November 20, 2023

Rose Acquisition Corporation
156 Duncan Mill Road, Suite 12
Toronto, ON
M3B 3N2

Attn: Mr. Amir Hazar, P. Eng., M.Eng.
Via email: amir@rosecorp.com

Re: GTR-23006348-C0 Environmental Considerations
420 and 468 South Service Road East, Oakville, Ontario

Dear Mr. Hazar,

EXP Services Inc. (EXP) is pleased to present the Rose Acquisition Corporation (the "Client") with this letter that provides environmental considerations for the redevelopment of the property located at 420 and 468 South Service Road East in Oakville, Ontario (herein referred to as the 'Site'). The information presented herein is based on historical data obtained by other consultants as well as the soil and chemical data collected by EXP between July to September 2023.

1 Background

The western portion of the Site (420 South Service Road East) was initially developed in 1948 by General Electric (GE) for the manufacturing of car headlamps and fluorescent slim lines and was routinely expanded for further manufacturing operations until the facility was closed circa 2010. The eastern portion of the Site (468 South Service Road East) was developed in the mid-1940s as a gas station and vehicle servicing facility, following which it was acquired by GE to support its ongoing operations at 420 South Service Road East. This land covers an approximately 11.4 ha (28.26 acres) area that is currently vacant, aside from a portion of the former building (designated heritage) along the northern portion of the Site.

There have been extensive environmental investigations completed at the Site on behalf of the owners to assess the potential environmental impacts at the Site resulting from the former industrial operations. Based on EXP's review of the Site conditions, the industrial use of the Site has resulted in various impacts to soil and groundwater across the Site. The soil and groundwater impacts include the presence of impacted fill material across the majority of the Site, including various metals, other regulated parameters (ORPs), polycyclic aromatic hydrocarbons (PAH), petroleum hydrocarbons (PHC) and volatile organic compounds (VOC). The primary groundwater impacts comprise chlorinated VOCs, which are generally present across the Site; however, it is noted that until recently there had not been a comprehensive groundwater sampling program completed at the Site since 2013.

The findings of the recent soil and groundwater sampling completed by EXP in 2023 is presented in the DRAFT "Soil and Groundwater Sampling and Chemical Testing Program", 420 and 468 South Service Road East, Oakville, Ontario, dated October 27, 2023, prepared under separate cover.

Based on the findings of the recent investigations as well as the review of the current and previous chemical data, the VOC impacts in groundwater are not fully delineated along the north, south and west property boundaries, and the potential exists for off-site migration of impacts via groundwater flow.

Remedial measures have recently been implemented at the Site (two rounds of bioremediation by Vertex Environmental in 2023, in conjunction with GE's consultant, Arcadis Canada Inc. (Arcadis)) to reduce the VOC concentrations in groundwater. Groundwater samples were collected from select on-site wells approximately three (3) months after the injection event. The results indicate that the remedial injections have reduced the concentration of the parent VOC compounds (i.e. trichloroethylene, cis-1,2-dichloroethylene) at many of the groundwater monitoring wells. However, as a result of the degradation process, this has resulted in an increase in vinyl chloride concentrations at some of the groundwater monitoring wells along the downgradient boundary.

2 Summary of On-Site Impacts

2.1 Soil Contamination

Based on historical and current chemical data, there is confirmed soil contamination (metals, other regulated parameters (ORPs), petroleum hydrocarbons (PHCs), polycyclic aromatic hydrocarbons (PAHs) and/or volatile organic compounds (VOCs)) in the fill and overburden (shale was not tested) across the majority of the Site.

The previous investigations generally encountered an upper layer of variable fill material overlying native clayey silt till, with shallow bedrock; this was consistent with the findings of the EXP investigation. In general, soil contamination was measured across the majority of the Site.

In general,

- Based on previous and current chemical data, the soil contamination extends to the bedrock which is at a variable depth across the Site. Weathered shale (bedrock) was located at depths of approximately 1.2 m, but more typically at depths below 2.0 to 3.0 m. It is noted that the shale was not chemically tested (since it is considered no soil); however, when the shale will be excavated (as part of the underground parking) it will be considered Excess Soil for potential off-site beneficial reuse and/or disposal. The chemical quality of the shale is unknown.
- Excess soil may require landfill disposal in underground parking areas and where they are excavating for utilities and underground parking (and proper disposal of buried concrete and foundations on-site).
- Existing concrete foundations, footings and other buried underground structures will require management (including possible on-site crushing of concrete and reuse/recycling of the crushed concrete on-site as granular).
- During recent drilling activities by EXP, a large berm was observed at the southeast corner of the Site; however, due to the heavy vegetation, it was difficult to discern the dimension and volume of this berm. The origin and the quality and quantity of the berm is unknown. Chemical characterization of the berm will be required.

2.2 Groundwater Contamination

Groundwater contamination (metals, ORPs, PHCs, PAHs and/or VOCs) was confirmed in the overburden and shale (across nearly the entire Site).

The AECOM report noted water levels on Site ranged from 0.4 to 4.0 m below grade at the time of the investigation in 2013. EXP obtained additional groundwater level measurements from these wells in July 2023, with water levels typically noted to range from 0.3 to 4.0 m below grade, with deeper measurements of 7.5 to 12.1 m at MW-203 to MW-205 which were screened deep into the shale bedrock.

In general, groundwater contamination was measured across the majority of the Site:

- There are groundwater exceedances of metals, ORPs, PHCs, PAHs and/or VOCs in the overburden and shale.
- Due to the proximity of the impacted monitoring wells to the property boundaries, there is a potential for off-Site migration of groundwater along the downgradient/southern boundary. In order to satisfy the O. Reg. 153/04, as amended, it is noted that additional delineation along the remaining property boundaries (north, south and west) is also required to delineate the contaminant plume as there is limited data within proximity to these boundaries and it would not satisfy the MECP during the review of an RSC.
- Groundwater contamination is generally not delineated per the requirements of O. Reg. 153/04 at this time and delineation will be needed along all boundaries to support the RSC.
- In general, the groundwater within the shale across the Site exceeds at depths of about +/- 3.0 to at least 7.0 m and has not been fully horizontally delineated. Technically, the groundwater contamination has been vertically delineated at the sampled 200 series monitoring wells at depths of 17.1 to 20.1 m below grade surface; however, there is a data gap in the shale at a depth from about 7.0 to 17.1 m below grade surface. Additional groundwater monitoring wells may be required to support potential remedial works and/or to develop a more refined site-specific boundary control along the property boundary, as required.

3 Development Plans and Remedial Strategy

Based on discussions with Client, EXP understands that Client is currently in the process of completing due diligence investigations in support of the potential Site acquisition. Consistent with the Town of Oakville's long-term view of the property, EXP understands that the Site could be redeveloped to include 4 separate quadrants, each comprised of one or more mixed-use (residential and/or commercial) high-rise towers, including the construction of new roadways, parklands, and community areas. The final design details, including tower height, number of underground structures, and location of buildings for the property have yet to be determined.

In support of the development plan, a Record of Site Condition (RSC) is required for each of the residential blocks as the land use will be changing to a more sensitive use. It is further noted that in support of the Plan of Subdivision, an RSC will likely also be required for the lands to be conveyed to the Town of Oakville, which includes all roads, road widenings and parks (noting that parks also require an RSC per the requirements of O. Reg. 153/04, due to a change to a more sensitive land use (industrial to parkland use)). The environmental work completed to support the filing of the RSC(s) must be completed in accordance with the requirements of O. Reg. 153/04, as amended, and will include the completion of a Phase One Environmental Site Assessment (ESA), a Phase Two ESA (including the groundwater sampling underway), as well as a Risk Assessment (RA) and/or remedial approach to manage the known environmental impacts to soil and groundwater.

While the work to support the RSC filings is underway, a risk-based approach can be adopted for the Site to manage the environmental impacts in place. An RA is a complete scientific evaluation of the contaminants that are present on a site, taking into account the pathways of contaminant migration, site-specific hydrogeological characteristics, and known and potential receptors (human and ecological) both on and off-site. Based on EXP's understanding of the current Site conditions, it is likely that the predicted risk levels for certain receptors may exceed "acceptable" limits for certain contaminants and that risk management measures will be required. The selection of these measures is dependent upon the intended land use, and the exposure pathways for which unacceptable risk levels were predicted (for example, soil capping to prevent direct contact exposure of on-site human and ecological receptors to soil contaminants).

The Risk Assessment (RA) approach is an ideal strategy for the Site for a variety of reasons, including:

- The RA is fully endorsed by the Ontario Ministry of the Environment, Conservation and Parks (MECP) as a viable method to support RSC filing under O. Reg. 153/04 and has been adopted by EXP on many similar sites across Ontario.
- The RA process allows for the management of the soil and groundwater impacts in place, with engineering controls (as required), such that remedial work (i.e. bulk excavation) does not need to take place prior to building construction. This allows for effective management of cash flow for the development, while still complying with O. Reg. 153/04.
- There has been no free phase contamination identified at the Site that could prevent or reduce the potential for RA success.
- The development concepts, including extent and base elevations of the underground parking are not finalized, and as such, may not coincide with the remedial excavation depths required to support the filing of an RSC to the generic Table 2 Site Condition Standards (SCS).
- The RA allows for the development of risk management measures that can be implemented at the Site to safeguard human and ecological health, as required. These measures may include engineering and/or administrative controls, including but not limited to health and safety plans, vapour mitigation systems, soil cover, and/or soil management plans.
- The RA, including associated risk management measures, can be designed to assess all potential development scenarios so as to reduce/eliminate the need for potential rework and/or remedial design changes as the development concepts get refined.
- Based on discussions with the Town of Oakville on June 26, 2023, they are amenable to accepting risk-based conveyance lands with various risk management measures as opposed to full scale remediation of impacts to full depth across their lands. Measures the Town of Oakville were willing to accept included but was not limited to clean soil caps, enhanced health and safety plans, and Soil Management Plans (SMP).
- The RA process can be initiated immediately, in advance of construction and concurrent with the municipal approvals process, such that an RSC could be filed (and final building permits obtained) prior to initiating base construction.
- This process would allow for the contaminated soil to be managed at the time of construction for base building, eliminating the need for advanced excavation work, and unnecessary importation and backfilling of the Site for safety purposes.

The RA approach is a commonly accepted practice in Ontario on contaminated Brownfield properties, is fully endorsed by the MECP, and has been adopted by EXP on many similar properties across Ontario. Based on the information known at this time regarding the Site, including the presence of impacted groundwater and the development concepts, it is EXP's opinion that the RA approach is a logical, practical and effective approach to manage the impacts in support of the future filing of an RSC at this time.

Subject to the completion of the additional soil and groundwater delineation work as part of the Phase Two ESA and the refinement of development blocks, it is possible that modifications to the above strategy may be adopted, provided it would be a benefit to the project. This could include the identification of less impacted development blocks that require minimal remedial

works to support an RSC filing, or the prioritization of development blocks depending on potential tenants or municipal requirements. This can be re-assessed, as required, based on input from the Client as the project progresses; however based on the current understanding of the site conditions and proposed development, one (1) risk based RSC is anticipated for the Site.

It is noted that although the risk based approach is recommended, some soil remediation will be required to remove some soil with pH values outside the acceptable range, as well as possibly mercury and methyl mercury impacted soil. In the absence of the removal of the soil pH outside the acceptable range, the Site would be identified as a Sensitive Site as defined by O. Reg. 153/04, warranting the application of the more stringent Table 1 Site Condition Standards. Based on previous chemical data, the measurements of soil pH at about 15 locations at the Site are not within the MECP acceptable range of 5 to 9 for surface soil and 5 to 11 for subsurface soil. It is noted, however, that the material represented by these results was fill material (not native soil) which will be delineated and removed from the Site as part of future remediation/construction, and as such the less stringent Table 2 SCSs are assumed to apply for the purpose of this report. EXP has included a figure illustrating the areas where there are elevated levels of pH. It is noted the elevated pH levels are within the fill material and/or below the concrete and must be removed in order to utilize the less stringent Table 2 RPI SCS. It is anticipated that these are likely isolated spots and a 3 x 3 m excavation at each area may suffice to remove the impacts, subject to confirmatory testing.

The timelines for the completion of an RA in Ontario can vary based on the nature of the RA approach, the type of contamination, the complexity of the site setting, the number of resubmittals, and the future development scenarios for the Site. Based on EXP's experience with similar properties under O. Reg. 153/04, it is anticipated that the risk assessment process may take 18 – 24 months from the initial submittal until the MECP approval of the RA is obtained. This timeline is associated with the nature of the MECP review process, which typically requires 3 RA submittals, each subject to a typical 16-week review period by the MECP. On completion of the RA process, a Certificate of Property Use (CPU) will be generated by the MECP, following which an RSC can be filed. The RA approach has been adopted at many similar subdivision redevelopments in Ontario, including but not limited to Lakeview Village in Mississauga and the Crosstown Development in Toronto.

If the MECP requests additional sampling and/or delineation be conducted during the RA process and contaminant migration off-site is found possible as part of this process, the MECP may classify the Site as Wider Area of Abatement (WAA), which among other requirements, would extend the RA review period to 22 weeks, adding some additional time to the RSC approval. While the historical analytical data to date at the southern/downgradient property boundary has indicated the presence of isolated VOC impacts in groundwater at select boundary wells, these concentrations should improve based on the recent in-situ remedial works that have been implemented at the Site. While long-term post remedial sampling is pending, given that the adjacent southern property comprises of low-risk industrial railway and hydro corridors with no enclosed structures, the likelihood of actual risk to off-site receptors south adjacent to the site at this time is negligible. Furthermore, it is also noted that the completion of a RA, generation of a CPU, and filing of an RSC at a site in Ontario provides limited liability protection from the MECP as they acknowledge the site has been appropriately assessed and managed per the requirements of O. Reg. 153/04. It is noted that if the MECP classifies the Site as WAA, public consultation would be required, and it would add approximately six (6) months to the two to three (2 to 3) year Tier 3 RA process. It is also noted that off-Site sampling and chemical testing may be required by the MECP District Engineer.

The Phase Two ESA scope of work can be iterative and is highly subject to the findings of the chemical testing results, and as such, the actual costs associated with the RSC process are subject to change; however, based on EXP's experience with similar properties, the estimated costs for the completion of the Phase One and Two ESA, RA and RSC process is as follows:

Item	Description	Approximate Time Frame	Cost Estimate (Excluding HST)
Phase One Environmental Site Assessment (ESA), Phase Two ESA, Risk Assessment (RA) and Record of Site Condition (RSC)			
1.0	O. Reg. 153/04 Phase One and Two ESA, RA and RSC	2 to 3 years	$475,000

4 Risk Assessment, Risk Management Measures and Soil Management

As part of the risk assessment (RA) process, it is likely that risk management measures (RMMs) will be required to support the future residential use of the Site. While the final RMMs will not be known until the RA is completed and approved by the MECP, EXP anticipates that the following RMMs may be required at the Site:

1. Soil Cover System

    a. Can comprise of soft cap and/or hard cap considerations. It is anticipated that the caps in the development blocks would comprise of the future building footprints; however, for any public roads or parklands, it is likely that a 1.5 m clean soil cap (as a minimum) will be required.
2. Vapour Mitigation Systems beneath future buildings

    b. It is possible that the underground parking garage may suffice to mitigate the vapour intrusion pathway; however, a vapour collection system (venting and/or membrane) may be required.
3. Indoor Air Quality

    c. Based on the results of the Risk Assessment, the MECP may require an indoor air quality (IAQ) monitoring program to be conducted at the Site. Typically, this would consist of quarterly results for the first year, and three events per year for the next two years, and semi-annual or annual monitoring thereafter, until this requirement is rescinded by the MECP District Engineer.
4. Long-Term Groundwater Monitoring Programs

    d. Based on the results of the Risk Assessment, the MECP may require a long-term groundwater monitoring program to be conducted at the Site. Typically, this would consist of quarterly groundwater monitoring for 2 years, followed by semi-annual groundwater monitoring thereafter, until this requirement is rescinded by the MECP District Engineer.
5. Restriction of Potable Wells

    e. The RA will likely propose a site restriction to prohibit the taking of groundwater from the Site for potable use.
6. Soil Management Plan

    f. A Soil Management Plan (SMP) may be also required for managing excavated soil, soil brought to the Site, as well as for groundwater from dewatering. The SMP is to be implemented to prevent exposure to potential contaminants of concern in soil, and/or groundwater at the Site.
7. Health and Safety Plan

    g. A Health and Safety Plan (HASP) will be required in the event of intrusive activities being conducted at the Site which may expose construction/subsurface workers to on-site contaminants.

In addition to the above, to assist in mitigating potential off-site concerns, downgradient boundary control may be required along the southern property boundary. While impacts have not been delineated at this time to the west and north boundaries, there have been no VOC impacts identified in immediate proximity to the boundary that would warrant similar measures at this time. This should be confirmed as part of the future delineation investigations. The estimated costs to the address the above seven (7) potential RMMs and their timelines are presented below. It is noted that some of the RMMS are addressed during the construction phase, and some of the RMMs will be on-going monitoring and maintenance programs once the Site has been developed as indicated below:

Item	Description *	Approximate Time Frame	Cost Estimate (Excluding HST)
1.0	**Risk Management Measures (RMMs)**		
1.1	**Soil Cap (Public Lands only):** • The area of the Public Park = 6,097 m^2 • The area of the Urban Square = 2,500 m^2 – no cap required. • The area of the heritage market = 2,500 m^2 – no cap required. • Roadways – Approximately 44,069 m^2	-	-
1.1.1	**Public Park** – 6,097 m^2 with a 1.5 m cap – 18,300 tonnes using a density of 2:1. $35.00/per tonne to import, place and compact sand fill material. $35 x 18,300 = $640,500. Note: If granular is to be used instead of sand fill then a cost of $45 will be applied.	Construction Phase of Project	$640,000
1.1.2	**Roadways** – Approximately 44,069 m^2 with a 1.5 m cap – 132,207 tonnes using a density factor of 2. $35.00/per tonne to import, place and compact sand fill material. $35 x 132,207 tonne = $4,700,000. Note: If granular is to be used instead of sand fill then a cost of $45 will be applied.		$4,700,000
1.2	**Vapour Mitigation Systems**		
1.2.1	**Vapour Mitigation System Design (per building)** Detailed Design, Preparation of Environmental Compliance Approval Application, MECP Application Fees	Construction Phase of Project	$25,000 to $35,000
1.2.2	**Vapour Mitigation System Installation and Commissioning (per building)** Site Reviews & Inspection During Installation (15), Reporting, Preparation of Inspection Monitoring & Maintenance Program, and Preparation of an Indoor Air Quality Monitoring Program		$25,000 to $35,000
1.2.3	**Vapour Membrane Cost*** Cost for vapour membrane under concrete slab. Based on assumption underground parking to be constructed with a floor area as follows: Block 1 – 21,040 m^2 = 226,472.7 ft^2 Block 2 – 17,856m^2 = 192,200.4 ft^2 Block 3 – 10,038 m^2 = 108,048.1 ft^2 Block 4 – 9,900 m^2 = 106,562.7 ft^2 Unit cost of $10 to $15 / square foot Note: This cost includes floor area only (does not include the wall areas).	Construction Phase of Project	$6,332,839 to $9,499,259

Item	Description *	Approximate Time Frame	Cost Estimate (Excluding HST)
1.3	**CPU Annual Report (**Assume 4 years) $5,000 per report covering the entire site	Post Construction Phase of Project	$20,000
1.4	**Long-Term Monitoring Programs: Installation of monitoring wells for groundwater monitoring program (Assume 5 years)** Following re-development of property, installation of monitoring 10 wells will be required. *Note: Cost provided is for direct install for monitoring wells in overburden and native shale up to a depth of 17.1 m.*	Post Construction Phase	$60,000 to $75,000
1.5	**Indoor Air Quality Monitoring (Assume 3 years)** **Year 1 Monitoring - 4 Events** **Year 2 and 3 Monitoring (3 events per year)** Each monitoring event = **$25,000**	Post Construction Phase of Project	$250,000 to 500,000
1.6	GW Sampling of ten (10) monitoring wells Year 1 - Four (4) monitoring events Year 2, 3, 4 - Two (2) monitoring events per year		
1.7	**Annual Inspection and Maintenance Program (New Cap)** Preparation of an Inspection and Maintenance Program and logbook, Site visit by Intermediate Professional (*Note: Annual inspections of the Cap are to be completed by property management/on-Site personnel as this information would be incorporated as part of the CPU annual report).* $3,000 per visit/assume 4 years	Annual Inspection Post Construction Phase	$12,000
1.8	**Restriction of Potable Wells**	-	-
1.9	**Soil Management Plan (SMP)**	Construction Phase of Project	$10,000
1.10	**Health and Safety Plan (HSP)**	Construction Phase of Project	$10,000
		Total	$12,084,839 to $15,536,259
		Contingency (10%)	$1,208,484 to $1,553,626
		Total Estimate	**$13,293,323 to $17,089,885**

***Notes on RA and RMM Costs:**

- The above costs do not account for any excavation, transportation and disposal of soil, as it is assumed that work would be completed as part of base construction.
- The above costs relate to environmental aspects only.
- Given the Site has not been fully accessed to evaluate the current Site Condition Standards (SCSs), a refined scope of work for the Phase Two ESA/Supplemental Phase Two ESA is not feasible at this time.
- Chemical analysis completed as part of the ESA would be for standard 5 to 7 business day turn-around time (TAT).
- A Tier III RA will be required.
- The cost associated with the CPU RMMs/long-term monitoring requirements for the Site are to be determined following completion of the ESA reports, a review of finalized development plans, and coordination with the MECP.
- The vapour membrane cost - this cost is only an estimate and should be reassessed. It does not include a vapour membrane cost for the walls. In addition, it should be confirmed that the vapour membrane complies with the vapour water proofing requirements as well.
- Pricing for the cap does not include clearing and grubbing or grading of the base for the cap. All pricing is subject to change.
- It should be noted that estimates provided in this letter are based on limited data, and should be considered an opinion of probable costs required to perform work recommended by EXP. Moreover, EXP is not a professional cost estimator, nor should EXP rendering an opinion of probable costs be considered equivalent to the nature and extent of service a cost estimator or construction contractor would provide.
- The costs outlined do not include geotechnical or hydrogeological oversight, or account for shoring costs, structural, or dewatering (construction of long term).
- Cost estimates are based on information available at this time, and are subject to change based on the timeline of the completion of the work.
- The above costs do not address costs to address groundwater considerations for Permit-To-Take-Water (PTTW), if required.

In the event that unexpected groundwater exceedances are identified during the long-term monitoring program, this could initiate the need Contingency Measures, as described in a Certificate of Property Use (CPU) and RA. The additional costs associated with these measures are not included specifically in the above-noted table. While the specific nature of the contingency measure requires, as well as the costs associated with the measure cannot be determined at this time as they relate to contingency measures, the contingency factor outlined above should be sufficient to cover any additional sampling rounds.

In addition, if the cap barrier does not meet the requirements of the CPU, the client will inform EXP of the observations and complete the required barrier repairs at their own cost. No cost allowances have been provided in this proposal to complete, oversee, coordinate or manage the cap barrier repairs, discussions with the regulatory agencies, etc.

It is noted that the above-noted estimates are based on the information available at this time and the assumptions outlined above. Actual costs associated with the environmental management/remediation of the Site are to be determined following the completion of the assessment/delineation work, per the requirements of O. Reg. 153/04, the final configuration of the Site, and the staging of the development.

Unit rates for engineering services are summarized in below:

EXP Standard Unit Rates

Role	Unit Rate
Vice President	$250/hour
Senior Project Manager	$175/hour
Project Manager	$130/hour
Environmental Technician	$85/hour
Drafting	$75/hour
Clerical	$50/hour
Disbursements	Cost + 15%

5 Permeable Reactive Barrier (PRB)

A permeable reactive barrier (PRB) along the south property limits may be required to address VOC contamination in the groundwater mobilizing off-Site. The approximate distance is about 130 to 140 m long based on three monitoring wells along the south limits (MW150S, MW150D and MW125) which exceeded the Table 2 All Types of Property Use Site Condition Standards (SCS) for VOCs. The depth of the PRB would be about 0.5 m to 7.0 m; however, there isn't any groundwater data from 7.0 to 17.1 m. It is noted that groundwater met the applicable SCSs for VOCs at a depth of 17.1 to 20.1 m at select locations.

The PRB presented herein accounts for the known contamination up to a depth of about 7.0 m. While vertical delineation has been obtained at a depth of 17.1 m bgs, additional monitoring wells are required to support the development of a more refined site-specific boundary control along the property boundary.

For the purposes of this cost estimate, the above environmental work has assumed a maximum depth of 7.0 m and is presented below:

Item	Description	Approximate Time Frame	Cost Estimate (Excluding HST)
1.0	**Permeable Reactive Barrier (PRB)**		
1.1	Option 1: Trenching and installing a PRB which includes equipment, contractor manpower, materials, transport, and disposal of contaminated soil displaced by the PRB. The contractor indicated a better-quality assurance/quality control (QA/QC) would be achieved with trenching. The maximum excavator reach is 7 m; however, depending on the hardness of the shale the contractor may not be able to extend to this depth. • Approximately $15,000 per linear meter.	Pre-Construction	$2,000,000 to $2,200,000
1.2	Option 2: For injecting the PRB, it will be roughly $800,000 and the drilling would extend to refusal in the shale layer. If injecting must go deeper into the shale, the contractor would have to drill open wells and inject into the shale. It is noted that there is added complexity to injections within the shale as the groundwater, as well as the reactive material, can migrate along fractures/seams, resulting for an increased number of injection points to reduce uncertainty and increase likelihood of reactive column/barrier. A PRB into the shale may not be as efficient as trenching.		$800,000 to $1,200,000

It is noted that the PRB cost is only a very high-level estimate and should be reassessed. This high-level estimate should only be used as a feasibility study and not to be relied on for actual construction budgets. The contractor has not seen the Site and would require additional information on PRB design, soil stratigraphy and accessibility. This estimate does not include EXP's time on Site for supervision (if required), and the vertical depth of impact should be confirmed prior to final design of PRB.

6 On-Site and Excess Soil Management Regulation

The Ministry of the Environment, Conservation and Parks (MECP) introduced On-Site and Excess Soil Management Regulation (O. Reg. 406/19, as amended) on January 1, 2021. This regulation changes the definition of soil as a waste unless it is being transported for beneficial reuse. Soil quality must meet the new Excess Soil Quality Standards (ESQS) and the quantity of soil must be consistent with the beneficial reuse specified for a Reuse Site (Receiving Site).

It is noted that Excess Soil can be combined with soil management during development.

The number of soil samples to be tested is a function of the actual volume of excess soil to be reused off-site for beneficial reuse.

Based on the On-Site and Excess Soil Management Regulation, for an *in situ-approach (as opposed to stockpiling)*, the following rules will apply:

1. A minimum of three soil samples must be analyzed if less than 600 m^3 of soil will be excavated,
2. At least one soil sample shall be analyzed for each 200 m^3 of soil for the first 10,000 m^3 of soil to be excavated,
3. At least one soil sample for each 450 m^3 after the first 10,000 m^3 of soil to be excavated, shall be analyzed, and
4. At least one soil sample for each 2,000 m^3 after the first 40,000 m^3 of soil to be excavated.

At a minimum, soil samples are required to be analyzed for the following parameters:

1. Petroleum hydrocarbons (PHCs) Fractions F1 to F4 including benzene, toluene, ethylbenzene and xylenes (BTEX),
2. Metals including hydride-forming metals,
3. Electrical conductivity (EC), sodium adsorption ratio (SAR) and pH,
4. Any contaminants of potential concern (COPCs) identified during the Assessment of Past Uses (APU)/Phase One ESA,
5. Leachate analysis (Ministry's synthetic precipitation leaching procedure (mSPLP)) for certain COPCs (metals and/or volatile organic compounds (VOCs)), and
6. Toxicity characteristic leaching procedure (TCLP) testing, if landfill disposal is required.

An Excess Soil Management Plan (ESMP) will be required if the volume of excess soil generated exceeds 10,000 m^3.

A cost for Excess Soil Sampling and Chemical Testing by EXP has not been provided at this time as the volume of soil to potentially be reused off-site for beneficial reuse is unknown. The bedrock/shale on-Site has not been chemically tested as it is considered 'not soil' for the purposes of O. Reg. 153/04, as amended; however, once it's excavated it will require chemical testing to determine if the bedrock/shale can be beneficially reused at another Site or if it will require disposal at a licensed landfill or recycling facility.

7 Existing Stockpiles and Berm On-Site

Arcadis completed a Soil Stockpile Characterization Report dated March 26, 2021 which indicated there was an unauthorized deposit of soil (stockpiles) discovered by GE on October 28, 2019 from an unknown source. This unauthorized deposit was

reported to the MECP on October 29, 2019, as well as the municipal officials at the Town of Oakville Municipal Enforcement Services.

In general:

- 5 soil samples from each of the 5 areas where soil was deposited (Area A to Area E).
- Soil was chemically tested for metals and inorganics, PAHs, PHCs, BTEX and VOCs.
- Arcadis indicated the approximately total volume is **5,330 m^3.**
- 34 composite surficial soil samples plus 7 duplicates were submitted for chemical testing.
- Trace odour and black staining was noted in Area D
- The chemical data was compared to Table 1 (residential/parkland/institutional/industrial/commercial/community (RPI/ICC) and Table 6 RPI and ICC.
- EXP compared the chemical data to the applicable on-Site Table 2 RPI SCS. There were salt exceedances (electrical conductivity (EC) and sodium adsorption ratio (SAR)) at numerous locations, and exceedances of cobalt at one location (Sample Duplicate E-1), lead at one location (Sample A-5), molybdenum at one location (Sample Duplicate B-2), and fluoranthene at one location (Sample E-2019).

EXP understands that the stockpiles are likely to be disposed off-site prior to any development works. To support an evaluation of options, EXP compared the known Table 1 SCS impacts to the Table 3.1 ICC Excess Soil Quality Standards (ESQS) for off-site disposal and/or reuse. The results indicated that there were salt exceedances (EC and SAR) at eleven (11) locations, and exceedances of PHC Fraction F2 at six (6) locations (SA-B-2, SA-B-3, SA-E-1, SA-E-2, SA-E-3 and SA-E-5), lead at one location (Sample A-5), and anthracene at three (3) locations (SA-D-2, SA-E-9 and SA-E-2019).

Based on the Arcadis Figure 1, the approximate number of loads are located within each of the following areas:

Area	Approximate Number of Loads *	Approximate Volume of Fill via Survey (m^3)	Approximate Volume (Tonnes)	Requires Disposal at a Licenced Landfill	Comments
A	100	1,049	2,098	Yes, however, delineation of lead may be possible.	Table 3.1 ICC ESQS exceedances of: - EC and SAR at eight (8) locations, and - Lead at one (1) location. Delineation may be possible.
B	20	221	442	Yes	Table 3.1 ICC ESQS exceedances of: - EC and/or SAR at three (3) locations and - PHC Fraction F2 at two (2) locations.
C	120	1,555	3,110	Possibly. Depending on the amount of concrete rubble, crushing/ recycling	Piles comprised mostly concrete rubble

Area	Approximate Number of Loads *	Approximate Volume of Fill via Survey (m^3)	Approximate Volume (Tonnes)	Requires Disposal at a Licenced Landfill	Comments
				on-Site may be possible	
D	100	800	1,600	Yes, however, delineation may be possible.	Table 3.1 ICC ESQS exceedances of: - Anthracene at one (1) location.
E	180	1,705	3,410	Yes	Table 3.1 ICC ESQS exceedances of: - PHC Fraction F2 at four (4) locations. - Anthracene at two (2) locations
Totals	**520**	**5,330**	**10,660**	-	-

* Note: It is assumed that there is approximately 10 m^3/load (for 1 triaxle) which is about 20 tonnes. With the exception of Area C, the stockpiles comprised of both shale and soil, and some intermixed commercial materials including concrete and brick.

It is noted that the chemical data is greater than 18 months old. If the excess stockpiles are to be removed off-Site they will likely require additional sampling and chemical testing due to the Excess Soil regulation and/or disposal at a licensed landfill.

During drilling, a large berm was observed at the southeast corner of the Site; however, due to the heavy vegetation, it was difficult to discern the dimension and volume of this berm. The origin and the quality and quantity of the berm is unknown. Chemical characterization of the berm will be required.

8 Construction Costs Considerations

While final details for construction, including dimensions, development plans, and timelines are unknown, EXP has presented an estimate of the potential items and ballpark costs for construction related items, as presented below (in the form of unit rates):

Item	Description *	Approximate Time Frame	Cost Estimate (Excluding HST)
1.0	**Groundwater Considerations**		
1.1	A cost for a Preliminary Hydrogeological Study was previously provided by EXP which included well development, single well response test (SWRT) on all new monitoring wells and select existing wells, groundwater sampling and chemical testing for one Regional Municipality of Halton Sewer Use By-Law test, data preparation and analysis, preparation of a hydrogeology study report, drafting and senior technical review.	Pre-Construction	$12,900
1.2	A hydrogeological study and water balance assessment will be required to address technical requirements of the Ontario Water Resources Act, Ontario Regulation 387/04 and MECP and Halton Conservation Authority (HCA).	Pre-Construction	To Be Determined
1.3	A PTTW may be required for the future buildings, for construction and for long term dewatering. The number of underground levels (1, 2 or 3 levels) is unknown at this time. Permanent long-term dewatering may be required. It is noted that the volumes of water to be generated cannot be quantified at this point as the depth and levels of underground parking are unknown.	Pre-Construction	To Be Determined
2.0	**Remedial Costs During Redevelopment - Soil**		
2.1	**Soil Disposal Costs** • The area of the Site is 11.4 ha (28.26 acres) = 114,000 m^2 - Based on an Architectural Concept Plan (Version 4) dated August 9, 2023, by Graziani and Corazza Architects, there are 18 proposed buildings on-site within four quadrants. **<u>Four Underground Parking Areas:</u>** The area for the Parking Areas is as follows: Block 1 – 21,040 m^2 Block 2 – 17, 856 m^2 Block 3 – 10, 038 m^2 Block 4 – 9,900 m^2 **<u>Park:</u>** The area of the park is 6,097 m^2 **<u>Roadways:</u>** - The area of the roadways is approximately 44,069 m^2	Remediation Phase	Four Underground Parking Areas, Park, Roadways and pH/Hotspot Removal Areas, Berm and Stockpiles (To Be Determined)

Item	Description *	Approximate Time Frame	Cost Estimate (Excluding HST)
	pH Removal (and possible mercury/methyl mercury or any hot spot removals): - The areas of pH or areas with high exceedances which may be identified by the RA) is unknown at this point. **Berm:** - The area and volume of the berm on the southeast corner is unknown at this time. **Stockpiles:** The approximate volume of the stockpiles is 5,330 m^3 as indicated in Section 7 above. - The in-place volume for the zone of the contamination within the four parking areas, park, roadways, pH/hotspot removal and berm are unknown at this point as is the maximum depth of soil to be excavated is unknown. - It is noted that the bedrock/shale to be excavated has not been tested so it is possible that it could be reused off-Site as Excess Soil, rather than disposed of as contaminated fill. Additional soil sampling and chemical testing will be required. Refer to the Excess Soil Section 6.0 above. - It is noted that the overburden cannot be re-used at another Reuse Site and should be disposed of at a licensed landfill or place below a 1.5 m cap. A Toxicity Characteristic Leaching Procedure (TCLP) test, required by a licenced landfill is required. - The tipping fee for the disposal of contaminated soil to a non-hazardous licensed landfill within the GTA Area can be based on a rate of $80/tonne* (2023 tipping fees are subject to change based on when remediation will occur). Unit rates are generally between $70 to 85/MT, and subject to nature of soil and landfill availability. - Assumes an average density of 2.0 tonnes/m^3 - The contaminated soil cannot be re-used at another Reuse Site and should be disposed of at a licensed landfill or place below a 1.5 m cap. **Notes:** 1. These costs for EXP's time on-site during soil removal, importing of soil to reinstate grades, inspection and compaction testing, geotechnical and hydrogeological considerations, etc. has not been provided. 2. The costs to address groundwater considerations, Permit-To-Take-Water (PTTW), if required, have not been provided. 3. It is noted that the cost for the bedrock/shale (which has not been tested) is not included in this cost.		

Item	Description *	Approximate Time Frame	Cost Estimate (Excluding HST)
2.2	**Confirmatory Soil Sampling and Remediation Report** The number of confirmatory samples is to be confirmed once the Phase One ESA, Phase Two ESA/Supplemental Phase Two ESA are completed and the final areas for soil removal are to be determined.	Remediation Phase	To Be Determined
		Total	--

*** Notes on Construction Costs and Soil Management (Including Remedial Costs During Redevelopment):**

- The costs presented in this letter do not account for the disposal of any excess soil generated as part of the excavation work for the future residential, commercial and parkland development with associated roadways. These costs are subject to the nature of the development, the completion of additional soil testing to satisfy the O. Reg. 406/19, as amended, and the timing of the development.
- Costs associated with the completion of soil testing or implementing protocols for the management of Excess Soil per the requirements of O. Reg. 406/19, as amended, have not been provided.
- Soil disposal costs have not been included in this letter given that future grades and building footprints are unknown.
- It is noted that the soil disposal costs are based on volume, and that the trucking time/cost for the removal of bedrock/shale would be likely be additional due to the weight of shale versus the weight of soil (Assume 1 m^3 = 2 metric tonnes (MT)).
- Soil disposal costs would be based on the assumption that soil is removed and not bedrock/shale (which has not been tested).
- The unit rate of $70 to 85/MT for soil disposal is the incremental cost to dispose of the soil to a non-hazardous licensed landfill within the GTA Area assuming the contractor is already on-site completing the excavation work (i.e. does not include mobilization, excavation and transport). It is noted that the unit rates for soil disposal must be confirmed by a contractor as part of the construction tendering process. It is noted that this cost is subject to change based on landfill availability and 2023 tipping fees are subject to change based on when remediation will occur.
- Costs associated with soil that requires removal from spot cleanups (in the areas of pH or areas with high exceedances which may be identified by the RA), and possibly from the stockpiles, berm, location of underground services, etc. have not been provided.
- Costs for EXP's time on-site, importing of soil to reinstate grades, inspection and compaction testing, geotechnical and hydrogeological considerations, etc. have not been provided.
- It is also noted that existing concrete foundations, footings and other buried underground structures will require management (including possible on-site crushing of concrete and reuse/recycling of the crushed concrete on-site as granular) which has not been included.

- Cost for EXP's time on-Site during remedial activities, confirmatory sampling and chemical testing, and reporting have not been included. This can be determined once the Phase One ESA, Phase Two ESA and Supplemental Phase Two ESA are completed and the final areas for soil removal are determined.

- The cost for well decommissioning has not been included.

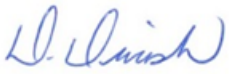
9 Conclusions

The results of the soil and groundwater sampling completed at the Site to date have indicated the presence of various impacts to soil and groundwater. Based on the information known at this time regarding the Site, including the presence of impacted groundwater and the development concepts, it is EXP's opinion that the completion of a risk assessment is a logical, practical and effective approach to manage the impacts in support of the future filing of an RSC at this time. Although subject to review and approval of the MECP, it is likely that the risk assessment will require risk management measures and monitoring programs that will need to be factored into the development estimates over and above traditional construction costs related to soil disposal and dewatering, as required. It is also recommended that a boundary control be considered along the southern boundary to mitigate potential for off-site migration of VOCs.

Should you have any questions, please do not hesitate to contact this office.

Sincerely,

EXP Services Inc.



Danika Durish, B.Sc., C.E.T., E.P.
Senior Project Manager
Environmental Services

Rob Helik, P.Eng.
Vice President
Environmental Services

Attachments:
Figure 1 – Soil Exceedances - pH

EXP Services Inc.
t: +1.905.793.9800 | f: +1.905.793.0641
1595 Clark Boulevard
Brampton, ON L6T 4V1
Canada
www.exp.com

•BUILDINGS • EARTH & ENVIRONMENT • ENERGY •
• INDUSTRIAL • INFRASTRUCTURE • SUSTAINABILITY•

0 20 40 60 80 100 m

TITLE AND LOCATION:
SOIL EXCEEDANCES - pH (DRAFT)
FOR INTERNAL USE
420 and 468 South Service Road
Oakville, Ontario

PROJECT No.: GTR-23006348-C0	DWN: HY
SCALE: AS NOTED	CHKD: DD
DATE: NOVEMBER 2023	FIG. No.: 11