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File: 103940.009

Broccolini Investment Inc.
130 Slater Street, Suite 1300
Ottawa, Ontario
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Attention: Shawn Bardell P.Eng., MBA,

Re: Soil Quality Report
Proposed Sanitary Sewer – Nokia Campus
570 March Road
Ottawa, Ontario

INTRODUCTION

This letter provides the results of the soil sampling program completed by GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) to support excess soil beneficial re-use planning for the proposed sanitary sewer at the Nokia Campus project at 570 March Road in Ottawa, Ontario (herein referred to as the 'Project Area') for Broccolini Investment Inc (Broccolini).

BACKGROUND

Based on information provided by Broccolini, GEMTEC understands that redevelopment plans are being prepared for the parcel of land located at 570 March Road in Ottawa, Ontario. Full details of the proposed redevelopment were not available at the time of reporting. Several previous geotechnical investigations have been completed to inform the design of the redevelopment works.

As part of the current scope, a supplemental investigation was required, including due diligence excess soil investigations, to support the planned installation of a sanitary sewer installation along Legget Drive. The sanitary sewer will be 250 millimetre diameter, with invert levels at about 2.5 to 3.0 metres depth.

Additionally, two related infrastructure projects are being undertaken in the surrounding area as part of a broader redevelopment initiative. However, the environmental components of these works are being addressed under separate covers:

- Construction of a new intersection to provide access to the development from March Road; and

- A municipal watermain along Legget Drive. The watermain will be 300 millimetre diameter. It is assumed that it will be installed at about 2.4 metres below surface grade.

Application of Ontario Regulation 406/19

Based on review of the provided information, it is GEMTEC's opinion that the work carried out for the sewer portion of the project will likely be exempt from Section 8 (Notice to be Filed on Registry) under Schedule 2 of Ontario Regulation (O.Reg) 406/19. Accordingly, the report herein has been completed as a due diligence measure and does not meet the requirements to support project registration as per O.Reg 406/19.

Ultimately it is up to the Project Leader to determine if the project required registration at per O.Reg 406/19, should the assumption summarized above not be accurate an additional scope of work may be required.

SCOPE OF WORK

Based on GEMTEC's understanding of the excess soils management requirements, the following services were completed in support of the project:

- Environmental Field Investigation; and,
- Soil Quality Report.

SELECTION OF REGULATORY CRITERIA

The selection of applicable provincial standards for comparison to soil analytical data was based on a review of various site characteristics as well as potential soil management and disposal options which will need to be considered as part of the project. It is anticipated that the construction may involve the potential re-use of excavated soils off-site at a beneficial re-use site. Therefore, soil analytical results were compared to applicable provincial standards for the contaminants of concern considering these requirements.

Off-Site Re-use Excess Soil Quality Standards

In the absence of a confirmed beneficial re-use site, all recommendations included in this report regarding beneficial soil re-use at a receiving site are based on GEMTEC's assumption for generic beneficial re-use sites which may be considered. Soil quality results as provided in this report should be re-assessed by a Qualified Person (QP_{ESA}) for suitability if a potential beneficial re-use site is identified in the future that does not meet these criteria, or, in the event that site-specific instruments are in place at the beneficial re-use site.

Generic site characteristics and potential reuse of soils off-Site at Ontario reuse sites were used to determine the Excess Soil Quality Standards (ESQS) applied to soil quality data as specified in O.Reg. 406/19 and associated Soil Rules.

Based on the above discussion, the following provincial standards were selected to assess the soil analytical results for potential reuse off-Site.

Potential Re-Use Off-Site as Clean Fill:

- MECP Table 1 Ag/Ot SCS: Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, March 2004, amended July 1, 2011. Table 1: Full Depth Background Site Condition Standards for Agricultural or Other Property Use (Agri/Ot).
- MECP Table 1 Ag/Ot LSL: Ontario Ministry of the Environment, Conservation and Parks (MECP), "Rules for Soil Management and Excess Soil Quality Standards" (Soil Rules), February 2024. Table 1: Leachate Screening Levels (LSL) for Full Depth Background Site Condition Standards for Agri/Ot Property Use.

Potential Re-Use Off-Site:

- MECP Table 2.1 RPI ESQS: MECP, Soil Rules, February 2024. Table 2.1: Full Depth ESQS in a Potable Ground Water Condition for Residential/ Parkland/ Institutional (RPI) Property Use.
- MECP Table 2.1 RPI LSL: MECP, Soil Rules, February 2024. Table 2.1: LSL for Full Depth Excess Soil in a Potable Ground Water Condition for RPI Property Use.
- MECP Table 2.1 ICC ESQS: MECP, Soil Rules, February 2024. Table 2.1: Full Depth ESQS in a Potable Ground Water Condition for ICC Property Use.
- MECP Table 2.1 ICC LSL: MECP, Soil Rules, February 2024. Table 2.1: LSL for Full Depth Excess Soil in a Potable Ground Water Condition for ICC Property Use.
- MECP Table 3.1 ICC ESQS: MECP, Soil Rules, February 2024. Table 3.1: Full Depth ESQS in a Non-Potable Ground Water Condition for Industrial/ Commercial/ community (ICC) Property Use.
- MECP Table 3.1 ICC LSL: MECP, Soil Rules, February 2024. Table 3.1: LSL for Full Depth Excess Soil in a Non-Potable Ground Water Condition for ICC Property Use.
- MECP Table 4.1 ICC ESQS: MECP, Soil Rules, February 2024. Table 4.1: Stratified Conditions ESQS in a Potable Ground Water Condition for ICC Property Use - Subsurface.
- MECP Table 4.1 ICC LSL: MECP, Soil Rules, February 2024. Table 4.1: LSL for Stratified Excess Soil in a Potable Ground Water Condition for ICC Property Use - Subsurface.

Soil Waste Disposal Classification

Considering the disposal of excess soils off-site, the following provincial standards were considered to be applicable to the TCLP soil leachate sampling quality results obtained during the environmental investigation:

- MECP O.Reg. 347/558 Schedule 4, Leachate Quality Criteria, to evaluate waste classification (hazardous or non-hazardous waste) for on-site soils (MECP, 2000).

METHODOLOGY

Environmental Soil Sampling and Field Investigation

GEMTEC completed a due diligence soil quality screening investigation in conjunction with the geotechnical field investigation. Soil samples were collected from boreholes advanced by George Downing Estate Drilling Ltd. along the construction alignment. Prior to drilling, GEMTEC retained a utility locating subcontractor to complete public and private utility clearances, as required, to enable completion of the field program.

The soil sampling field methodology was overseen by a member of GEMTEC's engineering staff. Based on GEMTEC's review of the Project Area, two boreholes were advanced between June 18 and 20, 2025. Four bulk soil samples, two from each borehole, were collected for analysis of the contaminants of potential concern (COPCs) as outlined in GEMTEC's proposal dated April 29, 2025. The location of the boreholes advanced is provided in the Site Plan, Figure A.1, Attachment A. Soil samples recovered from the boreholes during the field investigation were collected following the *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario* (MOE, 1996). The borehole logs are provided in Attachment B.

The soil samples were collected directly into laboratory-supplied containers and were immediately placed in a laboratory-supplied cooler to maintain the required temperature range. The remainder of the soils were placed in a re-sealable bag to allow for field screening. Clean gloves were worn and changed between each sample interval to prevent cross-contamination. Soil samples were inspected in the field for visual, tactile, and olfactory evidence of impact.

Soil samples for analytical submission were selected based on visual, olfactory, and tactile evidence of impact. Soil samples selected for analysis were submitted to Bureau Veritas (BV), a CALA accredited laboratory, under standard chain of custody procedures for analysis of the identified COPCs.

Further to the bulk soil samples, one composite soil sample was submitted for Toxicity Characterization Leaching Procedure (TCLP) to support flexible soil management and/or disposal options.

Note: *GEMTEC has not provided an allowance for the assessment of the geotechnical suitability for any of the excavated and/ or excess materials for re-use in this report – details regarding the geotechnical suitability of soil can be found in the geotechnical design report, under separate cover.*

SOIL ASSESSMENT RESULTS

Boreholes were advanced through the existing pavement structure of Legget Drive. These consist of base and subbase layers of varying mixtures of crushed, sand and gravel with trace to some non-cohesive silt. The combined thickness of the base and subbase ranges from about 520 to 750 millimetres.

Fill material was encountered in boreholes 25-202 below the pavement structure materials. The fill material was proven to a depth of 2.0 metres and may extend to a greater depth. The fill material is a mixture cohesive, sandy silt with some gravel and trace clay containing cobbles and boulders. The fill material was observed to increase in cobble and boulder content below a depth of about 1.1 metres. A layer of silty sand was present at the location of borehole 25-201 below the pavement materials at a depth of about 0.7 metres. The borehole was terminated at auger refusal at a depth of about 1.0 metres, likely on bedrock, or possibly other hard material.

Additional information on soil conditions encountered during the field investigation can be found in the borehole logs presented in Appendix B. During drilling, no visual evidence of debris, or staining was noted.

Analytical Results

A summary of the soil sampling program analytical results for the bulk soil and leachate soil results including exceedances to the applicable regulatory criteria, are presented in Tables 1 and 2, respectively.

Table 1: Summary of Bulk Soil Sampling Program Analytical Results

Soil Sample	Depth of samples (mbgs)	Analysis	MECP Exceedances				
			MECP Table 1 Ag/Ot SCS	MECP Table 2.1 RPI ESQS	MECP Table 2.1 ICC ESQS	MECP Table 3.1 ICC ESQS	MECP Table 4.1 ICC ESQS
BH25-201 SA1	0.23 – 0.61	M&I, PAHs, BTEX/PHC F1-F4	EC, SAR, PHC F2, PHC F4, PHC F4G, Hexane	EC, SAR, PHC F2	SAR	SAR	SAR
BH25-201 SA2	0.76 – 0.97	M&I, PAHs, BTEX/PHC F1-F4	EC, SAR	EC, SAR	EC, SAR	EC, SAR	EC, SAR
BH25-202 SA1	0.23 – 0.61	M&I, PAHs, BTEX/PHC F1-F4	Barium, EC, PHC F2, PHC F4, PHC F4G, Hexane	EC, PHC F2	-	-	-
BH25-202 SA2	0.76 – 1.04	M&I, PAHs, BTEX/PHC F1-F4	EC, SAR	EC, SAR	-	-	-

Notes:

mbgs – metres below ground surface
M&I – Metals and Inorganics
PAHs – Polycyclic Aromatic Hydrocarbons
VOCs – Volatile Organic Compounds
PHC F1-F4 – Petroleum Hydrocarbons Four Fractions
EC – Electrical Conductivity
SAR – Sodium Adsorption Ratio
Green – Based on salting activities (during winter months) in proximity of the sampling location within the Project Area limits (along ROWs).
1. MECP Table 1 Ag/Ot SCS: Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, March 2004, amended July 1, 2011. Full Depth Background Site Condition Standards for Agri/Ot.
2. MECP Table 2.1 RPI ESQS: MECP, Soil Rules, February 2024. Full Depth ESQS in a Potable Ground Water Condition for RPI Property Use.
3. MECP Table 2.1 ICC ESQS: MECP, Soil Rules, February 2024. Full Depth ESQS in a Potable Ground Water Condition for ICC Property Use.
4. MECP Table 3.1 ICC ESQS: MECP, Soil Rules, February 2024. Full Depth ESQS in a Non-Potable Ground Water Condition for ICC Property Use.
5. MECP Table 4.1 ICC ESQS: MECP, Soil Rules, February 2024. Stratified Conditions ESQS in a Potable Ground Water Condition for ICC Property Use - Subsurface.

Table 2: Summary of Leachate Soil Sampling Analytical Results

TCLP Sample ID	O.Reg. 347/558 Exceedances
TCLP – 200 Series	None

Notes:
O.Reg. 347/558: Schedule 4, Leachate Quality Criteria, to evaluate waste classification.

Full analytical results are illustrated on Soil Exceedances Summary, Figure A.2, Attachment A and presented in Tables C1 and C2, Attachment C. Laboratory certificates of analysis are provided in Attachment D.

Quality Assurance/Quality Control

Laboratory Internal QA/QC

BV completed a variety of internal quality assurance/ quality control (QA/QC) measures on the soil samples submitted during the field program. BV is accredited by the Standards Council of Canada (SCC) in cooperation with the Canadian Association of Laboratory Accreditation (CALA) for specific environmental tests listed in the scope of accreditation approved by the SCC and registered with the association. BV is also accredited to the ISO/IEC 17025 standard and employs in-house quality assurance and quality control programs to govern sample analysis including the analysis of method blanks, spiked blanks, and the analysis of duplicates (10%) for each sample batch.

One QC qualifier was summarized for the matrix spike of Chromium (VI), however based on the other QA/QC results, the analytical data and all QC in the report were validated on the Certificate of Analysis from the laboratory (Attachment D).

EXCESS SOIL RE-USE RECOMMENDATIONS

Based on the summary of soil quality presented in the above section, GEMTEC offers the following recommendations to optimize the beneficial re-use opportunities and to reduce the volume of material requiring landfill disposal.

Soil for off-site re-use applicable to Table 1 Ag/Ot SCS:

- Sandy silt fill material excavated from the vicinity of BH25-201 and BH25-202 can be re-used at receiving sites meeting MECP Table 1 Ag/Ot SCS (with EC/SAR allowances).

Soil for off-site re-use applicable to Table 2.1 ICC ESQS:

- Base/Subbase excavated from the vicinity of BH25-201 and BH25-202 can be re-used at receiving sites meeting MECP Table 2.1 ICC ESQS (with EC/SAR allowances).

Soil applicable to Excess Soil for disposal at an MECP-licensed landfill

- Soil excavated from across the site can be disposed of at a Class 1 Soil Management Facility or at a MECP licensed landfill facility as non-hazardous waste.

Based on the results presented above, GEMTEC recommends sending sandy silt fill material from the proposed excavation works to a beneficial re-use site capable of accepting Table 1 Ag/Ot SCS, base/Subbase excavated from the proposed excavation works to a beneficial re-use site capable of accepting Table 2.1 ICC quality soil such as a pit or quarry. All soil is suitable for re-use on-Site as trench backfill provided the material meets appropriate geotechnical requirements.

Salt Allowance Requirements

The beneficial reuse of salt impacted soil is permitted in some instances, as long as reuse of these soils adhere to the requirements as summarized in the Rules Document for reuse of 'Salt-Impacted Excess Soil', namely:

- The excess soil is finally placed at one of the following locations:
  - Where it is reasonable to expect that the soil will be affected by the same chemicals as a result of continued application of a substance for the safety of vehicular or pedestrian traffic under conditions of snow or ice;
  - At an industrial or commercial property use;
  - At a community, parkland, institutional, or residential property use given:
    - Soil may be placed at least 1.5 metres below the surface of the soil; or
    - Soil is placed in accordance with an official landscape plan.
  - At an agricultural or other property use:
    - Soil may be placed at least 1.5 metres below the surface of the soil; or
    - Soil is placed in areas that will not be vegetated and only to achieve grade necessary to construction a planned building, install a driveway or a parking area.

AND:

- The excess soil is not finally placed at any of the following locations:
  - within 30 metres of a waterbody;
  - within 100 metres of a potable water well or area with an intended property use that may require a potable water well; or,
  - a location that will be used for growing crops or pasturing livestock unless the excess soil is placed 1.5 metres or greater below the soil surface.

AND:

The Project Leader or operator of the Project Area has informed the reuse site owner or operator that the excess soil is from a location that may be expected to contain the chemical and, if sampling and analysis has been conducted in accordance with the regulation. The project leader or operator of the Project Area has provided relevant sampling results to the reuse site owner or operator, including the soil characterization report if prepared, and identified and communicated any potential risks to surface water and ground water to the reuse site owner or operator.

LIMITATION OF LIABILITY

This report and the work referred to within it has been undertaken by GEMTEC Consulting Engineers and Scientists Limited for Broccolini. It is intended for the exclusive use of Broccolini. This report may not be relied upon by any other person or entity without the express written consent of GEMTEC and Broccolini. Nothing in this report is intended to provide a legal opinion.

The investigation undertaken by GEMTEC with respect to this report and any conclusions or recommendations made in this report reflect the best judgements of GEMTEC based on the site conditions observed during the investigations undertaken at the date(s) identified in the report and on the information available at the time the report was prepared. This report has been prepared for the application noted and it is based, in part, on visual observations made at the site, subsurface investigations at discrete locations and depths and laboratory analyses of specific chemical parameters and material during a specific time interval, all as described in the report. Unless otherwise stated, the findings contained in this report cannot be extrapolated or extended to previous or future site conditions, portions of the site that were unavailable for direct investigation, subsurface locations on the site that were not investigated directly, or chemical parameters, materials or analysis which were not addressed. Chemical parameters other than those addressed by the investigation described in this report may exist in soil and groundwater elsewhere on the site, the chemical parameters addressed in the report may exist in soil and groundwater at other locations at the site that were not investigated, and concentrations of the chemical parameters addressed which are different from those reported may exist at other locations on the site than those from where the samples were taken. Should new information become available during future work, including excavations, borings, or other studies, GEMTEC should be requested to review the information and, if necessary, re-assess the conclusions presented herein.

CLOSURE

We trust this letter provides sufficient information for your present purposes. If you have any questions concerning this letter, please do not hesitate to contact our office.

Sincerely,

Nicole Soucy, M.A.Sc., P.Eng, QP_{ESA}
Environmental Engineer

Daniel Elliot, P.Geo., QP_{ESA}
Senior Environmental Geoscientist

REFERENCES

Google Earth™ Satellite Imagery, 2019.

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Ontario Ministry of the Environment, Conservation and Parks (MECP). Ontario Regulation 406/19, – On-site and Excess Soil Management. December 4, 2019 – Revised January 2023.

Ontario Ministry of the Environment, Conservation and Parks (MECP). Rules for Soil Management and Excess Soil Quality Standards. December 2019 – Revised December 2022.

Ontario Ministry of the Environment, Laboratory Services Branch (MOE). Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. March 9, 2004, amended as of July 1, 2011.

ATTACHMENT A

Figures

ATTACHMENT B

Borehole Logs

ATTACHMENT C

Analytical Summary Tables

ATTACHMENT D

Laboratory Certificates of Analysis