Trail Road BESS Baseline Testing Program

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Revision: For Review, R0

Testing Company: Paterson Group Inc.

Phase 1 – BESS Site Testing

Testing procedure as per Ministry of the Environment, Conservation and Parks (MECP "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario, June 1996 and addenda".

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Design Standards

Design standards that have been adopted on the project for groundwater protection are as follows:

- IEEE 980 – Guide for Containment and Control of Oil Spills in Substation
- Water Resources Act Ontario
- Ontario Environmental Protection Act, R.S.O. 1990, c. E.19City of Ottawa Sewer Design Guideline, 2025
- Ontario Water Resources Act

Design Considerations

The site design uses a multi-layer protection approach to prevent groundwater contamination. Although the risks to ground water impacts by BESS have a very low probability with limited to no proven instances in the industry, the site still implemented the following control measures for conservative treatment of the potential risks:

- Transformer Secondary Containment system
- Medium Voltage Transformer oil water separator
- BESS site impermeable layer across the site, within the ditches and storm water pond
- Remote and Manual control gate valve on the stormwater pond to stop the outflow of potentially contaminated water from site
- Routine operation inspections to monitor physical condition of equipment
- Post incident monitoring of soil and water if required

Water Sampling/Water Well Survey

Sampling of raw well water will be completed at the BESS site for the Phase 1 commence work notification. The residential well of 4186 William McEwen will be tested along with 1 Monitoring well, which is in the BESS footprint. One blind duplicate well water sample will be collected for quality assurance / quality control (QA/QC) purposes. Field measurements for Turbidity, pH, temperature and conductivity will be recorded for each well water sample location. Samples results will be provided to each homeowner where requested.

The water sampling program will include groundwater sampling at the existing site monitoring well. A static water level will be recorded for the monitoring well location using a Solinst® Model 102 water level meter. Prior to groundwater sampling, a minimum of three well volumes will be purged from the monitoring well. Groundwater sampling will be conducted using dedicated inertial lift foot valves equipped with 12.7 mm outer diameter low density polyethylene tubing.

Field filtering will be conducted for groundwater samples collected for metals analyses. All water samples will be placed in coolers containing ice and delivered to Eurofins Laboratories (Eurofins) under strict chain of custody protocol within 24 hours of sample collection for laboratory analysis.

Soil Sampling

The field investigation program will include the advancement of six shallow test pits to 1.0 m depth for soil quality sampling. Utility locates and test pit excavation will be provided by the proponent using the onsite contractor. All soil samples will be logged for soil characteristics and subjected to sample headspace screening. Appropriate decontamination/cleaning protocol will be used to clean sampling equipment between sample locations. A portion of each collected soil sample will be placed in a plastic zip lock bag and screened for organic and combustible vapors using a RKI Eagle 2 combustible gas / organic vapor detector after equilibration at room temperature. A portion of the soil sample will be placed in clean sample jar and placed in a cooler at approximately 4C.

One soil sample per test pit location plus one blind duplicate sample for QA/QC will be submitted to Eurofins for laboratory analysis. Samples will be submitted within 24 hours of sample collection under strict chain of custody protocols. The proposed soil sample analytical program is included in Table 3 and proposed sample locations are provided on Figure 1. The test pit sample locations will be referenced by GPS methods.

Air Sampling

One baseline ambient air-quality sample will be collected at each property identified on Figure 1. A representative from Paterson will schedule a suitable time and date to carry out a site visit to project to perform air quality measurements. The assessment will be completed within standard business hours (8:00 AM and 5:00 PM) to simulate typical day-time operational conditions of the facility. These measurements will be collected with a handheld device and the data will be collected from several points within the operation area. The readings will be established within the operational area of the BESS, with a background air quality reading being also collected at the edge of the property, outside of the development area.

For analysis of volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs), three (3) SUMMA air canisters will be procured for this assessment. One of the canisters will be deployed near the building outside of the development are to provide background air quality results away from the operational area. The canisters will be deployed for a period of 24-hours, after which we will return to the project area to collect them. The canisters will be submitted to an independent laboratory for analysis of VOC and PAH parameters. The results will be reported in a letter report to establish a baseline condition for future monitoring purposes.

The air sampling will test the following items:

- Carbon monoxide (CO)
- Carbon dioxide (CO2)
- formaldehyde (CH2O)
- particulate matter (2.5 microns)
- ozone (O3)
- Hydrogen fluoride (HF)

- Volatile organic compounds (VOC)
- Polycyclic aromatic hydrocarbons (PAHs)
- Hydrogen Cyanide (HCN)
- Hydrogen Sulfide (H2S)

Table 1: Sampling Program Summary

Sample Type	Location of sample	Lab analysis
Domestic Well Water	Raw Well Water (Prior to treatment)	- 8 (Metals incl. Li, PAHs, VOCs, D-5-5 Subdivision Suite Package) - (Ni, Mn, Co, Al, Zn), liquid electrolytes (Li, P, F), VOCs, PAHs) - Field measurements for Turbidity, pH, temperature and conductivity
Groundwater	Monitoring Wells	- 8 (Metals incl. Li, PAHs, VOCs, D-5-5 Subdivision Suite Package) - (Ni, Mn, Co, Al, Zn), liquid electrolytes (Li, P, F), VOCs, PAHs) - Field measurements for Turbidity, pH, temperature and conductivity
Soil Samples (SS1 – SS6)	On Site Per Figure 1 - Baseline Site assessment Trail Road BESS	- O. Reg 153 Metals & Gen Chem (Incl. Li, F and P) - PAHs - VOCs
Air Samples	On Site Per Figure 1 - Baseline Site assessment Trail Road BESS	- Carbon monoxide (CO) - Carbon dioxide (CO2) - formaldehyde (CH2O) - particulate matter (2.5 microns) - ozone (O3) - Hydrogen fluoride (HF) - Volatile organic compounds (VOC) - Polycyclic aromatic hydrocarbons (PAHs) - Hydrogen Cyanide (HCN) - Hydrogen Sulfide (H2S)

Phase 2a Registered Letter & Distribution

The letter provided to homeowners describing the sampling program shall be prepared to the satisfaction of City Planning staff prior to the letters being provided to residents, and convey the following:

- Describe that the baseline water quality sampling program is a requirement of the City of Ottawa,
- Describe what is involved (sampling and well owner interview) and identify the estimated time needed,

- Identify that an untreated groundwater sample will be collected from a tap or at the pressure tank prior to any filtration or treatment system,
- Identify that a copy of the results will be made available to the well owner free of charge, and
- Identify a City of Ottawa contact (Travis Smith, travis.smith@ottawa.ca, 613-580-2400 x16544) as well as the consultant's contact information.
- Registered letters containing the consultant's and the City's documents are to be sent to all of the properties invited to participate in the program. A minimum three (3) week window should be provided to the homeowners after they receive the letter to express interest in participating in the baseline water quality sampling program.
- In-person visits to invite residents to participate should be completed, beginning a minimum of 1 week after the registered homeowner letter was sent, for residents who have not yet replied. A minimum of two in-person home visits should be conducted, on different days, with one visit occurring after work hours (evening).
- In instances where the homeowner is not present at the time of a visit, a contact letter outlining the proposed sampling program should be left at the property.
- A minimum of 2 weeks should be provided for the residents to respond after the second home visit.
- The goal of the program is 100% participation, and the rationale of why a homeowner has not participated should be documented (i.e. How the homeowner turned it down).

Phase 2b – Off Site Testing

Testing procedure as per Ministry of the Environment, Conservation and Parks (MECP "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario, June 1996 and addenda".

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Water Sampling/Water Well Survey

Sampling of raw well water will be completed for up to four residential locations within 800m, and one residence at 850 m (4334 William Mcewen Dr.), which includes 4160, 4236, 4282, 4134, 4334 William McEwen Drive as identified in figure 1. The final number of sample locations will depend on homeowner participation, but the sample size is generally limited due to the low number of residential properties nearby. One blind duplicate well water sample will be collected for quality assurance / quality control (QA/QC) purposes. Field measurements for Turbidity, pH, temperature and conductivity will be recorded for each well water sample location. Samples results will be provided to each homeowner where requested.

The water well sampling program will include the completion of a Well Survey Form while on-site. The level of detail in the form may be dependent on the identification of a water well record for the site, and the level of knowledge of the home owner.

Soil Sampling

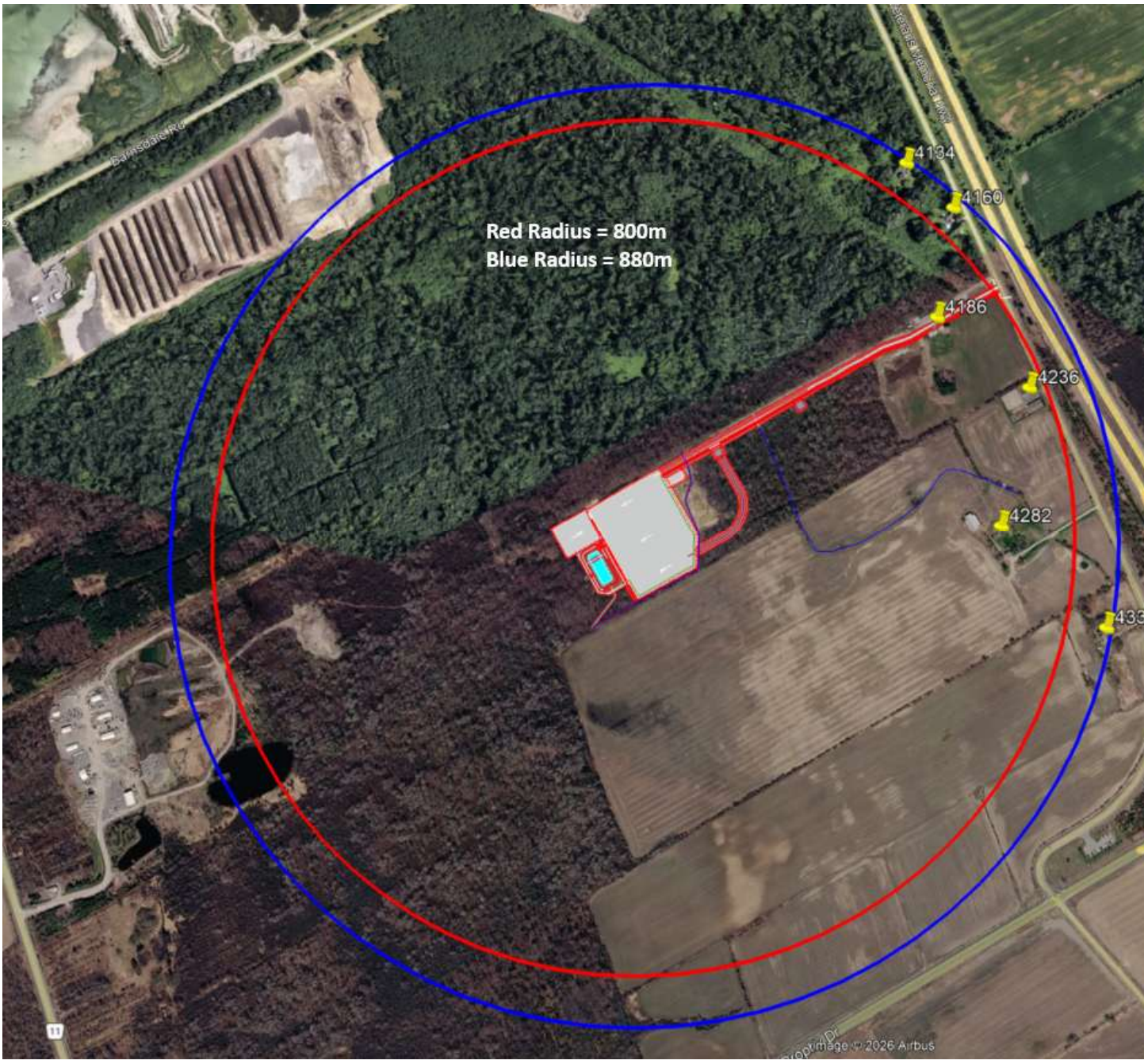
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Figure 1: Baseline Site Assessment – Trail Road BESS



Phase 3 - Reporting

Water well sampling results will be tabulated with results for each address provided to the perspective homeowner. A draft report will be prepared and submitted within 4 – 6 weeks following receipt of analytical results documenting the results of the investigation program. This report will include a summary of the methodology and results of the investigation and conclusions/ recommendations derived from the

investigation. Data tables and figures will be included with the report, and will be submitted to the city as outlined below:

- On-site Baseline sampling will be provided prior to Phase 1 Commence Work Notice of the Site Plan
- Representative Community Sampling will be provided prior to Phase 2 Commence Work Notice of the Site Plan