March/8/2019

Hydrogeological Report, 4620 Eglinton Avenue West and part 250 Wincott Drive, City of Toronto

Project 15*4245 BRUCE A. BROWN ASSOCIATES LIMITED
CONSULTANTS IN THE ENVIRONMENTAL AND APPLIED EARTH SCIENCES

Contents

Appendices:

Figure 1-0	Site Location Plan
Figure 2-0	Monitoring Well Locations, groundwater depths and direction
Figure 3-1	Delineation (As Shown Over Revised Redevelopment Plan)
Figure 3-2	Cross Section A' to B'
Figure 3-3	Cross Section C' to D'
Appendix A:	Statement of Limitations for Geotechnical Evaluations
Appendix B:	Borehole Logs: Brown Associates, 2015
	Borehole Log Key and Soil Classification Key
Appendix C:	Borehole Logs: Golder, October 2011, May 2017
Appendix D:	Borehole Log: Pinchin, June 2015
Appendix E:	Maxxam Groundwater Certificate of Analyses, Chain of Custody

Distribution: 2 copies and 1 pdf to Client, mlaing@trinity-group.com
1 copy to file.

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Project 15*4245
March 8, 2019

Attn: Mr. Mathew Laing,

Montrin Richview GP Inc.
Suite 1000, 3250 Bloor Street West
Toronto, ON M8X 2X9

Email: mlaing@trinity-group.com

Dear Mr. Laing,

Re: Hydrogeological Report – 4620 Eglinton Avenue West
and part *Richview Square*, 250 Wincott Drive, Toronto

1.0 Introduction

Brown Associates Limited was authorized by Montrin Richview GP Inc. to conduct a hydrogeological assessment for construction of three new mixed-use buildings on a continuous two-storey podium with accessory commercial uses, and with two levels of underground parking, to be located at 4620 Eglinton Avenue West and on the southern part of the *Richview Square* shopping mall at 250 Wincott Drive, Toronto.

The southern portion of the land assembly was acquired from Build Toronto when the lands, originally acquired for the proposed Richview Expressway in 1971, were deemed surplus. The additional lands to the north are presently part of the Richview Square Shopping Centre, which was developed in phases, mainly in the 1960s. The proposed redevelopment requires demolition of some of the commercial buildings on the *Richview Square* lands.

1.1 Previous Investigations

Golder Associates prepared a report for Build Toronto Inc., dated March 2012, entitled *Preliminary Geotechnical Assessment Report, Vacant Property along the North Side of Eglinton Avenue West, between Kipling Avenue and Wincott Drive, Toronto, Ontario*. Golder also prepared Phase 1 and 2 environmental reports in support of a Record of Site Condition. The former Build Toronto lands have an acknowledgement permitting residential use of the lands, as posted on the Environmental Registry as RSC number 223828, dated October 31, 2017. The Phase 2 environmental report required deep wells to find groundwater and all four of the Golder wells remain accessible and were accessed for this current assessment to measure depth to water and to sample water chemistry. Borehole logs 11-1, 17-1, 17-2 and 17-3 are appended to this report in **Appendix C**. Wells 11-1, 17-1 and 17-2 on the Build Toronto acquisition are within about 10 meters from the southern limit of the paved parking lot for Richview Square. Well 17-3 is in the southwest corner of the Build Toronto lands, about 30m north of Eglinton Avenue and 20 meters from west property line.

Previous investigations by Pinchin Environmental on the northern portion of the land assembly in 2015 were focused on Phase 2 environmental assessment, rather than on geotechnical or hydrogeological evaluation. Borehole data are available from wells advanced under the direction of Pinchin LeBlanc Environmental also incorporates logs from earlier studies by Jacques Whitford Environment Limited, dated November 1998 and September 2005. The Pinchin log for monitoring well MW-03D is appended in **Appendix D**, as the only deep well among these which reached the water table at depth. The Pinchin log shows frequent split spoon refusals in very dense sand or on cobbles or boulders.

Brown Associates supervised advancement of two additional 300-series boreholes, both at edge of pavement immediately north of the division between Build Toronto and Richview lands. Because of refusals, even using specialized tricone drilling equipment and advancing casings using gel, these borings extended to 9.7 and 4.3m below grade respectively, encountering refusal on boulders, remained dry and were not instrumented as wells. Borehole logs 301-15 and 302-15 are attached in **Appendix B**. Brown Associates also updated a geotechnical report consolidating all previous available information in March 13, 2018.

1.2 Site Description

The northern part of the site includes the western extension of the retail plaza, the free-standing Beer Store building and the southern portion of the central parking lot and most of the parking area on the west side of *Richview Square*. It is bounded to the east by Wincott Drive and to the west by two tall residential apartments, and south of these by recently completed medium density retirement residential fronting on Eglinton. It is bounded to the south by widening strips taken on the north side of Eglinton Avenue West. The portion of the retail plaza to remain has slab-on-grade storefronts facing the south side, and on the eastern half, a partial basement with retail having access from the lower grade on the north side. A site location plan is found in **Figure 1-0**.

The southern 0.9 ha portion of the site was acquired from Build Toronto, and is bounded by *Richview Square* to the north, Wincott Drive to the east, Eglinton Avenue to the south and by the 9 storey Shannex retirement home development with one level of underground to the west. The southern lands slope gently southward and were recently occupied with temporary trailers and equipment storage areas for the adjacent construction to the west. A grassed strip across the centre of the site slopes northward to the parking lot, which is relatively flat and has internal drainage to a system of catch basins. The northern commercial lands have full services, while there are no services, structures or utilities on the southern portion.

1.3 Regional Soil Conditions

Available borehole data from online well records confirms presence of a ridge of Georgian Bay Formation shale bedrock virtually at grade just to the east of this site, beyond which the Humber River has carved a channel into shale bedrock of Ordovician age which is exposed on the lower half of its banks. Shale bedrock was proven at about elevation 140m geodetic in one borehole only on site. Presence of coarse sand, cobbles and boulders at depth on site suggests a former major active spillway or river channel parallel to the modern watercourse, with high velocities to sort fines from gravel zones with boulder content at depth.

Although physiographic mapping has always depicted the general area as part of a large till sheet, the various iterations of drilling on both parts of the site has proven otherwise. Interbedded coarse sand with boulders, cobbles and gravels are found at shallow, intermediate and full depths

of investigation on the northern half of the site, including to at least the southern edge of pavement, indicating a high-energy depositional mode. Aggregates and larger size materials are mainly metamorphic in origin and not local limestones, suggesting a Canadian Shield origin and long transport distances under high energy conditions.

The southern half of the site has totally different stratigraphy demonstrated in all boreholes, with sandy silt grading to fine sand and silt, and clayey sand and silt by 13 meters. Shale bedrock is inferred at approximately 24 meters below grade in Golder BH/MW 17-1 only. No other borehole onsite encountered bedrock.

2.0 Field Investigations

No new geo-environmental boreholes were required for this assessment. Borehole coverage is available for all parts of the redevelopment site. Existing monitoring wells were constructed using hollow-stem continuous flight power augurs and were instrumented with 50mm wells having 3m of screen at the base. The exceptions are the two Brown Associates boreholes in 2015, which were advanced through coarse sand, gravel and boulders using a 200mm diameter tri-cone bit and casing with gel, after experiencing multiple refusals with conventional continuous flight hollow-stem power augurs, using a CME-75 rig.

Two future deep wells are planned for the northeastern portion of the development footprint. These are intended to reach water table for sampling of soil and groundwater to support a submission for a Record of Site Condition for the northern portion of the property, supporting a proposed change from commercial to residential sensitivity. They are not essential for understanding of the hydrogeological regime, but are required to meet minimum criteria for a Phase Two environmental report to support a future Record of Site Condition submission, required to change property use from commercial to residential.

2.1 Subsurface Conditions

The south half of the site, as characterized by Golder in four deep wells, 11-1, 17-1, 17-2 and 17-3, has minor disturbed soil or fill at grade and a sequence of glacial-lacustrine fine sand with silt with trace gravel grading to sand and silt, and clayey silt with sand by 13m depth below grade,

changing to silty sand by 19 meters depth, and finding bedrock at 24.4m depth or 137.6m geodetic.

The northern half of the site including all the area overlain by asphaltic pavement has a totally different stratigraphy, with medium to coarse sand, becoming very dense by 3m depth, and grading to coarse sand, and very dense coarse sand and gravel with cobbles by 5.5m depth. Augur refusal was experienced in dry, coarse brown sand with gravel by 9.7m and 4.3m respectively in 300-series boreholes at the southern edge of pavement. Refusal was most probably on boulders.

Anecdotal evidence from the 2015 drilling crew for Brown Associates advised an entire deep augur string belonging to another contractor had become stuck in boulders and cobbles and was unrecoverable during some earlier testing on this commercial site. This information was not confirmed from any other source.

A deep monitoring well was advanced for Pinchin in June 2015 to a depth of 18.29m. Beneath asphaltic concrete pavement and bedding, silty clay was found to 2.13m below grade, below which medium-textured brown sand was reported to grade to coarse sand and gravel by 6m depth, and then coarse brown sand with some gravel from about 7 to 12m where cobble sizes are reported. Sand and gravel with cobbles and then cobbles and gravel were reported to completion, becoming grey and wet at 16m depth. The hydraulic conductivity in sand is estimated at 2.5×10^{-2} cm.sec^{-1} and even higher in coarse sand and gravel below 17m depth.

2.2 Groundwater Conditions

Groundwater was reported at 16m depth in Pinchin borehole/monitoring well MW-03D. Other boreholes or wells on the northern half of the site did not extend to depth of groundwater and remained dry. The nature of the coarse sand and gravels at this depth suggests water would be found at precisely the same elevation across the full extent of the coarse sand and gravel unit.

The four monitoring wells on the southern half of the site each had standpipe/piezometers set in till-like material at depth, reported groundwater equilibration at approximately 143.7m to 143.5m geodetic, with a south-southeasterly gradient, and hydraulic conductivity estimated at 2×10^{-5} cm.sec^{-1}.

3.0 Proposed Redevelopment

3.1 Proposed Structure

The proposed mixed-use redevelopment will contain three high-rise residential blocks ranging from 12 to 20 stories on a two-storey podium, and a block of parkland on the majority of the Eglinton frontage. A continuous two-level below-grade parking structure is proposed, as outlined on **Figures 2-0 and 3-1**. Two levels of parking have inverts at approximately 153 to 152m geodetic, as shown in cross-section **Figures 3-2 and 3-3**. Accordingly, there is approximately 10m or more of predominantly coarse-grained soils found between underside of footings and water table. No minor perched conditions were noted during review of reports by others, as listed in the attached references.

3.2 Groundwater Depths, Gradient and Direction

Figure 2-0 shows groundwater at elevation 145m geodetic near the north end of the redevelopment, falling uniformly to about 143m geodetic at the southeast corner of the lands. Direction of flow is south-southeast. Groundwater fall is 2m in 100m, for a uniform 2% gradient. Hydraulic conductivity, based on grain-size ranges from 10^{-2} m.sec^{-1} in coarse sand and gravel with boulders to about 10^{-5} m.sec^{-1} in predominantly silts found toward the southeast corner of the site, according to Golder.

3.3 Groundwater Chemistry

Golder well 17-1 was accessed for quality testing on February 16, 2018. The well was found in good condition with no evidence of tampering, damage or potential for surface infiltration. Water level was measured as 143.7m geodetic, consistent with earlier reporting. This well was selected because it is directly down-gradient from the historically commercial uses in the retail mall. The well was developed using a four-stage pump, required because of depth, with flows throttled down to approximately 2 litres per minute. Unfiltered water was recovered into laboratory-supplied new glassware. Samples retained on ice and were direct-driven to Maxxam Environmental, which reported on February 28, 2018.

Groundwater chemistry including laboratory QA/QC data and chain of custody form are contained in **Appendix E.**

Toronto Water require water samples within a period of 18 months. Accordingly, the attached sample chemistry remains valid at time of writing. Exceedances relative to sanitary sewer standards set out in City of Toronto Chapter 681 were limited to suspended solids only, with a concentration of 810 µg/l compared to a standard of 250.

Exceedances relative to storm sewer standards included copper, manganese, and zinc. A review of Golder data based on filtered samples from the same well suggest that all storm exceedances are associated with suspended solids and could be reduced with opportunity for settlement or treatment, such as sand filtration.

3.4 Well Decommissioning

When no longer required, and prior to any site work in the vicinities, all existing monitoring wells must be decommissioned in accordance with abandonment methods as set out in O. Reg. **00/903** under the Ontario *Water Resources Act*. This effort may include disinfection, over-drilling, grouting or pulling casing, and sealing with bentonite. Work must be carried out by a licensed well technician, and a Well Record must be filed. Because wells are deep, it is not possible to abandon them by bulk excavation during construction. Soil contained in the clusters of 205 litre steel drums presently standing near some deep wells has been proven to meet urban background standards, and can be disposed of together with any other excavate leaving the site.

4.0 Discussion

4.1 Current Conditions

At present, stormwater impacting the northern portion of the site is directed to private catch basins which eventually connect to the municipal system. Grades are set to prevent surface flows across lotlines, and there is a soil berm along the southern edge of the retail parking. There is no detention or treatment components. A coefficient of runoff from any significant precipitation event is around 0.9 to 0.95 depending on intensity, temperature and other such factors.

The southern portion of the site is grass or temporarily disturbed with stockpiled fill. The direction of runoff is mainly to the Eglinton lotline as overland flow, without concentration in a single discharge point. The coefficient of runoff is estimated at around 10-20%, depending on season and partly on intensity and duration of an event**.**

4.2 Water Management during Open Excavation

Since there is a 10m vertical separation from greatest depth of excavation to water table at depth, there is no issue with respect to groundwater entering the excavation or into perimeter or underdrains in the completed development at around 7m below grade, with two levels of parking below grade.

Local portions of excavation could be open for up to two years, during which time a storm event with 2-year intensity could result in up to 50mm of precipitation within a period of one hour.

On the northern portion of the site, where coarse sand and gravel were exposed in open excavation, even a two-year storm event would be unlikely to accumulate standing water even for a short periods, and there would be no requirement for stormwater management in an excavation, since there would never be any water accumulation on the base with exposed sand and gravels.

On the southern half of the site, according to Golder, uniform sand, medium sand and silty sand is found at proposed excavation depths. With an estimated hydraulic conductivity an order lower, short-term water accumulation could occur in open excavation in response to a two-year storm event. However, accumulation of water from a 50mm precipitation event would be likely to soak away in a matter of a few hours. Mobilizing temporary pumps to remove standing water is unlikely to be required unless ground were solidly frozen.

4.3 Water Management during Construction

There will be an interim condition where precipitation impacting active construction areas will end up in the sumps designed to receive perimeter drain and underdrain flows. On completion, these would not be anticipated to yield water, but during construction, water may find its way to the same sumps, in which temporary pumps can be deployed.

The amount of accumulation would depend on catchment areas, which will divide the site. Design and staging of construction are not progressed to the point where these can presently be defined. Under a partially constructed state, up to 50mm of precipitation, from a full two-year return event, could accumulate in P2 sump unless the basement floor were not poured until the roof was on and precipitation diverted to the permanent pathways.

A "*first flush*" of stormwater in the construction period will result in runoff which does not meet storm sewer standards set out in Chapter 681. Exceedances will include suspended solids, and may also include manganese associated with turbidity, and dissolved polyphenols (a surfactant additive to concrete transit mix) and possibly linseed oils used in concrete forming as a release agent. Removal of water from P2 if basement floor is poured before the roof is complete may require use of a temporary infiltration basin, or discharge through a detention tank with multiple baffles, or some below-grade construction may be delayed a few hours until natural infiltration is complete.

4.4 Permanent Water Management

There will be no contribution of groundwater to any flows leaving the site during construction or on completion of construction. No soil dewatering is anticipated and no application for a permit to take water will be required during construction.

Because it is good practice to install drains at the base of perimeters and underdrains to prevent any upward hydrostatic pressures for which a building is not designed structurally, there will be sumps in P2 levels, separate from sumps to accept floor drains in the parking areas and elevator sump pits, from which flows must be directed to sanitary.

If there is a physical connection ultimately to city sewers from perimeter and underdrains, Toronto Water requires a permanent agreement for discharge, registered on title, even where no base flow is anticipated. An agreement, or agreements, for discharge from separate phases and/or where there will be separate ownerships with different condominium corporations, will provide for setting pump and metering specifications, any pre-treatment requirements and design for a permanently accessible sampling port in the discharge line. Requirements for connections, including detailed engineering drawings, can be found on the Toronto Water website. The City will require quarterly reporting and invoice quarterly. There is likely to be an administrative charge even where discharge volumes continue to be nil in the long term, as is anticipated for this site.

5.0 References

Brown Associates Limited - report to Urban Trinity Inc., *Geotechnical Site Assessment and Preliminary Hydrogeological Review, 250 Wincott Drive, Toronto Ontario*, November 2015.

Chapman, L.J, and D.F. Putnam, *The Physiography of Southern Ontario*. Ontario Geological Survey, Volume 2, 1984.

Coffey Geotechnics - report *Eglinton Crosstown Light Rail Transit (ECLRT). Geotechnical Investigation, Toronto, Ontario.* TRANETOB01242AA, dated March 3, 2010. (http://www/toronto.ca/involved/projects.eglinton_crosstown_lrt/epr.htm)

Golder Associates - report *Phase 1 Environmental Site Assessment. Vacant Property Along the North Side of Eglinton Avenue W., Between Kipling and Wincott Drive, Toronto, Ontario*. Report 11-1151, dated September 2011.

Golder Associates - Record of Site Condition submission to MOECC as posted to Environmental Registry. Phase Two Conceptual Site Model, July, 2017. https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument?attachmentId=89181&fileName=PhaseTwo.pdf

Golder Associates - report *Preliminary Geotechnical Assessment Report, Vacant Property along the North Side of Eglinton Avenue West, Between Kipling Avenue and Wincott Drive, Toronto, Ontario,* dated March 2012.

Jacques Whitford Environment Limited - reports to Richview Square Limited *Phase 1 Environmental Report, 250 Wincott Drive*, November 1998 and for asbestos management, June 2003.

Jacques Whitford Environment Limited - report, *Limited Phase 2 Environmental Report*, August 2005 and *Final Phase 1 Environmental Site Assessment, 250 Wincott Drive*, dated September 2005, both for Roycom Limited.

Ontario Ministry of the Environment. Registry of well records. (http://www.ontario.ca/environment-and-energy/mao-well-records).

Pinchin LeBlanc reports to Fiera Properties Ltd., June 2015; *Phase 1 and limited Phase 2 Environmental Site Assessment, 250 Wincott Drive, Toronto.*

Sharpe, D.R. *Quaternary Geology of Toronto and Surrounding Area*, Ontario Geological Survey, Preliminary Map P.2204, 1980.

6.0 Qualification

Dr. Brown is a Professional Engineer with an undergraduate degree in geology, and is a Qualified Person with 47 years of experience in the geo-environmental characterization of soil and groundwater in the Toronto-centered region. This firm carries $2MM environmental liability insurance and $2MM errors and omissions insurance, and enjoys a claims-free status.

7.0 Closure

Thank you for this opportunity to be of service. Should questions arise, please do not hesitate to call.

Yours very truly,

BRUCE A. BROWN ASSOCIATES LIMITED

Bruce A. Brown, Ph.D., MCIP, RPP, P.Eng., QP

Figure:	Title:	Client:	Drawn By:	Date:	
1-0	Site Location Plan, 4620 Eglinton Avenue West and Part of 250 Wincott Drive, City of Toronto	Montrin Richview GP Inc., Suite 1000, 3250 Bloor Street West Toronto, ON, M8X 2X9	C. Colbourne, A.Sc.T.	March 8, 2018	BRUCE A. BROWN ASSOCIATES LIMITED
			Project No.: 15*4245	Drawing No.: 4245180308-001	Consultants in the Environmental and Applied Earth Sciences 101–102 Aerodrome Crescent Toronto, Ontario M4G 4J4 Tel [416] 424-3355

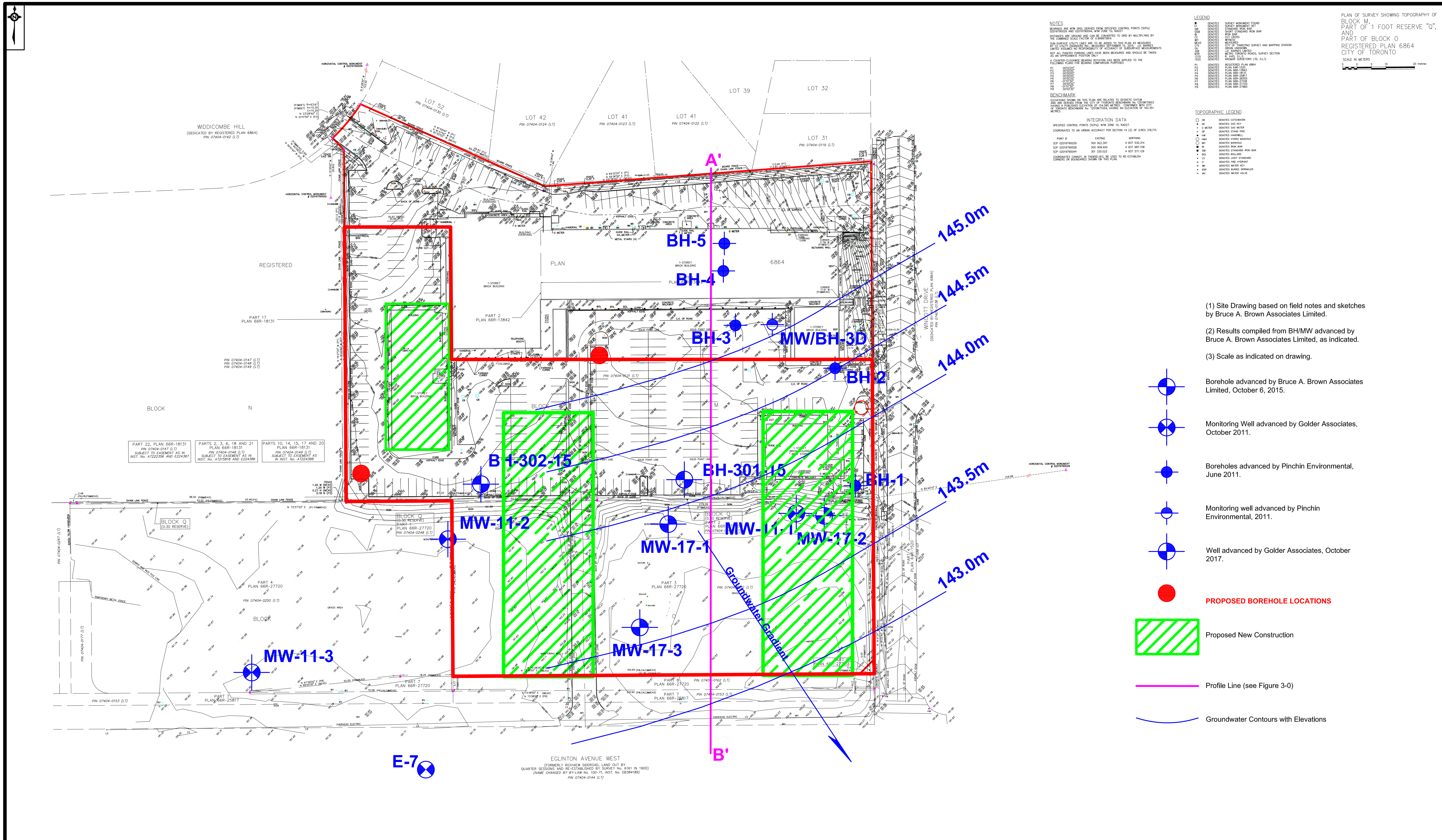
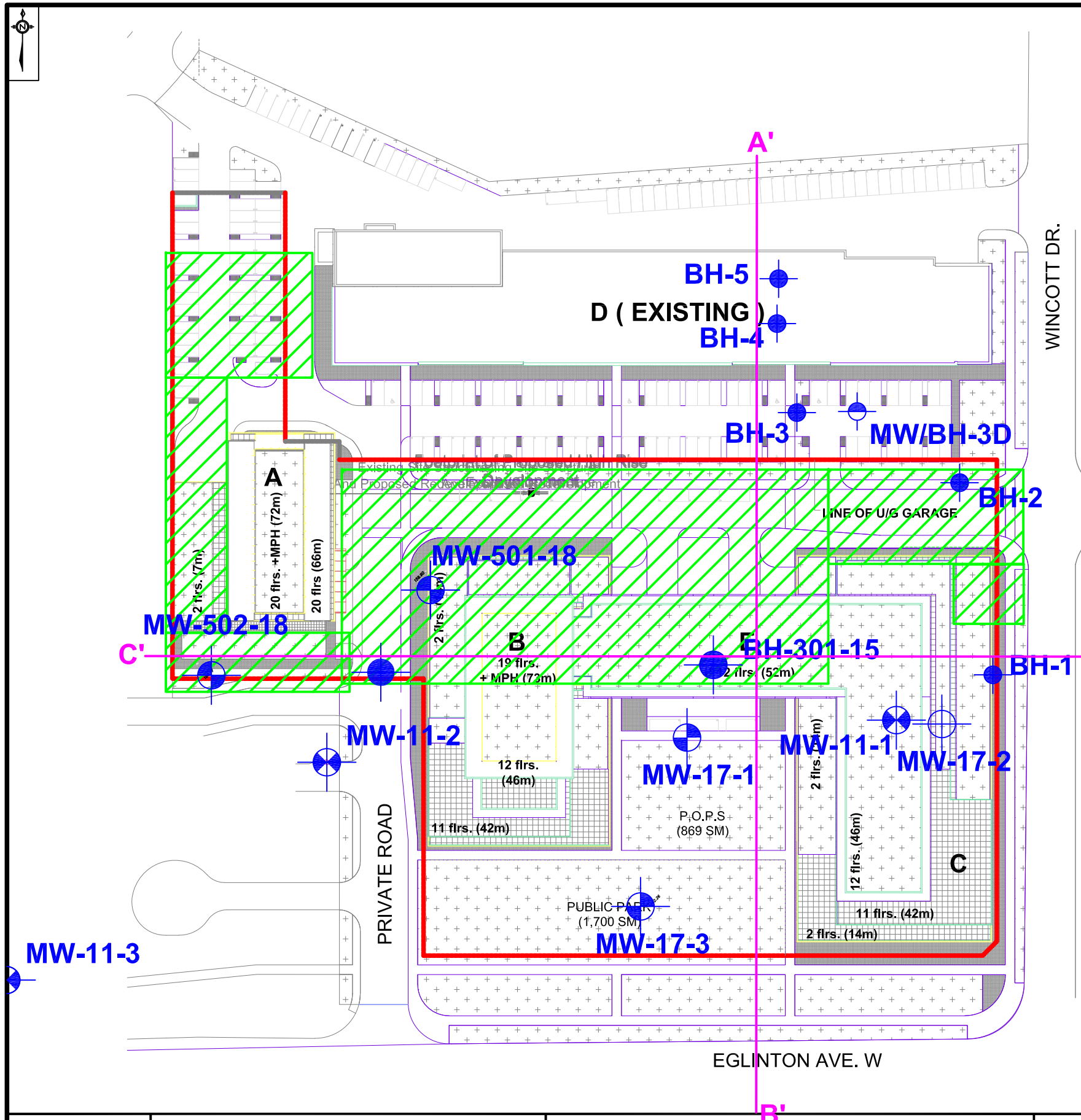


Figure:	Title:	Client:	Drawn By:	Date:	
2-0	Monitoring Well/Borehole Location Plan, 4620 Eglinton Avenue West and Part of 250 Wincott Drive, City of Toronto	Montrin Richview GP Inc., Suite 1000, 3250 Bloor Street West Toronto, ON, M8X 2X9	C. Colbourne, A.Sc.T.	March 8, 2018	BRUCE A. BROWN ASSOCIATES LIMITED
			Project No.: 15*4245	Drawing No.: 4245180308-002	Consultants in the Environmental and Applied Earth Sciences 101–102 Aerodrome Crescent Toronto, Ontario M4G 4J4 Tel [416] 424–3355



(1) Site Drawing based on field notes and sketches by Bruce A. Brown Associates Limited.

(2) Results compiled from BH/MW advanced by Bruce A. Brown Associates Limited, as indicated.

(3) Scale as indicated on drawing.

Monitoring Well advanced by Bruce A. Brown Associates Limited, April 23 and May 1, 2018.

Borehole advanced by Bruce A. Brown Associates Limited, October 6, 2015.

Monitoring Well advanced by Golder Associates, October 2011.

Boreholes advanced by Pinchin Environmental, June 2011.

Monitoring well advanced by Pinchin Environmental, 2011.

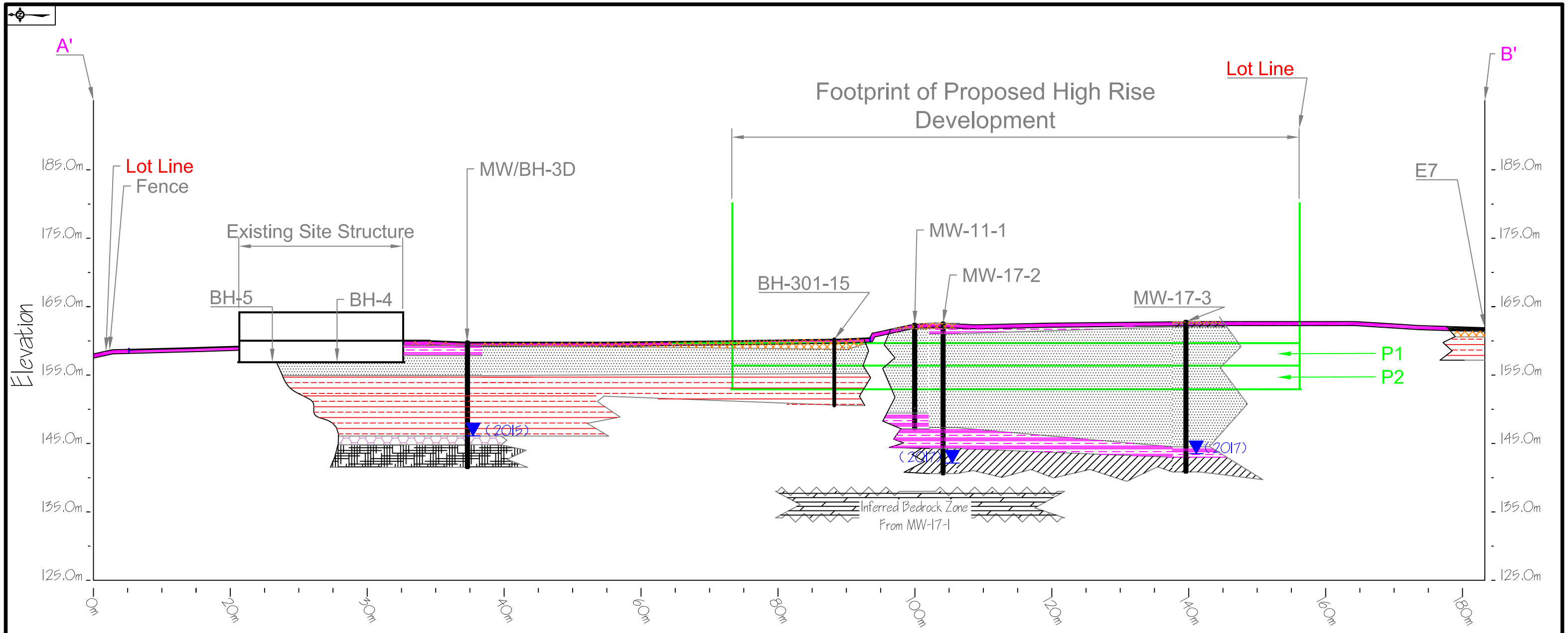
Well advanced by Golder Associates, October 2017.

Profile Line

Exceedances of the standard of Sodium Absorption Ratio (SAR) is limited to all areas devoted to parking and roadway as a direct result of winter maintenance.

SCALE IN METERS

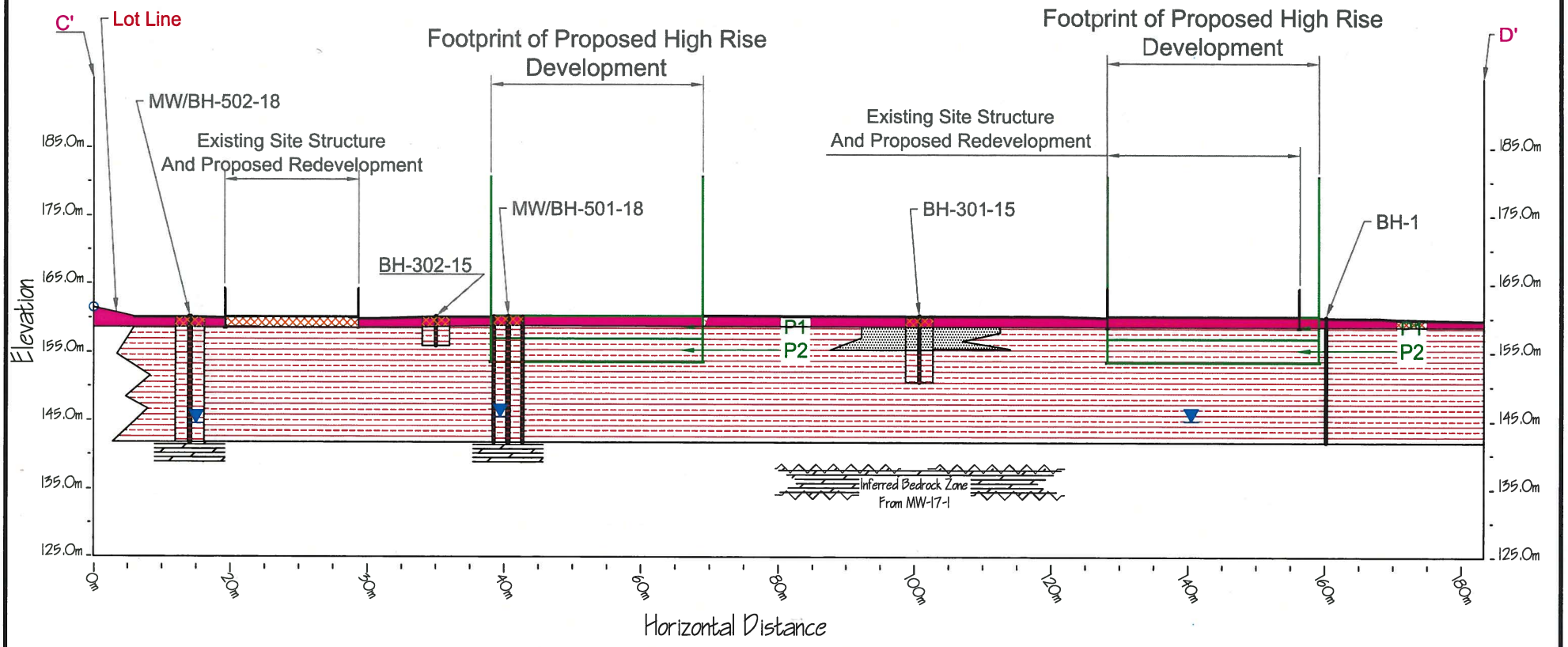
Figure: 3-1	Title: Delineation (As Shown Over Revised Redevelopment Plan) 4620 Eglinton Avenue West and Part of 250 Wincott Drive, City of Toronto	Client: Montrin Richview GP Inc., Suite 1000, 3250 Bloor Street West Toronto, ON, M8X 2X9	Drawn By: C. Colbourne, A.Sc.T.	Date: Revised March 6, 2019 by CWC	BRUCE A. BROWN ASSOCIATES LIMITED Consultants in the Environmental and Applied Earth Sciences 101–102 Aerodrome Crescent Toronto, Ontario M4G 4J4 Tel [416] 424–3355
			Project No.: 15*4245	Drawing No.: 4245180308-007.1	



Exceedances of the standard of Sodium Absorption Ratio (SAR) is limited to all areas devoted to parking and roadway as a direct result of winter maintenance.

- Asphalt Surface
- Fill and Topsoil
- Silty Clay or Clayey Silt
- Silts
- Sand (Fine and Medium Silty Sand)
- Coarse Textured Sands and Sand and Gravel
- Gravel
- Cobbles
- Bedrock

Figure: 3.2	Title: Cross Section A' to B' 4620 Eglinton Avenue West and Part of 250 Wincott Drive, City of Toronto	Client: Montrin Richview GP Inc., Suite 1000, 3250 Bloor Street West Toronto, ON, M8X 2X9	Drawn By: C. Colbourne, A.Sc.T. Project No.: 15*4245	Date: Revised March 6, 2019 by CWC Drawing No.: 4245180308-007.2	BRUCE A. BROWN ASSOCIATES LIMITED Consultants in the Environmental and Applied Earth Sciences 101–102 Aerodrome Crescent Toronto, Ontario M4G 4J4 Tel [416] 424-3355



Exceedances of the standard of Sodium Absorption Ratio (SAR) is limited to all areas devoted to parking and roadway as a direct result of winter maintenance.

- Asphalt Surface
- Fill and Topsoil
- Silty Clay or Clayey Silt
- Silts
- Sand (Fine and Medium Silty Sand)
- Coarse Textured Sands and Sand and Gravel
- Gravel
- Cobbles
- Bedrock

Figure: 3.3	Title: Cross Section C' to D' 4620 Eglinton Avenue West and Part of 250 Wincott Drive, City of Toronto	Client: Montrin Richview GP Inc., Suite 1000, 3250 Bloor Street West Toronto, ON, M8X 2X9	Drawn By: C. Colbourne, A.Sc.T.	Date: March 8, 2018	BRUCE A. BROWN ASSOCIATES LIMITED Consultants in the Environmental and Applied Earth Sciences 101–102 Aerodrome Crescent Toronto, Ontario M4G 4J4 Tel [416] 424-3355
			Project No.: 15*4245	Drawing No.: 4245180308-0073	

Appendix A: Statement of Limitations for Geotechnical Evaluations

Bruce A. Brown Associates Limited

Geo-environmental Report
General Conditions and Limitations

Section 1: Use of the Report

1.1 The factual data, interpretations and recommendations contained in this report pertain to a specific project as described in the report and are not applicable to any other project or site location. If the project is modified in concept, location or elevation or if the project is not initiated within two years of the date of the report, Brown Associates should be given an opportunity to confirm that the recommendations are still valid.

1.2 Subsoils, groundwater, or other conditions which may affect design or implementation may differ between actual test locations and may not be appropriate for areas beyond those investigated.

1.3 The comments given in this report are intended only for the guidance of the design engineer. The number of test holes to determine all the relevant underground conditions which may affect construction costs, techniques and equipment choice, scheduling and sequence of operations, would be greater than has been carried out for design purposes. Contractors bidding on, or undertaking the work, should rely on their own investigations, as well as their own interpretations of the factual test hole data, as to how subsurface conditions may affect their work.

1.4 With the exception of instances where this firm is specifically retained to confirm field conditions, or to supervise construction or excavation, the responsibility of Bruce A. Brown Associates Limited shall be restricted to accurate interpretation of conditions at test location(s). No responsibility can be taken for the procedures or the sequence of effort carries out by any contractor, even when his final result would be to implement the recommended design, unless field supervision is requested form this firm.

Section 2: Follow Up

2.1 All details of the design and proposed construction may not be known at the time of submission of Brown Associates' report. It is recommended that Brown Associates be retained during the final design stage to review the design drawings and specifications related to foundations, earthworks, retaining systems and drainage, to determine that they are consistent with the intent of Brown Associates' report.

2.2 Retaining Brown Associates during construction is recommended to confirm and to document that the subsurface conditions throughout the site do not materially differ from those given in Brown Associates' report and to confirm and to document that construction activities did not adversely affect the design intent of Brown Associates' recommendations.

Section 3: Soil and Rock Conditions

3.1 Soils and rock descriptions in this report are based on commonly accepted methods of classification and identification employed in professional geotechnical practice. Classification and identification of soil and rock involves judgement and Brown Associates does not guarantee descriptions as exact, but implies accuracy only to the extent that is common in current geotechnical practice.

3.2 The soils and rock conditions described in this report are those observed at the time of study. Unless

otherwise noted, those conditions form the basis of the recommendations in the report. The condition of the soil and rock may be significantly altered by construction activities (traffic, excavation, pile driving, blasting, etc.) on the site or on adjacent sites. Excavation may expose soils to changes due to wetting, drying or frost. Unless otherwise indicated the soil and rock must be protected from these changes or disturbances during and after construction.

Section 4: Logs of Test Holes and Subsurface Interpretations

4.1 Soil and rock formations are variable to a greater or lesser extent. The test hole logs indicate the approximate subsurface conditions only at the locations of the test holes. Boundaries between zones on the logs are often not distinct, but rather are transitional and have been interpreted. The precision with which subsurface conditions are indicated depends on the method of boring, the frequency of sampling and the uniformity of subsurface conditions. The spacing of test holes, frequency of sampling and type of boring also reflect budget and schedule considerations.

4.2 Subsurface conditions between test holes are inferred and may vary significantly from conditions encountered at the test holes.

4.3 Groundwater conditions described in this report refer only to those observed at the place and time of observation noted in the report. These conditions may vary seasonally or as a consequence of construction activities on the site or on adjacent sites.

Section 5: Changed Conditions

5.1 Where conditions encountered at the site differ significantly from those anticipated in this report, either due to a natural variability of subsurface conditions or due to construction activities, it is a condition of the use, or reliance by the client, of this report that Brown Associates be notified of the changes and provided with an opportunity to review the recommendations of this report. Recognition of changed soil and rock conditions requires experience and it is recommended that an experienced geotechnical engineer be employed to visit the site with sufficient frequency to detect if conditions have changed significantly.

Section 6: Drainage

6.1 Drainage of subsurface water is commonly required either for temporary or permanent installations for the project. Improper design or construction of drainage systems can have serious consequences. Brown Associates can assume no responsibility for the effects of drainage unless Brown Associates is specifically involved in the detailed design and follow-up site supervision and inspection during construction of the drainage system.

Appendix B: Borehole Logs, Brown Associates

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Tel: (416) 424-3355, Email bruce@brownassociates.ca

Project Location: 250 Wincott Drive, City of Toronto

Project Number: 15*4245

Technologist: C.W. Colbourne, A.Sc.T.

Client: Urban Trinity Inc. c/o Trinity Development Group Inc.
3250 Bloor Street West, Suite 1000
Toronto, ON M8X 2X9

Date of Borehole: October 6 & 7, 2015

BH/MW Location: See site drawing

Bench Mark: Temp Bench Mark

TOR Elevation:

BOREHOLE LOG No. **BH-301-15**

Depth in Metres	Monitoring Well Diagram	Symbol	Sample Interval	Description	Elevation	Tests: x Moisture Content / 0 Dynamic Penetration Test (20 40 60 80)	Lab Sample No.	PID READING	% Recovery	Standard Penetration N-Blows per 0.30m	Moisture Content %
0											
0.1 – 0.9				Grade to 1.5m Augured through ASPHALT layer, GRANULAR BASE, DISTURBED SAND.							
1.0 – 1.9			SS-1	1.5m to 2.0m NATIVE – SP - SAND. Brown, dry, non-plastic, non-cohesive, dense.		0			80	49	
2.0 – 2.9											
3.0 – 3.9			SS-2	3m to 3.5m SP - MEDIUM SAND, brown, dry, no-plastic, non-cohesive, very dense.		0			100	61	
4.0 – 4.9			SS-3	4.6m to 5.0m SP - MEDIUM SAND, brown, dry, non-plastic, non-cohesive, very dense.		0			100	67	
5.0 – 5.9											
6.0 – 6.9			SS-4	6.1m to 6.3m SW - MEDIUM SAND and GRAVEL, brown, dry, non-plastic, non-cohesive, very dense with refusal at 6.3m		0			100	100+, 50+ FOR 100mm	
7.0 – 7.9			SS-5	7.6m to 7.7m SW - COARSE SAND and GRAVEL, brown, dry, non-plastic, non-cohesive, very dense with refusal at 7.7m		0			100	100+, 50 FOR 75mm	
8.0 – 8.9											
9.0 – 9.9			SS-6	9.1m to 9.6m SW - COARSE SAND and GRAVEL, brown, dry, non-plastic, non-cohesive, very dense.		0			100	74	
10.0				At 9.7m Augur refusal.		Borehole terminated at 9.6m as drilling equipment could not penetrate boulder debris field. No well installed and no groundwater encountered.					

BRUCE A. BROWN ASSOCIATES LIMITED
Consultants in the Environmental and Applied Earth Sciences

101-102 Aerodrome Crescent
Toronto, Ontario, Canada M4G 4J4
Tel: (416) 424-3355, Email bruce@brownassociates.ca

Project Location: 250 Wincott Drive, City of Toronto

Project Number: 15*4245

Technologist: C.W. Colbourne, A.Sc.T.

Client: Urban Trinity Inc. c/o Trinity Development Group Inc.
3250 Bloor Street West, Suite 1000
Toronto, ON M8X 2X9

Date of Borehole: October 6 & 7, 2015

BH/MW Location: See site drawing

Bench Mark: Temp Bench Mark

TOR Elevation:

BOREHOLE LOG No. **BH-302-15**

Stratigraphy						Tests		Samples				
Depth in Metres	Monitoring Well Diagram	Symbol	Sample Interval	Description	Elevation	x Moisture Content / 0 Dynamic Penetration Test (20 40 60 80)		Lab Sample No.	PID READING	% Recovery	Standard Penetration N-Blows per 0.30m	Moisture Content %
0				Grade to 1.5m Augured through ASPHALT layer, GRANULAR BASE, DISTURBED SAND and GRAVEL.								
1.5			SS-1	1.5m to 2.0m NATIVE - SW - SAND and GRAVEL, brown, dry, non-plastic, non-cohesive, very dense.		0				100	74	
3.0			SS-2	3.0m to 3.5m SW - COARSE SAND and GRAVEL, brown, dry, non-plastic, non-cohesive, very dense.		0				100	82	
4.6			SS-3	4.6m to 4.8m SW - COARSE SAND and GRAVEL, brown, dry, non-plastic, non-cohesive, very dense.		0				100	100+, 50+ FOR 125mm	
4.8				At 4.3m Augur refusal. Borehole terminated at 4.3m as drilling equipment could not penetrate boulder debris field. No well installed and no groundwater encountered.								

Borehole Log Key and Soil Classification Key

Major Divisions			Colour / Symbol	Letter Symbol	Typical Description
Coarse Grained Soils, More than 50% of material is larger than No. 200 sieve size.	Gravel and Gravelly Soils, More than 50% of coarse fractions retained on No. 4 sieve	Clean Gravels (little or no fines)		GW	Well- graded gravels, gravel sand mixtures, little or no fines
				GP	Poorly grade gravels, gravel-sand mixtures, little or no fines
		Gravels With Fines (Appreciable amount of fines)		GM	Silty gravels, gravel-sand-silt mixtures
				GC	Clayey gravels, gravel-sand clay mixtures
	Sand and Sandy Soils, more than 50% of coarse fraction passing No. 4 sieve	Clean Sand (Little or no fines)		SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
		Sands with Fines (Appreciable amount of fines)		SM	Silty-sands, sand-silt mixtures.
				SC	Clayey sands, sand-clay mixtures
Fine Grained Soils, more than 50% of material is smaller than No. 200 sieve size	Silts and Clays,	Liquid limit less than 50		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
				OL	Organic silts and organic silty clays of low plasticity
	Silts and Clays,	Liquid limit greater than 50		MH	Inorganic silts, micaceous or diatomaceous fine sand or silty soils
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic clays of medium to high plasticity, organic silts
Highly Organic Soils				PT	Peat, humus, swamp soils with high organic contents

Appendix C: Borehole Logs, Golder

PROJECT: 1777460

LOCATION: N 4837253.98; E 617241.48

RECORD OF BOREHOLE: 11-1

BORING DATE: October 31, 2011

SHEET 1 OF 2

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ (ND = Not Detected; 20 40 60 80) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ (ND = Not Detected; 20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		162.36							
0	CME-55 108 mm I.D. Hollow Stem Auger	Loose, moist, brown, TOPSOIL, some organics and rootlets -No odour -No staining		0.00 0.15	1	50 DO	4	ND		Metals DUP	Concrete
		Loose, moist, brown, sandy SILT, trace rootlets (FILL) -No odour -No staining		161.75 0.61							Sand
1		Brown, SAND and SILT, trace gravel (Native) -No odour -No staining			2	50 DO	11				
					3	50 DO	25				
2					4	50 DO	57	ND			
3					5	50 DO	52	ND ND			
4					6	50 DO	57	ND			
5					7	50 DO	50	ND			
					8	50 DO	64	ND			Hole plug
6					9	50 DO	56	ND			
7					10	50 DO	58	ND			
					11	50 DO	50	ND ND			
8					12	50 DO	81	ND			
9					13	50 DO	69	ND			
10					14		75				

CONTINUED NEXT PAGE

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: TS

CHECKED: AS

PROJECT: 1777460

LOCATION: N 4837253.98; E 617241.48

RECORD OF BOREHOLE: 11-1

BORING DATE: October 31, 2011

SHEET 2 OF 2

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ (ND = Not Detected; 20 40 60 80) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ (ND = Not Detected; 20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		--- CONTINUED FROM PREVIOUS PAGE ---									
10	CME-55 108 mm I.D. Hollow Stem Auger	Brown, SAND and SILT, trace gravel (Native) -No odour -No staining			14	50 DO	75	ND			Hole plug
11					15	50 DO	67	ND			
12					16	50 DO	84	ND			
					17	50 DO	63	ND			
				149.41							
13		Brown to grey, Silty CLAY, trace gravel -No odour -No staining		12.95	18	50 DO	74	ND ND		pH VOCs PHCs DUP	Screen May 23/17
14					19	50 DO	50	ND			
15				147.12	20	50 DO	50	ND			
		Auger Refusal END OF BOREHOLE		15.24							
16											
17											
18											
19											
20											

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: TS

CHECKED: AS

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PROJECT: 1777460

LOCATION: N 4837254.90; E 617204.18

RECORD OF BOREHOLE: 17-1

BORING DATE: May 1, 2017

SHEET 1 OF 3

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ (ND = Not Detected; 20 40 60 80) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ (ND = Not Detected; 20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		162.02						
0	POWER AUGER 250 mm O.D. (Hollow Stem), 127 mm Casing, 108 mm Tricone	TOPSOIL, trace rootlets; brown; moist		0.00						
		FILL - (SM-ML) sandy SILT to CLAYEY SILT, trace rootlets and crushed asphalt; light brown; moist -No odour -No staining		0.10 161.41	1	SS	7	ND		Concrete
1		(SM-ML) sandy SILT to CLAYEY SILT, trace gravel and rootlets; light brown; moist -No odour -No staining		0.61 160.50	2	SS	6	ND		pH
2		(SM) sandy SILT to SILTY SAND, trace gravel and cobbles; moist -No odour -No staining		1.52	3	SS	33	ND		
					4	SS	49	ND		
3					5	SS	45	ND		
4					6	SS	33	ND		pH
					7	SS	33	ND		
5										Bentonite and Grout
					8	SS	33	ND		
6					9	SS	22	ND		
7					10	SS	22	ND		
					11	SS	93/0.20	ND		
8					12	SS	81/0.20	ND		
9					13	SS	50/0.05	ND		
10					14	SS	63			

CONTINUED NEXT PAGE

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AS

CHECKED: MSB

PROJECT: 1777460

LOCATION: N 4837254.90; E 617204.18

RECORD OF BOREHOLE: 17-1

BORING DATE: May 1, 2017

SHEET 2 OF 3

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ (ND = Not Detected) 20 40 60 80 / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ (ND = Not Detected) 20 40 60 80	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3} / WATER CONTENT PERCENT Wp W Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		--- CONTINUED FROM PREVIOUS PAGE ---								
10	POWER AUGER 250 mm O.D. (Hollow Stem), 127 mm Casing, 108 mm Tricone	(SM) sandy SILT to SILTY SAND, trace gravel and cobbles; moist -No odour -No staining			14	SS	63	ND		
11										
12					15	SS	98/0.25	ND		
13				148.30						
14		(ML-CL) CLAYEY SILT to SILTY CLAY, trace to some sand, trace gravel; grey; moist -No odour -No staining		13.72	16	SS	74/0.30	ND		
15					17	SS	85/0.25	ND		Bentonite and Grout
16										
17					18	SS	42	ND		
18										▽ May 23/17
				143.42	19	SS	73/0.28	ND		
19		(SM) sandy SILT to SILTY SAND, trace gravel; brown; moist to wet -No odour -No staining		18.60	20	SS	84/0.28	ND		
20		*CONTINUED NEXT PAGE*			21	SS	77			

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AS

CHECKED: MSB

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PROJECT: 1777460

LOCATION: N 4837254.90; E 617204.18

RECORD OF BOREHOLE: 17-1

BORING DATE: May 1, 2017

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ (ND = Not Detected; 20 40 60 80) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ (ND = Not Detected; 20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
20		*--- CONTINUED FROM PREVIOUS PAGE ---*								
		(SM) sandy SILT to SILTY SAND, trace gravel; brown; moist to wet -No odour -No staining			21	SS	77	ND		Bentonite and Grout
21					22	SS	97/0.30	ND		Silica Sand
22										
23		- Grey at 22.9 m below ground surface			23	SS	137/0.30	ND	VOC GS	Screen
24				137.62						
		BEDROCK			24	SS	60/0.07	ND		
		END OF BOREHOLE		24.47						
25										
26										
27										
28										
29										
30										

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AS

CHECKED: MSB

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PROJECT: 1777460

LOCATION: N 4837255.61; E 617241.67

RECORD OF BOREHOLE: 17-2

BORING DATE: May 4, 2017

SHEET 1 OF 3

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ (ND = Not Detected; 20 40 60 80) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ (ND = Not Detected; 20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		162.34						
0	POWER AUGER 200 mm Diam. (Hollow Stem)	TOPSOIL, trace rootlets; moist		0.00						
		(SM) sandy SILT, trace clay, gravel and crushed brick; brown; moist -No odour -No staining		0.10 161.58	1	SS	3	ND		Concrete
1		(ML-CL) CLAYEY SILT to SILTY CLAY, some sand, trace gravel; brown; moist -No odour -No staining		0.76 160.82	2	SS	8	ND		
		(SM) SILTY SAND to sandy SILT, trace gravel and cobbles; brown; moist -No odour -No staining		1.52	3	SS	28	ND		
2					4	SS	63	ND		
3					5	SS	54	ND		
4										
5										Bentonite and Grout
6					6	SS	49	ND		
7										
8										
9					7	SS	76	ND		
10		*CONTINUED NEXT PAGE*								

DEPTH SCALE

1 : 50

LOGGED: AS

CHECKED: MSB

Golder Associates

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PROJECT: 1777460

LOCATION: N 4837255.61; E 617241.67

RECORD OF BOREHOLE: 17-2

BORING DATE: May 4, 2017

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ (ND = Not Detected; 20 40 60 80) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ (ND = Not Detected; 20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		--- CONTINUED FROM PREVIOUS PAGE ---									
10	POWER AUGER 200 mm Diam. (Hollow Stem)	(SM) SILTY SAND to sandy SILT, trace gravel and cobbles; brown; moist -No odour -No staining									
11											
12					8	SS	75/0.25	ND			
13											
14											Bentonite and Grout
15				147.09							
		(ML) CLAYEY SILT, trace to some sand, trace gravel; grey; moist -No odour -No staining		15.25	9	SS	78/0.25	ND			
16											
17											
18				144.04							
		(SM) sandy SILT, trace gravel; brown; moist to wet -No odour -No staining		18.30	10	SS	92/0.25	ND			Silica Sand May 23/17
19											Screen
20		*CONTINUED NEXT PAGE*									

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AS

CHECKED: MSB

PROJECT: 1777460

LOCATION: N 4837255.61; E 617241.67

RECORD OF BOREHOLE: 17-2

BORING DATE: May 4, 2017

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ (ND = Not Detected; 20 40 60 80) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ (ND = Not Detected; 20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		--- CONTINUED FROM PREVIOUS PAGE ---									
20	POWER AUGER 200 mm Diam. (Hollow Stem)	(SM) sandy SILT, trace gravel; brown; moist to wet -No odour -No staining		140.38							Screen
21					11	SS	90/0.28	ND		PHC VOC METALS	
22		END OF BOREHOLE		21.96							
23											
24											
25											
26											
27											
28											
29											
30											

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AS

CHECKED: MSB

PROJECT: 1777460

LOCATION: N 4837208.81; E 617197.89

RECORD OF BOREHOLE: 17-3

BORING DATE: May 4, 2017

SHEET 1 OF 3

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ (ND = Not Detected; 20 40 60 80) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ (ND = Not Detected; 20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		162.25						
0	POWER AUGER 200 mm Diam. (Hollow Stem)	TOPSOIL, trace rootlets; moist		0.00						Concrete
		FILL - (SM) sandy SILT, trace gravel, rootlets and crushed asphalt; dark brown; moist -No odour -No staining		0.10 161.94 0.31 161.49	1	SS	4	ND ND	METALS	
1		(SM) sandy SILT, trace gravel; brown; moist -No odour -No staining		0.76	2	SS	31	ND		
		(SM) SILTY SAND to sandy SILT, trace gravel and cobbles; brown; moist -No odour -No staining			3	SS	31	ND		
2					4	SS	96/0.25	ND		
3					5	SS	90/0.23	ND		
4										
5										Bentonite and Grout
6					6	SS	90/0.20	ND		
7										
8										
9					7	SS	50/0.13	ND		
10		*CONTINUED NEXT PAGE*								

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AS

CHECKED: MSB

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PROJECT: 1777460

LOCATION: N 4837208.81; E 617197.89

RECORD OF BOREHOLE: 17-3

BORING DATE: May 4, 2017

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ (ND = Not Detected; 20 40 60 80) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ (ND = Not Detected; 20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		--- CONTINUED FROM PREVIOUS PAGE ---								
10	POWER AUGER 200 mm Diam. (Hollow Stem)	(SM) SILTY SAND to sandy SILT, trace gravel and cobbles; brown; moist -No odour -No staining								
11										
12					8	SS	71/0.30	ND	GS	
13										
14										Bentonite and Grout
15					9	SS	94/0.20	ND		
16										
17										
18				143.95						
		(ML) CLAYEY SILT, some sand, trace gravel; grey; moist		18.30	10	SS	71/0.30	ND		Silica Sand May 23/17
19										Screen
				142.43						
20				19.82						
		CONTINUED NEXT PAGE								

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AS

CHECKED: MSB

PROJECT: 1777460

LOCATION: N 4837208.81; E 617197.89

RECORD OF BOREHOLE: 17-3

BORING DATE: May 4, 2017

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ (ND = Not Detected; 20 40 60 80) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ (ND = Not Detected; 20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
20		*--- CONTINUED FROM PREVIOUS PAGE ---*									
20	POWER AUGER 200 mm Diam. (Hollow Stem)	(SM) sandy SILT, trace gravel; brown; moist to wet									
21											Screen
					11	SS	73 ⊕	*ND*		PHC VOC	
22				140.29							
		END OF BOREHOLE		21.96							
23											
24											
25											
26											
27											
28											
29											
30											

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AS

CHECKED: MSB

Appendix D: Borehole Log, Pinchin

Log of Borehole: MW03D

Project #: 105267.002 **Logged By:** RM

Project: Limited Phase II Environmental Site Assessment

Client: Fiera Properties Ltd.

Location: 250 Wincott Drive, Toronto, Ontario

Drill Date: June 19, 2015 **Project Manager:** HS

SUBSURFACE PROFILE					SAMPLE				
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Sampler #	Recovery (%)	Sample ID	Soil Vapour Concentration PID	Laboratory Analysis
0 / 0		Ground Surface	0.00						
		Asphalt							
1		***Sand and Gravel*** Brown, damp.	0.46		1	30	S1	0.0	pH
2		***Silty Clay*** Brown, traces of sand, trace to some gravel, damp.	0.61						
3 / 1		Augered unsampled to 1.52 mbgs.	1.52						
5		***Silty Clay*** Brown, traces of sand, trace to some gravel, damp.	1.98		2	50	S2	0.1	
6 / 2		***Sand*** Brown, medium-textured, damp.	2.13						
7		Augered unsampled to 3.05 mbgs.	3.05						
10 / 3		***Sand*** Brown, medium-textured, damp.	3.66		3	60	S3	0.0	
11		Augered unsampled to 4.57 mbgs.	4.57						
12 / 4									
15		***Sand*** Brown, coarse-textured, damp.	4.88		4	80	S4	0.1	
16									

Contractor: Strata Drilling Group

Drilling Method: Direct Push and Auger

Well Casing Size: 51 mm

Pinchin LeBlanc Environmental Ltd.
42 Dorey Avenue
Dartmouth, NS B3B 0B1

Grade Elevation: NM

Top of Casing Elevation: NM

Sheet: 1 of 4

Appendix E: Maxxam Certificate of Analysis, Chain of Custody

Maxxam
A Bureau Veritas Group Company

Your Project #: 15*4245
Your C.O.C. #: 650805-01-01

Attention: Craig Colbourne

Bruce A. Brown Associates Limited
101-102 Aerodrome Cr
Toronto, ON
CANADA M4G 4J4

Report Date: 2018/02/28
Report #: R5023759
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B836607
Received: 2018/02/16, 13:41

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Sewer Use By-Law Semivolatile Organics	1	2018/02/20	2018/02/22	EPA 8270 CAM SOP 00301	EPA 8270 m
Biochemical Oxygen Demand (BOD)	1	2018/02/17	2018/02/22	CAM SOP-00427	SM 23 5210B m
Chromium (VI) in Water	1	N/A	2018/02/20	CAM SOP-00436	EPA 7199 m
Total Cyanide	1	2018/02/21	2018/02/21	CAM SOP-00457	OMOE E3015 5 m
Fluoride	1	2018/02/21	2018/02/22	CAM SOP-00449	SM 23 4500-F C m
Mercury in Water by CVAA	1	2018/02/22	2018/02/23	CAM SOP-00453	EPA 7470A m
Total Metals Analysis by ICPMS	1	N/A	2018/02/27	CAM SOP-00447	EPA 6020B m
E.coli, (CFU/100mL)	1	N/A	2018/02/16	CAM SOP-00552	MOE LSB E3371
Total Nonylphenol in Liquids by HPLC	1	2018/02/24	2018/02/25	CAM SOP-00313	In-house Method
Nonylphenol Ethoxylates in Liquids: HPLC	1	2018/02/24	2018/02/25	CAM SOP-00313	In-house Method
Animal and Vegetable Oil and Grease	1	N/A	2018/02/26	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2018/02/26	2018/02/26	CAM SOP-00326	EPA1664B m,SM5520A m
Polychlorinated Biphenyl in Water	1	2018/02/20	2018/02/20	CAM SOP-00309	EPA 8082A m
pH	1	N/A	2018/02/22	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2018/02/21	CAM SOP-00444	OMOE E3179 m
Total Kjeldahl Nitrogen in Water	1	2018/02/20	2018/02/20	CAM SOP-00938	OMOE E3516 m
Total PAHs (1)	1	N/A	2018/02/22	CAM SOP - 00301	EPA 8270 m
Mineral/Synthetic O & G (TPH Heavy Oil) (2)	1	2018/02/26	2018/02/26	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	1	2018/02/21	2018/02/23	CAM SOP-00428	SM 23 2540D m
Volatile Organic Compounds in Water	1	N/A	2018/02/21	CAM SOP-00226	EPA 8260C m

Remarks:

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

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

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed

Maxxam
A Bureau Veritas Group Company

Your Project #: 15*4245
Your C.O.C. #: 650805-01-01

Attention: Craig Colbourne

Bruce A. Brown Associates Limited
101-102 Aerodrome Cr
Toronto, ON
CANADA M4G 4J4

Report Date: 2018/02/28
Report #: R5023759
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B836607
Received: 2018/02/16, 13:41

or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

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

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Total PAHs include only those PAHs specified in the sewer use by-by-law.
(2) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ronklin Gracian, Project Manager
Email: RGracian@maxxam.ca
Phone# (905) 817-5700
==========
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B836607
Report Date: 2018/02/28

Bruce A. Brown Associates Limited
Client Project #: 15*4245

RESULTS OF ANALYSES OF WATER

Maxxam ID				GCK581		
Sampling Date				2018/02/16		
COC Number				650805-01-01		
	UNITS	San	Stm	GW-4245-180216 S&S-001	RDL	QC Batch
Calculated Parameters						
Total Animal/Vegetable Oil and Grease	mg/L	150	-	ND	0.50	5403246
Inorganics						
Total BOD	mg/L	300	15	ND	2	5404978
Fluoride (F-)	mg/L	10	-	0.13	0.10	5409064
Total Kjeldahl Nitrogen (TKN)	mg/L	100	-	0.28	0.10	5406863
pH	pH	6.0:11.5	6.0:9.5	7.72		5409081
Phenols-4AAP	mg/L	1.0	0.008	ND	0.0010	5406236
Total Suspended Solids	mg/L	350	15	**810**	20	5409187
Total Cyanide (CN)	mg/L	2	0.02	ND	0.0050	5408001
Petroleum Hydrocarbons						
Total Oil & Grease	mg/L	-	-	ND	0.50	5414811
Total Oil & Grease Mineral/Synthetic	mg/L	15	-	ND	0.50	5414813

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

San,Stm: Toronto Sanitary and Storm Sewer Use By Law Guidelines, respectively. Referenced to Chapter 681

ND = Not detected

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B836607
Report Date: 2018/02/28

Bruce A. Brown Associates Limited
Client Project #: 15*4245

NONYL PHENOL AND NONYL PHENOL ETHOXYLATE (WATER)

Maxxam ID				GCK581		
Sampling Date				2018/02/16		
COC Number				650805-01-01		
	UNITS	**San**	**Stm**	**GW-4245-180216 S&S-001**	**RDL**	**QC Batch**
Miscellaneous Parameters						
Nonylphenol Ethoxylate (Total)	mg/L	0.2	0.01	ND	0.005	5414057
Nonylphenol (Total)	mg/L	0.02	0.001	0.001	0.001	5414056

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

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Maxxam Job #: B836607
Report Date: 2018/02/28

Bruce A. Brown Associates Limited
Client Project #: 15*4245

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID				GCK581		
Sampling Date				2018/02/16		
COC Number				650805-01-01		
	UNITS	San	Stm	GW-4245-180216 S&S-001	RDL	QC Batch
Metals						
Chromium (VI)	ug/L	2000	40	ND	0.50	5406941
Mercury (Hg)	mg/L	0.01	0.0004	ND	0.0001	5410479
Total Aluminum (Al)	ug/L	50000	-	11000	5.0	5414944
Total Antimony (Sb)	ug/L	5000	-	ND	0.50	5414944
Total Arsenic (As)	ug/L	1000	20	3.5	1.0	5414944
Total Cadmium (Cd)	ug/L	700	8	0.11	0.10	5414944
Total Chromium (Cr)	ug/L	4000	80	41	5.0	5414944
Total Cobalt (Co)	ug/L	5000	-	10	0.50	5414944
Total Copper (Cu)	ug/L	2000	40	**42**	1.0	5414944
Total Lead (Pb)	ug/L	1000	120	11	0.50	5414944
Total Manganese (Mn)	ug/L	5000	50	**730**	2.0	5414944
Total Molybdenum (Mo)	ug/L	5000	-	4.8	0.50	5414944
Total Nickel (Ni)	ug/L	2000	80	20	1.0	5414944
Total Phosphorus (P)	ug/L	10000	400	**780**	100	5414944
Total Selenium (Se)	ug/L	1000	20	ND	2.0	5414944
Total Silver (Ag)	ug/L	5000	120	ND	0.10	5414944
Total Tin (Sn)	ug/L	5000	-	1.4	1.0	5414944
Total Titanium (Ti)	ug/L	5000	-	570	25	5414944
Total Zinc (Zn)	ug/L	2000	40	**65**	5.0	5414944

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID				GCK581		
Sampling Date				2018/02/16		
COC Number				650805-01-01		
	UNITS	San	Stm	GW-4245-180216 S&S-001	RDL	QC Batch
Semivolatile Organics						
Di-N-butyl phthalate	ug/L	80	15	ND	2	5406331
Bis(2-ethylhexyl)phthalate	ug/L	12	8.8	5	2	5406331
3,3'-Dichlorobenzidine	ug/L	2	0.8	ND	0.8	5406331
Pentachlorophenol	ug/L	5	2	ND	1	5406331
Phenanthrene	ug/L	-	-	ND	0.2	5406331
Anthracene	ug/L	-	-	ND	0.2	5406331
Fluoranthene	ug/L	-	-	ND	0.2	5406331
Pyrene	ug/L	-	-	ND	0.2	5406331
Benzo(a)anthracene	ug/L	-	-	ND	0.2	5406331
Chrysene	ug/L	-	-	ND	0.2	5406331
Benzo(b/j)fluoranthene	ug/L	-	-	ND	0.2	5406331
Benzo(k)fluoranthene	ug/L	-	-	ND	0.2	5406331
Benzo(a)pyrene	ug/L	-	-	ND	0.2	5406331
Indeno(1,2,3-cd)pyrene	ug/L	-	-	ND	0.2	5406331
Dibenz(a,h)anthracene	ug/L	-	-	ND	0.2	5406331
Benzo(g,h,i)perylene	ug/L	-	-	ND	0.2	5406331
Dibenzo(a,i)pyrene	ug/L	-	-	ND	0.2	5406331
Benzo(e)pyrene	ug/L	-	-	ND	0.2	5406331
Perylene	ug/L	-	-	ND	0.2	5406331
Dibenzo(a,j) acridine	ug/L	-	-	ND	0.4	5406331
7H-Dibenzo(c,g) Carbazole	ug/L	-	-	ND	0.4	5406331
1,6-Dinitropyrene	ug/L	-	-	ND	0.4	5406331
1,3-Dinitropyrene	ug/L	-	-	ND	0.4	5406331
1,8-Dinitropyrene	ug/L	-	-	ND	0.4	5406331
Calculated Parameters						
Total PAHs (18 PAHs)	ug/L	5	2	ND	1	5404062
Surrogate Recovery (%)						
2,4,6-Tribromophenol	%	-	-	90		5406331
2-Fluorobiphenyl	%	-	-	73		5406331
D14-Terphenyl (FS)	%	-	-	92		5406331
D5-Nitrobenzene	%	-	-	94		5406331

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

San,Stm: Toronto Sanitary and Storm Sewer Use By Law Guidelines, respectively. Referenced to Chapter 681

ND = Not detected

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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID				GCK581		
Sampling Date				2018/02/16		
COC Number				650805-01-01		
	UNITS	**San**	**Stm**	**GW-4245-180216 S&S-001**	**RDL**	**QC Batch**
D8-Acenaphthylene	%	-	-	84		5406331

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID				GCK581		
Sampling Date				2018/02/16		
COC Number				650805-01-01		
	UNITS	San	Stm	GW-4245-180216 S&S-001	RDL	QC Batch
Volatile Organics						
Benzene	ug/L	10	2	ND	0.10	5403886
Chloroform	ug/L	40	2	ND	0.10	5403886
1,2-Dichlorobenzene	ug/L	50	5.6	ND	0.20	5403886
1,4-Dichlorobenzene	ug/L	80	6.8	ND	0.20	5403886
cis-1,2-Dichloroethylene	ug/L	4000	5.6	ND	0.10	5403886
trans-1,3-Dichloropropene	ug/L	140	5.6	ND	0.20	5403886
Ethylbenzene	ug/L	160	2	ND	0.10	5403886
Methylene Chloride(Dichloromethane)	ug/L	2000	5.2	ND	0.50	5403886
1,1,2,2-Tetrachloroethane	ug/L	1400	17	ND	0.20	5403886
Tetrachloroethylene	ug/L	1000	4.4	ND	0.10	5403886
Toluene	ug/L	16	2	ND	0.20	5403886
Trichloroethylene	ug/L	400	7.6	ND	0.10	5403886
p+m-Xylene	ug/L	1400	4.4	ND	0.10	5403886
o-Xylene	ug/L	1400	4.4	ND	0.10	5403886
Total Xylenes	ug/L	1400	4.4	ND	0.10	5403886
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	-	-	98		5403886
D4-1,2-Dichloroethane	%	-	-	102		5403886
D8-Toluene	%	-	-	99		5403886

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

San,Stm: Toronto Sanitary and Storm Sewer Use By Law Guidelines, respectively. Referenced to Chapter 681

ND = Not detected

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Maxxam Job #: B836607
Report Date: 2018/02/28

Bruce A. Brown Associates Limited
Client Project #: 15*4245

POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

Maxxam ID				GCK581		
Sampling Date				2018/02/16		
COC Number				650805-01-01		
	UNITS	**San**	**Stm**	**GW-4245-180216 S&S-001**	**RDL**	**QC Batch**
PCBs						
Total PCB	ug/L	1	0.4	ND	0.05	5406649
Surrogate Recovery (%)						
Decachlorobiphenyl	%	-	-	73		5406649

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

San,Stm: Toronto Sanitary and Storm Sewer Use By Law Guidelines, respectively. Referenced to Chapter 681

ND = Not detected

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Maxxam Job #: B836607
Report Date: 2018/02/28

Bruce A. Brown Associates Limited
Client Project #: 15*4245

MICROBIOLOGY (WATER)

Maxxam ID			GCK581		
Sampling Date			2018/02/16		
COC Number			650805-01-01		
	UNITS	Stm	GW-4245-180216 S&S-001	RDL	QC Batch
Microbiological					
Escherichia coli	CFU/100mL	200	<10	10	5404203

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Stm: Toronto Sanitary and Storm Sewer Use By Law Guidelines, respectively. Referenced to Chapter 681

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GENERAL COMMENTS

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

Package 1	2.3°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5403886	JPN	Matrix Spike	4-Bromofluorobenzene	2018/02/21		99	%	70 - 130
			D4-1,2-Dichloroethane	2018/02/21		98	%	70 - 130
			D8-Toluene	2018/02/21		100	%	70 - 130
			Benzene	2018/02/21		101	%	70 - 130
			Chloroform	2018/02/21		101	%	70 - 130
			1,2-Dichlorobenzene	2018/02/21		99	%	70 - 130
			1,4-Dichlorobenzene	2018/02/21		100	%	70 - 130
			cis-1,2-Dichloroethylene	2018/02/21		161 (1)	%	70 - 130
			trans-1,3-Dichloropropene	2018/02/21		53 (2)	%	70 - 130
			Ethylbenzene	2018/02/21		43 (2)	%	70 - 130
			Methylene Chloride(Dichloromethane)	2018/02/21		101	%	70 - 130
			1,1,2,2-Tetrachloroethane	2018/02/21		98	%	70 - 130
			Tetrachloroethylene	2018/02/21		101	%	70 - 130
			Toluene	2018/02/21		49 (2)	%	70 - 130
			Trichloroethylene	2018/02/21		101	%	70 - 130
			p+m-Xylene	2018/02/21		0.19 (2)	%	70 - 130
			o-Xylene	2018/02/21		0.30 (2)	%	70 - 130
5403886	JPN	Spiked Blank	4-Bromofluorobenzene	2018/02/21		100	%	70 - 130
			D4-1,2-Dichloroethane	2018/02/21		100	%	70 - 130
			D8-Toluene	2018/02/21		99	%	70 - 130
			Benzene	2018/02/21		99	%	70 - 130
			Chloroform	2018/02/21		99	%	70 - 130
			1,2-Dichlorobenzene	2018/02/21		98	%	70 - 130
			1,4-Dichlorobenzene	2018/02/21		100	%	70 - 130
			cis-1,2-Dichloroethylene	2018/02/21		101	%	70 - 130
			trans-1,3-Dichloropropene	2018/02/21		102	%	70 - 130
			Ethylbenzene	2018/02/21		101	%	70 - 130
			Methylene Chloride(Dichloromethane)	2018/02/21		99	%	70 - 130
			1,1,2,2-Tetrachloroethane	2018/02/21		96	%	70 - 130
			Tetrachloroethylene	2018/02/21		98	%	70 - 130
			Toluene	2018/02/21		99	%	70 - 130
			Trichloroethylene	2018/02/21		102	%	70 - 130
			p+m-Xylene	2018/02/21		100	%	70 - 130
			o-Xylene	2018/02/21		102	%	70 - 130
5403886	JPN	Method Blank	4-Bromofluorobenzene	2018/02/21		97	%	70 - 130
			D4-1,2-Dichloroethane	2018/02/21		101	%	70 - 130
			D8-Toluene	2018/02/21		98	%	70 - 130
			Benzene	2018/02/21	ND, RDL=0.10		ug/L	
			Chloroform	2018/02/21	ND, RDL=0.10		ug/L	
			1,2-Dichlorobenzene	2018/02/21	ND, RDL=0.20		ug/L	
			1,4-Dichlorobenzene	2018/02/21	ND, RDL=0.20		ug/L	
			cis-1,2-Dichloroethylene	2018/02/21	ND, RDL=0.10		ug/L	
			trans-1,3-Dichloropropene	2018/02/21	ND, RDL=0.20		ug/L	
			Ethylbenzene	2018/02/21	ND, RDL=0.10		ug/L	
			Methylene Chloride(Dichloromethane)	2018/02/21	ND, RDL=0.50		ug/L	
			1,1,2,2-Tetrachloroethane	2018/02/21	ND, RDL=0.20		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Tetrachloroethylene	2018/02/21	ND, RDL=0.10		ug/L	
			Toluene	2018/02/21	ND, RDL=0.20		ug/L	
			Trichloroethylene	2018/02/21	ND, RDL=0.10		ug/L	
			p+m-Xylene	2018/02/21	ND, RDL=0.10		ug/L	
			o-Xylene	2018/02/21	ND, RDL=0.10		ug/L	
			Total Xylenes	2018/02/21	ND, RDL=0.10		ug/L	
5403886	JPN	RPD	Benzene	2018/02/21	NC		%	30
			Chloroform	2018/02/21	NC		%	30
			1,2-Dichlorobenzene	2018/02/21	NC		%	30
			1,4-Dichlorobenzene	2018/02/21	NC		%	30
			cis-1,2-Dichloroethylene	2018/02/21	NC		%	30
			trans-1,3-Dichloropropene	2018/02/21	NC		%	30
			Ethylbenzene	2018/02/21	NC		%	30
			Methylene Chloride(Dichloromethane)	2018/02/21	NC		%	30
			1,1,2,2-Tetrachloroethane	2018/02/21	NC		%	30
			Tetrachloroethylene	2018/02/21	NC		%	30
			Toluene	2018/02/21	NC		%	30
			Trichloroethylene	2018/02/21	NC		%	30
			p+m-Xylene	2018/02/21	NC		%	30
			o-Xylene	2018/02/21	NC		%	30
			Total Xylenes	2018/02/21	NC		%	30
5404978	HSH	QC Standard	Total BOD	2018/02/22		99	%	80 - 120
5404978	HSH	Method Blank	Total BOD	2018/02/22	ND,RDL=2		mg/L	
5404978	HSH	RPD	Total BOD	2018/02/22	13		%	30
5406236	BMO	Matrix Spike	Phenols-4AAP	2018/02/21		NC	%	80 - 120
5406236	BMO	Spiked Blank	Phenols-4AAP	2018/02/21		101	%	80 - 120
5406236	BMO	Method Blank	Phenols-4AAP	2018/02/21	ND, RDL=0.0010		mg/L	
5406236	BMO	RPD	Phenols-4AAP	2018/02/21	NC		%	20
5406331	MA	Matrix Spike	2,4,6-Tribromophenol	2018/02/21		88	%	10 - 130
			2-Fluorobiphenyl	2018/02/21		27 (3)	%	30 - 130
			D14-Terphenyl (FS)	2018/02/21		101	%	30 - 130
			D5-Nitrobenzene	2018/02/21		35	%	30 - 130
			D8-Acenaphthylene	2018/02/21		37	%	30 - 130
			Di-N-butyl phthalate	2018/02/21		NC (4)	%	30 - 130
			Bis(2-ethylhexyl)phthalate	2018/02/21		103	%	30 - 130
			3,3'-Dichlorobenzidine	2018/02/21		0.00 (5)	%	30 - 130
			Pentachlorophenol	2018/02/21		105	%	30 - 130
			Phenanthrene	2018/02/21		86	%	30 - 130
			Anthracene	2018/02/21		78	%	30 - 130
			Fluoranthene	2018/02/21		96	%	30 - 130
			Pyrene	2018/02/21		95	%	30 - 130
			Benzo(a)anthracene	2018/02/21		110	%	30 - 130
			Chrysene	2018/02/21		92	%	30 - 130
			Benzo(b/j)fluoranthene	2018/02/21		86	%	30 - 130
			Benzo(k)fluoranthene	2018/02/21		84	%	30 - 130
			Benzo(a)pyrene	2018/02/21		76	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2018/02/21		103	%	30 - 130
			Dibenz(a,h)anthracene	2018/02/21		101	%	30 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Benzo(g,h,i)perylene	2018/02/21		98	%	30 - 130
			Dibenzo(a,i)pyrene	2018/02/21		87	%	30 - 130
			Benzo(e)pyrene	2018/02/21		90	%	30 - 130
			Perylene	2018/02/21		96	%	30 - 130
			Dibenzo(a,j) acridine	2018/02/21		102	%	30 - 130
			7H-Dibenzo(c,g) Carbazole	2018/02/21		94	%	30 - 130
			1,6-Dinitropyrene	2018/02/21		112	%	30 - 130
			1,3-Dinitropyrene	2018/02/21		127	%	30 - 130
			1,8-Dinitropyrene	2018/02/21		108	%	30 - 130
5406331	MA	Spiked Blank	2,4,6-Tribromophenol	2018/02/21		62	%	10 - 130
			2-Fluorobiphenyl	2018/02/21		44	%	30 - 130
			D14-Terphenyl (FS)	2018/02/21		77	%	30 - 130
			D5-Nitrobenzene	2018/02/21		49	%	30 - 130
			D8-Acenaphthylene	2018/02/21		46	%	30 - 130
			Di-N-butyl phthalate	2018/02/21		84	%	30 - 130
			Bis(2-ethylhexyl)phthalate	2018/02/21		69	%	30 - 130
			3,3'-Dichlorobenzidine	2018/02/21		72	%	30 - 130
			Pentachlorophenol	2018/02/21		46	%	30 - 130
			Phenanthrene	2018/02/21		71	%	30 - 130
			Anthracene	2018/02/21		69	%	30 - 130
			Fluoranthene	2018/02/21		72	%	30 - 130
			Pyrene	2018/02/21		70	%	30 - 130
			Benzo(a)anthracene	2018/02/21		85	%	30 - 130
			Chrysene	2018/02/21		77	%	30 - 130
			Benzo(b/j)fluoranthene	2018/02/21		75	%	30 - 130
			Benzo(k)fluoranthene	2018/02/21		70	%	30 - 130
			Benzo(a)pyrene	2018/02/21		69	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2018/02/21		76	%	30 - 130
			Dibenz(a,h)anthracene	2018/02/21		78	%	30 - 130
			Benzo(g,h,i)perylene	2018/02/21		77	%	30 - 130
			Dibenzo(a,i)pyrene	2018/02/21		81	%	30 - 130
			Benzo(e)pyrene	2018/02/21		76	%	30 - 130
			Perylene	2018/02/21		79	%	30 - 130
			Dibenzo(a,j) acridine	2018/02/21		74	%	30 - 130
			7H-Dibenzo(c,g) Carbazole	2018/02/21		69	%	30 - 130
			1,6-Dinitropyrene	2018/02/21		86	%	30 - 130
			1,3-Dinitropyrene	2018/02/21		86	%	30 - 130
			1,8-Dinitropyrene	2018/02/21		91	%	30 - 130
5406331	MA	Method Blank	2,4,6-Tribromophenol	2018/02/21		53	%	10 - 130
			2-Fluorobiphenyl	2018/02/21		58	%	30 - 130
			D14-Terphenyl (FS)	2018/02/21		86	%	30 - 130
			D5-Nitrobenzene	2018/02/21		65	%	30 - 130
			D8-Acenaphthylene	2018/02/21		56	%	30 - 130
			Di-N-butyl phthalate	2018/02/21	ND,RDL=2		ug/L	
			Bis(2-ethylhexyl)phthalate	2018/02/21	ND,RDL=2		ug/L	
			3,3'-Dichlorobenzidine	2018/02/21	ND, RDL=0.8		ug/L	
			Pentachlorophenol	2018/02/21	ND,RDL=1		ug/L	
			Phenanthrene	2018/02/21	ND, RDL=0.2		ug/L	
			Anthracene	2018/02/21	ND, RDL=0.2		ug/L	
			Fluoranthene	2018/02/21	ND, RDL=0.2		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Pyrene	2018/02/21	ND, RDL=0.2		ug/L	
			Benzo(a)anthracene	2018/02/21	ND, RDL=0.2		ug/L	
			Chrysene	2018/02/21	ND, RDL=0.2		ug/L	
			Benzo(b/j)fluoranthene	2018/02/21	ND, RDL=0.2		ug/L	
			Benzo(k)fluoranthene	2018/02/21	ND, RDL=0.2		ug/L	
			Benzo(a)pyrene	2018/02/21	ND, RDL=0.2		ug/L	
			Indeno(1,2,3-cd)pyrene	2018/02/21	ND, RDL=0.2		ug/L	
			Dibenz(a,h)anthracene	2018/02/21	ND, RDL=0.2		ug/L	
			Benzo(g,h,i)perylene	2018/02/21	ND, RDL=0.2		ug/L	
			Dibenzo(a,i)pyrene	2018/02/21	ND, RDL=0.2		ug/L	
			Benzo(e)pyrene	2018/02/21	ND, RDL=0.2		ug/L	
			Perylene	2018/02/21	ND, RDL=0.2		ug/L	
			Dibenzo(a,j) acridine	2018/02/21	ND, RDL=0.4		ug/L	
			7H-Dibenzo(c,g) Carbazole	2018/02/21	ND, RDL=0.4		ug/L	
			1,6-Dinitropyrene	2018/02/21	ND, RDL=0.4		ug/L	
			1,3-Dinitropyrene	2018/02/21	ND, RDL=0.4		ug/L	
			1,8-Dinitropyrene	2018/02/21	ND, RDL=0.4		ug/L	
5406331	MA	RPD	Di-N-butyl phthalate	2018/02/21	NC		%	40
			Bis(2-ethylhexyl)phthalate	2018/02/21	NC		%	40
			3,3'-Dichlorobenzidine	2018/02/21	NC		%	40
			Pentachlorophenol	2018/02/21	NC		%	40
			Phenanthrene	2018/02/21	NC		%	40
			Anthracene	2018/02/21	NC		%	40
			Fluoranthene	2018/02/21	NC		%	40
			Pyrene	2018/02/21	NC		%	40
			Benzo(a)anthracene	2018/02/21	NC		%	40
			Chrysene	2018/02/21	NC		%	40
			Benzo(b/j)fluoranthene	2018/02/21	NC		%	40
			Benzo(k)fluoranthene	2018/02/21	NC		%	40
			Benzo(a)pyrene	2018/02/21	NC		%	40
			Indeno(1,2,3-cd)pyrene	2018/02/21	NC		%	40
			Dibenz(a,h)anthracene	2018/02/21	NC		%	40
			Benzo(g,h,i)perylene	2018/02/21	NC		%	40
			Dibenzo(a,i)pyrene	2018/02/21	NC		%	40
			Benzo(e)pyrene	2018/02/21	NC		%	40
			Perylene	2018/02/21	NC		%	40
			Dibenzo(a,j) acridine	2018/02/21	NC		%	40
			7H-Dibenzo(c,g) Carbazole	2018/02/21	NC		%	40

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1,6-Dinitropyrene	2018/02/21	NC		%	40
			1,3-Dinitropyrene	2018/02/21	NC		%	40
			1,8-Dinitropyrene	2018/02/21	NC		%	40
5406649	SHG	Matrix Spike	Decachlorobiphenyl	2018/02/20		119	%	60 - 130
			Total PCB	2018/02/20		107	%	60 - 130
5406649	SHG	Spiked Blank	Decachlorobiphenyl	2018/02/20		117	%	60 - 130
			Total PCB	2018/02/20		105	%	60 - 130
5406649	SHG	Method Blank	Decachlorobiphenyl	2018/02/20		123	%	60 - 130
			Total PCB	2018/02/20	ND, RDL=0.05		ug/L	
5406649	SHG	RPD	Total PCB	2018/02/20	NC		%	40
5406863	RTY	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2018/02/21		NC	%	80 - 120
5406863	RTY	QC Standard	Total Kjeldahl Nitrogen (TKN)	2018/02/20		101	%	80 - 120
5406863	RTY	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2018/02/20		100	%	80 - 120
5406863	RTY	Method Blank	Total Kjeldahl Nitrogen (TKN)	2018/02/20	ND, RDL=0.10		mg/L	
5406863	RTY	RPD	Total Kjeldahl Nitrogen (TKN)	2018/02/21	3.6		%	20
5406941	SAC	Matrix Spike	Chromium (VI)	2018/02/20		108	%	80 - 120
5406941	SAC	Spiked Blank	Chromium (VI)	2018/02/20		100	%	80 - 120
5406941	SAC	Method Blank	Chromium (VI)	2018/02/20	ND, RDL=0.50		ug/L	
5406941	SAC	RPD	Chromium (VI)	2018/02/20	4.4		%	20
5408001	XQI	Matrix Spike	Total Cyanide (CN)	2018/02/21		98	%	80 - 120
5408001	XQI	Spiked Blank	Total Cyanide (CN)	2018/02/21		97	%	80 - 120
5408001	XQI	Method Blank	Total Cyanide (CN)	2018/02/21	ND, RDL=0.0050		mg/L	
5408001	XQI	RPD	Total Cyanide (CN)	2018/02/21	NC		%	20
5409064	SAU	Matrix Spike	Fluoride (F-)	2018/02/22		108	%	80 - 120
5409064	SAU	Spiked Blank	Fluoride (F-)	2018/02/22		103	%	80 - 120
5409064	SAU	Method Blank	Fluoride (F-)	2018/02/22	ND, RDL=0.10		mg/L	
5409064	SAU	RPD	Fluoride (F-)	2018/02/22	NC		%	20
5409081	SAU	Spiked Blank	pH	2018/02/22		101	%	98 - 103
5409081	SAU	RPD	pH	2018/02/22	0.44		%	N/A
5409187	AS6	QC Standard	Total Suspended Solids	2018/02/23		98	%	85 - 115
5409187	AS6	Method Blank	Total Suspended Solids	2018/02/23	ND, RDL=10		mg/L	
5409187	AS6	RPD	Total Suspended Solids	2018/02/23	7.1		%	25
5410479	RON	Matrix Spike	Mercury (Hg)	2018/02/23		107	%	75 - 125
5410479	RON	Spiked Blank	Mercury (Hg)	2018/02/23		104	%	80 - 120
5410479	RON	Method Blank	Mercury (Hg)	2018/02/23	ND, RDL=0.0001		mg/L	
5410479	RON	RPD	Mercury (Hg)	2018/02/23	NC		%	20
5414056	TJC	Matrix Spike	Nonylphenol (Total)	2018/02/24		102	%	50 - 130
5414056	TJC	Spiked Blank	Nonylphenol (Total)	2018/02/24		98	%	50 - 130
5414056	TJC	Method Blank	Nonylphenol (Total)	2018/02/24	ND, RDL=0.001		mg/L	
5414056	TJC	RPD	Nonylphenol (Total)	2018/02/25	NC		%	40
5414057	TJC	Matrix Spike	Nonylphenol Ethoxylate (Total)	2018/02/24		92	%	50 - 130
5414057	TJC	Spiked Blank	Nonylphenol Ethoxylate (Total)	2018/02/24		93	%	50 - 130
5414057	TJC	Method Blank	Nonylphenol Ethoxylate (Total)	2018/02/24	ND, RDL=0.005		mg/L	
5414057	TJC	RPD	Nonylphenol Ethoxylate (Total)	2018/02/25	9.7		%	40
5414811	AMJ	Spiked Blank	Total Oil & Grease	2018/02/26		97	%	85 - 115
5414811	AMJ	RPD	Total Oil & Grease	2018/02/26	3.4		%	25

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5414811	AMJ	Method Blank	Total Oil & Grease	2018/02/26	ND, RDL=0.50		mg/L	
5414813	AMJ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2018/02/26		95	%	85 - 115
5414813	AMJ	RPD	Total Oil & Grease Mineral/Synthetic	2018/02/26	1.7		%	25
5414813	AMJ	Method Blank	Total Oil & Grease Mineral/Synthetic	2018/02/26	ND, RDL=0.50		mg/L	
5414944	TNG	Matrix Spike	Total Aluminum (Al)	2018/02/27		NC (6)	%	80 - 120
			Total Antimony (Sb)	2018/02/27		NC (6)	%	80 - 120
			Total Arsenic (As)	2018/02/27		NC (6)	%	80 - 120
			Total Cadmium (Cd)	2018/02/27		NC (6)	%	80 - 120
			Total Chromium (Cr)	2018/02/27		NC (6)	%	80 - 120
			Total Cobalt (Co)	2018/02/27		NC (6)	%	80 - 120
			Total Copper (Cu)	2018/02/27		NC (6)	%	80 - 120
			Total Lead (Pb)	2018/02/27		NC (6)	%	80 - 120
			Total Manganese (Mn)	2018/02/27		NC (6)	%	80 - 120
			Total Molybdenum (Mo)	2018/02/27		NC (6)	%	80 - 120
			Total Nickel (Ni)	2018/02/27		NC (6)	%	80 - 120
			Total Phosphorus (P)	2018/02/27		NC (6)	%	80 - 120
			Total Selenium (Se)	2018/02/27		NC (6)	%	80 - 120
			Total Silver (Ag)	2018/02/27		NC (6)	%	80 - 120
			Total Tin (Sn)	2018/02/27		NC (6)	%	80 - 120
			Total Titanium (Ti)	2018/02/27		NC (6)	%	80 - 120
			Total Zinc (Zn)	2018/02/27		NC (6)	%	80 - 120
5414944	TNG	Spiked Blank	Total Aluminum (Al)	2018/02/26		105	%	80 - 120
			Total Antimony (Sb)	2018/02/26		108	%	80 - 120
			Total Arsenic (As)	2018/02/26		102	%	80 - 120
			Total Cadmium (Cd)	2018/02/26		104	%	80 - 120
			Total Chromium (Cr)	2018/02/26		101	%	80 - 120
			Total Cobalt (Co)	2018/02/26		102	%	80 - 120
			Total Copper (Cu)	2018/02/26		103	%	80 - 120
			Total Lead (Pb)	2018/02/26		101	%	80 - 120
			Total Manganese (Mn)	2018/02/26		101	%	80 - 120
			Total Molybdenum (Mo)	2018/02/26		103	%	80 - 120
			Total Nickel (Ni)	2018/02/26		101	%	80 - 120
			Total Phosphorus (P)	2018/02/26		109	%	80 - 120
			Total Selenium (Se)	2018/02/26		106	%	80 - 120
			Total Silver (Ag)	2018/02/26		103	%	80 - 120
			Total Tin (Sn)	2018/02/26		101	%	80 - 120
			Total Titanium (Ti)	2018/02/26		101	%	80 - 120
			Total Zinc (Zn)	2018/02/26		105	%	80 - 120
5414944	TNG	Method Blank	Total Aluminum (Al)	2018/02/26	ND, RDL=5.0		ug/L	
			Total Antimony (Sb)	2018/02/26	ND, RDL=0.50		ug/L	
			Total Arsenic (As)	2018/02/26	ND, RDL=1.0		ug/L	
			Total Cadmium (Cd)	2018/02/26	ND, RDL=0.10		ug/L	
			Total Chromium (Cr)	2018/02/26	ND, RDL=5.0		ug/L	
			Total Cobalt (Co)	2018/02/26	ND, RDL=0.50		ug/L	
			Total Copper (Cu)	2018/02/26	ND, RDL=1.0		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Lead (Pb)	2018/02/26	ND, RDL=0.50		ug/L	
			Total Manganese (Mn)	2018/02/26	ND, RDL=2.0		ug/L	
			Total Molybdenum (Mo)	2018/02/26	ND, RDL=0.50		ug/L	
			Total Nickel (Ni)	2018/02/26	ND, RDL=1.0		ug/L	
			Total Phosphorus (P)	2018/02/26	ND, RDL=100		ug/L	
			Total Selenium (Se)	2018/02/26	ND, RDL=2.0		ug/L	
			Total Silver (Ag)	2018/02/26	ND, RDL=0.10		ug/L	
			Total Tin (Sn)	2018/02/26	ND, RDL=1.0		ug/L	
			Total Titanium (Ti)	2018/02/26	ND, RDL=5.0		ug/L	
			Total Zinc (Zn)	2018/02/26	ND, RDL=5.0		ug/L	
5414944	TNG	RPD	Total Manganese (Mn)	2018/02/27	1.5		%	20
			Total Zinc (Zn)	2018/02/27	6.9		%	20

N/A = Not Applicable

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

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

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

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

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

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

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

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

(1) VOC Analysis: The recovery was above the upper control limit. This may represent a high bias in some results for this specific analyte. For results that were not detected (ND), this potential bias has no impact.

(2) VOC Analysis: The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.

(3) Surrogate recovery was below the lower control limit due to matrix interference. This may represent a low bias in some results.

(4) The recovery in the matrix spike was not calculated (NC). Because of the high concentration of this analyte in the parent sample, the relative difference between the spiked and unspiked concentrations is not sufficiently significant to permit a reliable recovery calculation.

(5) The recovery was below the lower control limit. This may represent a low bias in some results for flagged analytes.

(6) Matrix Spike not calculated. Original sample and matrix spike sample were analyzed at a dilution, due to high target analytes, or sample matrix interference.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

VALIDATION SIGNATURE PAGE

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

Cristina Carriere, Scientific Service Specialist

Ranju Chaudhari

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

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Exceedence Summary Table – Toronto San/Stm Sewer

Result Exceedences

Sample ID	Maxxam ID	Parameter	Criteria	Result	DL	Units
GW-4245-180216 S&S-001	GCK581-06	Total Suspended Solids	350	810	20	mg/L

The exceedence summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

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MICRO

CHAIN OF CUSTODY RECORD

Page of

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#29111 Bruce A. Brown Associates Limited	Company Name:		Quotation #:	B44941	Maxxam Job #:	Bottle Order #:
Attention:	Cheryl Curtis	Attention:	Craig Colbourne	P.O. #:			650805
Address:	101-102 Aerodrome Cr Toronto ON M4G 4J4	Address:		Project:	15*4245	COC #:	Project Manager:
Tel:	(416) 424-3355 x Fax:	Tel:	(416) 424-3355 x Fax:	Project Name:		C#650805-01-01	Ronklin Gracian
Email:	cheryl@brownassociates.ca	Email:	craig@brownassociates.ca; bruce@brownassociates.ca	Site #:			
				Sampled By:	C Colbourne		

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

Regulation 153 (2011)	Other Regulations	Special Instructions
☐ Table 1 ☐ Res/Park ☐ Medium/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ For RSC ☐ Table ___	☐ CCME ☒ Sanitary Sewer Bylaw ☐ Reg 558 ☒ Storm Sewer Bylaw ☐ MISA Municipality Toronto ☐ PWQO ☐ Other	

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

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ____ Time Required: ____ ☐
Rush Confirmation Number: ____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	Toronto Sanitary & Storm Sewer Package	# of Bottles	Comments
1		~~GW-41245-150216~~							
2		GW-41245-150216-S+S-001	Feb 16/18	Am	GW		X	19	
3									
4									
5									
6									
7									
8									
9									
10									

16-Feb-18 13:41
Ronklin Gracian
B836607
FCN ENV-1363

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
C Colbourne	16/02/16	1341	Tanvir Ch Tanvir Ch	2018/02/16	13:41	

Laboratory Use Only				
Time Sensitive	Temperature (°C) on Recei 2/1/4	Custody Seal Present	Yes	No
		Intact	✓	

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

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

White: Maxxa Yellow: Client

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