ASSOCIATED ENVIRONMENTAL GROUP, LLC

October 27, 2017

Ms. Heather Vick
Site Manager
Washington State Department of Ecology
Toxics Cleanup Program
3190 160th Avenue SE
Bellevue, Washington 98008-5452

Project: **Work Plan & Request for Opinion**
Manor Market.
3609 164th Street SW
Lynnwood, Washington 98087-7017
AEG Project# 11-124
Ecology VCP# NW2621

Dear Ms. Vick:

Associated Environmental Group, LLC (AEG) has prepared this Work Plan for performing additional sampling at the Manor Market site, located at the above-referenced address in Lynnwood, Washington (Site). This work is in response to the comments provided by the Washington State Department of Ecology (Ecology) in their Opinion on Proposed Remedial Action opinion letter, dated July 3, 2017. The intent of this investigation is to define the remaining data gaps as outlined by Ecology so that closure may be obtained with institutional controls.

SCOPE OF WORK

AEG's scope of work (SOW) would include the following primary tasks: Tier II Vapor Assessment; Groundwater Sampling Event; Remedial Investigation/Feasibility Study (RI/FS) Report; and No Further Action (NFA) Request. These tasks are described in greater detail as follows:

Tier II Vapor Assessment

AEG will perform a vapor assessment to determine whether residual impacts to soil and/or groundwater associated with releases from the former dry cleaners (Crystal Cleaners) and former underground storage tanks (USTs) have the potential to impact indoor air via vapor intrusion.

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Specific tasks associated with sub-slab vapor sampling activities include the following:

- Provide oversight during the advancement of two sub-slab vapor borings at the Site. Borings will be roto-hammered through the building's slab-on-grade foundation. A sampling port will be sealed to the surrounding cement using a bentonite seal and checked for leaks using a water bath technique. One volume of the nylon sampling line will be purged and a 1-liter (L) Summa canister with a 10-minute regulator will be connected to sample the sub-slab vapors.
- Collect indoor air samples in the same locations as the sub-slab vapors using 6-L Summa canisters with an 8-hour regulator. An ambient air sample will be collected at the same time, placed outside and upgradient of any suspected contamination.
- The vapor and indoor air samples will be submitted to a State-accredited analytical laboratory, following industry-standard chain-of-custody procedures, for the following laboratory analyses:
- Volatile organic compounds (VOCs) and air-phase hydrocarbons (APH) by Method TO-15.

Proposed sample locations are illustrated on Figure 1, *Proposed Vapor Assessment Locations*. AEG will evaluate the data collected and will include the data in the RI/FS Report.

Groundwater Sampling Event

Following the sub-slab vapor and indoor air sampling event, AEG will return to the Site and collect a round of groundwater samples from each of the existing wells on the site, and submit the samples for laboratory analysis.

Specific tasks associated with groundwater monitoring activities include the following:

- Measurement of water level and separate-phase hydrocarbon (SPH), if present.
- Well purging using low-flow techniques (variable speed peristaltic pump).
- Field measurements of water quality parameters (pH, conductivity, temperature, salinity and dissolved oxygen).
- Groundwater sample collection.
- Sample delivery to the analytical laboratory.

AEG will follow standard industry protocols regarding sample collection, preservation, and chain-of custody as follows:

- The groundwater samples will be collected using EPA low-flow techniques. This includes a sampling rate of less than 500 milliliters (mL) per minute using a peristaltic pump. This low-flow technique minimizes the impact of the purging process on groundwater chemistry and provides an accurate representation of the groundwater conditions during sampling.
- The samples will be collected in containers provided by the analytical laboratory and stored on ice in a cooler (approximately 4 degrees Celsius) after parameters on the YSI probe meter with a flow-through cell achieves stabilization. Stabilization of pH, temperature, and dissolved oxygen at a minimum will be within 10% of the previous readings for three successive parameter readings. Parameters will be recorded every five minutes.

The groundwater samples will be analyzed for one or more of the following parameters:

  - Gasoline-range petroleum hydrocarbons (TPH) using Northwest Method NWTPH-Gx.
  - Benzene, toluene, ethylbenzene, and xylene (BTEX) compounds and methyl tert-butyl ether (MTBE) using EPA Method 8260.
  - Chlorinated VOCs by EPA Method 8260 (MW-10).
  - Total and Dissolved Lead using EPA Method 6020.

AEG will present the findings of the groundwater monitoring event in the RI/FS Report.

Draft RI/FS Report

The work outlined above under this WO (as well as other work performed to date) will be summarized in a RI/FS Report that presents an overview of the extent of contamination, a Conceptual Site Model, and an evaluation of the most feasible cleanup alternatives for the Site. The RI/FS Report will include Site figures and cross-sections illustrating the extent of contamination in soil and groundwater, as well as tables summarizing the data collected to date, the alternatives screened and considered for evaluation, and the relative cost vs. environmental benefit of those alternatives. The RI/FS Report will be submitted to Ecology for review.

Schedule & Closing

AEG anticipates completing field work within 2 to 3 weeks following Work Plan approval. This schedule can be impacted by factors outside the control of AEG, including changes in project information material to the analysis.

On behalf of our client, AEG is seeking an opinion from Ecology on whether the proposed sampling addresses the data gaps noted in Ecology's July 3, 2017 opinion, and is likely to provide sufficient data to select an appropriate cleanup action for the Site.

If you have any questions or concerns regarding this Work Plan, please do not hesitate to contact our office at (360) 352-9835.

Sincerely,

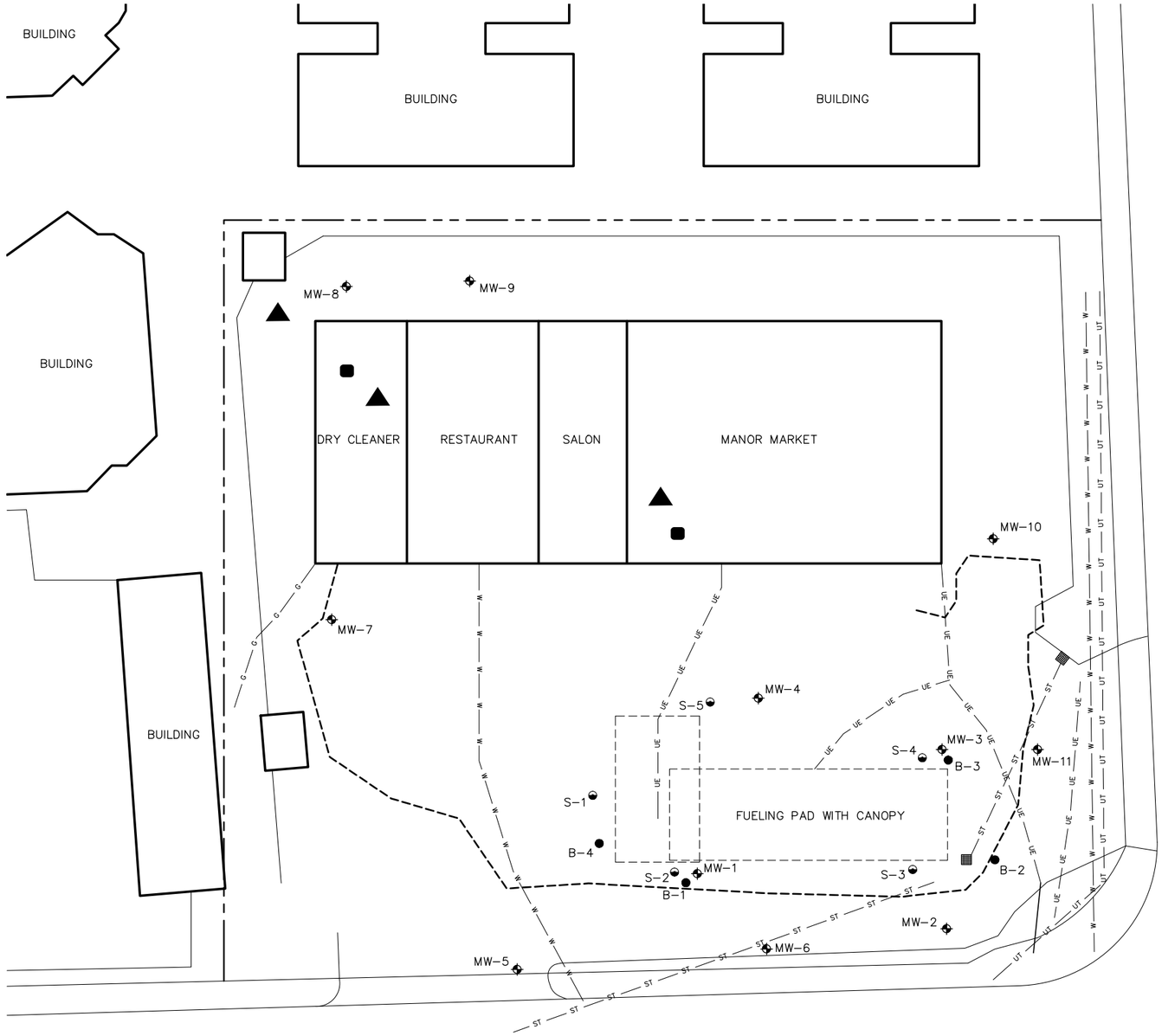
Scott Rose, L.H.G.
Senior Hydrogeologist

State of Washington
Hydrogeologist
2635
Licensed Geologist
SCOTT I ROSE

cc: Nick Bahn

Attached: Figure 1 – *Proposed Sub-Slab Vapor Locations*

PROJECT NUMBER	11-124
APPROVED BY	DB 5/09/2016
CHECKED BY	DB 5/09/2016
DRAWN BY	ICD 5/09/2016
FILENAME	11-124_1602.DWG



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LEGEND

- APPROXIMATE PROPERTY LINE
- MW-1 — GROUNDWATER MONITORING WELL LOCATION
- B-1 — SOIL BORING LOCATION
- S-1 — SOIL SAMPLE LOCATION
- CATCH BASIN
- UE — BURED ELECTRICAL LINE
- UT — BURED TELEPHONE LINE
- W — WATER LINE
- ST — STORMWATER DRAIN LINE
- G — BURED NATURAL GAS LINE
- EXTENT OF EXCAVATION
- PROPOSED SUB SLAB LOCATIONS
- PROPOSED AMBIENT AIR LOCATIONS

NOTES

1. THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE
2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT.

REFERENCE

DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.

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SCALE IN FEET

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 1
PROPOSED SUB SLAB VAPOR LOCATIONS

MANOR MARKET
3609 164TH STREET SW
LYNNWOOD, WASHINGTON