

to:	2828727 Ontario Inc.. - Mr. Matthew Maxsom - mattm@ystreetcapital.com
re:	Environmental Remedial Action Plan Proposed Residential Development - 249 & 255 Richmond Road and 372 Tweedsmuir Avenue, Ottawa, Ontario
date:	March 4, 2022
file:	PE5365-RAP.01
from:	Nick Sullivan

Further to your request and authorization, Paterson Group (Paterson) has prepared a remedial action plan for the proposed residential development at the aforementioned property (the subject site). The subject site is located on the north side of Richmond Road, west of Tweedsmuir Avenue, in the City of Ottawa, Ontario.

The subject site is currently occupied with a restaurant building (249 Richmond Road), a multi-unit commercial retail building (255 Richmond Road), and a residential dwelling (372 Tweedsmuir Avenue), and is situated within a municipal urban setting consisting of mixed residential and commercial land uses.

Environmental Site Conditions

In July 2021, Paterson completed a Phase I - Environmental Site Assessment (Phase I ESA) for the subject site. Based on a review of available historical information, the subject site was first developed sometime prior to the 1930's for residential purposes. Later in the 1940's, an auto service garage with an associated underground fuel storage tank, was constructed on the western portion of the subject site at 255 Richmond Road. The historical presence of this former on-site auto service garage and former on-site underground fuel storage tank, are both considered to represent APECs with respect to the subject site

The neighbouring lands in the vicinity of the subject site have historically been developed for residential purposes, with the exception of several commercial properties developed along Richmond Road. A former auto service garage and retail fuel outlet was present at 236 Richmond Road, located approximately 25 m to the southeast of the subject site. Based on its close proximity, as well as its inferred up-gradient orientation with respect to anticipated groundwater flow, the historical use of this property was considered to represent an APEC with respect to the subject site.

Presently, the subject site is currently occupied with a restaurant building (249 Richmond Road), a multi-unit commercial retail building (255 Richmond Road), and a residential dwelling (372 Tweedsmuir Avenue). The likely presence of fill material of unknown quality, situated beneath the on-site asphaltic concrete parking lots, is considered to represent an APEC with respect to the subject site.

The surrounding lands within the vicinity of the subject site consist mainly of residential properties, with the exception of several commercial properties along Richmond Road. An active retail fuel outlet was identified at 256 Richmond Road, located approximately 20 m to the south of the subject site, across Richmond Road. Due to its close proximity, as well as its inferred up-gradient orientation with respect to anticipated groundwater flow, the current use of this property is considered to represent an APEC with respect to the subject site.

In August 2021, a Phase II ESA was conducted for the subject site to address the aforementioned APECs identified on the subject site. The subsurface investigation consisted of drilling three boreholes (BH1-21 to BH3-21) throughout the subject site, one of which was instrumented with a groundwater monitoring well. Several groundwater monitoring wells (MW17-1 to MW17-7), installed in 2017 as part of a previous subsurface investigation completed by EXP Services Inc., were also located and utilized as part of this current investigation.

Five soil samples were submitted for laboratory analysis of BTEX, PHCs (F1-F4), metals, EC, SAR, and pH parameters. Based on the analytical test results, all detected parameter concentrations are in compliance with the MECP Table 3 residential soil standards. Based on the analytical test results obtained from EXP's 2017 Phase II ESA, the concentration of PHCs F1 in the soil beneath the southern portion of the subject site (MW17-1) is in excess of the MECP Table 3 residential soil standards.

Groundwater samples were recovered from the monitoring wells installed in BH1-21, MW17-2, MW17-3, MW17-4, MW17-6, and MW17-7 and submitted for laboratory analysis of PHCs (F1-F4) and/or VOCs. Based on the analytical results, the concentrations of benzene and PHCs (F1 and/or F2) detected in the groundwater at MW17-1, MW17-3, MW17-4, as well as MW17-5 are in excess of the selected MECP Table 3 non-potable groundwater standards.

Based on the findings of the Phase II ESA, some BTEX and/or PHC contaminated soil and groundwater was identified within the southern portion of the subject site, requiring some remedial work. Given the location of contamination in the very southern portion of the site immediately adjacent to the Richmond Road right-of-way, the long term presence of the retail fuel outlet (RFO) across the street at 256 Richmond Road, as well as the findings from previous work done in the Richmond Road right-of-way, it is considered possible that the source of the on-site contamination is the RFO across the street. Further effort should be given to the determination of the source, since this could have an impact on the remediation of the subject site.

Please refer to the following section for further details on the recommended plan for site remediation.

Remedial Action Plan/Soil Quality Assessment

The suggested action plan consists of a generic approach, where the excavation and removal of site soils will be undertaken. The suggested action plan is as follows:

- ❑ It is our understanding that the majority of the on-site soils will be removed during site re-development, and that the excavation will extend into the bedrock (up to three levels of underground parking).
- ❑ Paterson personnel will be present on-site to monitor the excavation and removal of any impacted soils.
- ❑ Excavated soils will be screened using visual and olfactory observations as well as a portable soil vapour analyser. Field observations will be used in combination with the collection and analytical testing of interim confirmatory samples for BTEX and PHC parameters in the area of contamination.
- ❑ Any impacted soils identified will be placed in trucks and hauled to an approved waste disposal facility. A toxicity characteristic leaching procedure (TCLP) sample will be obtained and submitted for laboratory analysis prior to the transportation of any impacted soils to a licensed waste disposal site.
- ❑ The removal of impacted groundwater will be conducted by a licensed pumping contractor during site excavation (a feasible option for smaller volumes), while an on-site treatment system could be used for larger volumes over a longer period of time. Any on-site treatment system would require discharging to the City of Ottawa sewer system. Prior to any discharging to the municipal system, a Sanitary Sewer Agreement will be required by the City of Ottawa's Sewer Use Program.
- ❑ Upon completion of the remedial program, a summary report will be prepared including our observations, findings, and analytical test results. This remediation report will be incorporated into our Phase II ESA for submission to the city.
- ❑ Once the remediation has been completed, as well as any post-remediation monitoring and reporting, a Record of Site Condition will be filed with the MECP for acknowledgement.

Mr. Matthew Maxsom
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We trust that this information satisfies your requirements.

Best Regards,

Paterson Group Inc



Nick Sullivan, B.Sc.



Mark D'Arcy, P.Eng.

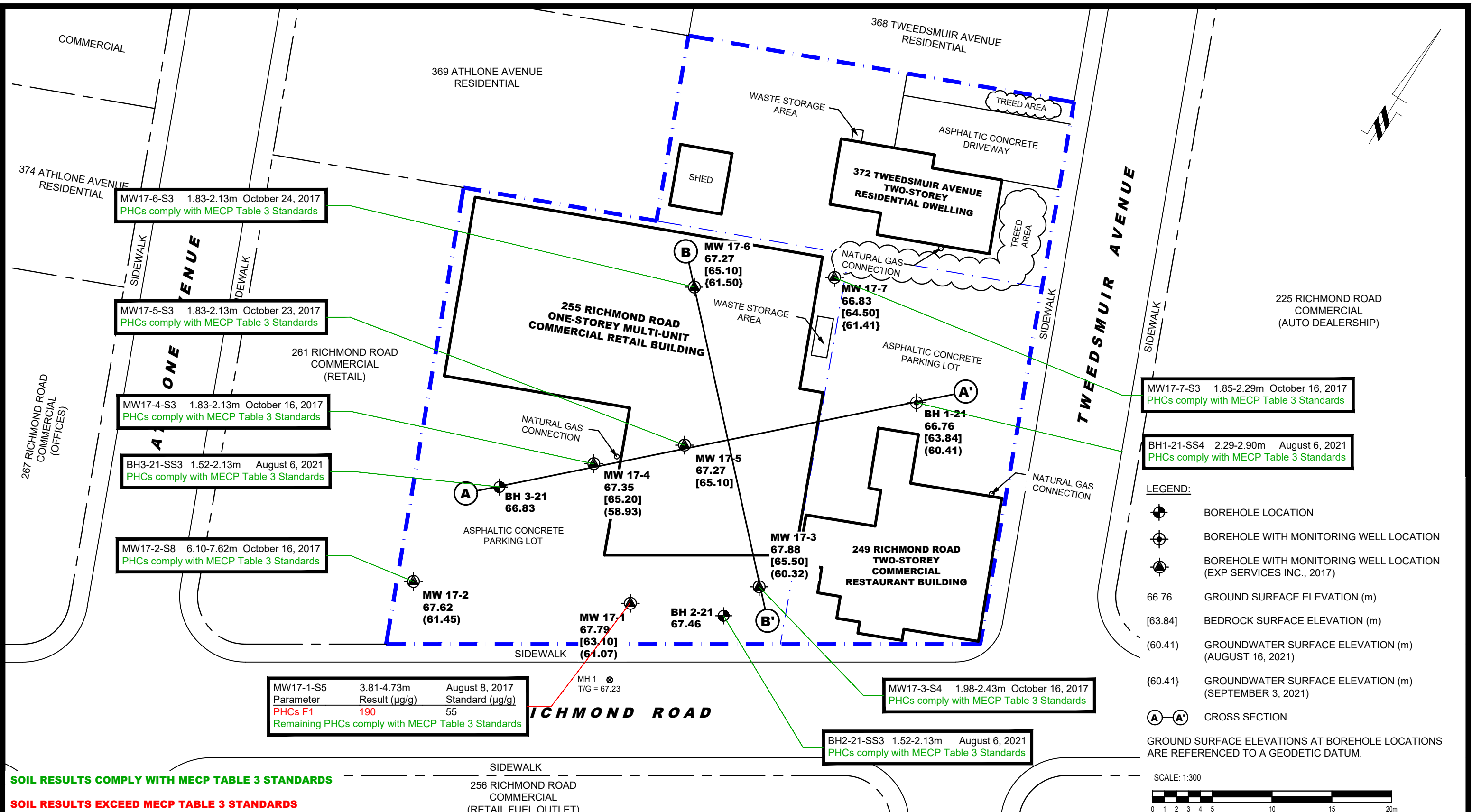
Attachments

- Drawing PE5365-4 - Analytical Testing Plan - Soil (PHCs)
- Drawing PE5365-6 - Analytical Testing Plan - Groundwater (PHCs)
- Drawing PE5365-7 - Analytical Testing Plan - Groundwater (VOCs)

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MW17-6-S3 1.83-2.13m October 24, 2017
PHCs comply with MECP Table 3 Standards

MW17-5-S3 1.83-2.13m October 23, 2017
PHCs comply with MECP Table 3 Standards

MW17-4-S3 1.83-2.13m October 16, 2017
PHCs comply with MECP Table 3 Standards

BH3-21-SS3 1.52-2.13m August 6, 2021
PHCs comply with MECP Table 3 Standards

MW17-2-S8 6.10-7.62m October 16, 2017
PHCs comply with MECP Table 3 Standards

MW17-1-S5 3.81-4.73m August 8, 2017
Parameter Result (µg/g) Standard (µg/g)
PHCs F1 190 55
Remaining PHCs comply with MECP Table 3 Standards

MW17-3-S4 1.98-2.43m October 16, 2017
PHCs comply with MECP Table 3 Standards

BH2-21-SS3 1.52-2.13m August 6, 2021
PHCs comply with MECP Table 3 Standards

SOIL RESULTS COMPLY WITH MECP TABLE 3 STANDARDS

SOIL RESULTS EXCEED MECP TABLE 3 STANDARDS

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NO.	REVISIONS	DATE	INITIAL

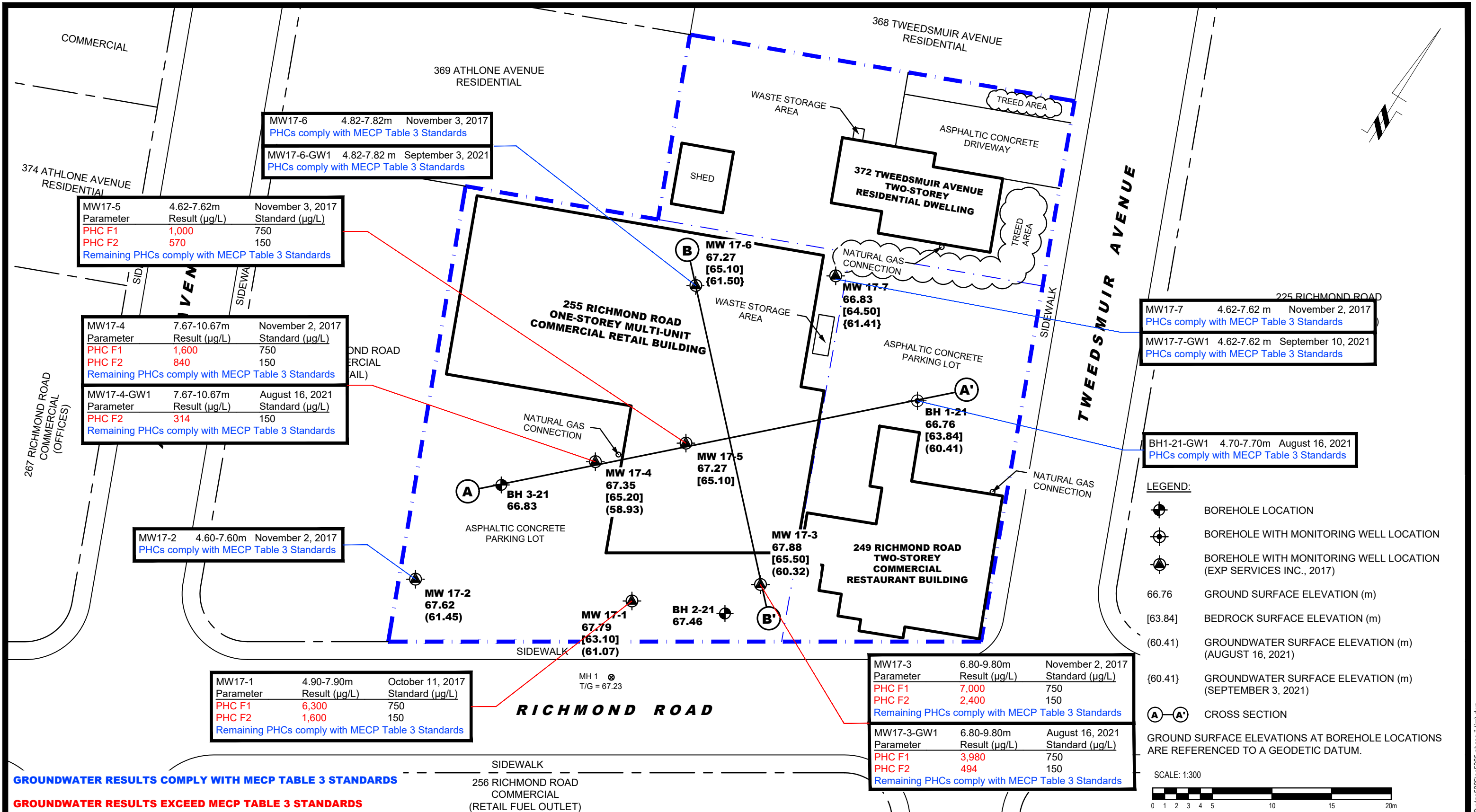
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PHASE II - ENVIRONMENTAL SITE ASSESSMENT
249 & 255 RICHMOND ROAD & 372 TWEEDSMUIR AVENUE

OTTAWA, ONTARIO

Title: **ANALYTICAL TESTING PLAN - SOIL (PHCs)**

Scale:	1:300	Date:	09/2021
Drawn by:	YA	Report No.:	PE5365-2
Checked by:	NS	Dwg. No.:	PE5365-4
Approved by:	MSD	Revision No.:	



MW17-6	4.82-7.82m	November 3, 2017
Parameter	Result (µg/L)	Standard (µg/L)
PHC F1	1,000	750
PHC F2	570	150
Remaining PHCs comply with MECP Table 3 Standards		

MW17-5	4.62-7.62m	November 3, 2017
Parameter	Result (µg/L)	Standard (µg/L)
PHC F1	1,000	750
PHC F2	570	150
Remaining PHCs comply with MECP Table 3 Standards		

MW17-4	7.67-10.67m	November 2, 2017
Parameter	Result (µg/L)	Standard (µg/L)
PHC F1	1,600	750
PHC F2	840	150
Remaining PHCs comply with MECP Table 3 Standards		

MW17-4-GW1	7.67-10.67m	August 16, 2021
Parameter	Result (µg/L)	Standard (µg/L)
PHC F2	314	150
Remaining PHCs comply with MECP Table 3 Standards		

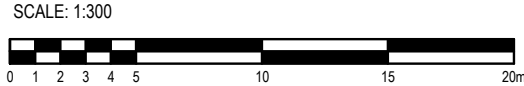
MW17-2	4.60-7.60m	November 2, 2017
PHCs comply with MECP Table 3 Standards		

MW17-1	4.90-7.90m	October 11, 2017
Parameter	Result (µg/L)	Standard (µg/L)
PHC F1	6,300	750
PHC F2	1,600	150
Remaining PHCs comply with MECP Table 3 Standards		

MW17-3	6.80-9.80m	November 2, 2017
Parameter	Result (µg/L)	Standard (µg/L)
PHC F1	7,000	750
PHC F2	2,400	150
Remaining PHCs comply with MECP Table 3 Standards		

MW17-3-GW1	6.80-9.80m	August 16, 2021
Parameter	Result (µg/L)	Standard (µg/L)
PHC F1	3,980	750
PHC F2	494	150
Remaining PHCs comply with MECP Table 3 Standards		

- LEGEND:**
- BOREHOLE LOCATION
 - BOREHOLE WITH MONITORING WELL LOCATION
 - BOREHOLE WITH MONITORING WELL LOCATION (EXP SERVICES INC., 2017)
 - 66.76 GROUND SURFACE ELEVATION (m)
 - [63.84] BEDROCK SURFACE ELEVATION (m)
 - (60.41) GROUNDWATER SURFACE ELEVATION (m) (AUGUST 16, 2021)
 - {60.41} GROUNDWATER SURFACE ELEVATION (m) (SEPTEMBER 3, 2021)
 - CROSS SECTION
- GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.



GROUNDWATER RESULTS COMPLY WITH MECP TABLE 3 STANDARDS

GROUNDWATER RESULTS EXCEED MECP TABLE 3 STANDARDS

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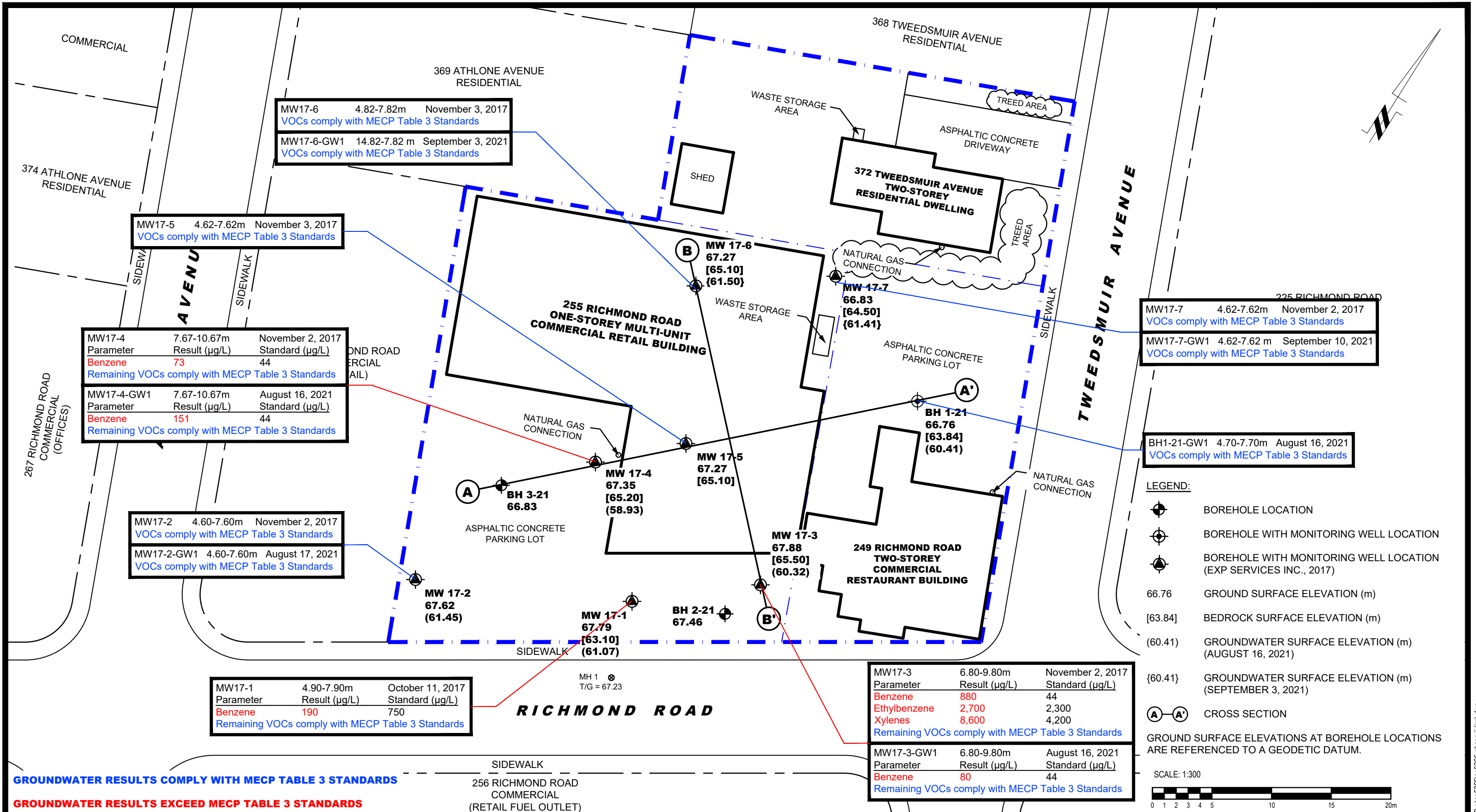
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PHASE II - ENVIRONMENTAL SITE ASSESSMENT
249 & 255 RICHMOND ROAD & 372 TWEEDSMUIR AVENUE

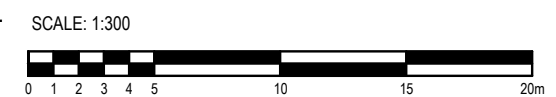
OTTAWA, ONTARIO

Title: **ANALYTICAL TESTING PLAN - GROUNDWATER (PHCs)**

Scale:	1:300	Date:	09/2021
Drawn by:	YA	Report No.:	PE5365-2
Checked by:	NS	Dwg. No.:	PE5365-6
Approved by:	MSD	Revision No.:	



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PHASE II - ENVIRONMENTAL SITE ASSESSMENT
249 & 255 RICHMOND ROAD & 372 TWEEDSMUIR AVENUE

OTTAWA, ONTARIO

Title: **ANALYTICAL TESTING PLAN - GROUNDWATER (VOCs)**

Scale:	1:300	Date:	09/2021
Drawn by:	YA	Report No.:	PE5365-2
Checked by:	NS	Dwg. No.:	PE5365-7
Approved by:	MSD	Revision No.:	