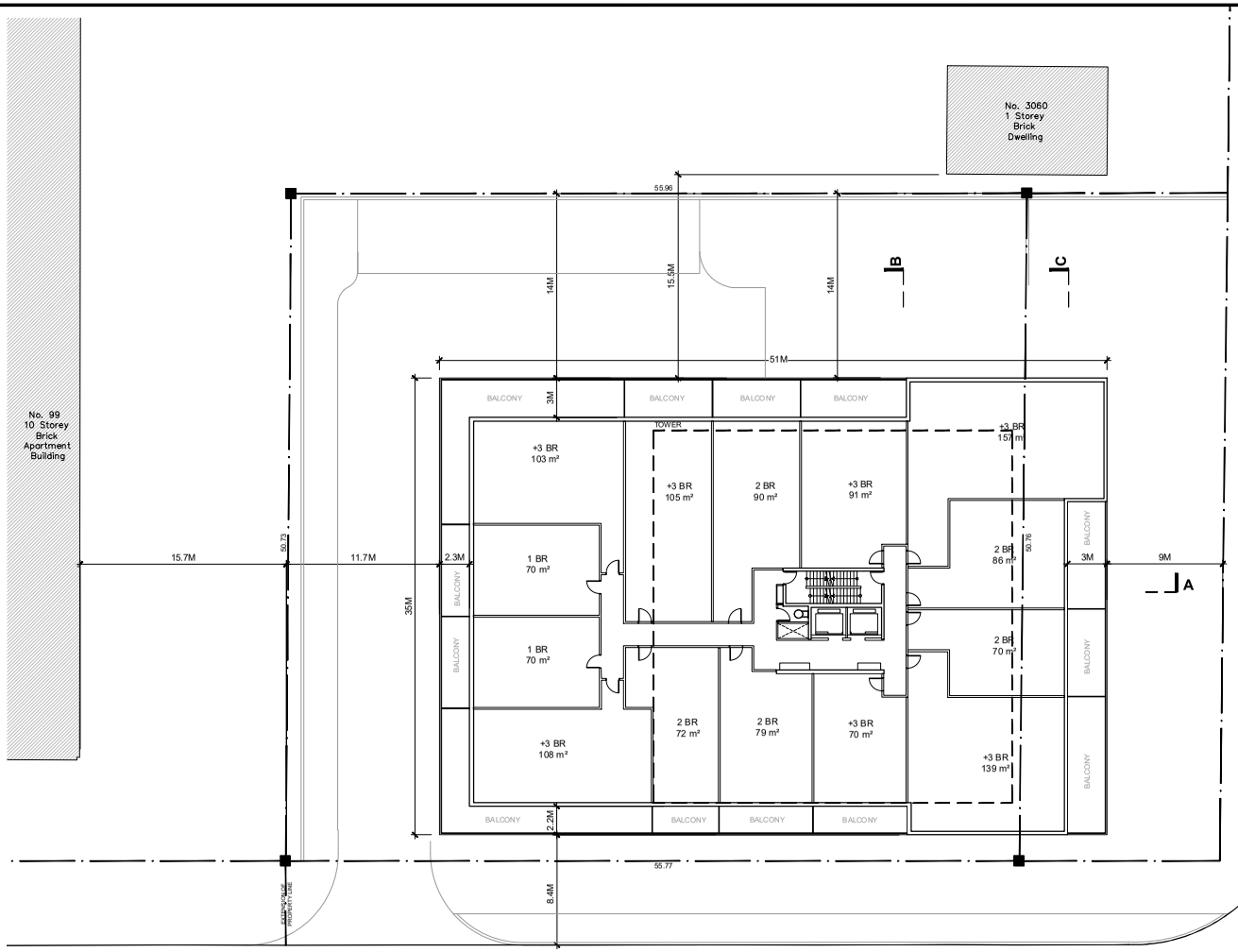
DRAWING BY: AJT,PPR	DATE:		



F2 - F3 LEVEL	
TYPICAL FLOOR	1 435 m²
PROPOSED 14 UNITS AVERG. NET	93 m²
1 BR SUITES	2
2 BR SUITES	5
3+ BR SUITES	7
TOTAL SUITES	14
TOTAL TYPICAL FLOORS	2
TOTAL GFA - x2 TYPICAL	2 870 m²

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DRAWING TITLE:
- F2 LEVEL
- F3 LEVEL

DRAWING TITLE:	SCALE:	PRINT DATE:	DRAWING NO:
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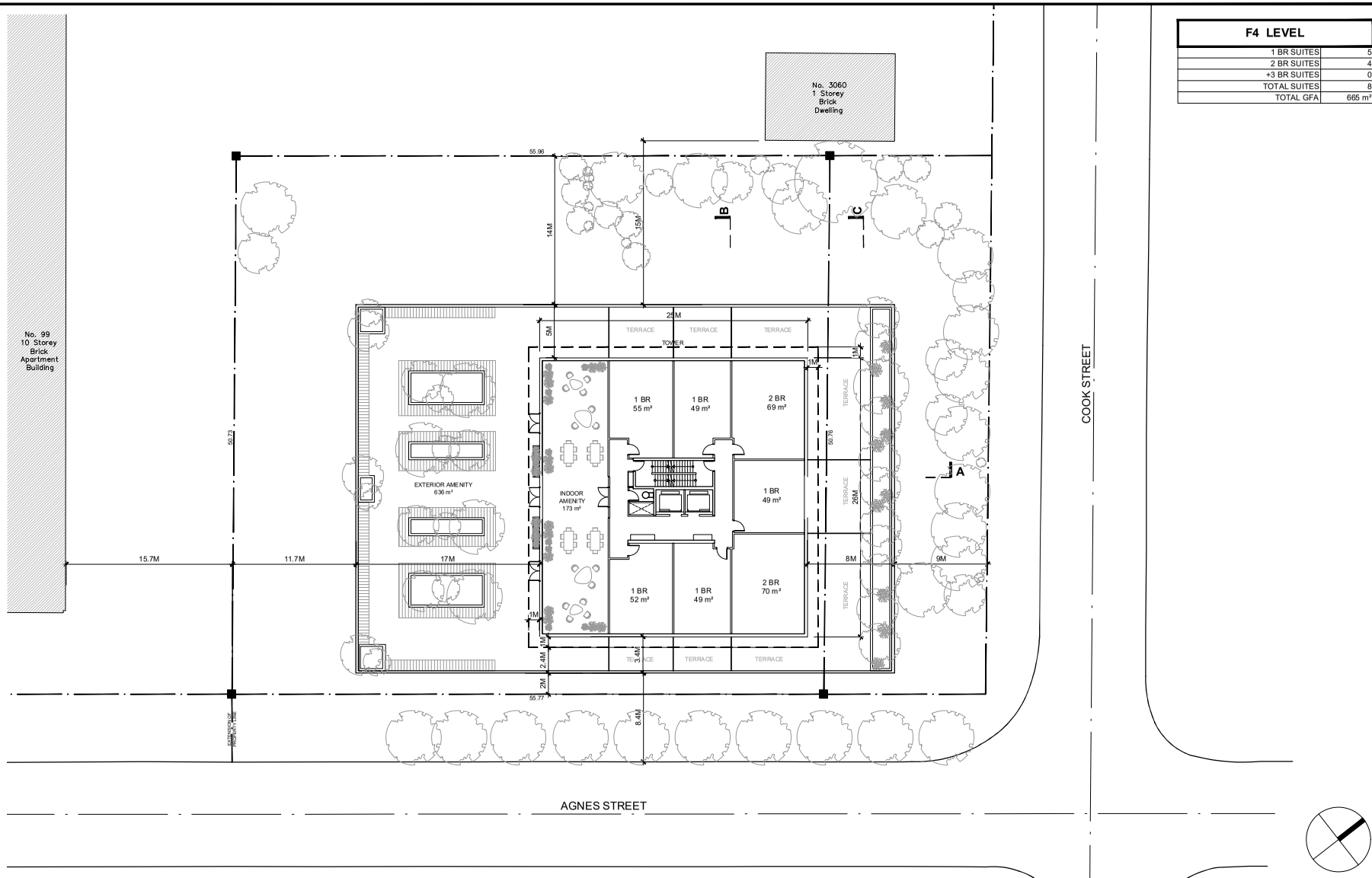
DRAWING BY: AJT,PPR	DATE:		



F4 LEVEL	
1 BR SUITES	5
2 BR SUITES	4
+3 BR SUITES	0
TOTAL SUITES	8
TOTAL GFA	665 m²

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DRAWING TITLE: F4 LEVEL

DRAWING TITLE:	SCALE:	PRINT DATE:	DRAWING NO:
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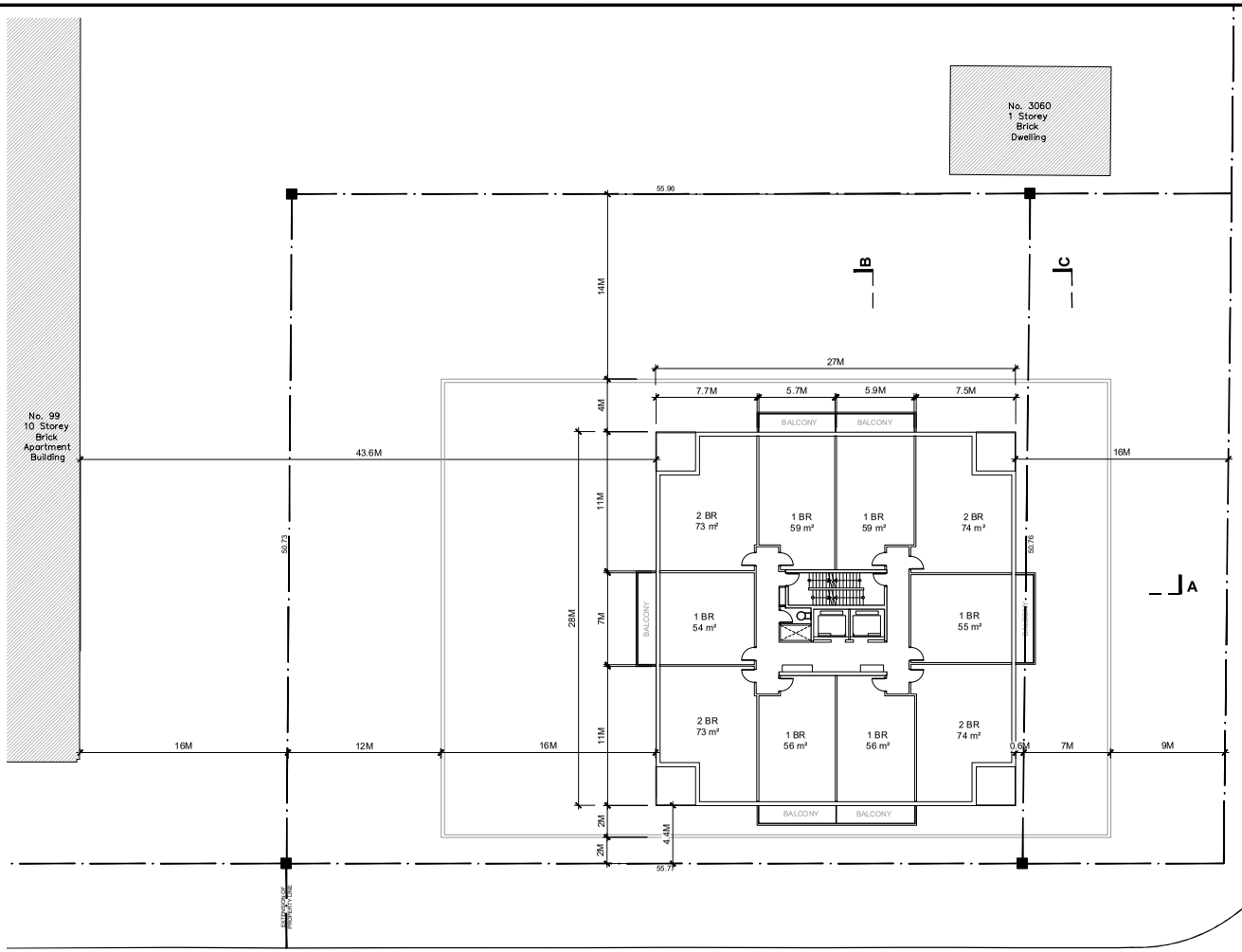

TYPICAL FLOOR

TYPICAL FLOOR	750 m²
1 BR SUITES	6
2 BR SUITES	4
3+ BR SUITES	0
TOTAL SUITES	10
PROPOSED 10 UNITS AVERG. NET	65 m²
TOTAL TYPICAL FLOORS APPROX.	24
TOTAL GFA - x24 TYPICAL	18 000 m²

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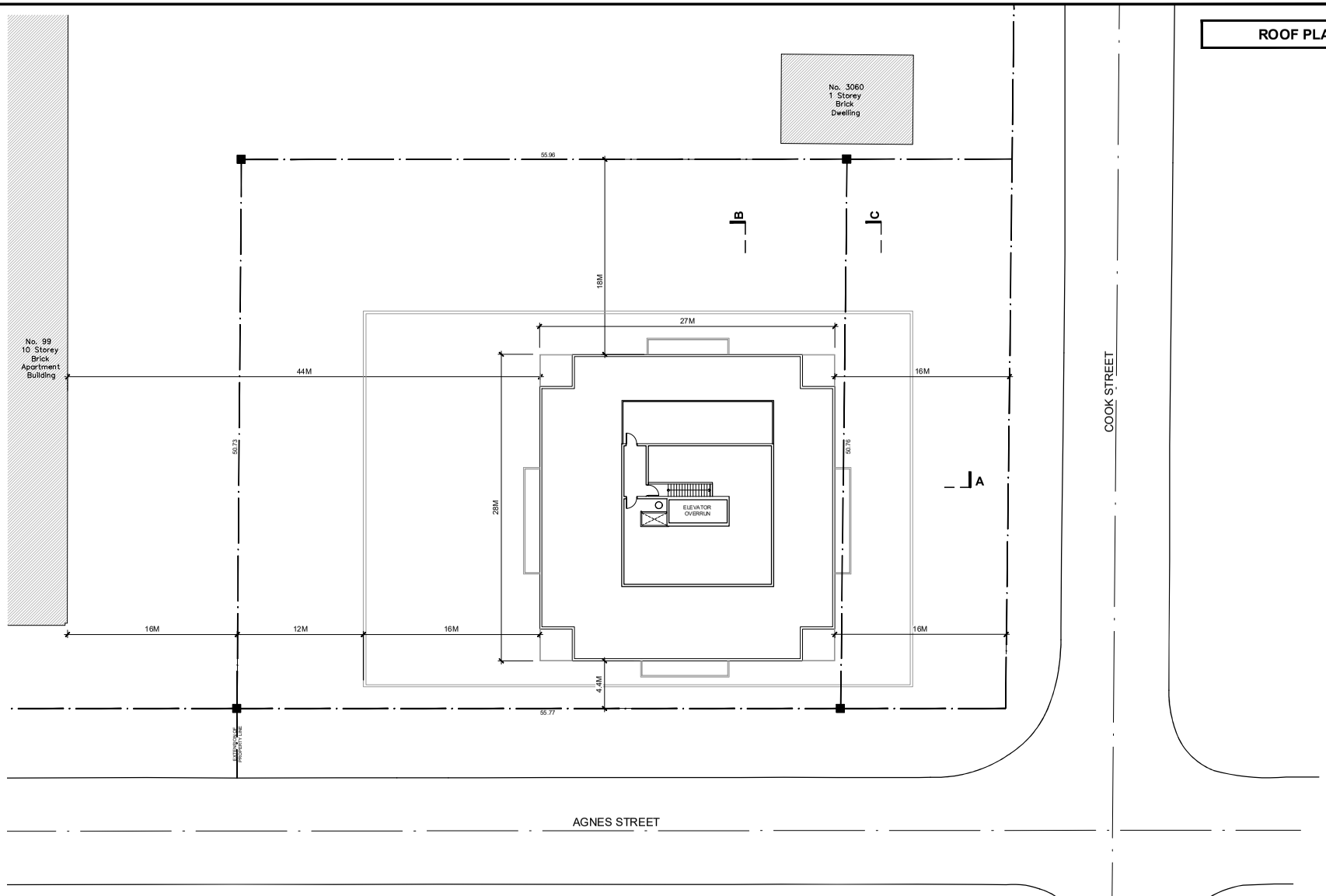
DRAWING TITLE: TYPICAL FLOOR

DRAWING TITLE:	SCALE:	PRINT DATE:	DRAWING NO:
	1:350	02-NOV-2020	A-1.9
DRAWING BY: AJT,PPR	DATE:		

ROOF PLAN



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DRAWING TITLE: ROOF PLAN			
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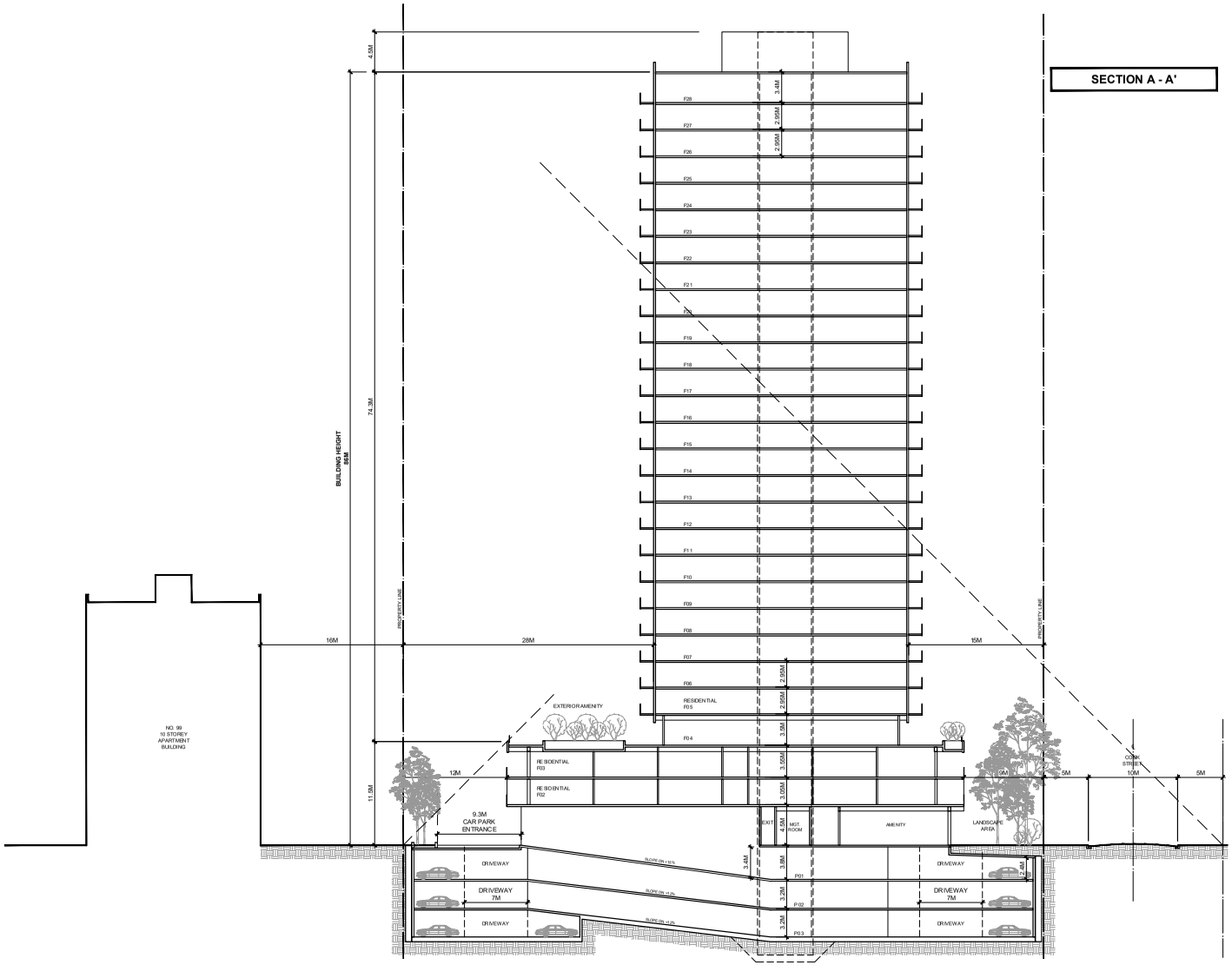

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DRAWING TITLE: SECTION A - A'

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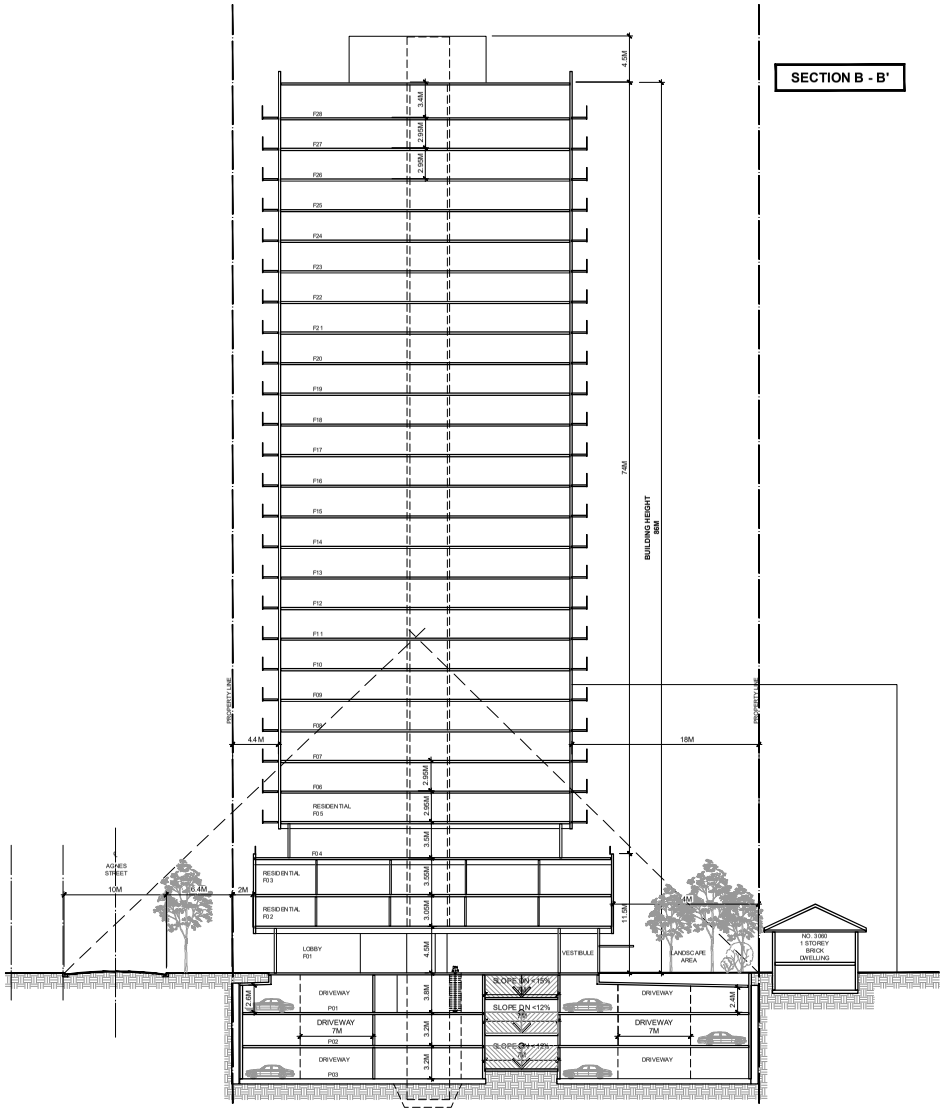

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DRAWING TITLE: SECTION B - B'			
DRAWING TITLE:	SCALE: 1:470	PRINT DATE: 02-NOV-2020	DRAWING NO: A-1.12
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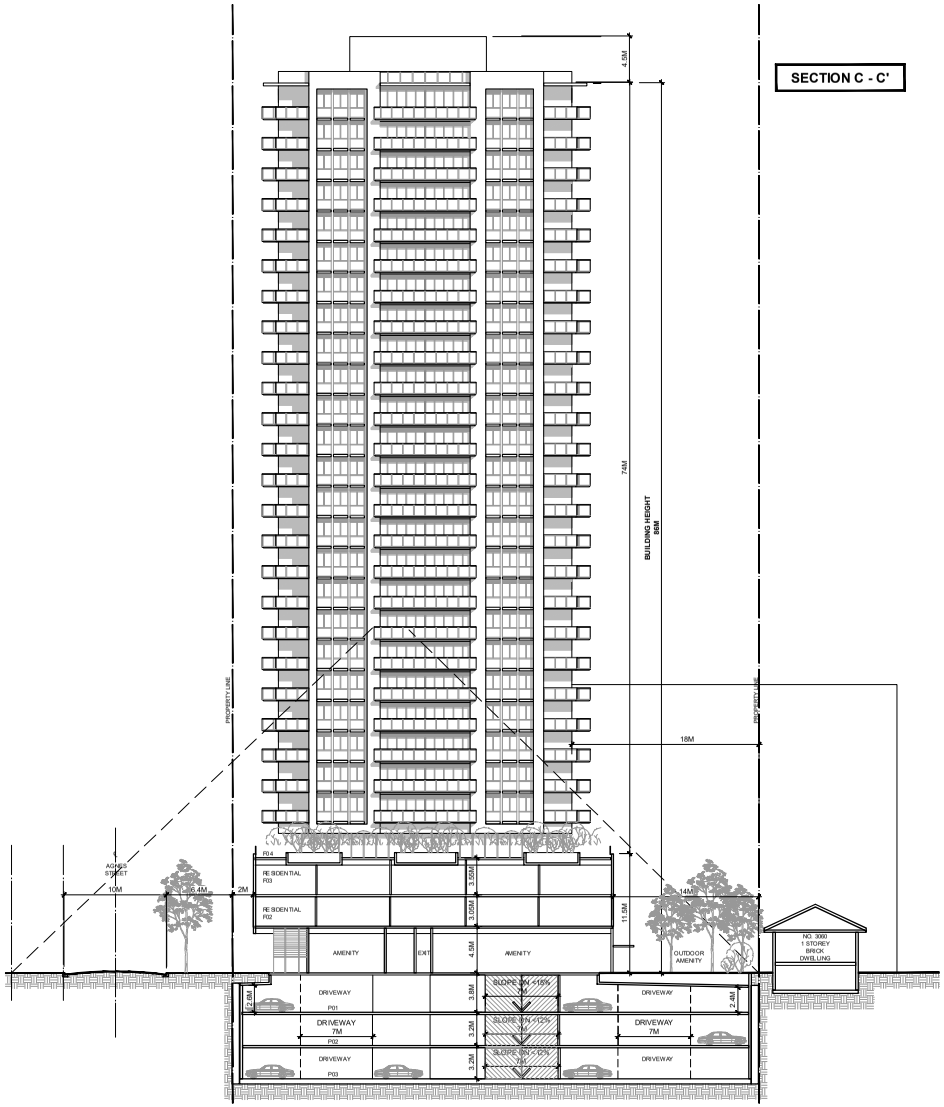

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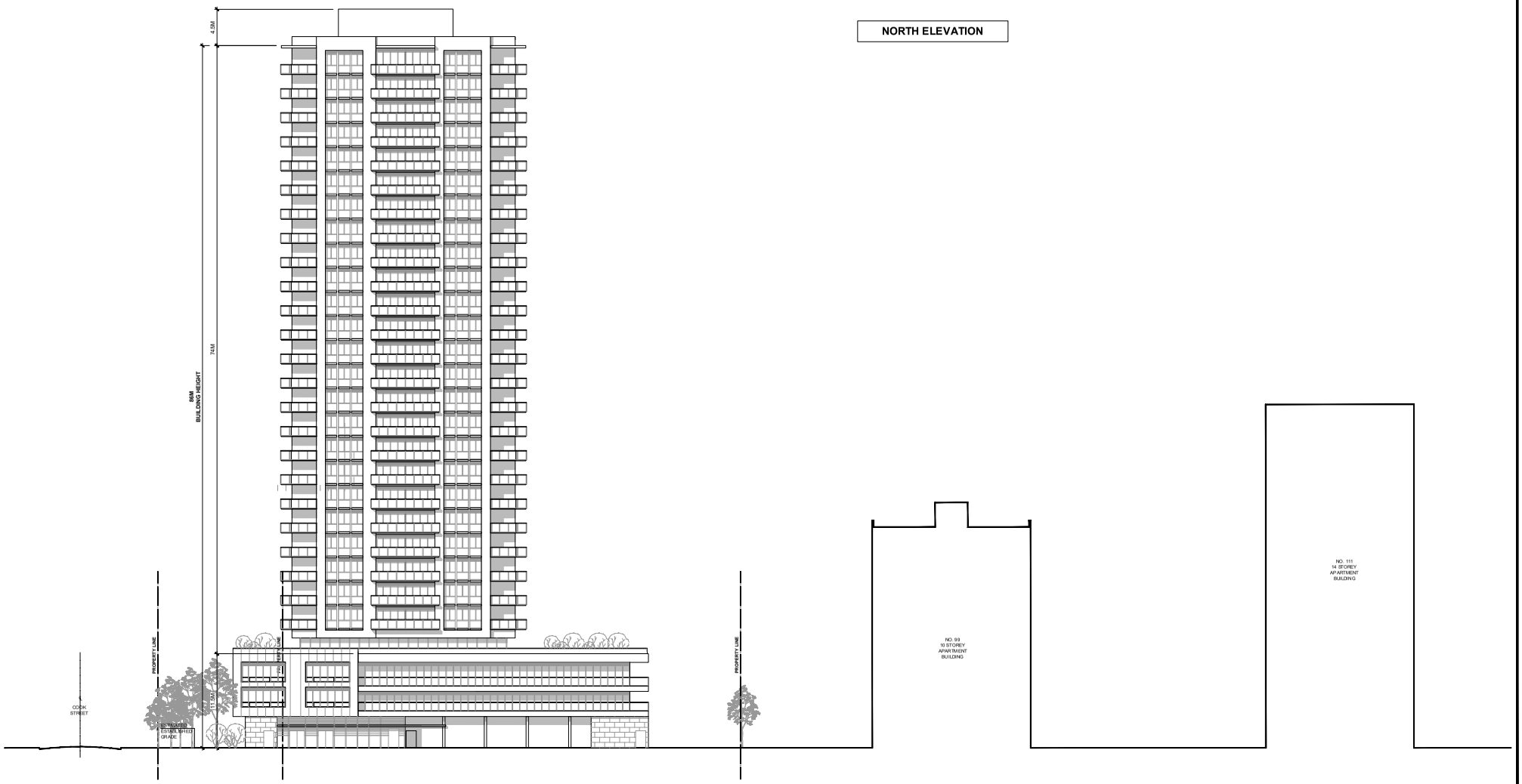
DRAWING TITLE: SECTION C - C'			
DRAWING TITLE:	SCALE: 1:470	PRINT DATE: 02-NOV-2020	DRAWING NO: A-1.13
DRAWING BY: AJT,PPR	DATE:		

NORTH ELEVATION



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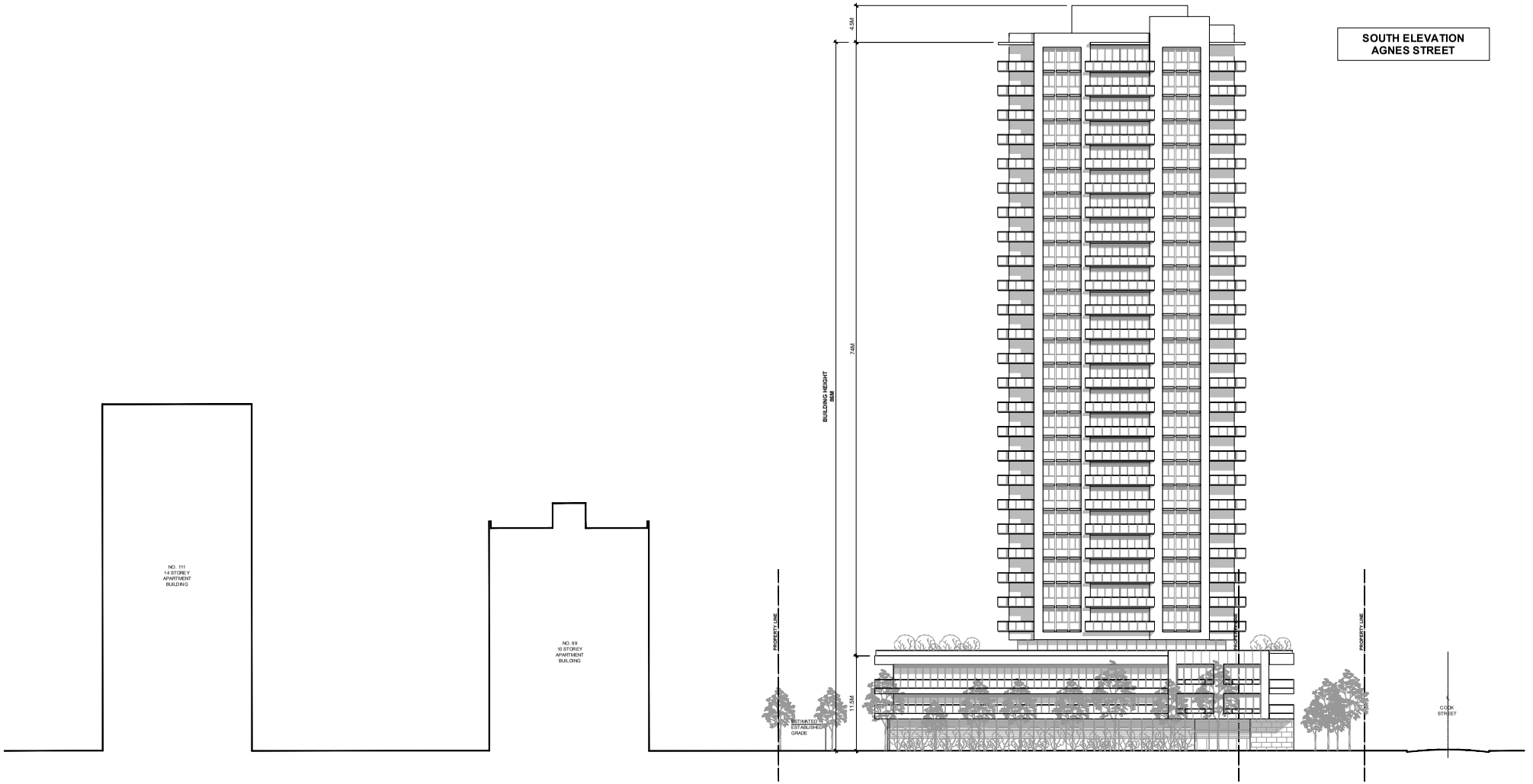
DRAWING TITLE: NORTH ELEVATION			
DRAWING TITLE:	SCALE: 1:450	PRINT DATE: 02-NOV-2020	DRAWING NO: A-1.14
DRAWING BY: AJT,PPR	DATE:		

SOUTH ELEVATION
AGNES STREET



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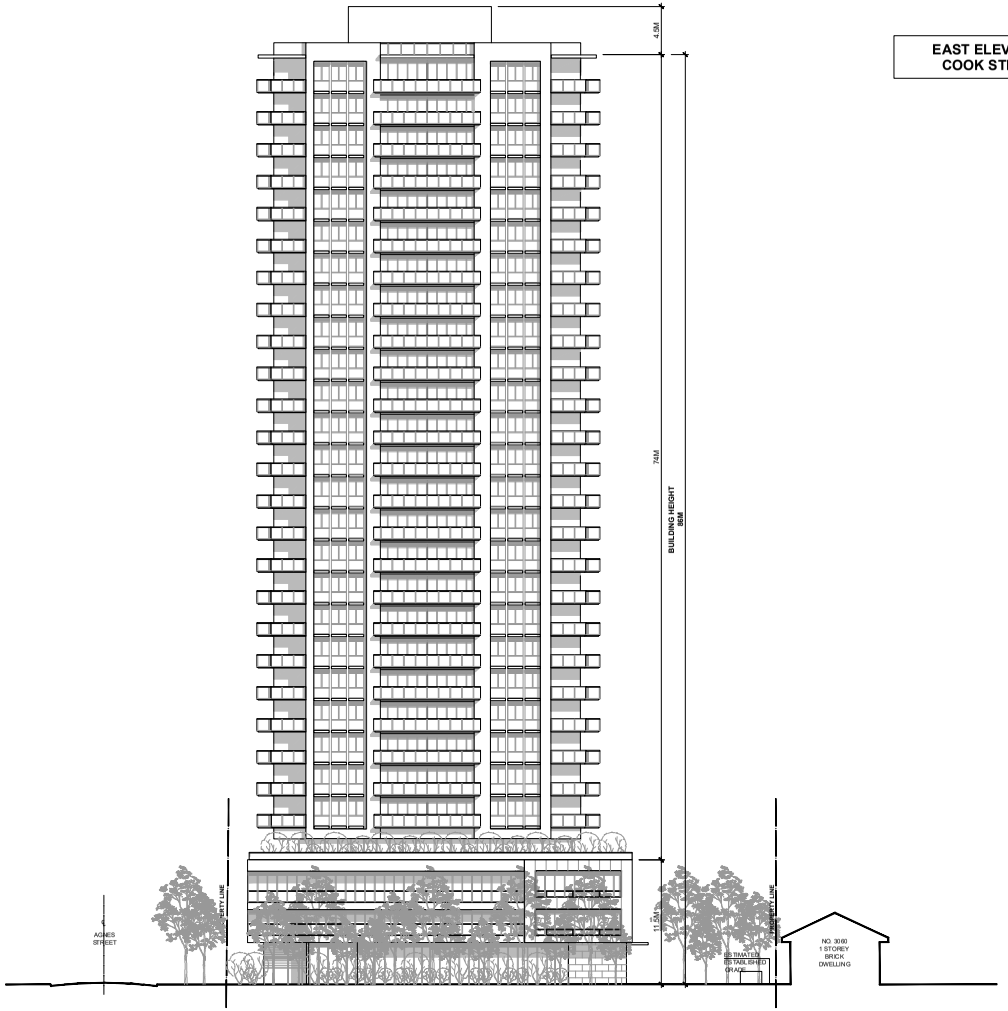
DRAWING TITLE: SOUTH ELEVATION			
DRAWING TITLE:	SCALE: 1:450	PRINT DATE: 02-NOV-2020	DRAWING NO: A-1.15
DRAWING BY: AJT,PPR	DATE:		

EAST ELEVATION
COOK STREET



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EAST ELEVATION			
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WEST ELEVATION

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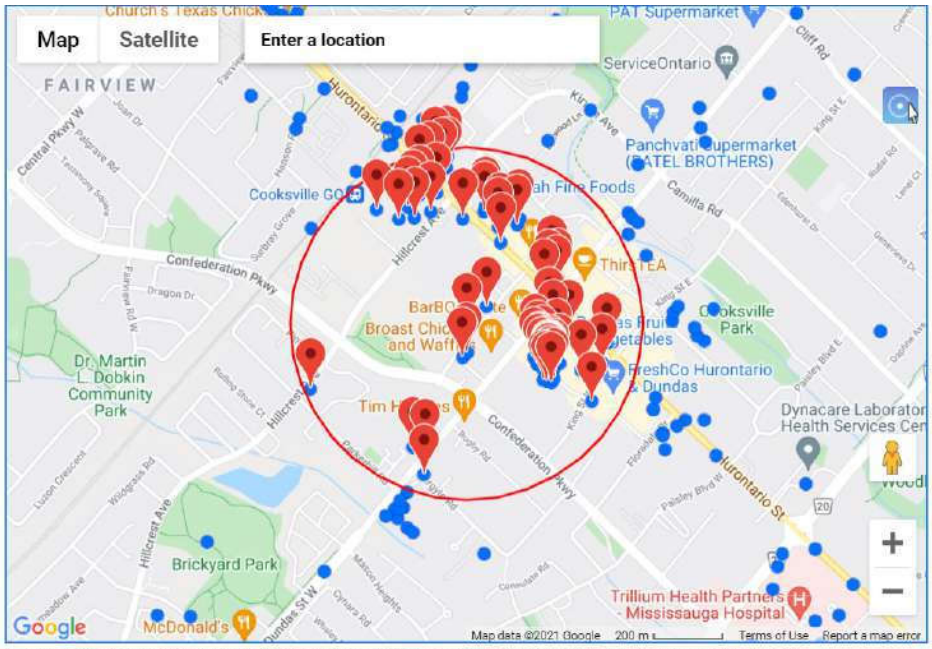
APPENDIX B

SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

MECP Water Well Records



Latitude:43.57210, Longitude:-79.60524 (UTM Zone:17, Easting:612624, Northing:4825293)

Well ID	Well Record Information	Well Tag # (since 2003)	Audit #	Contractor Lic#	Well Depth (m)	Date of Completion (MM/DD/YYYY)
4902212	PDF | HTML	N/A	N/A	2909	16.5	01/10/1955
7108246	PDF | HTML	A066145	Z92244	7215	3.7	04/24/2008
7108266	PDF | HTML	A066123	Z92202	7215	3.1	03/12/2008
7145318	PDF | HTML	A096456	Z114337	7241	4.8	04/28/2010
7145319	PDF | HTML	A085575	Z114335	7241	4.8	04/28/2010
7147065	PDF | HTML	A097266	Z114328	7241	5.8	04/28/2010
7147066	PDF | HTML	A097267	Z114330	7241	5.2	04/28/2010
7148379	PDF | HTML	A103044	Z119050	7241	3.1	06/21/2010
7148380	PDF | HTML	A103036	Z119051	7241	3.4	06/21/2010
7148381	PDF | HTML	A103045	Z119052	7241	N/A	06/21/2010
7154043	PDF | HTML	A107681	M08056	7241	12.2	09/19/2010
7154087	PDF | HTML	A108798	Z122785	7241	4.6	10/15/2010
7154120	PDF | HTML	A092483	Z111726	7241	5.5	09/13/2010

7154121	PDF | HTML	A092484	Z111724	7241	6.1	09/13/2010
7154122	PDF | HTML	A092485	Z111725	7241	6.1	09/13/2010
7154123	PDF | HTML	A092477	Z111731	7241	6.1	09/14/2010
7154124	PDF | HTML	A092478	Z111730	7241	6.1	09/14/2010
7154125	PDF | HTML	A092479	Z111727	7241	6.1	09/14/2010
7154126	PDF | HTML	A092480	Z111729	7241	5.5	09/14/2010
7154242	PDF | HTML	A107807	Z122023	7241	3.5	09/09/2010
7154243	HTML	A107808	Z122025	7241	3.5	09/09/2010
7161349	PDF | HTML	A102995	Z123942	7241	6.7	02/18/2011
7161350	PDF | HTML	A103016	Z123984	7241	3.0	02/18/2011
7191792	HTML	A136194	C19403	7215	N/A	09/19/2012
7198638	HTML	A144253	Z166630	7472	12.1	02/21/2013
7202011	PDF | HTML	A145854	Z167599	7241	3.0	03/28/2013
7202012	PDF | HTML	A145853	Z167601	7241	3.0	03/27/2013
7202013	PDF | HTML	A145852	Z167602	7241	3.0	03/27/2013
7202014	PDF | HTML	A145851	Z167600	7241	7.9	03/27/2013
7202060	PDF | HTML	A140169	Z167598	7241	3.0	03/28/2013
7205508	PDF | HTML	A139585	C20419	7215	N/A	11/27/2012
7217458	HTML	A159214	Z183204	7241	4.3	01/23/2014
7217459	HTML	A159213	Z183203	7241	4.3	01/23/2014
7234673	HTML	A175368	C25835	6607	N/A	11/27/2014
7236755	PDF | HTML	A154708	Z168366	7324	2.9	09/25/2014
7241290	HTML	A179693	Z211329	7472	9.5	04/24/2015
7257735	HTML	A175368	C31927	7215	N/A	12/14/2015
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7263542	HTML	A197938	Z231549	7241	5.2	04/11/2016
7263543	HTML	A194940	Z231548	7241	5.2	04/11/2016
7263544	HTML	A197985	Z231466	7241	1.4	04/24/2016
7275986	HTML	A209781	Z240214	6607	5.3	10/18/2016
7277547	HTML	A209919	Z240268	6607	3.0	11/18/2016
7277548	HTML	A209920	Z240269	6607	3.0	11/17/2016
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7277826	HTML	A211478	Z247425	7241	4.0	11/16/2016
7278591	HTML	A210079	Z240421	6607	5.3	11/25/2016
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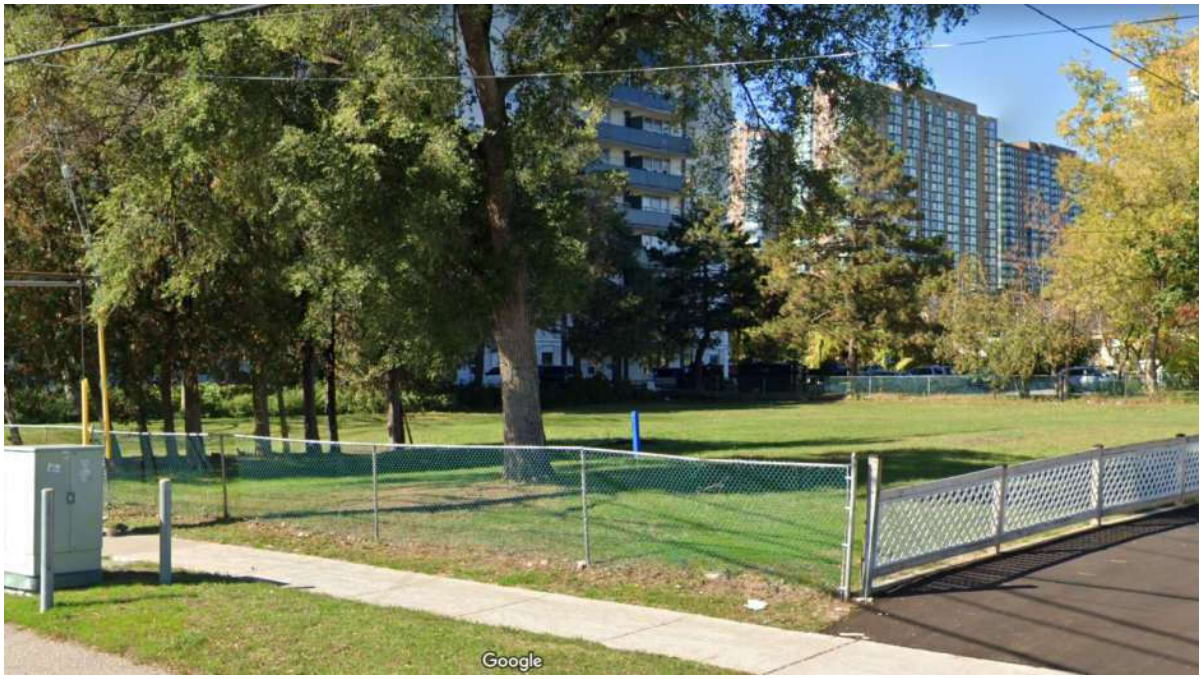
7308733	HTML	N/A	Z284018	7360	6.1	03/14/2018
7308734	HTML	N/A	Z284017	7360	3.8	03/14/2018
7308735	HTML	N/A	Z284016	7360	6.1	03/14/2018
7308736	HTML	N/A	Z284015	7360	2.4	03/23/2018
7308737	HTML	N/A	Z284014	7360	6.1	03/23/2018
7312572	HTML	A244321	C39769	7215	N/A	04/13/2018
7320679	HTML	A241340	Z278125	6607	5.7	07/13/2017
7332231	PDF | HTML	A246265	BALYVF8S	6607	4.5	04/08/2019
7337170	PDF | HTML	A264658	B96PFG2J	6607	6.1	05/28/2019
7337196	PDF | HTML	A264747	M9N4IOES	6607	6.1	05/27/2019
7338241	PDF | HTML	A241365	AFJM5CCY	6607	6.0	07/10/2019
7345861	HTML	A265682	Z305087	7241	3.7	07/03/2019
7345862	HTML	A270998	Z291795	7241	3.7	07/03/2019
7356703	PDF | HTML	A277789	MI433L75	7147	4.0	02/17/2020
7356704	PDF | HTML	A277790	UW4I7ZU3	7147	4.1	02/17/2020
7361501	HTML	A285527	Z327734	7472	N/A	03/12/2020
7365310	HTML	A295813	Z340659	7241	N/A	06/24/2020
7365311	HTML	A298651	Z340658	7241	N/A	06/24/2020
7365312	HTML	A298650	Z340657	7241	N/A	06/24/2020

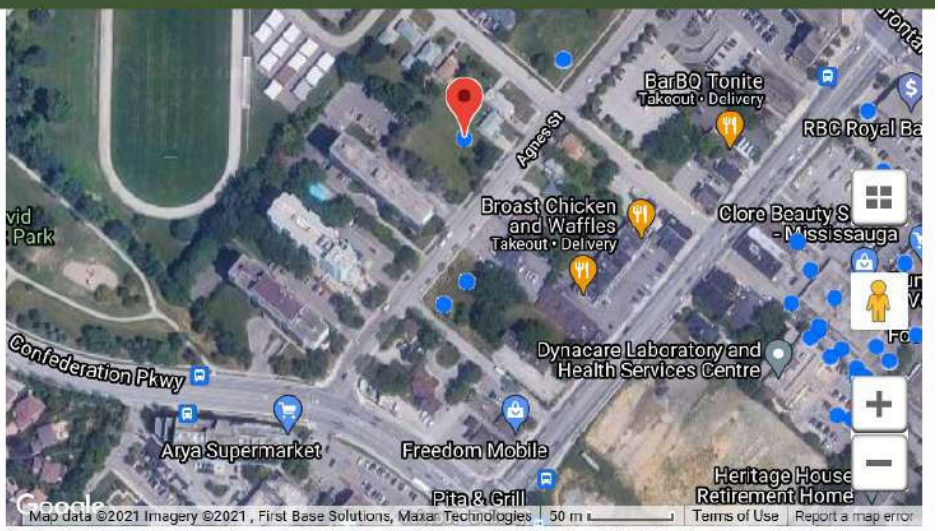
Showing 1 to 71 of 71 entries First Previous 1 Next Last

Updated: June 04, 2021
Published: April 16, 2021


Google

Ontario

How can we help you?



Latitude:43.58086, Longitude:-79.61988 (UTM Zone:17, Easting:611426, Northing:4826246)

Show 100 entries

Search:

Well ID	Well Record Information	Well Tag # (since 2003)	Audit #	Contractor Lic#	Well Depth (m)	Date of Completion (MM/DD/YYYY)
7241290	HTML	A179693	Z211329	7472	9.5	04/24/2015

Showing 1 to 1 of 1 entries

First Previous 1 Next Last

Ontario

Map: Well records

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

Full dataset is available in the Open Data catalogue.

Go Back to Map

Well ID

Well ID Number: 7241290
Well Audit Number: *Z211329*
Well Tag Number: *A179693*

This table contains information from the original well record and any subsequent updates.

Well Location

Address of Well Location	11 AGNES ST
Township	MISSISSAUGA CITY
Lot	
Concession	
County/District/Municipality	PEEL
City/Town/Village	Mississauga
Province	ON
Postal Code	n/a
UTM Coordinates	NAD83 — Zone 17 Easting: 611449.00 Northing: 4826107.00
Municipal Plan and Sublot Number	
Other	

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

BLCK	LOAM	LOOS	0 m	.3 m
BRWN	FSND	LOOS	.3 m	3.1 m
GREY	SHLE	HARD	3.1 m	7.6 m
GREY	SHLE	HARD	7.6 m	9.5 m

Annular Space/Abandonment Sealing Record

Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed
0 m	6.2 m	BENTONITE	
6.2 m	9.5 m	SAND PACK	

Method of Construction & Well Use

Method of Construction	Well Use
Diamond	
BORING	Monitoring

Status of Well

Observation Wells

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To
5.2 cm	PLASTIC	0 m	6.5 m

Construction Record - Screen

Outside Diameter	Material	Depth From	Depth To
6.4 cm	PLASTIC	6.5 m	9.5 m

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 7472

Results of Well Yield Testing

After test of well yield, water was
If pumping discontinued, give reason
Pump intake set at
Pumping Rate
Duration of Pumping
Final water level
If flowing give rate
Recommended pump depth
Recommended pump rate
Well Production
Disinfected?

Draw Down & Recovery

Draw Down Time (min)	Draw Down Water level	Recovery Time (min)	Recovery Water level
SWL			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
45		45	
50		50	
60		60	

Water Details

Water Found at Depth	Kind

Hole Diameter

Depth From	Depth To	Diameter
0 m	3.4 m	21 cm
3.4 m	9.5 m	9.6 cm

Audit Number: Z211329

Date Well Completed: April 24, 2015

Date Well Record Received by MOE: May 11, 2015

Updated: January 24, 2020

APPENDIX C

SIRATI & PARTNERS

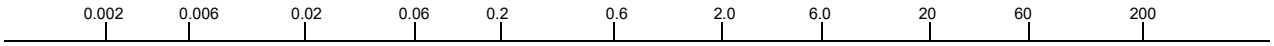
Geotechnical Hydrogeological & Environmental Solutions

Enclosure No. 1: Notes On Sample Descriptions

1. All sample descriptions included in this report follow the Canadian Foundations Engineering Manual soil classification system. This system follows the standard proposed by the International Society for Soil Mechanics and Foundation Engineering. Laboratory grain size analyses provided by Sirati & Partners Consultants Limited also follow the same system. Different classification systems may be used by others; one such system is the Unified Soil Classification. Please note that, with the exception of those samples where a grain size analysis has been made, all samples are classified visually. Visual classification is not sufficiently accurate to provide exact grain sizing or precise differentiation between size classification systems.

ISSMFE SOIL CLASSIFICATION

CLAY	SILT			SAND			GRAVEL			COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE		



EQUIVALENT GRAIN DIAMETER IN MILLIMETRES

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

UNIFIED SOIL CLASSIFICATION

2. Fill: Where fill is designated on the borehole log it is defined as indicated by the sample recovered during the boring process. The reader is cautioned that fills are heterogeneous in nature and variable in density or degree of compaction. The borehole description may therefore not be applicable as a general description of site fill materials. All fills should be expected to contain obstruction such as wood, large concrete pieces or subsurface basements, floors, tanks, etc., none of these may have been encountered in the boreholes. Since boreholes cannot accurately define the contents of the fill, test pits are recommended to provide supplementary information. Despite the use of test pits, the heterogeneous nature of fill will leave some ambiguity as to the exact composition of the fill. Most fills contain pockets, seams, or layers of organically contaminated soil. This organic material can result in the generation of methane gas and/or significant ongoing and future settlements. Fill at this site may have been monitored for the presence of methane gas and, if so, the results are given on the borehole logs. The monitoring process does not indicate the volume of gas that can be potentially generated nor does it pinpoint the source of the gas. These readings are to advise of the presence of gas only, and a detailed study is recommended for sites where any explosive gas/methane is detected. Some fill material may be contaminated by toxic/hazardous waste that renders it unacceptable for deposition in any but designated land fill sites; unless specifically stated the fill on this site has not been tested for contaminants that may be considered toxic or hazardous. This testing and a potential hazard study can be undertaken if requested. In most residential/commercial areas undergoing reconstruction, buried oil tanks are common and are generally not detected in a conventional geotechnical site investigation.

3. Till: The term till on the borehole logs indicates that the material originates from a geological process associated with glaciation. Because of this geological process the till must be considered heterogeneous in composition and as such may contain pockets and/or seams of material such as sand, gravel, silt or clay. Till often contains cobbles (60 to 200 mm) or boulders (over 200 mm). Contractors may therefore encounter cobbles and boulders during excavation, even if they are not indicated by the borings. It should be appreciated that normal sampling equipment cannot differentiate the size or type of any obstruction. Because of the horizontal and vertical variability of till, the sample description may be applicable to a very limited zone; caution is therefore essential when dealing with sensitive excavations or dewatering programs in till materials.

LOG OF BOREHOLE BH/MW1

PROJECT: Geotechnical Investigation
CLIENT: Bashar Ghreiwati
PROJECT LOCATION: 65 and 71 Agnes Street, Mississauga, Ontario
DATUM: Geodetic
BH LOCATION: See Borehole/Monitoring Well Location Plan

DRILLING DATA
Method: Hollow Stem Auger/HQ Coring
Diameter: 150 mm/63 mm
Date: Apr-28-2021 to Apr-29-2021

REF. NO.: SP21-826-00
ENCL NO.: 2

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION
113.3 / 0.0	**TOPSOIL** 300 mm thick				
113.0 / 0.3	**PROBABLE FILL:** sand, some silt, trace gravel, brown, moist, very loose to loose	1	SS	3	113
		2	SS	7	
111.8 / 1.5	**SAND:** trace silt, greyish brown, moist, dense	3	SS	30	112
		4	SS	35	111
110.2 / 3.1	INFERRED BEDROCK **GEORGIAN BAY FORMATION** GREY, **SHALE BEDROCK**, interbedded with **SILTSTONE** and **LIMESTONE**	5	SS	50/50mm	
		6	SS	50	110
					109
	W. L. 108.0 m May 10, 2021				
		7	SS	50/75mm	107
	Rock coring started at 7.92m Refer to rock core log for detailed information	8	SS	60/75mm	106
		1	CORE		105
					104

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

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

SPCL SOIL LOG-DRAFT SP20-826-00.GPJ SPCLGDT 21-5-27

LOG OF BOREHOLE BH/MW1

PROJECT: Geotechnical Investigation
CLIENT: Bashar Ghreiwati
PROJECT LOCATION: 65 and 71 Agnes Street, Mississauga, Ontario
DATUM: Geodetic
BH LOCATION: See Borehole/Monitoring Well Location Plan

DRILLING DATA
Method: Hollow Stem Auger/HQ Coring
Diameter: 150 mm/63 mm
Date: Apr-28-2021 to Apr-29-2021

REF. NO.: SP21-826-00
ENCL NO.: 2

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m							
	INFERRED BEDROCK **GEORGIAN BAY FORMATION** GREY, **SHALE BEDROCK**, interbedded with **SILTSTONE** and **LIMESTONE**(Continued)		2	CORE			103					
11												
			3	CORE			102					
12												
							101					
13			4	CORE								
							100					
14												
			5	CORE			99					
15												
							98					
16			6	CORE								
							97					
17												
			7	CORE			96					
18												
							95					
19												
			8	CORE			94					
20												

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

LOG OF BOREHOLE BH/MW1

PROJECT: Geotechnical Investigation
CLIENT: Bashar Ghreiwati
PROJECT LOCATION: 65 and 71 Agnes Street, Mississauga, Ontario
DATUM: Geodetic
BH LOCATION: See Borehole/Monitoring Well Location Plan

DRILLING DATA
Method: Hollow Stem Auger/HQ Coring
Diameter: 150 mm/63 mm
Date: Apr-28-2021 to Apr-29-2021

REF. NO.: SP21-826-00
ENCL NO.: 2

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: "N" BLOWS/0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	INFERRED BEDROCK **GEORGIAN BAY FORMATION** GREY, **SHALE BEDROCK**, interbedded with **SILTSTONE** and **LIMESTONE**(Continued)						93					
21 92.3												
21.0	**END OF BOREHOLE:** Note: 1. Monitoring well was installed upon completion of drilling. 2. Groundwater level observations: Date Depth (mbgs) 2021-05-10 5.32											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

SPCL SOIL LOG-DRAFT SP20-826-00.GPJ SPCL.GDT 21-5-27

LOG OF ROCK CORE BH/MW1

PROJECT: Geotechnical Investigation
CLIENT: Bashar Ghreiwati
LOCATION: 65 and 71 Agnes Street, Mississauga, Ontario
DATUM: Geodetic
BH LOCATION: See Borehole/Monitoring Well Location Plan

DRILLING DATA
Method: Hollow Stem Auger/HQ Coring
Diameter: 150 mm/63 mm
Date: Apr-28-2021 to Apr-29-2021

REF. NO.: SP21-826-00
ENCL NO.: 2

(m) ELEV / DEPTH	ROCK DESCRIPTION	GROUND WATER CONDITIONS	CORE SAMPLE NUMBER	CORE SAMPLE SIZE	TOTAL CORE RECOVERY (%)	SOLID CORE RECOVERY (%)	HARD LAYER (%)	RQD (%)	FRACTURE INDEX (per 0.3 m)	DISCONTINUITIES	WEATHERING INDEX	HYDRAULIC CONDUCTIVITY (cm/sec)	POINT LOAD TEST UCS AXIAL (MPa)*	POINT LOAD TEST UCS DIAMETRAL (MPa)*	UNIAXIAL COMPRESSION (MPa)	DENSITY (g/cm^3) E (GPa)
110.2	Rock Surface															
3.1	**GEORGIAN BAY FORMATION** Higly weathered (W4) to slightly weathered (W2), laminated to thinly bedded, dark grey to grey, **SHALE** and **LIMY SHALE**, interbedded with thinly laminated to thinly bedded with slightly weathered to fresh, light grey, **SILTSTONE** and **LIMESTONE**. Bedding almost horizontal (θ=90°)	▽ W. L. 108.0 m May 10, 2021														
105.4																
7.9	Slightly weathered (W2), **SHALE** and **LIMY SHALE**(68.3% to 98.4%), interbedded with **SILTSTONE** and **LIMESTONE** (1.6% to 31.7%). Bedding almost horizontal (θ=90°) Hard layers (siltstone and limestone) generally found to be less than 50mm thick except for noted depths		1		98	78	11.9	78	2 2 1 1 2	Fracture: 8.09m-8.20m, θ=0° Fragmented zone: 8.50m-8.52m	W2					
103.9	Run 1 hard rock: 11.9%															
9.5	Hard layers (limestone/siltstone) 7.92m (76mm) 8.1m (102mm) Run 2 hard rock: 31.7%, soft layer: 8.6% Hard layer (limestone/siltstone) 9.45m (203mm) 10.26m (89mm) 10.50m (89mm) Soft layers at: 9.65m (25mm) 10.24m (25mm) 10.41m (51mm)		2		97	81	31.7	72	2 1 1 5 2	Soft layer 9.65m ~ 9.68m (W5 to W4) 10.24m ~ 10.26m (W5 to W4) 10.41m ~ 10.46m (W5 to W4)	W2					
102.4																
11.0	Run 3 hard rock: 7.6%, soft layer: 1.7% Hard layer (limestone/siltstone) 11.29m (51mm) Soft layer at 11.13m (25mm)		3		98	85	7.6	80	3 2 1 2 1	Fracture: 11.38m-11.40m, θ=0° 11.13m ~ 11.15m (W4 to W3)	W2					
100.8																
12.5	Run 4 hard rock: 9.2% Hard layer (limestone/siltstone) 12.78m (76mm)								1 1							
13																

Continued Next Page

Weathering Index: W1-Fresh, W2-Slightly weathered, W3-Moderately weathered, W4-Highly weathered, W5-Completely weathered θ=angle to the core axis

E = Modulus of Elasticity
*: UCS [Mpa] ≈ 24 $I_{S(50)}$

LOG OF ROCK CORE BH/MW1

PROJECT: Geotechnical Investigation
CLIENT: Bashar Ghreiwati
LOCATION: 65 and 71 Agnes Street, Mississauga, Ontario
DATUM: Geodetic
BH LOCATION: See Borehole/Monitoring Well Location Plan

DRILLING DATA
Method: Hollow Stem Auger/HQ Coring
Diameter: 150 mm/63 mm
Date: Apr-28-2021 to Apr-29-2021

REF. NO.: SP21-826-00
ENCL NO.: 2

(m) ELEV / DEPTH	ROCK DESCRIPTION	GROUND WATER CONDITIONS	CORE SAMPLE NUMBER	CORE SAMPLE SIZE	TOTAL CORE RECOVERY (%)	SOLID CORE RECOVERY (%)	HARD LAYER (%)	RQD (%)	FRACTURE INDEX (per 0.3 m)	DISCONTINUITIES	WEATHERING INDEX	HYDRAULIC CONDUCTIVITY (cm/sec)	POINT LOAD TEST UCS AXIAL (MPa)*	POINT LOAD TEST UCS DIAMETRAL (MPa)*	UNIAXIAL COMPRESSION (MPa)	DENSITY (g/cm^3) E (GPa)
14 99.3	Slightly weathered (W2), **SHALE** and **LIMY SHALE**(68.3% to 98.4%), interbedded with **SILTSTONE** and **LIMESTONE** (1.6% to 31.7%). Bedding almost horizontal (θ=90°) Hard layers (siltstone and limestone) generally found to be less than 50mm thick except for noted depths *(continued)* Run 5 hard rock: 15.8% Hard layer (limestone/siltstone) 14.63m (89mm)		4		98	97	9.2	97	1 1 2		W2					
14.0									0 0	Fracture: 14.63m-14.72m, θ=0°						
15			5		100	92	15.8	73	2 0 0		W2					
97.8																
15.5	Run 6 hard rock: 1.6%, soft layer: 5.0% Soft layers at: 16.14m (38mm) 16.47m (38mm)								0 2						11.06	
16			6		100	85	1.6	85	0	16.14m ~ 16.18m (W4) 16.47m ~ 16.51m (W4)	W2					
17 96.3									4 2							
17.1	Highly weathered (W4) to slightly weathered (W3), **SHALE** and **LIMY SHALE**(98.3% to 100%), interbedded with **SILTSTONE** and **LIMESTONE**(0% to 1.7%). Bedding almost horizontal (θ=90°) Hard layers (siltstone and limestone) generally found to be less than 50mm thick except for noted depths Run 7 soft layer: 23.8%								1 0	Fragmented zone: 18.45m-18.49m 18.59m-18.62m						
18			7		100	48	0	25	9 7	17.81m ~ 17.83m (W4 to W3) 17.86m ~ 17.88m (W4 to W3) 17.96m ~ 18.00m (W4 to W3)	W4 to W3					
94.8									20	18.21m ~ 18.39m (W4 to W3) 18.47m ~ 18.54m (W4 to W3) 18.59m ~ 18.64m (W4 to W3)						
18.6	Soft layers at: 17.81m (25mm) 17.86m (25mm) 17.96m (38mm) 18.21m (178mm) 18.47m (76mm) 18.59m (25mm) Run 8 hard rock: 1.7%, soft layer: 20.0% Soft layers at: 18.59m (51mm) 18.69m (38mm) 18.75m (127mm) 19.20m (13mm) 19.79m (25mm) 19.96m (25mm) 20.09m (25mm)								21	18.69m ~ 18.73m (W4 to W3) 18.75m ~ 18.87m (W4 to W3) Fracture: 19.66m-19.69m, θ=0° Fragmented zone: 19.14m-19.20m 19.76m-19.79m 19.2m ~ 19.22m (W4 to W3) 19.89m-19.93m						
19			8		100	48	1.7	40	5 5 7		W4 to W3					
20 93.2									8	19.79m ~ 19.81m (W4 to W3) 19.96m ~ 19.99m (W4 to W3) 20.09m ~ 20.12m (W4 to W3)						
20.1	Slightly weathered (W2) **SHALE** and **LIMY SHALE**(86.1%), interbedded with **SILTSTONE** and **LIMESTONE**(13.9%). Bedding almost horizontal (θ=90°) Hard layers (siltstone and limestone) generally found to be								2							
21 92.3			9		100	86	13.9	86	1 1		W2					
21.0	less than 50mm thick except for noted depths Run 9 hard rock: 13.9%, soft layer: 2.8% Hard layer (limestone/siltstone) 20.27m (76mm) **END OF BOREHOLE:**															

Note:
1. Monitoring well was installed upon completion of drilling.
2. Groundwater level observations:

Date	Depth (mbgs)
2021-05-10	5.32

SPCL ROCK CORE-2016-DRAFT SP20-826-00.GPJ SPCL.GDT 21-5-27

Weathering Index: W1-Fresh, W2-Slightly weathered, W3-Moderately weathered, W4-Highly weathered, W5-Completely weathered θ=angle to the core axis

E = Modulus of Elasticity
*: UCS [Mpa] ≈ 24 $I_{S(50)}$

LOG OF BOREHOLE BH2

PROJECT: Geotechnical Investigation
CLIENT: Bashar Ghreiwati
PROJECT LOCATION: 65 and 71 Agnes Street, Mississauga, Ontario
DATUM: Geodetic
BH LOCATION: See Borehole/Monitoring Well Location Plan

DRILLING DATA
Method: Hollow Stem Auger/HQ Coring
Diameter: 150 mm/63 mm
Date: Apr-26-2021 to Apr-27-2021

REF. NO.: SP21-826-00
ENCL NO.: 3

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION
113.2							
0.0 / 113.0	**TOPSOIL** 250 mm thick		1	SS	32		113
0.3	**PROBABLE FILL:** sand, trace to some silt, brown, moist, loose to compact		2	SS	12		112
			3	SS	7		
111.0							111
2.3	**SAND:** trace silt, greyish brown, moist, dense		4	SS	69		
110.0			5	SS	50/75mm		110
3.2	INFERRED BEDROCK **GEORGIAN BAY FORMATION** GREY, **SHALE BEDROCK**, interbedded with **SILTSTONE** and **LIMESTONE**		6	SS	50/75mm		109
	Rock coring started at 4.98m Refer to rock core log for detailed information		1	CORE			108
			2	CORE			107
			3	CORE			106
			4	CORE			105
							104

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

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

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

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
1	89	9	1

SPCL SOIL LOG-DRAFT SP20-826-00.GPJ SPCLGDT 21-5-27

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

LOG OF BOREHOLE BH2

PROJECT: Geotechnical Investigation
CLIENT: Bashar Ghreiwati
PROJECT LOCATION: 65 and 71 Agnes Street, Mississauga, Ontario
DATUM: Geodetic
BH LOCATION: See Borehole/Monitoring Well Location Plan

DRILLING DATA
Method: Hollow Stem Auger/HQ Coring
Diameter: 150 mm/63 mm
Date: Apr-26-2021 to Apr-27-2021

REF. NO.: SP21-826-00
ENCL NO.: 3

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m							
	INFERRED BEDROCK **GEORGIAN BAY FORMATION** GREY, **SHALE BEDROCK**, interbedded with **SILTSTONE** and **LIMESTONE**(Continued)		5	CORE			103					
11												
			6	CORE			102					
12							101					
13			7	CORE			100					
14							99					
15			8	CORE			98					
16							97					
			9	CORE			96					
17							95					
18			10	CORE								
19							94					
			11	CORE								
20												

SPCL SOIL LOG-DRAFT SP20-826-00.GPJ SPCLGDT 21-5-27

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

LOG OF BOREHOLE BH2

PROJECT: Geotechnical Investigation
CLIENT: Bashar Ghreiwati
PROJECT LOCATION: 65 and 71 Agnes Street, Mississauga, Ontario
DATUM: Geodetic
BH LOCATION: See Borehole/Monitoring Well Location Plan

DRILLING DATA
Method: Hollow Stem Auger/HQ Coring
Diameter: 150 mm/63 mm
Date: Apr-26-2021 to Apr-27-2021

REF. NO.: SP21-826-00
ENCL NO.: 3

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m							GR SA SI CL
92.1	INFERRED BEDROCK **GEORGIAN BAY FORMATION** GREY, **SHALE BEDROCK**, interbedded with **SILTSTONE** and **LIMESTONE**(Continued)						93					
			12	CORE								
21.1	**END OF BOREHOLE**											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

SPCL SOIL LOG-DRAFT SP20-826-00.GPJ SPCLGDT 21-5-27

LOG OF ROCK CORE BH2

PROJECT: Geotechnical Investigation
CLIENT: Bashar Ghreiwati
LOCATION: 65 and 71 Agnes Street, Mississauga, Ontario
DATUM: Geodetic
BH LOCATION: See Borehole/Monitoring Well Location Plan

DRILLING DATA
Method: Hollow Stem Auger/HQ Coring
Diameter: 150 mm/63 mm
Date: Apr-26-2021 to Apr-27-2021

REF. NO.: SP21-826-00
ENCL NO.: 3

(m) ELEV / DEPTH	ROCK DESCRIPTION	GROUND WATER CONDITIONS	CORE SAMPLE NUMBER	CORE SAMPLE SIZE	TOTAL CORE RECOVERY (%)	SOLID CORE RECOVERY (%)	HARD LAYER (%)	RQD (%)	FRACTURE INDEX (per 0.3 m)	DISCONTINUITIES	WEATHERING INDEX	HYDRAULIC CONDUCTIVITY (cm/sec)	POINT LOAD TEST UCS AXIAL (MPa)*	POINT LOAD TEST UCS DIAMETRAL (MPa)*	UNIAXIAL COMPRESSION (MPa)	DENSITY (g/cm^3) E (GPa)
110.0	Rock Surface															
3.2	**GEORGIAN BAY FORMATION** Highly weathered (W4) to moderately weathered (W3), laminated to thinly bedded, dark grey to grey, **SHALE** and **LIMY SHALE**, interbedded with thinly laminated to thinly bedded with slightly weathered to fresh, light grey, **SILTSTONE** and **LIMESTONE**. Bedding almost horizontal (θ=90°) Hard layers (siltstone and limestone) generally found to be less than 50mm thick except for noted depths															
108.3			1		100	54	37.5	0	5	Fragmented zone: 5.01m-5.05m 5.11m-5.13m Fragmented zone: 5.22m-5.27m 6.52m-6.57m Soft layer 5.13m ~ 5.16m (W4 to W3)	W4 to W3					
108.0																
5.1	Run 1 hard rock: 37.5% Hard layer (limestone/siltstone) 5.05m (57mm) Moderately weathered (W3) to slightly weathered (W2) **SHALE** and **LIMY SHALE** (71.7% to 97.6%), interbedded with **SILTSTONE** and **LIMESTONE** (2.4% to 28.3%). Bedding almost horizontal (θ=90°)		2		100	85	2.4	76	7 0 1 1 6		W3 to W2					
106.5																
6.7	Hard layers (siltstone and limestone) generally found to be less than 50mm thick except for noted depths Run 2 hard rock: 2.4%, soft layer: 1.6% Soft layer at: 5.13m (25mm) Run 3 hard rock: 11.7%, soft layer: 17.5% Hard layer (limestone/siltstone) 7.95m (152mm)		3		95	67	11.7	52	9 13 1 14 0	Fracture: 6.83m-6.86m, θ=55° Fragmented zone: 6.93m-6.99m 7.16m-7.21m 7.82m-7.85m 6.78m ~ 6.83m (W4 to W3) 7.14m ~ 7.19m (W4 to W3) 7.21m ~ 7.24m (W4 to W3) 7.77m ~ 7.90m (W4 to W3)	W3 to W2					
105.0																
8.2	Soft layers at: 6.78m (51mm) 7.14m (51mm) 7.21m (25mm) 7.77m (127mm) Run 4 hard rock: 13.6%, soft layer: 11.0% Hard layer (limestone/siltstone) 8.23m (76mm) Soft layers at: 8.75m (64mm) 8.92m (64mm) 9.4m (38mm)		4		100	64	13.6	56	3 10 10 4 4	Fragmented zone: 8.88m-8.92m 9.47m-9.50m 8.75m ~ 8.81m (W4) 8.92m ~ 8.98m (W4) 9.4m ~ 9.44m (W4)	W3 to W2					
103.5																
9.8	Run 5 hard rock: 28.3%, soft layer: 11.6% Hard layer (limestone/siltstone) 9.83m (51mm) 10.46m (279mm) Soft layers at: 9.96m (89mm) 10.07m (51mm) 10.13m (6mm) 10.16m (25mm)		5		97	72	28.3	63	9 8 1 2 2	Fragmented zone: 10.07m-10.10m 11.05m-11.07m 9.96m ~ 10.05m (W4) 10.07m ~ 10.12m (W4) 10.13m ~ 10.14m (W4) 10.16m ~ 10.19m (W4)	W3 to W2					
102.0																
11.3	Run 6 hard rock: 10.0%, soft layer: 15.8% Hard layer (limestone/siltstone) 11.89m (64mm) Soft layers at: 11.54m (76mm) 11.66m (64mm) 12.70m (102mm)		6		98	69	10.0	61	11 7 2 0 11	Fragmented zone: 11.33m-11.38m 12.55m-12.59m 12.67m-12.73m 11.54m ~ 11.62m (W4 to W3) 11.66m ~ 11.72m (W4 to W3) 12.7m ~ 12.80m (W4 to W3)	W3 to W2					
100.4																
12.8	Run 7 hard rock: 4.2%, soft layer: 10.2% Soft layers at:								10	13m ~ 13.08m (W3)						

Continued Next Page

Weathering Index: W1-Fresh, W2-Slightly weathered, W3-Moderately weathered, W4-Highly weathered, W5-Completely weathered θ=angle to the core axis

E = Modulus of Elasticity
*: UCS [Mpa] ≈ 24 $I_{S(50)}$

LOG OF ROCK CORE BH2

PROJECT: Geotechnical Investigation
CLIENT: Bashar Ghreiwati
LOCATION: 65 and 71 Agnes Street, Mississauga, Ontario
DATUM: Geodetic
BH LOCATION: See Borehole/Monitoring Well Location Plan

DRILLING DATA
Method: Hollow Stem Auger/HQ Coring
Diameter: 150 mm/63 mm
Date: Apr-26-2021 to Apr-27-2021

REF. NO.: SP21-826-00
ENCL NO.: 3

(m) ELEV / DEPTH	ROCK DESCRIPTION	GROUND WATER CONDITIONS	CORE SAMPLE NUMBER	CORE SAMPLE SIZE	TOTAL CORE RECOVERY (%)	SOLID CORE RECOVERY (%)	HARD LAYER (%)	RQD (%)	FRACTURE INDEX (per 0.3 m)	DISCONTINUITIES	WEATHERING INDEX	HYDRAULIC CONDUCTIVITY (cm/sec)	POINT LOAD TEST UCS AXIAL (MPa)*	POINT LOAD TEST UCS DIAMETRAL (MPa)*	UNIAXIAL COMPRESSION (MPa)	DENSITY (g/cm^3) E (GPa)
14	13.00m (76mm) 14.12m (76mm) Moderately weathered (W3) to slightly weathered (W2) **SHALE** and **LIMY SHALE** (71.7% to 97.6%), interbedded with **SILTSTONE** and **LIMESTONE** (2.4% to 28.3%). Bedding almost horizontal (θ=90°) Hard layers (siltstone and limestone) generally found to be less than 50mm thick except for noted depths *(continued)* Run 8 hard rock: 8.5%, soft layer: 14.4% Hard layer (limestone/siltstone) 14.97m (76mm) Soft layers at: 15.14m (102mm) 15.44m (102mm) 15.56m (13mm)		7		98	75	4.2	73	4 1 2 7	Fracture: 13.31m-13.34m, θ=0° Fragmented zone: 13.08m-13.12m *(continued)* 14.12m ~ 14.20m (W3)	W3 to W2					
98.9																
14.3																
15			8		98	67	8.5	62	1 2 11 10 12	Fracture: 14.95m-14.96m, θ=0° Fragmented zone: 15.74m-15.82m 15.14m ~ 15.24m (W3) 15.44m ~ 15.54m (W4 to W3) 15.56m ~ 15.57m (W3)	W3 to W2					
97.4																
15.9																
16	Slightly weathered (W2) to fresh (W1) **SHALE** and **LIMY SHALE** (88.9% to 98.3%), interbedded with **SILTSTONE** and **LIMESTONE** (1.7% to 11.1%). Bedding almost horizontal (θ=90°) Hard layers (siltstone and limestone) generally found to be less than 50mm thick except for noted depths Run 9 hard rock: 1.7% Run 10 hard rock: 1.7%		9		100	100	1.7	100	0 0 0 0 0		W2 to W1					
17																
95.9																
17.4																
18			10		97	100	1.7	100	0 0 1 1 0		W2 to W1					
94.3																
19 18.9	Run 11 hard rock: 6.7%		11		100	97	6.7	93	2 0 0 0 2		W2 to W1				10.94	
20																
92.8																
20.4	Run 12 hard rock: 11.1%		12		100	100	11.1	100	0 0		W2 to W1					
21 92.1																
21.1	**END OF BOREHOLE**															

SPCL ROCK CORE-2016-DRAFT SP20-826-00.GPJ SPCL.GDT 21-5-27

Weathering Index: W1-Fresh, W2-Slightly weathered, W3-Moderately weathered, W4-Highly weathered, W5-Completely weathered θ=angle to the core axis

E = Modulus of Elasticity
*: UCS [Mpa] ≈ 24 $I_{S(50)}$

LOG OF BOREHOLE BH/MW3

PROJECT: Geotechnical Investigation
CLIENT: Bashar Ghreiwati
PROJECT LOCATION: 65 and 71 Agnes Street, Mississauga, Ontario
DATUM: Geodetic
BH LOCATION: See Borehole/Monitoring Well Location Plan

DRILLING DATA
Method: Hollow Stem Auger/HQ Coring
Diameter: 150 mm/63 mm
Date: Apr-29-2021 to Apr-29-2021

REF. NO.: SP21-826-00
ENCL NO.: 4

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
112.6						
112.5 / 0.1	**TOPSOIL** 100mm thick					
	PROBABLE FILL: sand, trace to some silt, trace clay, brown, moist, loose to compact	1	SS	6	112	
		2	SS	7		
		3	SS	21	111	1 80 15 4
110.3 / 2.3	**SAND:** trace silt, greyish brown, moist, dense	4	SS	35	110	
109.4 / 3.2	INFERRED BEDROCK **GEORGIAN BAY FORMATION** GREY, **SHALE BEDROCK**, interbedded with **SILTSTONE** and **LIMESTONE**	5	SS	100/200mm	W. L. 109.4 m May 10, 2021	
					109	
		6	SS	100/75mm	108	
107.4 / 5.2	**END OF BOREHOLE:**					

Note:
1. Monitoring well was installed upon completion of drilling.
2. Groundwater level observations:

Date	Depth (mbgs)
2021-05-10	3.19

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

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

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

SPCL SOIL LOG-DRAFT SP20-826-00.GPJ SPCL.GDT 21-5-27

LOG OF BOREHOLE BH/MW4

PROJECT: Geotechnical Investigation
CLIENT: Bashar Ghreiwati
PROJECT LOCATION: 65 and 71 Agnes Street, Mississauga, Ontario
DATUM: Geodetic
BH LOCATION: See Borehole/Monitoring Well Location Plan

DRILLING DATA
Method: Hollow Stem Auger/HQ Coring
Diameter: 150 mm/63 mm
Date: Apr-29-2021 to Apr-29-2021

REF. NO.: SP21-826-00
ENCL NO.: 5

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION
113.8 / 0.0	**TOPSOIL** 300mm thick				
113.5 / 0.3	**PROBABLE FILL:** sand, trace to some silt, brown, moist, very loose to loose	1	SS	3	
		2	SS	4	113
112.3 / 1.5	**SAND:** trace silt, greyish brown, moist, dense	3	SS	40	112
		4	SS	55	
110.6 / 3.2	**SILT:** some clay, grey, moist, compact	5	SS	20	111
	INFERRED BEDROCK **GEORGIAN BAY FORMATION** GREY, **SHALE BEDROCK**, interbedded with **SILTSTONE** and **LIMESTONE**				110
		6	SS	50/50mm	109
108.3 / 5.5	**END OF BOREHOLE:**				

Note:
1. Monitoring well was installed upon completion of drilling.
2. Groundwater level observations:

Date	Depth (mbgs)
2021-05-10	4.14

W. L. 109.7 m
May 10, 2021

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

POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)
REMARKS AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

SPCL SOIL LOG-DRAFT SP20-826-00.GPJ SPCL.GDT 21-5-27

LOG OF BOREHOLE BH5

PROJECT: Geotechnical Investigation
CLIENT: Bashar Ghreiwati
PROJECT LOCATION: 65 and 71 Agnes Street, Mississauga, Ontario
DATUM: Geodetic
BH LOCATION: See Borehole/Monitoring Well Location Plan

DRILLING DATA
Method: Hollow Stem Auger/HQ Coring
Diameter: 150 mm/63 mm
Date: Apr-29-2021 to Apr-29-2021

REF. NO.: SP21-826-00
ENCL NO.: 6

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS	ELEVATION
114.2							
0.0 / 113.9	**TOPSOIL** 300mm thick		1	SS	2		114
0.3	**PROBABLE FILL:** sand, trace to some silt, brown, moist, very loose to loose		2	SS	4		
1							113
			3	SS	10		
2 / 112.0							112
2.3	**SAND:** trace silt, greyish brown, moist to wet, dense		4	SS	31		
3 / 111.1							
3.0	**SILT:** trace clay, trace sand, grey, moist, compact		5	SS	60/225mm		111
3.3	INFERRED BEDROCK **GEORGIAN BAY FORMATION** GREY, **SHALE BEDROCK**, interbedded with **SILTSTONE** and **LIMESTONE**						
4							110
109.5			6	SS	50/50mm		
4.8	**END OF BOREHOLE**						

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100

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

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

WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

SPCL SOIL LOG-DRAFT SP20-826-00.GPJ SPCL.GDT 21-5-27

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

APPENDIX D

SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

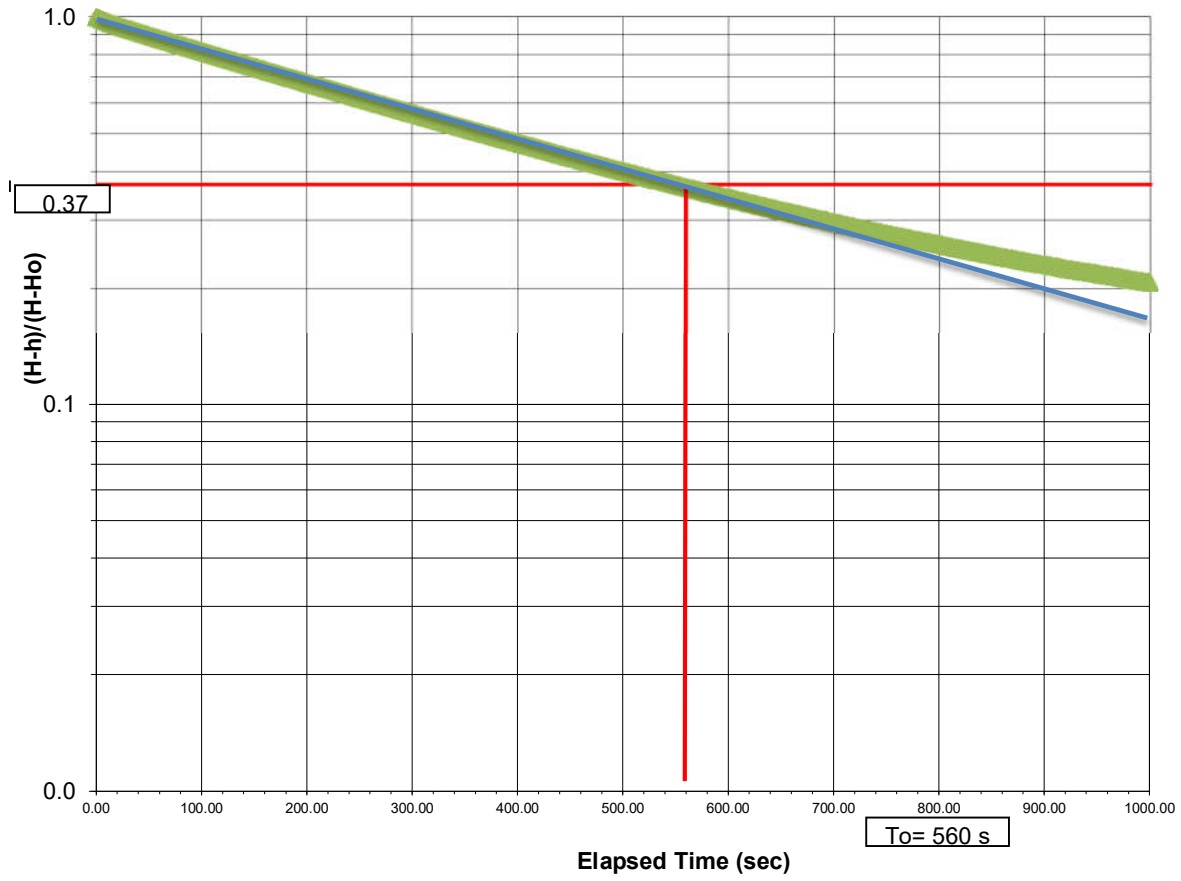
Slug Test: Borehole BH/MW1 **Project No.: SP21-826-30**

Project Location: 65 & 71 Agnes Street, Mississauga, Ontario

Data Source: Datalogger based on Rising Head Method dated May 10, 2021)

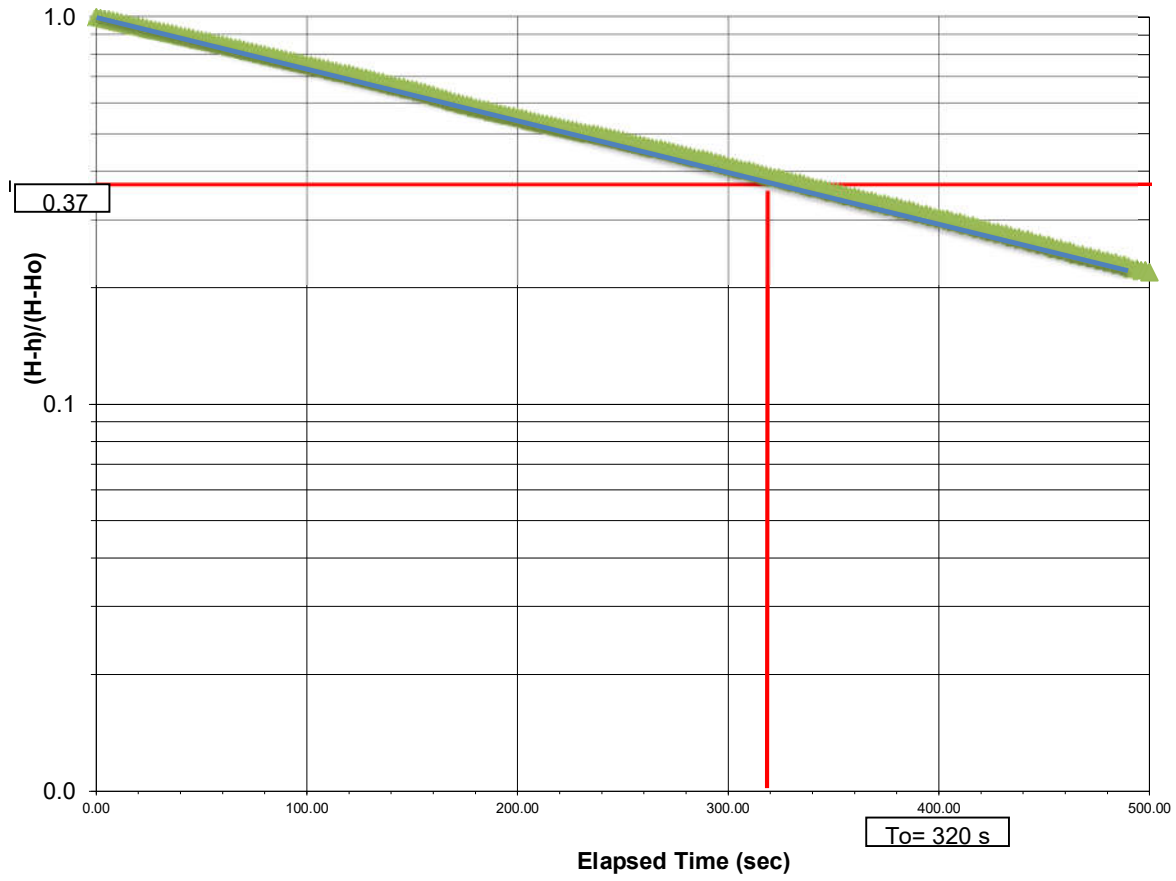
Conducted by:	Reza Khabbaznia			
Interpretted by:	Bujing Guan	H =	Initial Water Head prior to test	
Processing Date:	2021-06-23	Ho =	Water Head at time = 0	
Well Elevation (mASL):	113.35	h =	Water Head/Level at time t	
Screen Depth (mBGS):	18 ~ 21			
Well Diameter:	2.0" ID	L =	305	cm
Static Water Level (mBGS):	5.32	R =	4.8	cm
Initial Reading (H)	12.37	r =	2.54	cm
Test Start Reading (H_0)	9.93	To =	560	sec
Test End Reading	12.37	$K = r^2 \ln(L/R)/(2LTo)$ =	**7.8E-05**	cm/s

Slug Test Result (Hvorslev Method) - BH/MW1
Based on Datalogger Readings



Slug Test: Borehole BH/MW3		**Project No.: SP21-826-30**		
Project Location: 65 & 71 Agnes Street, Mississauga, Ontario				
Data Source: Datalogger based on Rising Head Method dated May 10, 2021)				
Conducted by:	Reza Khabbaznia			
Interpretted by:	Bujing Guan	H =	Initial Water Head prior to test	
Processing Date:	2021-06-23	Ho =	Water Head at time = 0	
Well Elevation (mASL):	112.57	h =	Water Head/Level at time t	
Screen Depth (mBGS):	3.7 ~ 5.2			
Well Diameter:	2.0" ID	L =	150	cm
Static Water Level (mBGS):	3.19	R =	10.2	cm
Initial Reading (H)	11.26	r =	2.54	cm
Test Start Reading (H_0)	10.215	To =	320	sec
Test End Reading	11.26	$K = r^2 \ln(L/R)/(2LTo) =$	**1.8E-04**	cm/s

Slug Test Result (Hvorslev Method) - BH/MW3
Based on Datalogger Readings



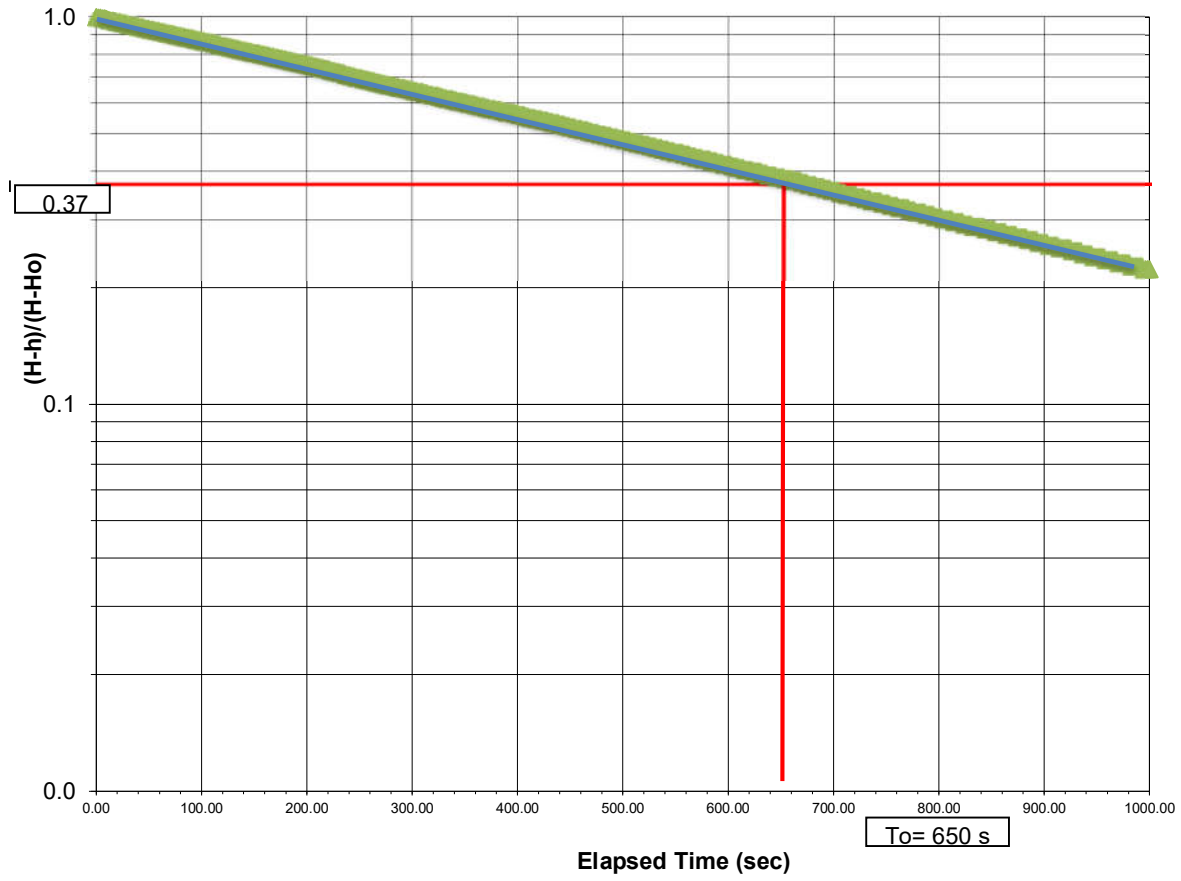
Slug Test: Borehole BH/MW4 **Project No.: SP21-826-30**

Project Location: 65 & 71 Agnes Street, Mississauga, Ontario

Data Source: Datalogger based on Rising Head Method dated May 10, 2021)

Conducted by:	Reza Khabbaznia			
Interpretted by:	Bujing Guan	H =	Initial Water Head prior to test	
Processing Date:	2021-06-23	Ho =	Water Head at time = 0	
Well Elevation (mASL):	113.79	h =	Water Head/Level at time t	
Screen Depth (mBGS):	2.4 ~ 5.5			
Well Diameter:	2.0" ID	L =	136	cm
Static Water Level (mBGS):	4.14	R =	10.2	cm
Initial Reading (H)	10.908	r =	2.54	cm
Test Start Reading (H_0)	10.209	To =	650	sec
Test End Reading	11.26	$K = r^2 \ln(L/R)/(2LTo)$ =	**9.5E-05**	cm/s

Slug Test Result (Hvorslev Method) - BH/MW4
Based on Datalogger Readings



APPENDIX E

SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: SIRATI & PARTNERS
12700 KEELE STREET
KING CITY, ON L7B1H5
(905) 669
ATTENTION TO: Reza Khabbaznia
PROJECT: SP21-826-00
AGAT WORK ORDER: 21T744873
MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer
TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist
ULTRA TRACE REVIEWED BY: Olivier Lachance, Method Development Supervisor
WATER ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer
DATE REPORTED: May 27, 2021
PAGES (INCLUDING COVER): 20
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
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AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

E. Coli (Using MI Agar)

DATE RECEIVED: 2021-05-10

DATE REPORTED: 2021-05-27

			SAMPLE DESCRIPTION:	**BH/MW03**
			SAMPLE TYPE:	**Water**
			DATE SAMPLED:	**2021-05-10 12:00**
Parameter	**Unit**	**G / S**	**RDL**	**2451024**
Escherichia coli	CFU/100mL	200	10	ND

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Peel Storm By-Law 53-2010
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

2451024 If RDL >1 indicates dilutions of the sample.
ND - Not Detected.

The sample was diluted prior to filtration due to the presence of sediments.

Analysis perfomed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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MISSISSAUGA, ONTARIO
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Certificate of Analysis

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

Fecal Coliforms in Water

DATE RECEIVED: 2021-05-10

DATE REPORTED: 2021-05-27

			SAMPLE DESCRIPTION:	BH/MW03
			SAMPLE TYPE:	Water
			DATE SAMPLED:	2021-05-10 12:00
Parameter	**Unit**	**G / S**	**RDL**	**2451024**
Fecal Coliform	CFU/100mL	0	**10**	ND

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Peel Storm By-Law 53-2010
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

2451024 If RDL >1 indicates dilutions of the sample.
ND - Not Detected.

The sample was diluted prior to filtration due to the presence of sediments.

Analysis perfomed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

5835 COOPERS AVENUE
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Certificate of Analysis

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

Peel Region Sanitary/Storm - Organics

DATE RECEIVED: 2021-05-10

DATE REPORTED: 2021-05-27

				SAMPLE DESCRIPTION:	BH/MW03
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2021-05-10 12:00
Parameter	Unit	G / S: A	G / S: B	RDL	2451024
Oil and Grease (animal/vegetable) in water	mg/L	150		0.5	1.79[<A]
Oil and Grease (mineral) in water	mg/L	15		0.5	<0.5
Methylene Chloride	mg/L	2	0.0052	0.0003	<0.0003
Methyl Ethyl Ketone	mg/L	8.0		0.0009	<0.0009
cis-1,2-Dichloroethylene	mg/L	4	0.0056	0.0002	<0.0002
Chloroform	mg/L	0.04	0.002	0.0002	<0.0002
Benzene	mg/L	0.01	0.002	0.0002	<0.0002
Trichloroethylene	mg/L	0.4	0.008	0.0002	<0.0002
Toluene	mg/L	0.27	0.002	0.0002	<0.0002
Tetrachloroethene	mg/L	1	0.0044	0.0002	<0.0002
trans-1,3-Dichloropropene	mg/L	0.14	0.0056	0.0003	<0.0003
Ethylbenzene	mg/L	0.16	0.002	0.0001	<0.0001
1,1,2,2-Tetrachloroethane	mg/L	1.4	0.017	0.0001	<0.0001
Styrene	mg/L	0.2		0.0001	<0.0001
1,2-Dichlorobenzene	mg/L	0.05	0.0056	0.0001	<0.0001
1,4-Dichlorobenzene	mg/L	0.08	0.0068	0.0001	<0.0001
m & p-Xylene	mg/L			0.0002	<0.0002
o-Xylene	mg/L			0.0001	<0.0001
Xylenes (Total)	mg/L	1.4	0.0044	0.0001	<0.0001
PCBs	mg/L	0.001	0.0004	0.0002	<0.0002
Di-n-butyl phthalate	mg/L	0.08	0.015	0.0005	<0.0005
Bis(2-Ethylhexyl)phthalate	mg/L	0.012	0.0088	0.0005	<0.0005

Certified By: N Popnikolof

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

Peel Region Sanitary/Storm - Organics

DATE RECEIVED: 2021-05-10

DATE REPORTED: 2021-05-27

		SAMPLE DESCRIPTION:	BH/MW03
		SAMPLE TYPE:	Water
		DATE SAMPLED:	2021-05-10 12:00
Surrogate	**Unit**	**Acceptable Limits**	**2451024**
Toluene-d8	% Recovery	50-140	87
4-Bromofluorobenzene	% Recovery	50-140	107
Decachlorobiphenyl	%	50-140	101
2,4,6-Tribromophenol	%	50-140	89
2-Fluorophenol	%	50-140	75
Chrysene-d12	%	50-140	89
phenol-d6 surrogate	%	50-140	78

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Peel Sanitary By-Law 53-2010, B Refers to Peel Storm By-Law 53-2010
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

2451024 Oil and Grease animal/vegetable is a calculated parameter. The calculated value is the difference between Total O&G and Mineral O&G.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.

Analysis perfomed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

Nonylphenol and Nonylphenol Ethoxylates (Ontario, mg/L)

DATE RECEIVED: 2021-05-10

DATE REPORTED: 2021-05-27

				SAMPLE DESCRIPTION:	BH/MW03
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2021-05-10 12:00
Parameter	Unit	G / S	RDL	2451024	
Total Nonylphenol	mg/L	0.001	0.001	<0.001	
NP1EO	mg/L		0.001	<0.001	
NP2EO	mg/L		0.0003	<0.0003	
Total Nonylphenol Ethoxylates	mg/L	0.01	0.001	<0.001	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to CIty of Toronto Storm Sewer Discharge
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis perfomed at AGAT Montréal (unless marked by *)

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

Peel Sanitary/Storm Sewer Use By-Law - Inorganics

DATE RECEIVED: 2021-05-10

DATE REPORTED: 2021-05-27

				SAMPLE DESCRIPTION:	**BH/MW03**
				SAMPLE TYPE:	**Water**
				DATE SAMPLED:	**2021-05-10 12:00**
Parameter	**Unit**	**G / S: A**	**G / S: B**	**RDL**	**2451024**
pH	pH Units	5.5-10	6.0-9.0	NA	7.72
Total Suspended Solids	mg/L	350	15	10	1310[>A]
Fluoride	mg/L	10		0.33	<0.33
Sulphate	mg/L	1500		5.0	60.8[<A]
Total Cyanide	mg/L	2	0.02	0.002	0.012[<B]
Phenols	mg/L	1.0	0.008	0.002	<0.002
Total Phosphorus	mg/L	10	0.4	0.06	0.67[B-A]
Total Kjeldahl Nitrogen	mg/L	100	1	0.10	0.22[<B]
Total Aluminum	mg/L	50		2.0	132[>A]
Total Antimony	mg/L	5		0.40	<0.40
Total Arsenic	mg/L	1	0.02	0.30	<0.30
Total Cadmium	mg/L	0.7	0.008	0.20	<0.20
Total Chromium	mg/L	5	0.08	0.30	<0.30
Total Cobalt	mg/L	5		0.40	<0.40
Total Copper	mg/L	3	0.05	0.20	<0.20
Total Lead	mg/L	3	0.120	0.40	<0.40
Total Manganese	mg/L	5	0.05	0.40	4.00[B-A]
Total Mercury	mg/L	0.01	0.0004	0.0002	<0.0002
Total Molybdenum	mg/L	5		0.40	<0.40
Total Nickel	mg/L	3	0.08	0.30	0.35[B-A]
Total Selenium	mg/L	1	0.02	0.04	<0.04
Total Silver	mg/L	5	0.12	0.20	<0.20
Total Tin	mg/L	5		0.50	<0.50
Total Titanium	mg/L	5		0.40	0.88[<A]
Total Zinc	mg/L	3	0.04	0.40	1.09[B-A]

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Peel Sanitary By-Law 53-2010, B Refers to Peel Storm By-Law 53-2010
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

2451024 Dilution required, RDL has been increased accordingly.

Analysis perfomed at AGAT Toronto (unless marked by *)

Certified By: Iris Veraistegui

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

Peel Sanitary/Storm Sewer Use By-Law - Total Metals

DATE RECEIVED: 2021-05-10

DATE REPORTED: 2021-05-27

					SAMPLE DESCRIPTION:	BH/MW03 DS
					SAMPLE TYPE:	Water
					DATE SAMPLED:	2021-05-10 12:00
Parameter	Unit	G / S: A	G / S: B	RDL	2451091	
Total Aluminum	mg/L	50		0.20	21.2[<A]	
Total Antimony	mg/L	5		0.040	<0.040	
Total Arsenic	mg/L	1	0.02	0.030	<0.030	
Total Cadmium	mg/L	0.7	0.008	0.020	<0.020	
Total Chromium	mg/L	5	0.08	0.030	0.032[<B]	
Total Cobalt	mg/L	5		0.040	<0.040	
Total Copper	mg/L	3	0.05	0.020	<0.020	
Total Lead	mg/L	3	0.120	0.040	<0.040	
Total Manganese	mg/L	5	0.05	0.040	0.449[B-A]	
Total Molybdenum	mg/L	5		0.040	<0.040	
Total Nickel	mg/L	3	0.08	0.030	<0.030	
Total Selenium	mg/L	1	0.02	0.004	<0.004	
Total Silver	mg/L	5	0.12	0.020	<0.020	
Total Tin	mg/L	5		0.050	<0.050	
Total Titanium	mg/L	5		0.040	0.358[<A]	
Total Zinc	mg/L	3	0.04	0.040	0.054[B-A]	
Lab Filtration Metals					Y	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Peel Sanitary By-Law 53-2010, B Refers to Peel Storm By-Law 53-2010
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

2451091 Metals analysis completed on a lab filtered sample.

Analysis perfomed at AGAT Toronto (unless marked by *)

Certified By: Iris Veraistegui

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

cBOD

DATE RECEIVED: 2021-05-10

DATE REPORTED: 2021-05-27

			SAMPLE DESCRIPTION:	BH/MW03
			SAMPLE TYPE:	Water
			DATE SAMPLED:	2021-05-10 12:00
Parameter	**Unit**	**G / S**	**RDL**	**2451024**
Biochemical Oxygen Demand, Carbonaceous	mg/L		2.00	<2.00

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis perfomed at AGAT Halifax (unless marked by *)

Certified By: Iris Veraástegui

AGAT Laboratories

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Exceedance Summary

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Reza Khabbaznia

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
2451024	BH/MW03	ON Peel SM	Peel Sanitary/Storm Sewer Use By-Law - Inorganics	Total Manganese	mg/L	0.05	4.00
2451024	BH/MW03	ON Peel SM	Peel Sanitary/Storm Sewer Use By-Law - Inorganics	Total Nickel	mg/L	0.08	0.35
2451024	BH/MW03	ON Peel SM	Peel Sanitary/Storm Sewer Use By-Law - Inorganics	Total Phosphorus	mg/L	0.4	0.67
2451024	BH/MW03	ON Peel SM	Peel Sanitary/Storm Sewer Use By-Law - Inorganics	Total Suspended Solids	mg/L	15	1310
2451024	BH/MW03	ON Peel SM	Peel Sanitary/Storm Sewer Use By-Law - Inorganics	Total Zinc	mg/L	0.04	1.09
2451024	BH/MW03	ON Peel SN	Peel Sanitary/Storm Sewer Use By-Law - Inorganics	Total Aluminum	mg/L	50	132
2451024	BH/MW03	ON Peel SN	Peel Sanitary/Storm Sewer Use By-Law - Inorganics	Total Suspended Solids	mg/L	350	1310
2451091	BH/MW03 DS	ON Peel SM	Peel Sanitary/Storm Sewer Use By-Law - Total Metals	Total Manganese	mg/L	0.05	0.449
2451091	BH/MW03 DS	ON Peel SM	Peel Sanitary/Storm Sewer Use By-Law - Total Metals	Total Zinc	mg/L	0.04	0.054

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Quality Assurance

CLIENT NAME: SIRATI & PARTNERS

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

Microbiology Analysis

RPT Date: May 27, 2021			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
E. Coli (Using MI Agar)															
Escherichia coli	2451024	2451024	ND	ND	NA	< 1									
Fecal Coliforms in Water															
Fecal Coliform	2454853	2454853	ND	ND	NA	< 1									

Comments: ND - Not Detected, NA - % RPD Not Applicable

Certified By:

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Quality Assurance

CLIENT NAME: SIRATI & PARTNERS

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: May 27, 2021			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Peel Region Sanitary/Storm - Organics															
Oil and Grease (animal/vegetable) in water	2451024	2451024	1.79	1.86	NA	< 0.5	104%	70%	130%	101%	70%	130%	98%	70%	130%
Oil and Grease (mineral) in water	2451024	2451024	< 0.5	< 0.5	NA	< 0.5	72%	70%	130%	75%	70%	130%	78%	70%	130%
Methylene Chloride	2449554		<0.0003	<0.0003	NA	< 0.0003	90%	50%	140%	86%	60%	130%	107%	50%	140%
Methyl Ethyl Ketone	2449554		<0.0009	<0.0009	NA	< 0.0009	107%	50%	140%	101%	50%	140%	105%	50%	140%
cis-1,2-Dichloroethylene	2449554		<0.0002	<0.0002	NA	< 0.0002	98%	50%	140%	83%	60%	130%	105%	50%	140%
Chloroform	2449554		<0.0002	<0.0002	NA	< 0.0002	97%	50%	140%	103%	60%	130%	91%	50%	140%
Benzene	2449554		<0.0002	<0.0002	NA	< 0.0002	91%	50%	140%	89%	60%	130%	82%	50%	140%
Trichloroethylene	2449554		<0.0002	<0.0002	NA	< 0.0002	96%	50%	140%	100%	60%	130%	76%	50%	140%
Toluene	2449554		<0.0002	<0.0002	NA	< 0.0002	117%	50%	140%	86%	60%	130%	93%	50%	140%
Tetrachloroethene	2449554		<0.0002	<0.0002	NA	< 0.0002	87%	50%	140%	99%	60%	130%	88%	50%	140%
trans-1,3-Dichloropropene	2449554		<0.0003	<0.0003	NA	< 0.0003	86%	50%	140%	92%	60%	130%	102%	50%	140%
Ethylbenzene	2449554		<0.0001	<0.0001	NA	< 0.0001	89%	50%	140%	87%	60%	130%	110%	50%	140%
1,1,2,2-Tetrachloroethane	2449554		<0.0001	<0.0001	NA	< 0.0001	83%	50%	140%	88%	60%	130%	92%	50%	140%
Styrene	2449554		<0.0001	<0.0001	NA	< 0.0001	86%	50%	140%	102%	60%	130%	96%	50%	140%
1,2-Dichlorobenzene	2449554		<0.0001	<0.0001	NA	< 0.0001	110%	50%	140%	86%	60%	130%	106%	50%	140%
1,4-Dichlorobenzene	2449554		<0.0001	<0.0001	NA	< 0.0001	104%	50%	140%	89%	60%	130%	81%	50%	140%
m & p-Xylene	2449554		<0.0002	<0.0002	NA	< 0.0002	90%	50%	140%	99%	60%	130%	96%	50%	140%
o-Xylene	2449554		<0.0001	<0.0001	NA	< 0.0001	91%	50%	140%	92%	60%	130%	87%	50%	140%
PCBs	2449337		< 0.0002	< 0.0002	NA	< 0.0002	101%	50%	140%	94%	50%	140%	108%	50%	140%
Di-n-butyl phthalate	2458929		< 0.0005	< 0.0005	NA	< 0.0005	89%	50%	140%	89%	50%	140%	89%	50%	140%
Bis(2-Ethylhexyl)phthalate	2458929		< 0.0005	< 0.0005	NA	< 0.0005	85%	50%	140%	89%	50%	140%	86%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: N Popnikolof

AGAT Laboratories

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Quality Assurance

CLIENT NAME: SIRATI & PARTNERS

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

Ultra Trace Analysis

RPT Date: May 27, 2021			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Nonylphenol and Nonylphenol Ethoxylates (Ontario, mg/L)															
Total Nonylphenol	1	2458511	< 0.001	< 0.001	NA	< 0.001	NA	60%	140%	106%	60%	140%	NA	60%	140%
NP1EO	1	2458511	< 0.001	< 0.001	NA	< 0.001	NA	60%	140%	105%	60%	140%	NA	60%	140%
NP2EO	1	2458511	0.0004	0.0004	NA	< 0.0003	NA	60%	140%	81%	60%	140%	NA	60%	140%
Total Nonylphenol Ethoxylates	1	2458511	< 0.001	< 0.001	NA	< 0.001	NA	60%	140%	NA	60%	140%	NA	60%	140%

Certified By:

CHIMISTE
Olivier Lachance
2006-053
QUÉBEC

AGAT Laboratories

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Quality Assurance

CLIENT NAME: SIRATI & PARTNERS

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

Water Analysis

RPT Date: May 27, 2021			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Peel Sanitary/Storm Sewer Use By-Law - Inorganics															
pH	2451024	2451024	7.72	7.76	0.5%	NA	101%	90%	110%						
Total Suspended Solids	2469483		<10	<10	NA	< 10	102%	80%	120%						
Fluoride	2454332		<0.13	<0.13	NA	< 0.05	97%	90%	110%	99%	90%	110%	98%	85%	115%
Sulphate	2454332		78.7	78.9	0.3%	< 0.10	100%	70%	130%	102%	80%	120%	102%	70%	130%
Total Cyanide	2446904		<0.002	<0.002	NA	< 0.002	99%	70%	130%	109%	80%	120%	109%	70%	130%
Phenols	2453034		<0.002	0.004	NA	< 0.002	98%	90%	110%	92%	90%	110%	87%	80%	120%
Total Phosphorus	2436326		0.58	0.59	1.7%	< 0.02	97%	70%	130%	96%	80%	120%	NA	70%	130%
Total Kjeldahl Nitrogen	2453033		0.14	0.16	NA	< 0.10	100%	70%	130%	98%	80%	120%	97%	70%	130%
Total Aluminum	2459617		<0.010	<0.010	NA	< 0.010	91%	70%	130%	103%	80%	120%	88%	70%	130%
Total Antimony	2459617		<0.020	<0.020	NA	< 0.020	97%	70%	130%	99%	80%	120%	94%	70%	130%
Total Arsenic	2459617		<0.015	<0.015	NA	< 0.015	91%	70%	130%	101%	80%	120%	98%	70%	130%
Total Cadmium	2459617		<0.010	<0.010	NA	< 0.010	101%	70%	130%	102%	80%	120%	100%	70%	130%
Total Chromium	2459617		<0.015	<0.015	NA	< 0.015	95%	70%	130%	101%	80%	120%	104%	70%	130%
Total Cobalt	2459617		<0.020	<0.020	NA	< 0.020	91%	70%	130%	100%	80%	120%	101%	70%	130%
Total Copper	2459617		<0.010	<0.010	NA	< 0.010	94%	70%	130%	102%	80%	120%	102%	70%	130%
Total Lead	2459617		<0.020	<0.020	NA	< 0.020	95%	70%	130%	92%	80%	120%	88%	70%	130%
Total Manganese	2459617		0.450	0.434	3.6%	< 0.020	94%	70%	130%	100%	80%	120%	105%	70%	130%
Total Mercury	2455432		<0.0002	<0.0002	NA	< 0.0002	100%	70%	130%	98%	80%	120%	96%	70%	130%
Total Molybdenum	2459617		<0.020	<0.020	NA	< 0.020	95%	70%	130%	101%	80%	120%	106%	70%	130%
Total Nickel	2459617		<0.015	<0.015	NA	< 0.015	96%	70%	130%	102%	80%	120%	94%	70%	130%
Total Selenium	2459617		0.002	0.002	NA	< 0.002	102%	70%	130%	99%	80%	120%	100%	70%	130%
Total Silver	2459617		<0.010	<0.010	NA	< 0.010	95%	70%	130%	100%	80%	120%	103%	70%	130%
Total Tin	2459617		<0.025	<0.025	NA	< 0.025	97%	70%	130%	95%	80%	120%	92%	70%	130%
Total Titanium	2459617		<0.020	<0.020	NA	< 0.020	101%	70%	130%	102%	80%	120%	96%	70%	130%
Total Zinc	2459617		<0.020	<0.020	NA	< 0.020	93%	70%	130%	101%	80%	120%	99%	70%	130%
Peel Sanitary/Storm Sewer Use By-Law - Total Metals															
Total Aluminum	2459617		<0.010	<0.010	NA	< 0.010	91%	70%	130%	103%	80%	120%	88%	70%	130%
Total Antimony	2459617		<0.020	<0.020	NA	< 0.020	97%	70%	130%	99%	80%	120%	94%	70%	130%
Total Arsenic	2459617		<0.015	<0.015	NA	< 0.015	91%	70%	130%	101%	80%	120%	98%	70%	130%
Total Cadmium	2459617		<0.010	<0.010	NA	< 0.010	101%	70%	130%	102%	80%	120%	100%	70%	130%
Total Chromium	2459617		<0.015	<0.015	NA	< 0.015	95%	70%	130%	101%	80%	120%	104%	70%	130%
Total Cobalt	2459617		<0.020	<0.020	NA	< 0.020	91%	70%	130%	100%	80%	120%	101%	70%	130%
Total Copper	2459617		<0.010	<0.010	NA	< 0.010	94%	70%	130%	102%	80%	120%	102%	70%	130%
Total Lead	2459617		<0.020	<0.020	NA	< 0.020	95%	70%	130%	92%	80%	120%	88%	70%	130%
Total Manganese	2459617		0.450	0.434	3.6%	< 0.020	94%	70%	130%	100%	80%	120%	105%	70%	130%
Total Molybdenum	2459617		<0.020	<0.020	NA	< 0.020	95%	70%	130%	101%	80%	120%	106%	70%	130%
Total Nickel	2459617		<0.015	<0.015	NA	< 0.015	96%	70%	130%	102%	80%	120%	94%	70%	130%
Total Selenium	2459617		0.002	0.002	NA	< 0.002	102%	70%	130%	99%	80%	120%	100%	70%	130%
Total Silver	2459617		<0.010	<0.010	NA	< 0.010	95%	70%	130%	100%	80%	120%	103%	70%	130%

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: SIRATI & PARTNERS

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

Water Analysis (Continued)

RPT Date: May 27, 2021			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Tin	2459617		<0.025	<0.025	NA	< 0.025	97%	70%	130%	95%	80%	120%	92%	70%	130%
Total Titanium	2459617		<0.020	<0.020	NA	< 0.020	101%	70%	130%	102%	80%	120%	96%	70%	130%
Total Zinc	2459617		<0.020	<0.020	NA	< 0.020	93%	70%	130%	101%	80%	120%	99%	70%	130%

Comments: NA signifies Not Applicable.
If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

cBOD

Biochemical Oxygen Demand, Carbonaceous	2456552	307	306	0.3%	< 2	87%	70%	130%	

Comments: NA Signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and RPD will not be calculated.

Certified By: Iris Veraástegui

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MISSISSAUGA, ONTARIO
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Method Summary

CLIENT NAME: SIRATI & PARTNERS

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Fecal Coliform	MIC-93-7000	SM 9222 D	MF/INCUBATOR

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Method Summary

CLIENT NAME: SIRATI & PARTNERS

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Oil and Grease (animal/vegetable) in water	VOL-91-5011	EPA SW-846 3510C & SM5520	BALANCE
Oil and Grease (mineral) in water	VOL-91-5011	EPA SW-846 3510C & SM 5520	BALANCE
Methylene Chloride	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
cis-1,2-Dichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Toluene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Tetrachloroethene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
trans-1,3-Dichloropropene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5001	modified from EPA 5030B & EPA 8260D	CALCULATION
Toluene-d8	VOL-91- 5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91- 5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
PCBs	ORG-91-5112	modified from EPA SW-846 3510C & 8082A	GC/ECD
Decachlorobiphenyl	ORG-91-5112	modified from EPA SW846 3510C & 8082A	GC/ECD
Di-n-butyl phthalate	ORG-91-5114	modified from EPA SW-846 3510C & 8270E	GC/MS
Bis(2-Ethylhexyl)phthalate	ORG-91-5114	modified from EPA SW-846 3510C & 8270E	GC/MS
2,4,6-Tribromophenol	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS
2-Fluorophenol	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS
Chrysene-d12	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS

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Method Summary

CLIENT NAME: SIRATI & PARTNERS

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
phenol-d6 surrogate	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS
Ultra Trace Analysis			
Total Nonylphenol	TOX-151-19003F	ASTM D7065-6	LCMSMS
NP1EO	TOX-151-19003F	ASTM D7065-6	LCMSMS
NP2EO	TOX-151-19003F	ASTM D7065-6	LCMSMS
Total Nonylphenol Ethoxylates	TOX-19003F	ASTM D7065-6	LCMSMS

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Method Summary

CLIENT NAME: SIRATI & PARTNERS

AGAT WORK ORDER: 21T744873

PROJECT: SP21-826-00

ATTENTION TO: Reza Khabbaznia

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Total Suspended Solids	INOR-93-6028	modified from EPA 1684,ON MOECC E3139,SM 2540C,D	BALANCE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Total Cyanide	INOR-93-6051	modified from MOECC E3015; SM 4500-CN- A, B, & C	TECHNICON AUTO ANALYZER
Phenols	INOR-93-6072	modified from SM 5530 D	LACHAT FIA
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Kjeldahl Nitrogen	INOR-93-6048	modified from EPA 351.2 and SM 4500-NORG D	LACHAT FIA
Total Aluminum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Lab Filtration Metals	SR-78-9001		FILTRATION
Biochemical Oxygen Demand, Carbonaceous	INOR-121-6023	SM 5210 B	INCUBATOR

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 21T744873
Cooler Quantity: 1 Blk Cooler
Arrival Temperatures: 10.6 | 10.1 | 9.6
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes: Ice packs

Report Information:

Company: Birati & Partners
Contact: Reza Khabbazpia
Address: 12700 Keele Street, King City
Phone: (416)353-4543 Fax:
Reports to be sent to:
1. Email: Reza@Birati.ca, Bu-jing@Birati.ca
2. Email: Environmental@Birati.ca

Regulatory Requirements:

(Please check all applicable boxes)

☐ Regulation 153/04
Table (Indicate One) ☐Ind/Com ☐Res/Park ☐Agriculture
Soil Texture (Check One) ☐Coarse ☐Fine

☐ Excess Soils R406
Table (Indicate One)
☐ Regulation 558
☐ CCME

☐ Sewer Use ☐Sanitary ☐Storm
Peel Region (Region)
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Turnaround Time (TAT) Required:

Regular TAT (Most Analysis) ☑ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 8P21-826-00
Site Location: 12 17 Agnes Street, Missi.
Sampled By: Reza
AGAT ID #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Is this submission for a Record of Site Condition?

☐ Yes ☑ No

Report Guideline on Certificate of Analysis

☑ Yes ☐ No

Invoice Information:

Bill To Same: Yes ☐ No ☐

Company:
Contact:
Address: Account@Birati.ca
Email: Reza@Birati.ca

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC Y/N	O. Reg 153: Metals & Inorganics	O. Reg 153: Metals - ☐CrVI, ☐Hg, ☐HWSB	O. Reg 153: BTEX, F1-F4 PHCs Analyze F4G if required ☐Yes ☐No	O. Reg 153: PAHs	O. Reg 153: Total PCBs ☐Aroclor	O. Reg 153: VOC	O. Reg 558: Landfill Disposal Characterization TCLP: ☐M&I ☐VOCs ☐ABNs ☐BHalP ☐PCBs	O. Reg 406: Excess Soils SPLP Rainwater Leach SPLP: ☐Metals ☐VOCs ☐SVOCs	O. Reg 406: Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Salt - EC/SAR	Peel Region Sewer By-Law Dissolve metals	Potentially Hazardous or High Concentration (Y/N)
BH/MW03	May 10/21	1pm AM PM	25	W		N											✓	
BH/MW03 DS	"	1pm AM PM	1	W		N											✓	
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Reza Khabbazpia	May 10/21	5:30	Heidi Darvish		
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

'21MAY10 5:18PM

Page ____ of ____

N°: T118600

APPENDIX F

SIRATI & PARTNERS

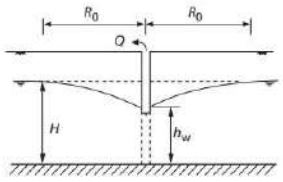
Geotechnical Hydrogeological & Environmental Solutions

Short Term Dewatering Calculations for 65 & 71 Agnes Street, Mississauga, ON

1) Groundwater Dewatering Calculation (Q1)

A- Initial Water Level Elevation (m)	B - Assumed Aquifer Bottom Elevation (m)	C - Target Water Level Elevation (m)	D - Assumed Bottom of Dewatering Well (m)						
110		101.20	100.20						
					Eq. 7.2	Zone of Influence from Excavation Center	Zone of Influence from Edge of Excavation	No safety factor	safety factor of 2
H	**Hw**		**k (m/s)**	**Area (m2)**	re (m)	R (m)	Ro (m)	**Q1 (L/day)**	**Q1 (L/day)**
9.80	1		3.30E-06	3609	33.90	82	48	96522	**193044**

Fully penetrating well, unconfined aquifer, circular source at distance R_0 (Dupuit–Forcheimer equation)



$$Q = \frac{\pi k\left(H^2 - h_w^2\right)}{\ln\left[R_0 / r_e\right]} \qquad (7.5)$$

k = soil permeability;
H = initial water table level in aquifer;
h_w = lowered water level in equivalent well;
r_e = equivalent radius of well;
R_0 = radius of influence.

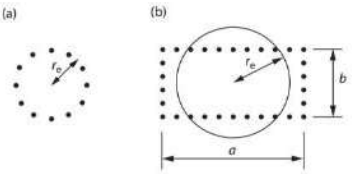


Figure 7.5 Equivalent radius of arrays of wells. (a) Circular system of radius r_e. (b) Rectangular system.

plan dimensions a by b, the equivalent radius can be estimated by assuming a well of equal perimeter

$$r_e = \frac{(a+b)}{\pi} \qquad (7.1)$$

or equal area

$$r_e = \sqrt{\frac{ab}{\pi}} \qquad (7.2)$$

RADIUS OF INFLUENCE, R, CAN BE ESTIMATED FOR BOTH ARTESIAN AND GRAVITY FLOWS BY

$$R = C\,(H - h_w)\,\sqrt{k} \qquad (1)$$

WHERE R, H, AND h_w ARE DEFINED PREVIOUSLY AND EXPRESSED IN FEET. COEFFICIENT OF PERMEABILITY, k, IS EXPRESSED IN 10^{-4} CM/SEC.

AND C = 3 FOR ARTESIAN AND GRAVITY FLOWS TO A WELL.

C = 1.5 TO 2.0 FOR A SINGLE LINE OF WELLPOINTS.

2) Stormwater runoff as per 20 mm per day

Precipitation	Site Area	Q2
m/day	m2	L/day
0.02	3609	72180

Total Dewatering Volume Q = Q1 + Q2

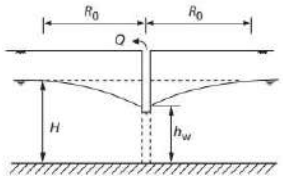
Q= **265,224** L/day

Long Term Dewatering Calculations for 65 & 71 Agnes Street, Mississauga, ON

1) Groundwater Dewatering Calculation (Q1)

A- Initial Water Level Elevation (m)	B - Assumed Aquifer Bottom Elevation (m)	C - Target Water Level Elevation (m)	D - Assumed Bottom of Dewatering Well (m)						
110		103.20	103.20						
						Zone of Influence from Center of Building Underground Levels	Zone of Influence from Edge of Building Underground Levels		safety factor of 1.5
H	**Hw**		**k (m/s)**	**Area (m2)**	Eq. 7.2 re (m)	R (m)	Ro (m)	**No safety factor Q1 (L/day)**	**Q1 (L/day)**
6.80	0		3.30E-06	3609	33.90	71	37	56045	**84068**

Fully penetrating well, unconfined aquifer, circular source at distance R_0 (Dupuit–Forcheimer equation)



$$Q = \frac{\pi k\left(H^2 - h_w^2\right)}{\ln\left[R_0 / r_e\right]} \qquad (7.5)$$

k = soil permeability;
H = initial water table level in aquifer;
h_w = lowered water level in equivalent well;
r_e = equivalent radius of well;
R_0 = radius of influence.

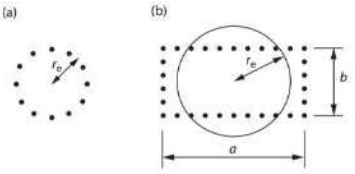


Figure 7.5 Equivalent radius of arrays of wells. (a) Circular system of radius r_e. (b) Rectangular system.

plan dimensions a by b, the equivalent radius can be estimated by assuming a well of equal perimeter

$$r_e = \frac{(a+b)}{\pi} \qquad (7.1)$$

or equal area

$$r_e = \sqrt{\frac{ab}{\pi}} \qquad (7.2)$$

RADIUS OF INFLUENCE, R, CAN BE ESTIMATED FOR BOTH ARTESIAN AND GRAVITY FLOWS BY

$$R = C\,(H - h_w)\sqrt{k} \qquad (1)$$

WHERE R, H, AND h_w ARE DEFINED PREVIOUSLY AND EXPRESSED IN FEET. COEFFICIENT OF PERMEABILITY, k, IS EXPRESSED IN 10^{-4} CM/SEC.

AND C = 3 FOR ARTESIAN AND GRAVITY FLOWS TO A WELL.

C = 1.5 TO 2.0 FOR A SINGLE LINE OF WELLPOINTS.

APPENDIX G

SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

Date	PET	P	P-PET	Soil Moisture	AET	PET-AET	Snow Storage	Surplus	ROtotal
Jan-58	11.6	25.7	2.4	152.4	11.6	0	11.1	0	13.3
Feb-58	10.3	25.4	-0.8	151.8	10.1	0.2	26.8	0	6.7
Mar-58	23.1	15.2	2.3	154.1	23.1	0	15.8	0	3.8
Apr-58	38.1	23.4	-7.9	148.1	36.2	1.8	7.9	0	2.8
May-58	54.8	30.5	-17.9	134.8	50.2	4.7	0	0	2.3
Jun-58	74	43.2	-32.9	112.6	63.2	10.7	0	0	2.6
Jul-58	99.8	64.3	-38.8	90.8	82.9	16.9	0	0	3.4
Aug-58	86.7	94.2	2.8	93.6	86.7	0	0	0	4.8
Sep-58	56.1	95	34.2	127.7	56.1	0	0	0	4.8
Oct-58	33.9	90	51.6	179.4	33.9	0	0	0	4.5
Nov-58	20.5	81.5	56.9	200	20.5	0	0	36.3	22.2
Dec-58	10.3	13.7	3.2	200	10.3	0	0	3.2	10.9
Jan-59	10.5	69	18.3	200	10.5	0	39.1	18.3	15.6
Feb-59	10.7	79.5	25.4	200	10.7	0	81.4	25.4	21.1
Mar-59	19.3	74.4	63.4	200	19.3	0	70.5	63.4	44.2
Apr-59	35.8	73.2	69	200	35.8	0	35.3	69	59
May-59	59.8	36.1	-7.9	192.1	59.8	0	17.6	0	29.5
Jun-59	90.2	11.9	-70.1	124.8	87.5	2.8	8.8	0	14.4
Jul-59	110.9	20.6	-82.6	73.3	79.9	31.1	0	0	7.9
Aug-59	109	45.7	-65.6	49.2	67.5	41.6	0	0	5.7
Sep-59	67.5	49.3	-20.7	44.1	51.9	15.6	0	0	4.2
Oct-59	34.5	85.1	46.3	90.4	34.5	0	0	0	5.1
Nov-59	17.9	52.1	31.7	122.1	17.9	0	0	0	3
Dec-59	13.9	70.4	41.8	163.9	13.9	0	12.1	0	2.8
Jan-60	12.2	65.3	30.3	194.2	12.2	0	33.3	0	1.8
Feb-60	13	55.6	30.5	200	13	0	43.9	24.7	13.9
Mar-60	15.9	29.7	9.6	200	15.9	0	47.5	9.6	11.7
Apr-60	34.9	76.7	61.7	200	34.9	0	23.7	61.7	40.2
May-60	57.3	134.1	82	200	57.3	0	11.9	82	65.9
Jun-60	83.2	74.2	-6.8	193.2	83.2	0	5.9	0	33.3
Jul-60	93.3	104.4	11.9	200	93.3	0	0	5	22.5
Aug-60	91.7	35.8	-57.7	142.3	91.7	0	0	0	10.4
Sep-60	65.9	4.1	-62	98.2	48	17.9	0	0	4.5
Oct-60	35.4	61	22.6	120.8	35.4	0	0	0	5.2
Nov-60	21.3	57.4	33.2	154	21.3	0	0	0	4
Dec-60	11	20.1	-0.1	154	11	0	8.7	0	1
Jan-61	10	33	2.9	156.9	10	0	28.3	0	0.7
Feb-61	13.7	80.3	49.7	200	13.7	0	42.8	6.5	5.8
Mar-61	21.6	69.6	54.3	200	21.6	0	33.7	54.3	31.7
Apr-61	32	97	77	200	32	0	16.9	77	57.8
May-61	53.8	72.4	23.4	200	53.8	0	8.4	23.4	41.8
Jun-61	77.7	128.5	52.8	200	77.7	0	0	52.8	51.9
Jul-61	101.7	77.2	-28.4	171.6	101.7	0	0	0	26.6
Aug-61	92.8	48.5	-46.7	131.5	86.2	6.6	0	0	13.8

Sep-61	70.9	42.7	-30.4	111.5	60.5	10.4	0	0	7.8
Oct-61	39.3	10.7	-29.2	95.3	26.4	12.9	0	0	3.4
Nov-61	20.4	55.1	32	127.2	20.4	0	0	0	4.2
Dec-61	13.3	40.9	17.3	144.5	13.3	0	9	0	2.1
Jan-62	10.5	51.3	12.8	157.3	10.5	0	36.2	0	1.2
Feb-62	10.9	74.9	25.3	182.6	10.9	0	73.6	0	1.4
Mar-62	21.9	10.2	17	199.6	21.9	0	44.5	0	0.5
Apr-62	35.8	32.3	17.2	200	35.8	0	22.3	16.8	10
May-62	66.9	28.2	-29	171	66.9	0	11.1	0	5.6
Jun-62	90.8	74.4	-14.5	158.6	88.7	2.1	5.6	0	5.8
Jul-62	99.2	91.9	-6.4	153.6	97.9	1.3	0	0	5.6
Aug-62	92.8	39.6	-55.2	111.2	80	12.8	0	0	2.5
Sep-62	53.7	159	97.4	200	53.7	0	0	8.6	12.5
Oct-62	36.5	68.3	28.4	200	36.5	0	0	28.4	19.9
Nov-62	18.9	64.3	42.2	200	18.9	0	0	42.2	32.5
Dec-62	11.9	63	28.3	200	11.9	0	21.1	28.3	30.5
Jan-63	9.7	16.3	-2.2	197.8	9.7	0	29.7	0	14.6
Feb-63	10	12.7	-3.3	194.5	10	0	35.5	0	7.3
Mar-63	22.3	67.8	51.4	200	22.3	0	26.8	46	29.4
Apr-63	35.5	54.4	29.5	200	35.5	0	13.4	29.5	30.8
May-63	54.2	69.6	18.6	200	54.2	0	6.7	18.6	26.8
Jun-63	89.1	19.3	-64.1	135.9	89.1	0	0	0	12.6
Jul-63	104.9	56.6	-51.1	101.2	88.5	16.4	0	0	8.7
Aug-63	81.5	59.2	-25.2	88.4	69	12.5	0	0	5.9
Sep-63	53	26.4	-27.9	76	37.4	15.6	0	0	2.8
Oct-63	41.9	15.5	-27.1	65.7	25	16.8	0	0	1.5
Nov-63	22.4	60.7	35.3	101	22.4	0	0	0	3.4
Dec-63	10.2	59	15.9	116.9	10.2	0	31.9	0	1.2
Jan-64	13	58.4	36	152.9	13	0	39.6	0	1.8
Feb-64	12.4	26.7	12.3	165.2	12.4	0	41	0	0.7
Mar-64	21.3	89.4	69.3	200	21.3	0	36.2	34.5	20.8
Apr-64	34	64.5	45.3	200	34	0	18.1	45.3	34.5
May-64	64.8	42.7	-15.2	184.8	64.8	0	9	0	17.8
Jun-64	81.2	32.5	-41.3	146.6	78.1	3.1	0	0	9.5
Jul-64	112.3	113.8	-4.2	143.6	111.2	1.1	0	0	9.6
Aug-64	78	145	59.7	200	78	0	0	3.3	10.8
Sep-64	57.5	10.7	-47.3	152.7	57.5	0	0	0	2.3
Oct-64	31.7	38.9	5.3	158	31.7	0	0	0	2.8
Nov-64	20.6	48	25	183	20.6	0	0	0	2.8
Dec-64	12.9	55.1	26.6	200	12.9	0	13.9	9.6	6.8
Jan-65	10.5	93.7	31.6	200	10.5	0	63.9	31.6	19.8
Feb-65	11.7	78.2	40	200	11.7	0	88.9	40	30.7
Mar-65	19.2	42.4	41.6	200	19.2	0	69.1	41.6	36.8
Apr-65	32	67.8	66.9	200	32	0	34.5	66.9	54.6
May-65	62.1	18.5	-27.2	172.8	62.1	0	17.3	0	26.5
Jun-65	82.2	42.7	-33	144.2	77.7	4.5	8.6	0	14.9
Jul-65	92.7	98.3	9.3	153.6	92.7	0	0	0	11.3

Aug-65	84	77	-10.9	145.2	81.5	2.5	0	0	7
Sep-65	57.5	63.2	2.6	147.8	57.5	0	0	0	4.8
Oct-65	31.7	97.8	61.2	200	31.7	0	0	9	10.2
Nov-65	19.5	71.1	48	200	19.5	0	0	48	30.2
Dec-65	15	53.3	36.1	200	15	0	0	36.1	33.6
Jan-66	10.5	61	15.4	200	10.5	0	34.1	15.4	24.4
Feb-66	12.7	44.7	22.4	200	12.7	0	42.5	22.4	24
Mar-66	22.5	57.9	46.4	200	22.5	0	29	46.4	37.1
Apr-66	34	34	12.8	200	34	0	14.5	12.8	25.4
May-66	51.9	48	1	200	51.9	0	7.3	1	14.8
Jun-66	90.8	54.6	-31.7	168.3	90.8	0	0	0	8.9
Jul-66	109.6	17.5	-92.9	90.1	94.9	14.7	0	0	4
Aug-66	91.1	59.9	-34.2	74.7	72.3	18.8	0	0	4.5
Sep-66	56.8	64	4	78.8	56.8	0	0	0	4
Oct-66	32.5	17.8	-15.5	72.6	23	9.4	0	0	1.3
Nov-66	20.4	129.8	102.9	175.5	20.4	0	0	0	6.7
Dec-66	12.9	89.2	51	200	12.9	0	22.5	26.6	16.2
Jan-67	13.9	56.9	36.1	200	13.9	0	27.5	36.1	26.6
Feb-67	10.5	57.9	13.2	200	10.5	0	60.9	13.2	19.7
Mar-67	19.8	25.4	21	200	19.8	0	44.6	21	20.9
Apr-67	34.9	66.8	50.9	200	34.9	0	22.3	50.9	38.8
May-67	49.4	60.7	19.5	200	49.4	0	11.1	19.5	30.5
Jun-67	94.8	143.8	47.4	200	94.8	0	5.6	47.4	44.6
Jul-67	99.2	73.7	-23.6	176.4	99.2	0	0	0	22.4
Aug-67	88.9	40.9	-50	132.3	83	5.9	0	0	11.4
Sep-67	57.5	62.2	1.6	133.9	57.5	0	0	0	7.8
Oct-67	34.3	56.4	19.3	153.2	34.3	0	0	0	5.2
Nov-67	17.7	47.2	27.3	180.4	17.7	0	0	0	3.4
Dec-67	14.1	74.9	46	200	14.1	0	12	26.4	16.6
Jan-68	10.2	100.6	30	200	10.2	0	70.9	30	23.4
Feb-68	10.6	35.6	12.3	200	10.6	0	83.2	12.3	17.6
Mar-68	22.3	48.5	54.8	200	22.3	0	52.6	54.8	38
Apr-68	38.5	26.7	13.1	200	38.5	0	26.3	13.1	25.9
May-68	54.2	95.8	50	200	54.2	0	13.1	50	42.1
Jun-68	78.2	74.7	-0.7	199.3	78.2	0	6.6	0	22.4
Jul-68	98.6	50.3	-44.2	155.2	98.5	0.2	0	0	11.8
Aug-68	86.7	163.6	68.7	200	86.7	0	0	23.9	24.8
Sep-68	65.4	79.5	10.1	200	65.4	0	0	10.1	17.3
Oct-68	37.2	43.4	4	200	37.2	0	0	4	10.9
Nov-68	19.9	83.3	59.2	200	19.9	0	0	59.2	38.1
Dec-68	12.2	88.1	45.9	200	12.2	0	27.6	45.9	42.4
Jan-69	11.9	55.6	27.1	200	11.9	0	42.9	27.1	34.8
Feb-69	13.4	15.5	8.9	200	13.4	0	35.6	8.9	21.6
Mar-69	20	30.2	16.3	200	20	0	28.4	16.3	19.8
Apr-69	36.9	70.6	44.4	200	36.9	0	14.2	44.4	35.1
May-69	58	71.6	17.1	200	58	0	7.1	17.1	27.9
Jun-69	77.7	44.5	-28.4	171.6	77.7	0	0	0	14.4

Jul-69	110.3	85.6	-28.9	146.8	106.1	4.1	0	0	10.4
Aug-69	99.4	27.7	-73.1	93.2	79.9	19.4	0	0	4.4
Sep-69	61.5	14.2	-48	70.8	35.9	25.6	0	0	2.2
Oct-69	34.5	58.2	20.8	91.6	34.5	0	0	0	3.7
Nov-69	20	72.4	48.8	140.3	20	0	0	0	4
Dec-69	11.6	57.9	23.7	164.1	11.6	0	21.1	0	1.7
Jan-70	9.4	28.4	-0.2	163.9	9.3	0	40	0	0.4
Feb-70	11.7	26.9	9.7	173.6	11.7	0	45	0	0.6
Mar-70	20.3	50.8	36.3	200	20.3	0	37.3	9.9	6.8
Apr-70	37.4	82.6	59.8	200	37.4	0	18.7	59.8	36.5
May-70	58.4	55.9	4.1	200	58.4	0	9.3	4.1	21
Jun-70	88	37.1	-43.4	156.6	88	0	0	0	11
Jul-70	104.9	86.4	-22.8	138.7	100	5	0	0	8.9
Aug-70	100	96.3	-8.5	132.8	97.4	2.6	0	0	7.1
Sep-70	60	51.6	-11	125.5	56.3	3.7	0	0	3.7
Oct-70	37.7	80	38.3	163.8	37.7	0	0	0	4.6
Nov-70	22.2	45.7	21.2	185	22.2	0	0	0	2.6
Dec-70	12.2	81.8	41.7	200	12.2	0	25.6	26.7	15.8
Jan-71	10.2	32.8	5.8	200	10.2	0	42	5.8	10.1
Feb-71	13.2	81.8	51.1	200	13.2	0	57.3	51.1	32.6
Mar-71	19.4	42.2	31.7	200	19.4	0	46.9	31.7	32.5
Apr-71	33.8	27.9	16.1	200	33.8	0	23.5	16.1	25
May-71	56.9	23.1	-23.2	176.8	56.9	0	11.7	0	12.9
Jun-71	88.6	59.2	-26.5	153.4	85.5	3.1	5.9	0	8.9
Jul-71	103	59.4	-40.7	122.2	93.5	9.5	0	0	5.9
Aug-71	87.8	90.2	-2.1	120.9	87	0.8	0	0	6
Sep-71	66.3	38.1	-30.1	102.7	54.4	11.9	0	0	2.6
Oct-71	41.9	52.6	8.1	110.8	41.9	0	0	0	3
Nov-71	19.5	41.4	19.8	130.6	19.5	0	0	0	2.3
Dec-71	14.6	95.5	64.9	195.6	14.6	0	12.2	0	3.9
Jan-72	11.9	46	17.5	200	11.9	0	27.8	13	7.6
Feb-72	11.6	76.7	30.8	200	11.6	0	60.7	30.8	20.1
Mar-72	18.4	95.8	66.9	200	18.4	0	68.2	66.9	45.7
Apr-72	31.2	59.2	59.2	200	31.2	0	34.1	59.2	53.9
May-72	60.6	48.8	2.9	200	60.6	0	17.1	2.9	29.4
Jun-72	75.8	87.1	15.4	200	75.8	0	8.5	15.4	25.5
Jul-72	103.6	65	-33.3	166.7	103.6	0	0	0	13.8
Aug-72	88.9	121.2	26.3	192.9	88.9	0	0	0	11.4
Sep-72	61.1	91.7	26	200	61.1	0	0	18.9	16.7
Oct-72	30.5	86.6	51.8	200	30.5	0	0	51.8	36.3
Nov-72	18.5	73.9	51.7	200	18.5	0	0	51.7	45.5
Dec-72	13.2	111.5	69.4	200	13.2	0	25.2	69.4	59.3
Jan-73	12.8	41.4	21.6	200	12.8	0	31.1	21.6	39.8
Feb-73	11.4	50.3	17.8	200	11.4	0	51.3	17.8	29.1
Mar-73	26	116.1	109.9	200	26	0	25.6	109.9	74.9
Apr-73	35.8	59.9	34	200	35.8	0	12.8	34	54.5
May-73	54.5	96	43.1	200	54.5	0	6.4	43.1	52.1

Jun-73	89.7	64.8	-21.7	178.3	89.7	0	0	0	26.9
Jul-73	110.3	35.1	-76.9	109.7	101.9	8.3	0	0	13.6
Aug-73	106.4	27.4	-80.3	65.7	70.1	36.3	0	0	7.3
Sep-73	61.1	59.4	-4.7	64.1	58	3.2	0	0	5.9
Oct-73	38.6	135.1	89.7	153.8	38.6	0	0	0	8.2
Nov-73	20.4	92.5	67.5	200	20.4	0	0	21.3	16
Dec-73	12.5	88.1	47.9	200	12.5	0	25.1	47.9	32.3
Jan-74	12.2	68.1	35.3	200	12.2	0	44.1	35.3	34.2
Feb-74	10.8	53.8	16.9	200	10.8	0	69.4	16.9	25.5
Mar-74	20.9	56.6	52	200	20.9	0	50.9	52	40.5
Apr-74	36.9	92.2	76.2	200	36.9	0	25.5	76.2	61.9
May-74	54.5	157.2	107.6	200	54.5	0	12.7	107.6	90.3
Jun-74	81.2	132.3	50.9	200	81.2	0	6.4	50.9	73.2
Jul-74	101.7	23.9	-72.6	127.4	101.7	0	0	0	34.5
Aug-74	97.5	62.5	-38.2	103.1	83.7	13.9	0	0	19.8
Sep-74	53.3	37.8	-17.4	94.1	44.9	8.4	0	0	10.2
Oct-74	30.3	26.2	-5.4	91.5	27.4	2.9	0	0	5.5
Nov-74	19.9	59.2	36.3	127.9	19.9	0	0	0	5
Dec-74	14.8	41.1	24.6	152.5	14.8	0	0	0	2.7
Jan-75	13.6	49.5	22.2	174.7	13.6	0	12.2	0	2.1
Feb-75	13.9	71.6	39.7	200	13.9	0	27.9	14.4	9.6
Mar-75	19.7	77	48.8	200	19.7	0	33.8	48.8	30.8
Apr-75	30.4	73.2	56	200	30.4	0	16.9	56	45.7
May-75	69.4	67.8	3.4	200	69.4	0	8.4	3.4	26.1
Jun-75	92.5	73.2	-14.5	185.5	92.5	0	0	0	15
Jul-75	108.2	64.8	-46.7	142.2	104.8	3.4	0	0	8.9
Aug-75	90.5	114.8	18.5	160.7	90.5	0	0	0	8.6
Sep-75	51.1	69.6	15	175.8	51.1	0	0	0	4.9
Oct-75	35.4	31.8	-5.2	171.2	34.8	0.6	0	0	2.3
Nov-75	23.1	48	22.5	193.7	23.1	0	0	0	2.8
Dec-75	11.9	92.2	46.4	200	11.9	0	31.5	40.1	22.7
Jan-76	9.4	61.7	9.3	200	9.4	0	73.9	9.3	15.4
Feb-76	14.4	48.5	45.4	200	14.4	0	61	45.4	31.7
Mar-76	21.3	107.2	92.1	200	21.3	0	50.6	92.1	65.3
Apr-76	38.8	71.1	54.1	200	38.8	0	25.3	54.1	61.1
May-76	54.5	89.4	43.1	200	54.5	0	12.7	43.1	54.8
Jun-76	93.6	90.9	-1	199	93.6	0	6.3	0	29.7
Jul-76	90.4	111.5	21.8	200	90.4	0	0	20.9	28.6
Aug-76	86.2	34.5	-53.4	146.6	86.2	0	0	0	13.2
Sep-76	52.4	97	39.8	186.4	52.4	0	0	0	10.6
Oct-76	28	42.7	12.6	199	28	0	0	0	5
Nov-76	15.9	11.9	-4.5	194.5	15.9	0	0	0	1.9
Dec-76	9.7	46	7.9	200	9.7	0	27.7	2.4	2.6
Jan-77	8	35.3	-8	192	8	0	63	0	1
Feb-77	11.6	25	13	200	11.6	0	63	4.9	3.4
Mar-77	23.4	76.8	74.2	200	23.4	0	38.7	74.2	42
Apr-77	35.5	80.1	59.9	200	35.5	0	19.3	59.9	53.2

May-77	64.4	17.5	-38.1	161.9	64.4	0	9.7	0	25.5
Jun-77	79.7	88.3	13.9	175.7	79.7	0	0	0	16.7
Jul-77	99.2	124.8	19.3	195.1	99.2	0	0	0	12.4
Aug-77	80.5	103.9	18.2	200	80.5	0	0	13.3	14.9
Sep-77	58.2	177.3	110.3	200	58.2	0	0	110.3	68.9
Oct-77	32.7	53.3	18	200	32.7	0	0	18	41.6
Nov-77	21.4	114.2	87.1	200	21.4	0	0	87.1	68.7
Dec-77	12.9	153.2	96.9	200	12.9	0	38.6	96.9	84.8
Jan-78	10.2	100	33.7	200	10.2	0	93.3	33.7	58.3
Feb-78	10.3	20	7.3	200	10.3	0	95.4	7.3	32.3
Mar-78	19	50.4	48.6	200	19	0	76.6	48.6	42
Apr-78	33.8	67.4	68.5	200	33.8	0	38.3	68.5	57.8
May-78	62.1	63.2	17.1	200	62.1	0	19.2	17.1	38.9
Jun-78	82.7	20.9	-53.3	146.7	82.7	0	9.6	0	18.9
Jul-78	103.6	56.5	-40.4	117.1	92.9	10.8	0	0	11.8
Aug-78	92.2	77.9	-18.2	106.4	84.7	7.6	0	0	8.4
Sep-78	60	142.4	75.3	181.7	60	0	0	0	9.4
Oct-78	34.1	38.1	2.1	183.8	34.1	0	0	0	3
Nov-78	20	58.9	35.9	200	20	0	0	19.7	13.4
Dec-78	13.9	57.5	31.6	200	13.9	0	9.9	31.6	23.1
Jan-79	10.7	103.1	37.4	200	10.7	0	63	37.4	31
Feb-79	9.1	31.5	-1.7	198.3	9.1	0	87	0	14.8
Mar-79	23.5	50.2	61.5	200	23.5	0	49.9	59.7	39.4
Apr-79	34.9	113.8	98.2	200	34.9	0	24.9	98.2	73.4
May-79	56.2	59.6	12.9	200	56.2	0	12.5	12.9	43.2
Jun-79	82.2	43.9	-34.3	165.7	82.2	0	6.2	0	22.3
Jul-79	110.3	79.4	-28.6	142	105.4	4.9	0	0	14
Aug-79	87.2	48.7	-41	112.9	75.4	11.9	0	0	7.5
Sep-79	59.3	39.6	-21.6	100.7	49.8	9.4	0	0	4.5
Oct-79	33.3	67.3	30.7	131.4	33.3	0	0	0	4.6
Nov-79	21	80	55	186.4	21	0	0	0	4.6
Dec-79	15	138.5	103.1	200	15	0	14.8	89.4	50.7
Jan-80	12.2	40.2	16.1	200	12.2	0	25.6	16.1	31.6
Feb-80	10.9	23.4	2.4	200	10.9	0	35.3	2.4	16.9
Mar-80	20	96.1	67.6	200	20	0	40.4	67.6	45.5
Apr-80	36	115.1	93.5	200	36	0	20.2	93.5	73.5
May-80	66.5	45.3	-13.3	186.7	66.5	0	10.1	0	36.2
Jun-80	74.4	82.3	8.8	195.5	74.4	0	5	0	21.1
Jul-80	105.6	82.4	-22.2	173.7	105.1	0.5	0	0	12.6
Aug-80	102.5	54.1	-51.1	129.3	95.8	6.7	0	0	6.9
Sep-80	59.3	41	-20.3	116.2	52.1	7.2	0	0	4.2
Oct-80	30.1	76.9	42.9	159.1	30.1	0	0	0	4.9
Nov-80	18	42.3	22.2	181.3	18	0	0	0	2.6
Dec-80	10.6	54.9	16.8	198.1	10.6	0	26.4	0	1.4
Jan-81	9.1	16	-3.8	194.3	9	0	37	0	0.3
Feb-81	14.2	83.4	57.3	200	14.2	0	46.4	51.6	28.5
Mar-81	21.7	17.4	11.8	200	21.7	0	29.5	11.8	19.6

Apr-81	36.4	48.2	24.1	200	36.4	0	14.7	24.1	23.9
May-81	58.7	72.3	17.3	200	58.7	0	7.4	17.3	23
Jun-81	82.7	53.8	-24.2	175.8	82.7	0	0	0	12.4
Jul-81	108.9	74.9	-37.7	142.6	104.3	4.6	0	0	8.6
Aug-81	94.6	143.3	41.6	184.2	94.6	0	0	0	9.6
Sep-81	56.8	99.9	38.2	200	56.8	0	0	22.3	17.4
Oct-81	29.8	112	76.6	200	29.8	0	0	76.6	50.1
Nov-81	20.1	47.9	25.4	200	20.1	0	0	25.4	37.3
Dec-81	13.6	47	22.6	200	13.6	0	9.2	22.6	30.4
Jan-82	9.1	77.7	7.7	200	9.1	0	69.6	7.7	18.8
Feb-82	11.4	28.8	14.8	200	11.4	0	71.6	14.8	17.1
Mar-82	20	66.6	57.5	200	20	0	58.2	57.5	39.4
Apr-82	32.4	42.7	37.3	200	32.4	0	29.1	37.3	39.3
May-82	63.2	58.4	6.8	200	63.2	0	14.6	6.8	24.9
Jun-82	75.4	143.4	68.1	200	75.4	0	7.3	68.1	52.2
Jul-82	104.3	32	-66.6	133.4	104.3	0	0	0	24.1
Aug-82	78	115.2	31.4	164.8	78	0	0	0	17
Sep-82	54	121.6	61.5	200	54	0	0	26.3	24.9
Oct-82	35.6	40.2	2.6	200	35.6	0	0	2.6	12.7
Nov-82	20.6	100.6	74.9	200	20.6	0	0	74.9	47.8
Dec-82	16.1	68.1	49	200	16.1	0	0	49	49
Jan-83	12.9	30.2	7.4	200	12.9	0	9	7.4	27.5
Feb-83	14.3	46	21.9	200	14.3	0	17.4	21.9	25.7
Mar-83	23.1	75.4	51.9	200	23.1	0	14.4	51.9	41.4
Apr-83	35.1	88.6	56.3	200	35.1	0	7.2	56.3	51.6
May-83	53.8	104.8	52.9	200	53.8	0	0	52.9	55.3
Jun-83	94.8	30.9	-65.5	134.5	94.8	0	0	0	26.6
Jul-83	113.7	15.2	-99.3	67.8	81.2	32.5	0	0	13.3
Aug-83	104.4	77.3	-31	57.3	83.9	20.5	0	0	10.1
Sep-83	63.8	38.7	-27.1	49.5	44.5	19.3	0	0	5.1
Oct-83	35.6	86.7	46.7	96.3	35.6	0	0	0	5.9
Nov-83	20.4	93.6	68.5	164.8	20.4	0	0	0	5.5
Dec-83	10.9	90.9	37.9	200	10.9	0	40.1	2.7	3.7
Jan-84	9.8	42.5	8.6	200	9.8	0	63.7	8.6	5.7
Feb-84	15.5	68.8	62.8	200	15.5	0	51.6	62.8	36.5
Mar-84	17.6	58.4	34.8	200	17.6	0	56	34.8	36
Apr-84	36.9	61.3	49.3	200	36.9	0	28	49.3	44.9
May-84	53.8	102.8	57.8	200	53.8	0	14	57.8	55
Jun-84	90.2	53.8	-32.1	167.9	90.2	0	7	0	27.6
Jul-84	95.6	50.8	-40.3	134	89.1	6.5	0	0	15
Aug-84	102.5	42.4	-62.2	92.3	82	20.5	0	0	8.4
Sep-84	55	75.9	17.1	109.4	55	0	0	0	6.9
Oct-84	37.9	22.6	-16.4	100.4	30.5	7.4	0	0	2.7
Nov-84	20.1	66.6	43.1	143.6	20.1	0	0	0	4.1
Dec-84	15.8	60.2	41.8	185.3	15.8	0	0	0	3
Jan-85	10.3	57.2	12.5	197.8	10.3	0	33.5	0	1.1
Feb-85	12.7	83.8	45.6	200	12.7	0	56.9	43.5	23.9

Mar-85	23.1	89.3	81.9	200	23.1	0	37.3	81.9	55.8
Apr-85	36.9	32.8	12.9	200	36.9	0	18.6	12.9	34
May-85	64	75	16.5	200	64	0	9.3	16.5	28.2
Jun-85	77.7	49	-21.9	178.1	77.7	0	0	0	14.7
Jul-85	98.6	50	-51.1	132.6	93	5.6	0	0	8.6
Aug-85	93.4	117.5	18.2	150.8	93.4	0	0	0	8.9
Sep-85	67.1	78.6	7.6	158.4	67.1	0	0	0	5.5
Oct-85	36.3	73.3	33.3	191.8	36.3	0	0	0	4.4
Nov-85	20.4	176.4	147.2	200	20.4	0	0	138.9	78.7
Dec-85	12.2	33.5	9.9	200	12.2	0	10.5	9.9	40.8
Jan-86	11.9	28.1	6.8	200	11.9	0	19.3	6.8	24
Feb-86	12.1	57.8	23.6	200	12.1	0	40	23.6	24.8
Mar-86	22.1	68.2	53.4	200	22.1	0	29.9	53.4	41.3
Apr-86	38.5	58.3	31.8	200	38.5	0	15	31.8	38
May-86	66.5	63.3	1.1	200	66.5	0	7.5	1.1	21.3
Jun-86	81.7	80.2	2	200	81.7	0	0	2	14.1
Jul-86	104.9	98.5	-11.3	188.7	104.9	0	0	0	9.9
Aug-86	87.2	164.7	69.2	200	87.2	0	0	57.9	39.7
Sep-86	54.7	215.6	150.1	200	54.7	0	0	150.1	101.6
Oct-86	34.7	55.7	18.2	200	34.7	0	0	18.2	57.3
Nov-86	18.9	51.1	29.6	200	18.9	0	0	29.6	44.6
Dec-86	14.8	96	66.1	200	14.8	0	11.2	66.1	57.9
Jan-87	13	54	26.9	200	13	0	23.7	26.9	42.1
Feb-87	12.8	17.1	3.5	200	12.8	0	24.1	3.5	22.4
Mar-87	24.7	43	27.2	200	24.7	0	13.1	27.2	26.7
Apr-87	41.8	47.3	9.7	200	41.8	0	6.5	9.7	19.5
May-87	67.7	73.3	8.5	200	67.7	0	0	8.5	16.5
Jun-87	100.2	63.5	-39.9	160.1	100.2	0	0	0	9.6
Jul-87	118	92.6	-30.1	136	112	6	0	0	7.8
Aug-87	91.7	67	-28	117	82.7	9	0	0	5
Sep-87	61.5	84.3	18.6	135.5	61.5	0	0	0	5
Oct-87	31.5	45.5	11.8	147.3	31.5	0	0	0	2.7
Nov-87	20.3	92.8	67.9	200	20.3	0	0	15.2	12.4
Dec-87	15.3	61.9	44	200	15.3	0	0	44	28.5
Jan-88	12.2	32	7.2	200	12.2	0	11.9	7.2	17.3
Feb-88	12.1	52	18.5	200	12.1	0	32.2	18.5	18.6
Mar-88	21.7	30.1	16.9	200	21.7	0	22.5	16.9	18.4
Apr-88	35.5	61.3	33.9	200	35.5	0	11.2	33.9	28.6
May-88	65.6	40	-22	178	65.6	0	5.6	0	14.8
Jun-88	92.5	13.9	-73.7	112.4	84.4	8.1	0	0	7.1
Jul-88	124.8	98.5	-31.2	94.9	111.1	13.7	0	0	8.1
Aug-88	103.1	55.2	-50.7	70.8	76.5	26.6	0	0	4.4
Sep-88	57.5	80.6	19.1	89.9	57.5	0	0	0	4.8
Oct-88	31.3	98	61.8	151.8	31.3	0	0	0	5.3
Nov-88	20.8	68.9	44.7	196.4	20.8	0	0	0	3.6
Dec-88	13	31.1	9.6	200	13	0	7.4	6.1	4.2
Jan-89	14	29.8	10.9	200	14	0	11.3	10.9	8

Feb-89	11.6	26.2	3.4	200	11.6	0	21.9	3.4	5.7
Mar-89	19.3	42.2	19.5	200	19.3	0	23.9	19.5	13.8
Apr-89	33.6	33.4	10.1	200	33.6	0	11.9	10.1	12.9
May-89	60.6	83.3	24.5	200	60.6	0	6	24.5	22
Jun-89	88.6	91	3.9	200	88.6	0	0	3.9	15.4
Jul-89	117.3	23.2	-95.3	104.7	117.3	0	0	0	6.6
Aug-89	90.5	38	-54.4	76.2	64.6	25.9	0	0	4.6
Sep-89	60	59	-4	74.7	57.6	2.4	0	0	4.3
Oct-89	34.7	89.4	50.2	124.9	34.7	0	0	0	5.1
Nov-89	18.2	87	64.4	189.3	18.2	0	0	0	4.7
Dec-89	8.9	34	-0.5	188.9	8.8	0	25.4	0	0.5
Jan-90	15.3	35.5	24	200	15.3	0	20.2	12.9	7.9
Feb-90	13.9	83.9	50.8	200	13.9	0	36.8	50.8	31.2
Mar-90	22.1	22.2	12.4	200	22.1	0	23.6	12.4	21.4
Apr-90	37.1	53.2	25.2	200	37.1	0	11.8	25.2	25.5
May-90	57.3	99	42.7	200	57.3	0	5.9	42.7	37.7
Jun-90	84.3	64.4	-17.2	182.8	84.3	0	0	0	19.6
Jul-90	104.3	64.1	-43.4	143.2	100.5	3.7	0	0	11.4
Aug-90	96.9	83.4	-17.7	130.5	91.9	5	0	0	8.3
Sep-90	57.5	41.1	-18.4	118.5	51.1	6.4	0	0	4.1
Oct-90	34.5	94.3	55.1	173.5	34.5	0	0	0	5.7
Nov-90	20.6	49.8	26.7	200	20.6	0	0	0.2	3.1
Dec-90	14.6	114.5	80.8	200	14.6	0	14.6	80.8	45.2
Jan-91	11.8	36.5	12.3	200	11.8	0	26.1	12.3	27.4
Feb-91	14.5	21	9.7	200	14.5	0	22.2	9.7	18.8
Mar-91	23.8	133.2	108.1	200	23.8	0	17.3	108.1	69.2
Apr-91	38.8	120	83.9	200	38.8	0	8.7	83.9	79.5
May-91	72	60.2	-6.2	193.8	72	0	0	0	39.8
Jun-91	101.5	46.4	-57.4	138.2	99.7	1.8	0	0	20.7
Jul-91	111.6	73	-42.3	109	98.6	13.1	0	0	12.8
Aug-91	98.8	75.2	-27.3	94.1	86.3	12.4	0	0	8.4
Sep-91	59.3	78.4	15.2	109.3	59.3	0	0	0	6.2
Oct-91	35	52.4	14.8	124.1	35	0	0	0	3.8
Nov-91	18.8	61.7	39.8	163.9	18.8	0	0	0	3.7
Dec-91	13.4	53.2	26.9	190.8	13.4	0	11.1	0	2.1
Jan-92	12.5	38.4	15	200	12.5	0	20.9	5.8	4.1
Feb-92	13.2	41	18.9	200	13.2	0	28.6	18.9	12.1
Mar-92	20	26.2	10.6	200	20	0	23.2	10.6	11.7
Apr-92	33.8	93	66.1	200	33.8	0	11.6	66.1	43.1
May-92	60.2	73.6	15.5	200	60.2	0	5.8	15.5	30.7
Jun-92	79.7	33.6	-42	158	79.7	0	0	0	15.2
Jul-92	92.1	99	1.9	160	92.1	0	0	0	11.7
Aug-92	81	129.6	42.1	200	81	0	0	2.1	10.9
Sep-92	55.7	101	40.2	200	55.7	0	0	40.2	27.4
Oct-92	31.3	67.6	32.9	200	31.3	0	0	32.9	31
Nov-92	19.3	115	90	200	19.3	0	0	90	64.6
Dec-92	14.4	67.4	40.8	200	14.4	0	9.7	40.8	52.4

Jan-93	12.9	96.2	53.9	200	12.9	0	36.4	53.9	54.6
Feb-93	10.7	41.6	10.1	200	10.7	0	56.6	10.1	31.6
Mar-93	19.2	37.4	27.2	200	19.2	0	46.4	27.2	30.3
Apr-93	34.9	76.8	61.3	200	34.9	0	23.2	61.3	49
May-93	58.4	50.2	0.9	200	58.4	0	11.6	0.9	25.6
Jun-93	82.2	121.5	39	200	82.2	0	5.8	39	37.1
Jul-93	108.2	96.2	-11	189	108.2	0	0	0	20.3
Aug-93	99.4	31	-69.9	122.9	95.5	3.9	0	0	9.3
Sep-93	52.7	73.2	16.9	139.8	52.7	0	0	0	7.5
Oct-93	30.9	80.3	45.4	185.2	30.9	0	0	0	6
Nov-93	19.5	73	49.8	200	19.5	0	0	35	22.1
Dec-93	13.3	27.2	13	200	13.3	0	0	13	16.7
Jan-94	8	59.5	-8	192	8	0	59.5	0	7.9
Feb-94	10.4	29.2	7.1	199.1	10.4	0	70.9	0	4.3
Mar-94	20.9	46.2	44	200	20.9	0	50.3	43.1	25.3
Apr-94	36.2	78.1	63.1	200	36.2	0	25.2	63.1	47.2
May-94	56.6	93.8	45.1	200	56.6	0	12.6	45.1	48.9
Jun-94	85.3	31.8	-48.8	151.2	85.3	0	6.3	0	23.7
Jul-94	108.2	42	-62	104.3	93.1	15.1	0	0	13.2
Aug-94	85.1	47.8	-39.7	83.6	66.1	19	0	0	7.9
Sep-94	59.3	60.6	-1.7	82.9	58.3	1	0	0	5.8
Oct-94	35.4	21.4	-15.1	76.6	26.6	8.8	0	0	2.5
Nov-94	22.1	82.8	56.6	133.2	22.1	0	0	0	4.8
Dec-94	13.3	35	13	146.2	13.3	0	7.5	0	1.5
	597	844	210	2245	572	24	192	234	272

DETAILED WATER BALANCE CALCULATIONS

65 & 71 Agnes Street, Mississauga, Ontario

1 Climate Information

Precipitation	844	mm/a
Actual Evapotranspiration	572	mm/a
Water Surplus	272	mm/a

2 Infiltration Rates

Table 2 Approach - Infiltration factors

Topography: rolling land	0.2	
Soil Type: Open sandy loam	0.4	
Cover: ultivated Land	0.1	
Total	**0.7**	
Infiltration (0.55 x 272)	190	mm/a
Run-off (272-150)	82	mm/a

Table 3 Approach - Typical Recharge Rates

Coarse Sand and Gravel	>250	mm/a
Fine to medium sand	200-250	mm/a
Silty sand to sandy silt	150-200	mm/a
Silt	125-150	mm/a
Clayey Silt	100- 125	mm/a
Clay	<100	mm/a

Site development area is underlain predominantly by sandy soil underlain by shale bedrock at the depth of 3.1 to 3.3 mbgs

Based on the above, the recharge rate is typically 150-250 mm/a

3 Pre-Development Property Statistics	**ha**	**m2**
Paved Area	0.025	250
Roof Area	0.0275	275
Landscape Area	0.3084	3,084
Total	**0.3609**	**3,609**

4 Post-Development Property Statistics	**ha**	**m2**
Paved Area	0.1754	1,754
Roof Area	0.0968	968
Landscape Area	0.0887	887
Total Land Area	**0.3609**	**3,609**

5. Annual Pre-Development Water Balance

Land Use		Area (m^2)	Precipitation (m^3)	Evapotranspiration (m3)	Infiltration (m^3)	Run-off (m^3)
Impervious Areas	Paved Area	250	211	21	0	190
	Building/Roof Area	275	232	23	0	209
Pervious Areas	Landscape Area	3,084	2,603	1,764	587	252
		3,609	**3,046**	**1,808**	**587**	**650**

Assuming no infiltration occurring in paved and roof areas, and 10% of precipitation to be evaporated from paved and roof areas.

6. Annual Post-Development Water Balance

Land Use		Area (m^2)	Precipitation (m^3)	Evapotranspiration (m3)	Infiltration (m^3)	Run-off (m^3)
Impervious Areas	Paved Area	1754	1,480	148	0	1,332
	Building/Roof Area	968	817	82	0	735
Pervious Areas	Landscape Area	887	749	507	169	72
		3,609	**3,046**	**737**	**169**	**2,140**

Assuming no infiltration occurring in paved and roof areas, 10% of precipitation to be evaporated from paved and general roof areas.

7. Comparision of Pre- and Post -Development

	Precipitation (m^3)	Evapotranspiration (m3)	Infiltration (m^3)	Run-off (m^3)
Pre-Development	**3,046**	**1,808**	**587**	**650**
Post-Development	**3,046**	**737**	**169**	**2,140**
Change in Volume		**-1,071**	**-418**	**1,490**
Change in %			**-71**	**229**