



ATLAS GEOSCIENCES NW

May 14, 2021
Proposal No. P2018-101

Mr. Eric Hoolahan
Bellevue Rare Coins
321 Bellevue Way NE
Bellevue, WA 98004

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Subject: Proposal for Supplemental Vapor Intrusion Assessment
Fred Roberson Building
2302 Pacific Avenue
Tacoma, Washington
Ecology Facility Site No. 55732663

Dear Mr. Hoolahan:

Atlas Geosciences NW (Atlas) is pleased to provide this letter presenting our proposed scope of work and costs to perform a Supplemental Phase II Investigation (Supplemental Phase II) at the above-referenced property (hereafter referred to as the site). The subject site consists of a 1925-vintage zero-lot-line, approximately 10,500-square-foot, retail warehouse building on approximately 0.14 acre of land (Pierce County parcel no. 2023040010).

1.0 PROJECT BACKGROUND

Atlas completed a sub-slab vapor sampling event at the site on July 11, 2018. The sub-slab vapor sampling was performed beneath the ground floor of the site building, adjacent to a historical gasoline-related release to soil and groundwater on the east end of the building. Due to the age of the building (1925-vintage), detailed foundation construction details (e.g. utilities, historical pits, sumps, etc.) are unknown. The first floor of the site building is partially subgrade and daylights on the Pacific Avenue side. The building is heated by electric units and is serviced by the municipal sanitary sewer system. Atlas did not identify historical additions to the building during a previous Phase I Environmental Site Assessment.

Groundwater beneath the site has previously been encountered at approximate depths of 8 to 12.5 feet below ground surface (bgs) in the western (subgrade) portion of the building and approximately 19 feet bgs immediately east of the building (street level, in the sidewalk right-of-way). Other details of the historical release are provided under separate cover.

Sub-slab vapor was collected from two locations (SSV-1 and SSV-2) near the site building's eastern exterior wall (depicted in the attached site plan). Based on the results of the vapor sampling, a potentially significant leak was detected in the sample collected from SSV-1. Regardless, the sample contained elevated air-phase hydrocarbons (APH EC9-12) at a concentration above the screening level established in the Department of Ecology's (Ecology) Cleanup Levels and Risk Calculations (CLARC). Sample SSV-2 contained air-phase hydrocarbons (APH EC5-8 and EC9-12) and benzene at concentrations above their respective CLARC screening levels as well as a total petroleum hydrocarbon (TPH) concentration above a draft calculated site-specific TPH non-carcinogenic cleanup level of 193.92 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).

Based on the results of the preliminary sub-slab vapor sampling, and on discussions with Ecology, Atlas recommended a supplemental vapor intrusion evaluation for the site building.

2.0 PROPOSED SCOPE OF WORK

Atlas proposes to perform a supplemental vapor intrusion assessment at the site by collecting additional sub-slab soil vapor, ambient air, and indoor air data and analyzing or screening for the contaminants of concern (COCs) and various parameters (e.g. nitrogen, carbon dioxide, methane, and radon). The purpose of the investigation is to evaluate multiple lines of evidence for the presence or absence of an adverse vapor intrusion condition into the site building. Specifically, this scope of work involves the following:

2.1 Project Set-up

In preparation for the proposed work, Atlas will prepare a site-specific health and safety plan (HASP) to address potential worker safety issues during the field work proposed herein. The HASP will be reviewed and signed by project field personnel prior to performing the field work. Atlas is not responsible for the health and safety of non-Atlas personnel.

2.2 On-site Chemical Product and Material Inventory Inspection

Atlas will perform a chemical product and material inventory inspection at the site building prior to conducting the sub-slab vapor/ indoor air sampling event. This inspection is to identify chemicals in the site building that may affect the results of the indoor air sampling. If feasible, identified chemicals or materials that have the potential to affect the results of the sampling event will be removed prior to conducting the sampling.

2.3 Sub-Slab Soil Vapor Sampling

Atlas will perform sub-slab vapor sampling along the eastern edge of the site building, in the vicinity of the two locations with previously-detected elevated contaminant concentrations in sub-slab vapor. A hand-held drill will be used to core a hole of approximately 5/8 to 1/2 inch in diameter through the building slab and three to four inches into the fill material below the slab. A 1/4 inch inside-diameter Teflon or other suitable inert material tubing will be inserted into the hole and sand will be placed around the tubing. A thin layer of dry bentonite will be inserted above the sand pack to ensure that any water will not intrude into the sand pack. Hydrated bentonite will be placed at the slab around the tubing to seal off the sub-slab environment from the indoor air. Prior to sampling, to ensure the integrity of the sampling assembly, a shut-in test of the tubing manifold will be performed for approximately 30 seconds, and a water dam will be utilized at the floor penetration point to ensure the system has tight seals. If a water dam is not feasible, a leak-detection compound (e.g. 1,1-difluoroethane) will be applied to the base of the slab penetration with a rag during sample collection and included with the laboratory analyses, to evaluate the potential for a leak. Once integrity is verified or a leak-check compound is applied, as applicable, Atlas will purge three volumes of sampling apparatus air (as determined in the field) from the sample equipment and the sub-slab sample point area. Following purging, once the system has been allowed to equilibrate for two hours, sub-slab vapors will be drawn from beneath the slab and transferred to an evacuated 1-liter Summa sample canister.

One duplicate sample will be collected for the COCs discussed in section 2.4 using a three-way splitter at the sample point to two separate 1-liter summa canisters. Additional duplicate, sequential sampling will be conducted at each sub-slab sampling location for separate radon and TO-17 analyses. A syringe will be used, for the additional duplicate samples, to draw vapors from beneath the slab to a Tedlar® bag (for radon) and sorbent tube (for TO-17), respectively.

New, dedicated tubing, syringes, Summa canisters, sorbent tubes, and/or Tedlar® bags will be used to collect each sub-slab vapor sample.

At Ecology request, following collection of the vapor samples, a multi-gas meter will be connected to the sample tubing to analyze sub-slab vapor in the field for oxygen (and subsequent back-calculation for nitrogen), carbon dioxide, and methane. The sub-slab vapor parameters will be recorded on field forms prior to decommissioning of the sampling points.

2.4 Indoor and Ambient Air Sampling

In addition to the sub-slab vapor sampling discussed above, Atlas will collect three indoor air samples from the site building and one ambient air sample from outside the building. An attempt will be made to collect the indoor and ambient air samples on a date with relatively low ambient pressure, if feasible. The indoor air samples will be collected from the same vicinity as the sub-slab sample locations and two additional locations in the site building, as determined in the field. The indoor air samples will be

collected within the approximate “breathing zone” elevation in the building, each using an evacuated 6-liter Summa canister with a 24- or 8-hour regulator (as appropriate). The ambient air canister, located outside of and upwind of the building, will be opened prior to, and closed after, the indoor air sample canisters to account for ambient conditions present during the entire sample period.

Duplicate indoor air samples (for radon analysis) will also be collected from the vicinities of the sub-slab sample points using a syringe and transferred to a Tedlar® bag.

2.5 Laboratory Analyses

Two duplicate sub-slab vapor and two indoor air samples (i.e. the Tedlar® bag samples) will be submitted to the University of Southern California (USC) Earth Sciences Department for radon analysis using alpha scintillation counting in accordance with the EPA *Indoor Radon and Radon Decay Product Measurement Device Protocols* (EPA, 1992).

The results of the radon sub-slab vapor and indoor air sampling will be used to determine a site-specific attenuation factor between the building sub-slab zone and indoor air at the site building, which will be used to calculate applicable site-specific sub-slab screening levels based on the established MTCA Method B indoor air cleanup levels.

The remaining sub-slab vapor samples and indoor air and ambient air samples will be submitted to a Washington State Department of Ecology-approved third-party laboratory for analysis of the following:

- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) and naphthalene by test method TO-15. Based on discussions with the analytical laboratory, the TO-15 method is compliant with California regulatory guidance relative to naphthalene and will produce detection limits that are less than, or equal to, MTCA Method B screening levels.
- One duplicate indoor air vapor sample will be analyzed by test method TO-17, particularly for verification of the naphthalene analytical results.
- Air-Phase Petroleum Hydrocarbons (APH) and specific petroleum equivalent carbon fractions EC5-8 (aliphatics), EC9-12 (aliphatics), and EC9-10 (aromatics) by test method MA-APH.

In addition, if a water dam is not feasible at any of the sub-slab vapor collection points (as discussed above), the sub-slab vapor samples will be analyzed for the abovementioned leak-check compound to ensure that sampling integrity was maintained during sample collection. Please refer to Section 5.0 regarding the inherent limitations of vapor sampling relative to sampling integrity without a water dam.

The sample analyses will be performed on a standard (10-business-day) turnaround time basis. Analytical reporting levels will be evaluated against applicable cleanup and/or screening levels.

2.6 Report Preparation

Atlas will prepare a report summarizing the results of our work, including a site plan showing the approximate exploration location(s), a summary of analytical test data, laboratory test certificates, comparisons to Washington Model Toxics Control Act (MTCA) Method B screening levels, and our conclusions regarding the environmental impact to the site.

3.0 SCHEDULE

The anticipated turnaround time to complete this project is 4 to 6 weeks from receiving authorization to proceed. The field work is anticipated to take one to two business days. Following receipt and review of the laboratory report, and prior to issuance of the final report, the client will be contacted to discuss the results of the investigation.

A final Supplemental Phase II Investigation Report will be prepared and e-mailed to the client as an electronic, pdf document one to two weeks from receipt and evaluation of the final laboratory analytical results.

4.0 ESTIMATED PROJECT COSTS

All work will be performed on a time and materials (T&M) basis in accordance with our 2021 *General Terms and Conditions*, which are attached to this proposal. The estimated, T&M cost to complete the proposed scope of work outlined above is as follows:

Project Set Up, Management, Coordination			
Field Work, Subcontractors, Equipment and Materials			
Laboratory Analyses			
Report Writing, Drafting			
ESTIMATED PROJECT TOTAL			

If, during the course of the work, project costs are anticipated to exceed greater than 15% over the estimated fee total, Atlas will contact the client for prior approval before incurring such costs. The quoted fee assumes that field work will be completed utilizing the exploration methods specified and within the schedule and scope detailed above. Additional services not expressly stated in the above scope of work are not included. If these assumptions are not correct, additional charges may apply.

5.0 ASSUMPTIONS AND LIMITATIONS

Atlas makes no warranties, express or implied, regarding the services of third-party providers such as subcontracted services. Atlas also assumes that full access to complete the proposed work at the site will be provided by the property owner.

Based on the available information, the above-specified exploration method should be sufficient to complete the above scope of work. If unanticipated subsurface conditions are encountered, it may be necessary to remobilize to the site with a different type or sized exploration method/rig, at additional cost. Atlas would confer with the client prior to proceeding with such work.

As discussed above, Atlas will perform the required One-Call utility service notification to have public underground utilities located within public rights-of-way. The property owner is ultimately responsible for locating or notifying Atlas of the locations of private utilities on the site. The client understands that utility locating is the generally-accepted industry practice for mitigating this risk and Atlas and/or its subcontractors will not be responsible for damage to buried utilities that are unmarked or mislocated during the field work.

As discussed above, if the use of a water dam is not possible during soil vapor sampling at the site, a leak-detection compound will be utilized to verify the integrity of the floor penetration. It is important to note that field verification of the floor penetration integrity without a water dam is extremely limited and relatively infeasible during sample collection. Vacuum checks are employed during sampling, and the analysis for leak-detection compound is used as a quality assurance/quality control (QA/QC) measure to ensure sample integrity. However, because this QA/QC result is provided with the laboratory analytical report for the sample, after the field work has been performed, it is possible that remobilization to the site and resampling may be necessary if analytical results indicate that a significant leak was present in the sampling manifold during collection. This follow-up work would need to be performed at additional cost to the client. The client understands that this is an unavoidable risk inherent in this type of sampling and that Atlas will take reasonable steps, in accordance with general industry practice, to ensure sample integrity during collection.

With the exception of the concrete drilling performed during the passive soil gas sampling, some disturbance to the site is possible, but not anticipated. Atlas will backfill explorations, including filling and patching of concrete cores prior to leaving the site. The above-proposed budget does not include costs for any other site restoration.

This proposed scope of work does not include any additional actions that may be required by Ecology as a result of the findings of this investigation. Atlas also cannot guarantee any future determinations by Ecology relative to the site. As stated above, by agreeing to this proposal, it is understood by all parties involved that Ecology may require additional vapor intrusion assessment at the site in the future, possibly including resampling of sub-slab soil vapor.

6.0 CLOSURE

Our 2021 *General Terms and Conditions* are attached. We are pleased to provide this proposal for services. If this agreement meets with your approval, please sign in the space provided below, and send one copy via electronic mail to serve as formal authorization to proceed. Please feel free to call us at 253-237-7366 or by email at lsmith@atlasgeonw.com with any questions.

Sincerely,
ATLAS GEOSCIENCES NW

Lannie Smith, CHMM
Principal Environmental Scientist

Elizabeth Rachman, L.G., L.Hg.
Principal Hydrogeologist

The undersigned has reviewed and authorizes the above scope of work and accepts the attached 2021 *General Terms and Conditions*.

Client Signature

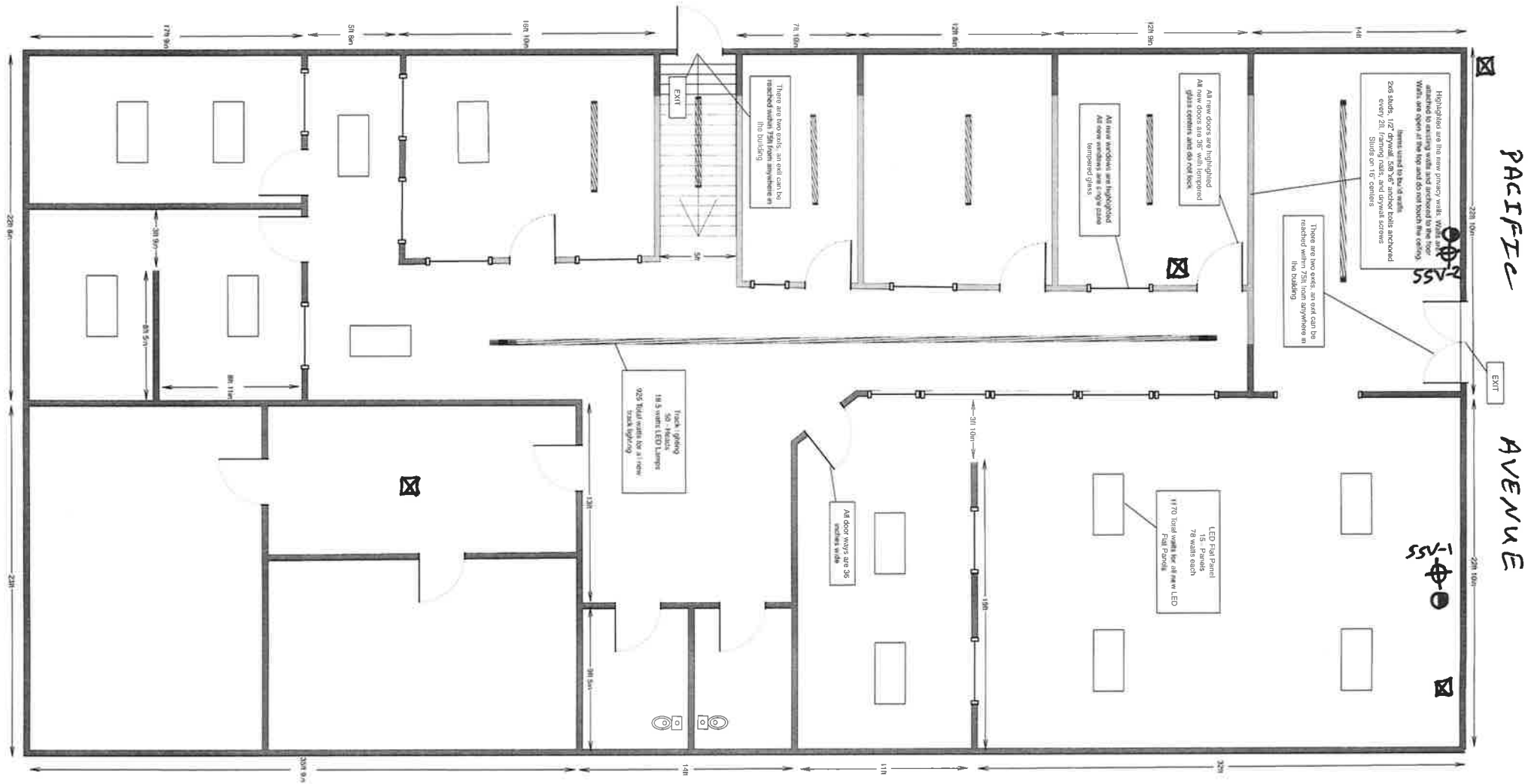
Date

Printed Name

Title

Attachments: Site Plan
 2021 General Terms and Conditions

SITE PLAN



⊕ = SUB-SLAB VAPOR SAMPLE (ATLAS, JULY 2018)

● = PROPOSED SUPPLEMENTAL SUB-SLAB VAPOR SAMPLE POINTS

⊗ = PROPOSED INDOOR AND AMBIENT AIR SAMPLE LOCATIONS