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PROJECT NO.: SM 188540-E NOVEMBER 2, 2018

BROOKLYN CONTRACTING INC.
3245 Harvester Road
Burlington, Ontario
L7N 3T7

Attention: Marko Juricic
President

SUPPLEMENTAL PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
125 NAPIER STREET
HAMILTON, ONTARIO

Dear Mr. Juricic,

Further to our previous Phase Two Environmental Site Assessment [ESA] in connection with the above noted property, SOIL-MAT ENGINEERS & CONSULTANTS LTD. [SOIL-MAT ENGINEERS] was retained by BROOKLYN CONTRACTING INC. to undertake a Supplemental Phase Two ESA on the above captioned property. This work was undertaken in general accordance with our proposal P7536, dated July 17, 2018.

Our fieldwork, laboratory testing and interpretation in connection with the assessment activities has been finalised and our comments and recommendations, based on our findings, are presented in the following paragraphs.

The subject property is herein referred to as the "Site".

1.0 BACKGROUND INFORMATION

1.1 PREVIOUS INVESTIGATIONS

A Phase One Environmental Site Assessment was previously prepared by SOIL-MAT ENGINEERS under our Project No.: SM 177942-E, dated November 22, 2017.

Upon completion of the Phase One ESA Report the following potential contaminating activities [PCAs] were identified in connection with the Site:

PCA Number	PCA Description
30	Importation of Fill Material of Unknown Quality
32	Iron and Steel Manufacturing and Processing

In response to the concerns outlined in our previous Phase One Environmental Site Assessment, SOIL-MAT ENGINEERS conducted a Phase Two Environmental Site Assessment of the above noted Site. The results of the initial Phase Two ESA investigation are detailed in our report of Project No. SM 188065-E, dated June 7, 2018, which noted the following:

- *'Given the proposed future use of the Site [residential], the Site will be subject to a mandatory Record of Site Condition [RSC] filing. In order to complete and file an RSC the properties will either need to meet the applicable Ontario Regulation 153/04 [as amended] soil and groundwater standards or be subjected to some level of Risk Assessment Activities.*
- *'Further delineate the lateral and vertical extent of the metals and PHC exceedances within the on-Site soils.'*

Based on the above, SOIL-MAT ENGINEERS was retained to undertake additional Phase Two ESA activities to assess the above noted areas of concern.

1.2 VISUAL OBSERVATIONS OF THE SITE

At the time of this Report no construction activities were underway. The site was occupied by an asphalt covered parking lot.

The site is bounded to the north by Napier Street, to the east by Queen Street North, to the south by Market Street and to the west by residential properties.

The topography of the Site is highest in the south west and slopes down to the north and east. The change in elevation is approximately 5 metres.

2.0 METHODOLOGY

2.1 PHASE TWO ESA SCOPE OF WORK

The purpose of the Supplementary Phase Two ESA was to assess the specific concerns identified in the previous Phase Two ESA as discussed above. Specifically, this Supplementary Phase Two ESA was designed to address the following:

- Further delineate the lateral and vertical extent of the soil exhibiting elevated levels of select Metals and PHCs on the Site.

Based on the above, the following Phase Two ESA activities were recommended for the Site:

1. Advance a total of three [3] sampled boreholes to a depth of up to 6.7 metres below ground surface [mbgs] on the Site to aid in defining the vertical and lateral extent of the soil exhibiting elevated levels of select Metals and PHCs on the Site;
2. Submit fourteen [14] 'worst-case' soil samples, based on field observations, for laboratory testing for a mixture of Metals and Inorganics and PHCs.
3. Present our findings in a Supplemental Phase Two Environmental Site Assessment report with brief discussions on various remediation methods should the analytical test results indicate exceedances.

2.2 PROCEDURE

The Supplemental Phase Two ESA fieldwork programme was carried out on August 10 of 2018 with the physical drilling being performed by Determination Drilling under the direction of SOIL-MAT ENGINEERS.

A total of three [3] sampled boreholes were advanced at the locations illustrated on the enclosed Drawing No. 1, Borehole Location Plan. The borings were advanced using solid stem continuous flight auger equipment on August 10, 2018 under the supervision of a representative of SOIL-MAT ENGINEERS to depths ranging between 5.2 to 6.7 metres below existing ground surface.

All boreholes were surveyed by representatives of SOIL-MAT ENGINEERS to a site-specific temporary benchmark described as the top of the catchbasin located in the east side of Market Street, just west of Queen Street North. This benchmark was noted to have an elevation of 104.13 metres on the topographic survey done by A.T. McLaren Limited (Dwg.No. 34953) dated August 23, 2016 that was provided to our office.

The borehole locations are identified on Drawing No.: 1, Appendix 'A' for reference.

2.3 LABORATORY ANALYTICAL TESTING

All laboratory analytical work was performed by ALS Environmental [ALS] in Waterloo, Ontario. ALS is a member of the Canadian Association for Laboratory Accreditation [CALA] and meets the requirements of Section 47 of the Record of Site Condition [RSC] Regulation.

2.4 SOIL SAMPLES

Soil samples were examined in the field for visual and olfactory evidence of potential impacts such as unusual staining and/or odours, etc., and were split into two separate samples, including the following:

- One half of the sample was sealed in sampling jars for submission to ALS for analytical testing, and;
- One half of the sample was sealed in a plastic sampling bag for further characterization in SOIL-MAT ENGINEERS' in-house soils laboratory.

The soil samples that were delivered to ALS were sealed with no head space in pre-cleaned wide mouth, clear glass sample jars, as provided by the laboratory. The samples were stored and transported in a cooler and kept under ice packs to minimize potential volatilization of select parameters. New disposable sampling gloves were used for the collection of each soil sample with care given to limit contact between the samples and gloves. Dedicated sample retrieval equipment, including a stainless steel split-spoon, was used to retrieve each sample and before depositing it directly it into the ALS Environmental sample jar.

The samples were delivered to ALS's depot location in Burlington, Ontario in coolers equipped with ice packs to help maintain a temperature range between the applicable 0°C to 10°C. As reported on the chain of custody for the soil samples, the samples were delivered to ALS with an average temperature of 6.2°C.

2.5 SAMPLE MANAGEMENT AND FIELD OBSERVATIONS

Professional care was exercised during the retrieval of each sample, the placement of each sample in the appropriate sample jar, the labeling of the field samples and associated chain of custody and in the delivery of the samples to the testing laboratory.

As our standard operating procedures dictate unusual field observations, such as visual or olfactory evidence of a suspected impact, a deviation from SOIL-MAT ENGINEERS' field sampling and handling protocols or incident on the testing laboratories' side was documented either on our field borehole logs or in-house copy of the sample certificate of analysis. There were no deviations recorded during this Phase Two ESA.

3.0 GEOLOGICAL SETTING

A copy of SOIL-MAT ENGINEERS' borehole logs are presented in Appendix 'B' for reference.

In summary, the Phase Two ESA revealed the following Site stratigraphy:

3.1 PAVEMENT STRUCTURE

All boreholes were advanced through the existing pavement structure of the parking lot, which consists of approximately 50 to 100 millimetres of asphaltic concrete.

3.2 SAND AND GRAVEL FILL

Sand and gravel fill was found beneath the pavement structure in Borehole No. 1. The sand and gravel fill was approximately 1.8 metres in thickness. The materials contained occasional construction debris, trace to some silt and clay and was generally in a loose state.

3.3 SILTY SAND FILL

Silty sand fill was encountered beneath the pavement structure in Borehole Nos. 102 and 103. The silty sand fill was brown in colour, contained occasional construction debris, trace gravel and was generally loose to compact. The fill material was approximately 1 to 3 metres in thickness.

3.4 SAND

Sand was found in all boreholes beneath the fill materials. The layered deposits were described as brown in colour, medium to coarse grained with trace to some silt. The sand was in a compact to very dense state.

4.0 ONTARIO REGULATION 153/04 [AS AMENDED] SITE CLASSIFICATION AND SELECTION CRITERIA

The following criteria was utilised to determine the appropriate site classification and Ontario Regulation 153/04 [as amended] soil and groundwater standards.

- Current land use: Commercial;
- Intended land use: Residential;
- Drinking Water Supply: Non-potable Ground Water;
- On-site Soil Texture: Coarse Grained Soils;
- Depth to Bedrock: Greater than 15.9 metres;

- pH of soils on the Site: Within Standard range;
- Surface Water Body: none observed within 30 metres of the Site.

Based on the above, all soil and groundwater laboratory analytical test results were compared to the Table 3 Soil and Ground Water Standards for a Residential/Parkland/Institutional Property Use [RPI] in a non-potable groundwater condition from the Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environment Protection Act, [2011], hereinafter referred to as the 'Table 3 RPI Standards'.

5.0 SUPPLEMENTAL PHASE TWO ESA ANALYTICAL TEST RESULTS

5.1 SOIL SAMPLES SELECTED FOR LABORATORY ANALYTICAL TESTING

In total, fourteen [14] discrete soil samples were secured from the Site to assess potential impacts on the Site, along with two [2] duplicate samples. The secured soil samples were submitted to ALS for laboratory analytical testing as described in the summary table below:

TABLE B: SUMMARY OF SOIL SAMPLE TEST RESULTS

Sample ID	Depth [m bgs]	Laboratory Analysis	Soil Description	Table 3 RPI Exceedances
BH101 SS2	1.5 – 2.1	Metals	Sand and Gravel Fill / Sand and Gravel	Exceeds the Table 3 RPI SCSs in Metals as EC reported as 1.21mS/cm vs the Standard of 0.7mS/cm and SAR reported as 63.4 vs the Standard of 5.
BH101 SS3	2.3 – 2.9	Metals	Sand and Gravel	Exceeds the Table 3 RPI SCSs in SAR – reported as 26.2 vs the Standard of 5.0
BH101 SS4	3.0 – 3.6	Metals	Sand	Exceeds the Table 3 RPI SCSs in SAR – reported as 19.1 vs the Standard of 5.0
BH101 SS5	3.8 – 4.4	Metals	Sand	Exceeds the Table 3 RPI SCSs in Metals as EC reported as 0.837mS/cm vs the Standard of 0.7mS/cm and SAR reported as 5.21 vs the Standard of 5.
BH101 SS6	4.6 – 5.2	Metals	Sand	Exceeds the Table 3 RPI SCSs in SAR – reported as 6.93 vs the Standard of 5.0
BH101 SS7	5.3 – 5.9	SAR	Sand	Exceeds the Table 3 RPI SCSs in SAR – reported as 10.7 vs the Standard of 5.0
BH101 SS8	6.1 – 6.7	SAR	Sand	Exceeds the Table 3 RPI SCSs in SAR – reported as 5.71 vs the Standard of 5.0
BH102 SS2	1.5 – 2.1	Metals & PHCs	Sand	Exceeds the Table 3 RPI SCSs in SAR – reported as 7.45 vs the Standard of 5.0
BH102 SS3	2.3 – 2.9	Metals	Sand	No exceedances reported
BH103 SS2	1.5 – 2.1	Metals & PHCs	Silty Sand Fill	Exceeds the Table 3 RPI SCSs in Metals reported as Lead reported

				as 363ppm vs the Standard of 120ppm, Mercury reported as 0.383ppm vs the Standard of 0.27ppm and in PHCs reported as F3 reported as 304ppm vs the Standard of 300ppm
BH103 SS3	2.3 – 2.9	Metals & PHCs	Silty Sand Fill	Exceeds the Table 3 RPI SCSs in Metals reported as SAR reported as 5.24 vs the Standard of 5, Lead reported as 244ppm vs the Standard of 120ppm and in PHCs reported as F3 reported as 434ppm vs the Standard of 300ppm
BH103 SS4	3.0 – 3.6	Metals & PHCs	Silty Sand Fill	Exceeds the Table 3 RPI SCSs in SAR – reported as 6.74 vs the Standard of 5.0
BH103 SS5	3.8 – 4.4	SAR & PHCs	Sand	No exceedances reported
BH103 SS6	4.6 – 5.2	PHCs	Sand	No exceedances reported
Dupe 1 (BH102 SS2)	1.5 – 2.1	PHCs	Sand	No exceedances reported
Dupe 2 (BH102 SS3)	2.3 – 2.9	Metals	Sand	No exceedances reported
Notes: PHCs = Petroleum Hydrocarbons, SAR = Sodium Absorption Ratio, EC = Electrical Conductivity				

The laboratory analytical test results for the submitted soil samples indicate elevated levels of EC and/or SAR in all of the boreholes when compared with the Table 3 RPI site condition standards. Borehole No. 103 had Table 3 RPI exceedances for PHCs in F3.

The ALS Certificate of Analysis is included in Appendix 'C' for reference.

6.0 SUMMARY AND GENERAL COMMENTS

Based on SOIL-MAT ENGINEERS' field observations and the analytical test results received in its office, SOIL-MAT ENGINEERS offers the following:

SOIL SAMPLES - PHC

The Phase Two ESA activities carried out by SOIL-MAT ENGINEERS revealed a PHC exceedance in Borehole No 103. The vertical delineation was achieved and the elevated level of PHCs appear limited to the upper 3.0 metres in Borehole No. 103. The PHCs which exceed the Table 3 RPI Standards are for F3 and are generally found to be in the north east corner of the Site.

The sample locations are illustrated on Drawing No.: 3, Appendix 'A'.

SOIL SAMPLES – METALS

The Phase Two ESA activities carried out by SOIL-MAT ENGINEERS revealed a metals exceedance. SAR was found to exceed in the upper 2.1 metres in Borehole 102 and in the upper 3.6 metres in Borehole 103. Below these depths SAR was found to meet the Standards.

In Borehole No. 101 the vertical delineation for SAR was not achieved and was found at depths of 6.7 metres. Lead and Mercury was found in Borehole No. 103 in the upper 3.0 metres.

Drawing No.: 2, Appendix 'A', illustrates the Metal exceedances on the Site.

7.0 RECOMMENDATIONS

As stated above, an area of PHC and Metals exceedance has been identified within the soil medium. The metals exceedances are typically in the upper 1.5 to 3.0 metres. The remainder of the site has EC and SAR exceedances throughout. The vertical delineation for the EC and SAR could not be achieved through this round of testing.

It is our understanding that the proposed 30 to 40 storey development on the property is anticipated to include a number of underground parking levels, which will likely require the majority of the existing impacted materials to be excavated and transported off-site. Although not ideal, as arrangement should be made in advance for the ease of construction, confirmatory testing of the Metals and PHCs in the soil can be conducted during the advancement of the proposed building excavation. This would be done to file the Record of Site Condition [RSC] under the full depth generic site condition standards.

Alternatively, it may be considered to pursue submission of the RSC under a stratified site condition. In this approach the affected soils with elevated EC and SAR would be removed to their limits, and to a minimum depth of 1.5 metres below the proposed finished grade [less the depth of any pavement structure]. The material with PHCs and select metals parameters will still need to be removed from the Site but these appear be isolated excavations based on our current data. It would then be feasible to apply the Stratified Site Condition Standards to the subsurface soils, more than 1.5 metres below grade, for the purposes of filing the RSC. This approach would limit the depth and volume of excavation required for remediation, and would also likely facilitate a more rapid filing of the RSC. It should be understood where an RSC is filed under a stratified site condition, this fact would be required to be reflected on the title of the property.

It is noted that subsurface soil conditions may be present on-site that are not typical of those presented in this Report. If future activities reveal such soils, SOIL-MAT ENGINEERS should be contacted to assess the soil conditions with respect to the proposed activity.

SOIL-MAT ENGINEERS & CONSULTANTS LTD. prepared this Report for the account of BROOKLYN CONTRACTING INC. The material in it reflects SOIL-MAT ENGINEERS' best judgement in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. SOIL-MAT ENGINEERS accepts no responsibility for damages, if any suffered by any third party as a result of decisions made or actions based on this report.

We trust this Report is satisfactory for your purposes. Please feel free to contact our Office if you have any questions, or we may be of further service to you.

Yours very truly,
SOIL-MAT ENGINEERS & CONSULTANTS LTD.

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REISSUED OCT 12, 2021
S. R. SEARS
PROVINCE OF ONTARIO

Distribution: BROOKLYN CONTRACTING INC. [2]

Enclosures:
- Appendix 'A': Drawing Nos, 1 - 3 – Borehole Location Plan & Analytical Data summary
- Appendix 'B' Borehole Logs;
- Appendix 'C' ALS Soil Analytical Test Results;
- Appendix 'D' Qualifications of Assessors;
- Appendix 'E' Statement of Limitations.