FS/CAP
Cascade Plaza
Everett, Washington

Prepared for:
Regency Centers Corporation

October 31, 2019
REGEN-360

APEX

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1.0 Introduction

This report describes the Feasibility Study (FS) and a proposed cleanup action plan (CAP) for the former Classic Cleaners facility located at tenant space (unit) B004 at the Cascade Plaza, 7601 Evergreen Way, Everett, Washington (Site; Figures 1 and 2). This report was prepared following the requirements for FS reporting under Washington Administrative Code (WAC) 173-340-350 and for a CAP under WAC 173-340-380.

In 2002, the Site (which consists of tenant space B004 and the surrounding impacted area) was enrolled in the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP) due to releases from historical dry-cleaning operations. Soil and groundwater investigations and groundwater monitoring activities were conducted at the Site from 1997 through 2002. No investigation activities were performed for several years following enrollment in the VCP; consequently, the VCP enrollment was suspended. The Site was re-enrolled in the VCP on June 24, 2013, and Ecology issued an opinion letter on September 18, 2013.

2.0 Background

This section includes a description of the Facility, as well as prior environmental activities conducted at the Site.

2.1 Facility Location and Description

The Site is located at Cascade Plaza, which is a single-story shopping mall constructed on two parcels, totaling approximately 19.26 acres within the City of Everett, Washington. The two parcels that comprise Cascade Plaza were woodland that was first developed in the 1940s as residential properties and in the 1950s as a drive-in movie theater. The current shopping mall was constructed in the 1980s. The entirety of Cascade Plaza is covered with five retail/office buildings, a retail gas station, cement, asphalt, and small landscaped areas. The five buildings historically housed various retail stores, offices, restaurants, an automobile rental agency, and a dry-cleaning facility. Classic Cleaners operated in unit B004 from the early 1980s through 1999. Unit B004 is currently occupied by a Domino's Pizza franchise. The current layout of unit B004 is shown on Figure 2. The Site vicinity is developed for commercial and residential use. There are no dry cleaning activities currently conducted on the Site.

2.2 Prior Environmental Activities

Soil and groundwater investigations and groundwater monitoring were completed at the Site from 1997 through 2002 by ATC Associates (ATC) and Whitman Environmental Services (WES). Apex has been conducting the site investigation and monitoring since 2013. This report compiles available sampling data for the purposes of defining the remedial action area for the Feasibility Study. Sampling locations are shown on

Figures 2 and 5 through 8. Tables 1 through 5 summarize the groundwater, soil, sub-slab soil vapor, and ambient air data. The corresponding Model Toxics Control Act (MTCA) Cleanup Levels (CULs) or screening levels (SLs) for soil, groundwater, and ambient air, and Screening Levels (SLs) for vapor intrusion (soil vapor) are also provided in the tables when applicable. The results of the investigation activities are documented in the following reports:

- Apex, 2016. *Data Gap Investigation Work Plan, Classic Cleaners – Cascade Plaza, 7601-7725 Evergreen Way. February 3, 2016.*
- Apex, 2015. *Site Investigation Report, Classic Cleaners, Cascade Plaza, Everett, Washington.* July 21, 2015.
- Apex, 2014. *Progress Report – Classic Cleaners, Cascade Plaza.* June 9, 2014.
- WES, 2003. *Additional Phase II Site Investigation, Former Classic Cleaners Tenant Space*. January 21, 2003.
- ATC, 1997b. *Subsurface Investigation, Cascade Plaza Shopping Center*. June 20, 1997.
- Whitman Environmental Services (WES), 1999a. *Phase II Site Investigation Report*. May 26, 1999.

A brief summary of investigations completed to date is provided below.

2.2.1 Soil Investigations

Soil investigation to assess the nature and extent of halogenated volatile organic compounds (HVOCs) has been ongoing since 1997. During this time, soil samples were collected and analyzed for HVOCs, including tetrachloroethene (PCE), and associated breakdown compounds trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC). Soil sampling results are summarized in Table 2. Soil sampling locations are shown on Figure 6 and cross-sections showing sample depths and results are shown on Figures 3 and 4. A summary of the soil investigation history is provided below.

In 1997, three shallow borings (HB-1 through HB-3) were advanced inside unit B004 near the dry-cleaning equipment and three subsurface borings (B-1 through B-3) were advanced to depths of 10 feet bgs in the parking areas east and west of unit B004. Soil samples were also collected during installation of monitoring wells MW-1 through MW-3 at depths of 10 feet bgs and MW-4 at 12.5 feet bgs.

In 1999, shallow soil samples from 1-foot bgs were collected from Core 1 through Core 3 inside unit B003, adjacent and to the north of unit B004.

In 2002, soil samples were collected at 1 foot bgs from HB-4 and HB-5 near the former dry-cleaning equipment and HB-6, outside near the building's sanitary sewer lines.

In 2014, borings B-4 through B-7 were advanced inside unit B004. Soil samples were collected from depths ranging from 0 to 7 feet bgs and analyzed for HVOCs.

In 2016, to address data gaps identified by Ecology, additional soil borings B-7 through B-9 were advanced inside unit B004 and soil samples were collected for HVOC analysis from depths ranging from 1 to 9 feet bgs.

PCE is the only HVOC that was detected in soil samples; breakdown compounds TCE, cis-1,2-DCE, and VC have never been detected in soil samples. When detected, concentrations of PCE were nearly always below MTCA Method A cleanup levels for unrestricted land use. There are only two occasions where PCE exceeded the MTCA Method A CUL: HB-1 and HB-3, at depths of 8 inches bgs. Figures 2, 3, and 6 demonstrate that the lateral and vertical extent of soil contamination is sufficiently delineated.

2.2.2 Groundwater Investigations

Groundwater investigations have included sampling from direct-push explorations and groundwater monitoring since 1997. Initially, grab groundwater samples were collected from hand auger borings B-2 and B-3, and analyzed for HVOCs. PCE was detected in the groundwater samples; however, detected concentrations were below the MTCA Method A CUL. Subsequently, three monitoring wells (MW-1, MW-2, and MW-3) were installed to a depth of 20 feet below the ground surface (bgs) and sampled to evaluate the extent of HVOCs on-site. PCE was detected in groundwater samples from wells MW-2 and MW-3 at concentrations below the SL and CUL. In 1999, monitoring well MW-4 was installed to further evaluate possible downgradient impacts. PCE was detected in the collected groundwater sample from MW-4 at a concentration below the SL and CUL.

Wells MW-1 through MW-4 were monitored approximately semi-annually from 1998 through 2000 to evaluate HVOC concentration trends. Depth to groundwater ranged from 7.8 to 10.5 feet bgs. The inferred groundwater flow direction was towards the northeast, with an average horizontal gradient of 0.008 foot per foot (ft/ft). HVOCs were not detected in well MW-1, which is upgradient of the Site. PCE, chloroform, and 1,1,1-trichloroethane (TCA) were detected in wells MW-2, MW-3, and MW-4 during at least one sampling event. TCE was not detected. HVOCs showed decreasing concentration trends over the duration of the monitoring period. Detected concentrations were below CULs; however, concentrations of chloroform in wells MW-2 and MW-3 occasionally exceeded the SLs. Apex notes that chloroform is a trihalomethane (THM) and disinfection byproduct often found in the subsurface from chlorinated water leaks (plumbing pipes, sewers). Chloroform is not associated with dry cleaning activities or chemical usage on the Site. Groundwater concentrations were never detected above MTCA Method A CULs.

In 2002, grab groundwater samples were collected from borings HA-4 and HA-5 and analyzed for HVOCs. The PCE concentration in the groundwater sample collected from boring HB-4 exceeded the CUL and PCE was detected in HB-5 at a concentration slightly below the CUL.

Groundwater monitoring from wells MW-1 through MW-4 continued in July 2013 and in March, June, September, and November 2014. Groundwater was encountered between approximately 8 and 10 feet bgs. The flow direction was to the northeast at a gradient of approximately 0.01 ft/ft. HVOCs were not detected in

well MW-1. PCE and chloroform were detected in wells MW-2, MW-3, and MW-4 at concentrations below the CULs and SLs. As noted earlier, the chloroform detections are expected to result from leaking water or sanitary sewer pipes.

In 2016, to address data gaps identified by Ecology, additional groundwater samples were collected. An attempt was made to collect additional grab groundwater samples beneath the building slab; however, shallow refusal was encountered and groundwater could not be reached for sample collection. Groundwater monitoring was completed from wells MW-1 through MW-4 in May 2016. Groundwater samples were analyzed for VOCs; no HVOCs were detected.

PCE and chloroform are the main compounds detected in groundwater. TCE, cis-1,2-DCE, vinyl chloride, chloroform, and 1,1,1-trichloroethane (TCA) have been infrequently detected in MW-2, MW-3, or MW-4. When detected in groundwater monitoring wells, concentrations of PCE, chloroform, and other compounds were always below MTCA Method A groundwater cleanup levels. The only occasion where a detected concentration exceeded the CUL is the 2002 sample collected from the open hole in HA-2 (PCE concentration was 9.36 micrograms per liter [µg/L]). Figure 7 illustrates the groundwater concentration data set.

2.2.3 Soil Vapor Investigations

Sub-slab soil vapor investigations have been ongoing at the Site since 2013 as part of Tier I and Tier II vapor intrusion assessments and periodic monitoring. Soil vapor samples were analyzed for HVOCs and results for the Site are summarized on Table 4.

In 2013, temporary soil vapor probes VS-1 through VS-15 were sampled at locations inside unit B004, adjacent tenant spaces, and exterior areas. VS-1 and VS-2 were sampled within unit B004 near historical boring HB-1. Later in 2013, soil vapor probes VS-3 and VS-4 also were sampled in unit B004. Eleven (11) additional soil vapor samples (VS-5 through VS-15) were sampled at other tenant units.

In 2014, additional soil vapor samples (VS-16 through VS-18) were collected inside unit B004 based on Ecology comments on the previous soil vapor sampling activities.

In 2016, to address data gaps identified by Ecology, soil vapor monitoring points VP-1 and VP-2 were constructed and sampled inside unit B004.

PCE is the primary compound detected in soil vapor. TCE and cis-1,2-DCE were infrequently detected. Concentrations of PCE exceeded MTCA Method B soil vapor screening levels at locations within the former cleaner. Soil vapor concentrations outside of the former cleaner (both adjacent tenant spaces and exterior areas) did not exceed these same soil vapor screening levels. Figure 8 illustrates the soil vapor data set.

2.2.4 Ambient Air Investigations

Ambient air investigations have been ongoing at the Site since 2013 as part of Tier I and Tier II vapor intrusion assessments and periodic monitoring. Ambient air samples were analyzed for HVOCs and results for the Site are summarized in Table 5.

In 2013 ambient air samples (AA-2 and AA-3) were collected, and one outdoor (background) ambient air sample (AA-1) was collected and analyzed for HVOCs. HVOCs were not detected in the indoor or outdoor air samples at concentrations that exceeded the SLs.

In 2014, two indoor ambient air samples (AA-5 and AA-6), and one outdoor ambient air sample (AA-4) were collected based on Ecology comments on the previous ambient air sampling activities. PCE was detected in sample AA-5 and TCE was detected in sample AA-4 at concentrations below the CULs.

In 2016, to address data gaps identified by Ecology, additional ambient air samples (AA-7 and AA-8) were collected. PCE was detected in both the indoor and outdoor ambient air samples at concentrations below the CULs.

Indoor ambient air samples have been collected on three occasions from this former cleaner. PCE was the only HVOC detected in the former cleaner. None of the detected concentrations exceeded the MTCA Method B indoor air cleanup level. Figure 8 illustrates the ambient air data set.

3.0 Conceptual Site Model and Remedial Action Area

Land use information and results of the site investigation activities completed at the Site were used to develop a conceptual site model for the Site, identify applicable cleanup levels, and identify the remedial action area. This information was used as the basis for the Feasibility Study in Section 4.0.

3.1 Conceptual Site Model

3.1.1 Site Geology

The Site is in the Puget Lowland physiographic province of Washington State. The Puget Lowland is a broad, low-lying trough located between the Cascade Range to the east and the Olympic Mountains to the northwest and the Willapa Hills to the southwest. The landscape largely results from repeated cycles of glacial scour and deposition. The Site is located within an area that has been geologically mapped as Vashon Till, characterized as a non-sorted, non-stratified mixture of clay, silt, sand and gravel up to boulder-size (Yount et al, 1993).

Based on subsurface investigations completed to date, the Site is generally underlain by silty sand and gravel, and gravelly silty sand. Coarse sand and gravel (apparent engineered fill) have been encountered within approximately two feet beneath the concrete slab of the building. Shallow refusal in dense soil has been encountered in select borings beneath the building slab, at depths ranging from 3 to 7 feet bgs. Boring and well logs for the Site are provided in Appendix A. Geologic cross-sections for the Site are provided as Figures 3 and 4.

3.1.2 Site Hydrogeology

Based on water level measurements collected at the Site, the water level ranges from 7.62 to 10.58 feet bgs, or 495.07 to 497.52 feet above mean sea level (Table 1). Groundwater flow direction is consistently to the northeast, with a gradient generally ranging from 0.008 to 0.01 ft/ft. A groundwater elevation contour map for the most recent sampling event (May 2016) is included as Figure 5. Groundwater contour maps for events conducted in 2013 and 2014 were previously included in the 2015 Site Investigation Report (Apex, 2015). The Site is currently used for commercial purposes and is supplied by municipal water.

3.1.3 Exposure Model

A conceptual site model for identifying potential receptors and corresponding exposure pathways is described in this section. The results of prior investigations indicate that soil and soil vapor contamination are limited to the immediate area of the building structure where the former dry-cleaning equipment was staged. Groundwater has not been shown to be impacted above MTCA Method A CULs. Therefore, potential exposures include only direct contact of soil for construction workers, and volatilization (inhalation) for occupational and construction workers.

Potential Receptors. The Site is exclusively used for commercial uses, with no daycare centers, child educational facilities, or similar uses that could be considered residential in nature. As a result, occupational workers are the primary receptor. The Site property undergoes periodic construction activity, so construction workers are also a potential receptor.

Exposure Pathways for Soil. The following is a summary of each of the applicable exposure pathways for soil under baseline conditions.

- *Vapor Intrusion into Buildings*: This pathway is considered complete for occupational workers under current and future land uses based on sub-slab soil vapor data.
- *Soil Ingestion, Dermal Contact, and Inhalation*: This pathway is considered complete for occupational and construction workers under current and future use scenarios.

Information collected to date indicates that PCE is the only HVOC detected in soil and that the extent of HVOCs (primarily PCE) is limited to the Site, in a localized shallow soil area in the immediate vicinity of the former dry-cleaning equipment.

Volatilization to outdoor air was not considered a complete exposure pathway because HVOCs were not present above cleanup levels in outdoor air samples.

Leaching to groundwater was considered in the remedial planning process because the highest beneficial water use must be considered. There are no wells for potable, production, or irrigation uses of groundwater at the Site, and PCE concentrations in soil are well below concentrations that would be considered a risk via leaching to groundwater.

Exposure Pathways for Groundwater. VOCs have not been detected in groundwater above CULs; therefore, this pathway is considered incomplete.

Exposure Pathways for Soil Vapor. The following is a summary of each of the applicable exposure pathways for soil vapor under baseline conditions:

- *Vapor Intrusion into Buildings:* This pathway is considered complete for occupational workers under current and future land uses.

Volatilization to outdoor air was not considered a complete exposure pathway because HVOCs were not present above cleanup levels in outdoor air samples.

3.2 Terrestrial Ecological Exclusion

WAC 173-340-7490 requires that contaminated sites be evaluated to assess whether contamination may have a potential effect on terrestrial ecological species, and if so, cleanup levels must be developed to address the ecological risk. WAC 173-340-7491 provides a process to demonstrate an exclusion from the ecological evaluation if certain conditions are met.

An evaluation was conducted in the July 21, 2015 *Site Investigation Report* (Apex, 2015) supporting the exclusion. A land use summary map is included in Appendix B. Based on the reviewed land uses, the Site vicinity is developed as commercial and residential land uses. Large contiguous tracts of land with open space, park, or agricultural zoning are not present. Ecological habitat that would support a terrestrial or aquatic ecological receptor is not present at the Site. For the areas where VOCs remain in soil and soil vapor, these areas are entirely paved preventing exposure to VOCs. Surface waters are not present at or near the Site. Based on the lack of habitat, terrestrial and aquatic ecological receptors are not present at the Site.

An aerial photograph depicting land features within 500 feet of the Site is also included in Appendix B. Based on review of this photograph, there are approximately 1.1 acres of undeveloped land shown within a 500-foot radius of the Site. However, these lands are not considered because they mostly consist of residential yards and right-of-ways. Because there is less than 1.5 acres of contiguous undeveloped land within 500 feet of the Site, the ecological exclusion criteria under WAC 173-340-7491(1)(c)(i) are met. Therefore, a site-specific Terrestrial Ecological Evaluation (TEE) is not required for this Site.

3.3 Nature and Extent of Contamination

Site investigation and monitoring at the former Cascade Cleaners site has been ongoing since 1997. The nature and extent of contamination has been well defined and is described below.

Soil. PCE concentrations in two shallow soil samples collected in 1997, HB-1 and HB-3, are the only soil samples that have exceed the MTCA Method A PCE soil cleanup level of 0.05 milligrams per kilogram (mg/kg). These samples were collected from depths of approximately 8 inches. This depth has historically yielded the highest concentrations of PCE and confirms that the release was limited and only affected surficial depths just beneath the concrete slab. Figure 6 summarizes the concentrations of HVOCs detected in soil on-site. Lateral and vertical soil characterization do not indicate that a PCE source remains in soil at Cascade Cleaners. Soil on-site exceeding MTCA Method A CULs is summarized on Figure 10.

Groundwater. Historically, one depth-discrete groundwater sample collected in 2002 near the former dry-cleaning machine exceeded MTCA Method A groundwater cleanup levels by less than a factor of two (HB-4 GW, 9.36 µg/L). Site-wide groundwater monitoring completed from 1999 to 2016 from wells MW-1 through MW-4 indicate that PCE and other HVOCs have never been detected in the wells at concentrations above MTCA Method A cleanup levels. Figure 7 summarizes the concentrations of HVOCs detected in groundwater on-site. The location of the HB-4 exceedance is shown on Figure 11.

Soil Vapor and Ambient Air. PCE has been detected inside unit B004 within soil vapor at concentrations above the SL; however, ambient air inside the building and outside ambient air has not contained concentrations exceeding cleanup levels. Based on the vapor intrusion investigation conducted to date, the residual PCE in soil vapor is the remnants of a small, shallow, localized soil source within the footprint of the tenant space. Figure 8 summarizes the concentrations of HVOCs detected in soil vapor and ambient air on-site. Vapor samples exceeding MTCA Method B CULs is summarized on Figure 12.

3.4 Proposed Remedial Action Area

The remedial action area was defined based on locations where detected concentrations of PCE exceed MTCA Method A cleanup levels in soil and groundwater, and MTCA Method B CULs in soil vapor (see Figures 10 through 12). The remedial action area includes only shallow soil and groundwater from the ground surface to approximately 10 feet bgs, across the area shown on Figure 9.

Section 4.0 describes the Feasibility Study (FS) that was completed to develop a recommendation for remedial action.

4.0 Feasibility Study

A Feasibility Study (FS) was prepared to address residual contamination in soil vapor, and to a lesser extent, soil and groundwater, above MTCA cleanup levels. The FS describes a range of applicable treatment or disposal alternatives, provides a comparative analysis of the applicable alternatives, and provides a recommendation for the proposed cleanup action. A range of treatment, removal, and management response actions were reviewed for general applicability to the contaminants of potential concern and media requiring treatment (soil). Only remedial technologies that would meet the minimum requirements in WAC 173-340-360 were retained for further evaluation. The following technologies were chosen for evaluation of their applicability to Site conditions and the chemical properties of the contaminants of concern:

- Soil Vapor Extraction (SVE)
- Subsurface Venting and Institutional Controls
- Excavation
- Vapor Barrier

4.1 Definition of Remedial Technologies

Each of the remedial technologies that are applicable to the Site media and contaminants are described in this section.

Soil Alternative 1: Soil Vapor Extraction. SVE is an in situ vadose zone soil remediation technology where a vacuum is applied to the soil to induce the controlled flow of air in the soil pore space and thereby remove volatile and some semi-volatile contaminants from the soil. Soil vapor is extracted through vertical wells and can be treated if needed prior to being discharged to outdoor air (such as with activated carbon). The contaminants of concern at the Site are comprised of volatile compounds and are amenable to vapor extraction.

Soil Alternative 2: Subsurface Venting and Institutional Controls. This alternative would consist of the construction of a sub-slab depressurization system (SSDS) to intercept potentially impacted soil vapors beneath the concrete slab floor of the building and prevent these vapors from otherwise migrating through the floor (via microscopic cracks or seams in the concrete and the intrinsic porosity of the concrete) into the occupied interior space. The SSDS would consist of a piping system and low-pressure vacuum fan. This alternative would be paired with the use of institutional controls and performance monitoring consisting of collection of short-term and long-term monitoring. The monitoring would consist of collecting sub-slab soil vapor samples and ambient air sampling stations, and collection of vacuum measurements from the SSDS.

Because subsurface venting is a mitigation alternative, institutional controls, consisting of some or all of the following, may be appropriate for the Site.

- A restriction on land use may be appropriate to prohibit residential use at the Site. The deed notice would be filed with King County.
- Preparation of a Contaminated Media Management Plan (CMMP) to outline procedures for the proper management of impacted soil that may be generated at the Site through future construction activities.

Soil Alternative 3: Excavation. This alternative could be used to address soil contamination at the Site by excavation, landfill disposal of contaminated soil, and subsequent backfilling with clean soil. This remedial technology could be applicable to the localized contaminated soil around former borings HB-1 and HB-3. Soil with PCE concentrations above cleanup levels are located at a depth of 8 inches. Excavation in this area would be technically challenging and would present worker and public safety considerations given that the excavation location is within an active commercial building. Buried public utilities beneath the building may also be jeopardized by implementing the excavation option.

Soil Alternative 4: Vapor Barrier. A vapor barrier consists of a geotextile or fluid-applied and cured in place barrier that is placed under a building slab to block contaminant vapors from entering the interior space of a building. Installing a vapor barrier at the Site would be technically impracticable given that the contamination is located beneath an active commercial building.

4.2 Remedial Alternative Assessment

Each of the identified technologies were considered potentially effective for the Site. The remedial alternatives were ranked according to the following factors (as defined in WAC 173-340-360): protectiveness, permanence, long-term effectiveness, short-term risk management, technical and administrative implementability, public concerns, and cost. Each of these factors is discussed in the sections below. Table 6 provides a comparative analysis of the remedial alternatives.

4.2.1 Protectiveness

This factor evaluates the extent to which human health and the environment are protected and the degree to which overall risk at the Site is reduced. All four remedial alternatives are expected to be protective of public health and the environment.

4.2.2 Permanence

This factor evaluates the degree to which the alternative permanently reduces the toxicity, mobility, or volume of contaminants at the Site. SVE and excavation are considered permanent technologies as they remove or

treat contamination. The sub-slab venting and vapor barrier alternatives are considered less permanent as they only mitigate contamination, and do not reduce or remove contamination from the Site.

4.2.3 Long-Term Effectiveness

This factor includes the degree of certainty that the remedial alternative will be successful and the long-term reliability. SVE, subsurface venting, and excavation are each considered effective technologies that will manage vapor intrusion risk. The vapor barrier alternative is considered the least effective as it does not reduce or remove contamination from the Site.

4.2.4 Short-Term Risk Management

This factor evaluates protection of human health and the environment during construction and implementation of the alterative. SVE and subsurface venting were the alternatives found to have the lowest risk. Excavation and installation of a vapor barrier have higher risks based on risks associated with excavation of the concrete slab and impacted soils, and transportation of contaminated soil on public roads.

4.2.5 Technical and Administrative Implementability

This factor evaluates the ability to implement the remedy by measuring the relative difficulty and uncertainty of implementing the cleanup action. The SVE and subsurface venting alternatives are the most implementable as they require minimal intrusive activity at the Site. Excavation and installation of a vapor barrier would require overcoming some technical challenges because the impacts are present beneath the concrete slab in an active commercial building. Removing the slab would be very intrusive for their business.

4.2.6 Public Concerns

This factor evaluates the degree to which community concerns are addressed. Excavation involves trucking of contaminated soil over public roads. SVE and subsurface venting requires a continuous operation and can be noisy. Installing a vapor barrier is considered to cause the highest level of public concern because the affected media may remain in place for a long time.

4.2.7 Cost

This factor includes consideration of all costs associated with implementing an alternative, including design, construction, present and future direct and indirect capital, long-term operation, maintenance, monitoring, and other foreseeable costs.

Appendix C includes preliminary cost estimates for each remedial alternative. These costs are applicable for the comparison of remedial alternatives and are not suitable for bidding or construction. The costs are summarized below.

Alternative	Estimated Cost
Subsurface Venting and Institutional Controls	$53,000
Soil Vapor Extraction (SVE)	$133,000
Excavation and Disposal	$63,000
Vapor Barrier	$38,000

4.3 Proposed Remedial Action

Based on the results of the FS, the recommended cleanup action alternative for the Site is SVE (Figure 13). While this alternative ranked equally to the Subsurface Venting and Institutional Controls, this cleanup action was selected for the following reasons:

- The cleanup action protects human health and the environment, will comply with cleanup standards, and provides for compliance monitoring and other minimum requirements of WAC 173-340-360.
- The cleanup action is implementable and does not involve the high risk of excavation or installation of a vapor barrier.
- The cleanup action will prevent future occupational exposures and provide established procedures for contaminated soil management.
- The remaining soil impacts are only within a small, shallow, localized area beneath the building slab where the former dry-cleaning equipment was staged.

5.0 Cleanup Action Plan

This section describes the proposed cleanup action plan. The cleanup action plan identifies the permits that are required for cleanup, and the task sequence to implement the cleanup action. A brief design report will be prepared prior to implementation in order to document construction and operation details.

5.1 Permitting and Design Report

Permitting. The cleanup action requires a low level of effort for permitting. Because of the minimal amount of mass that is present, vapor discharges would be at concentrations well below the limits required for an exemption from Puget Sound Clean Air Agency (PSCAA) new source review and permitting. Trade permits would be needed for electrical connections.

Design Report. The design report will include the following elements:

- Engineered plans for SVE;
- Operations and maintenance procedures; and
- Operations and compliance monitoring.

5.2 Worker and Public Safety

A Health and Safety Plan (HASP) will be prepared to document the health and safety procedures for Apex's staff. Subcontractors will be required to prepare a similar HASP for their work on the project.

The work will be coordinated with Regency operations to prevent disruption of their operations and integrate the cleanup program into their operations.

5.3 Proposed Cleanup Action

The proposed cleanup action consists of the following activities.

- Construct and operate the existing SVE system until soil cleanup levels and soil vapor concentrations are below the cleanup levels defined in Section 5.4.1.
- Monitoring to evaluate the concentrations of contaminants of concern in soil, groundwater, and/or vapor to evaluate the effectiveness of the cleanup action.

5.4 Cleanup Levels and Points of Compliance

5.4.1 Cleanup Levels

Cleanup levels are proposed for each media (soil, groundwater, soil vapor, and ambient air), based on the minimum requirements for cleanup actions identified in WAC 173-340-360(2)(a). These include protecting human health and the environment, complying with applicable federal and state laws, and providing for compliance monitoring. Attainment of these cleanup levels will address pathways that pose the potential for unacceptable risk, prevent or minimize the migration of chemicals of potential concern that would result in the unacceptable risk or impairment of beneficial uses of water, and treat/remove contaminants to the extent feasible.

The basis for the proposed cleanup levels is summarized below.

- Releases from the former cleaner have affected a localized area of soil in the unsaturated zone. Standard Method A cleanup levels are proposed for soil.
- Groundwater is not used at the Site and contamination in groundwater is limited to one location beneath the building slab. PCE in groundwater has only been detected above the MTCA Method A CUL in one grab sample collected from boring HB-4 in 2002. Depth to groundwater at the Site is between 7.62 to 10.58 feet bgs. The concentration detected in the grab groundwater sample (HB-4) was likely influenced by particulates in the subsurface. Groundwater monitoring conducted for MW-1 through MW-4 in 1999 through 2016 has not detected any HVOCs above MTCA Method A CULs; therefore, groundwater is not considered a media of concern at the Site.

- Soil vapor and ambient air have been affected by the releases from the former cleaner. Ecology's Standard Method B cleanup levels are proposed for soil vapor and ambient air.

Compound	Soil MTCA Method A CUL mg/kg	Ambient Air MTCA Method B CUL µg/m^3	Sub-Slab Soil Vapor MTCA Method B SL µg/m^3
PCE	0.05	9.6	320

Notes:
1. µg/m^3 is micrograms per cubic meter

5.4.2 Points of Compliance

Points of compliance are established to monitor remedial progress and eventual compliance with cleanup levels as required by WAC 173-340-350 (F). Groundwater compliance points are not proposed because concentrations of HVOCs have not been detected in the monitoring well network above MTCA Method A CULs. Compliance points for soil and soil vapor include:

- Soil between the ground surface and the water table interface within the remedial action area;
- Soil vapor concentrations to be measured at points within the building; and
- Ambient air concentrations to be measured at locations near the east of the building.

6.0 References

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Table 1 – Groundwater Elevations
Classic Cleaners
Everett, Washington

Well ID	Date	Reference Elevation (feet)[1]	Depth To Groundwater (feet)	Groundwater Elevation (feet)
MW-1	7/31/1997	505.14	7.91	497.23
	2/11/1998	505.14	7.91	497.23
	11/9/1998	505.14	8.73	496.41
	5/6/1999	505.14	7.80	497.34
	5/7/1999	505.14	7.87	497.27
	8/11/1999	505.14	8.25	496.89
	12/29/1999	505.14	7.94	497.20
	3/30/2000	505.14	7.92	497.22
	8/2/2000	505.14	8.59	496.55
	7/16/2013	505.14	8.21	496.93
	3/27/2014	505.14	7.62	497.52
	6/25/2014	505.14	8.20	496.94
	9/22/2014	505.14	8.60	496.54
	10/8/2014	505.14	NM	--
	11/12/2014	505.14	8.08	497.06
	5/24/2016	505.14	8.10	497.04
MW-2	7/31/1997	505.93	8.81	497.12
	2/11/1998	505.93	8.98	496.95
	11/9/1998	505.93	10.05	495.88
	5/6/1999	505.93	8.94	496.99
	5/7/1999	505.93	9.04	496.89
	8/11/1999	505.93	9.62	496.31
	12/29/1999	505.93	9.31	496.62
	3/30/2000	505.93	9.11	496.82
	8/2/2000	505.93	10.23	495.70
	7/16/2013	505.93	9.70	496.23
	3/27/2014	505.93	8.79	497.14
	6/25/2014	505.93	9.50	496.43
	9/22/2014	505.93	10.23	495.70
	10/8/2014	505.93	10.05	495.88
	11/12/2014	505.93	9.20	496.73
	5/24/2016	505.93	9.47	496.46
MW-3	7/31/1997	505.90	8.99	496.91
	2/11/1998	505.90	9.07	496.83
	11/9/1998	505.90	10.14	495.76
	5/6/1999	505.90	9.06	496.84
	5/7/1999	505.90	9.10	496.80
	8/11/1999	505.90	9.65	496.25
	12/28/1999	505.90	9.23	496.67
	3/30/2000	505.90	9.18	496.72
	8/2/2000	505.90	10.27	495.63
	7/16/2013	505.90	9.77	496.13
	3/27/2014	505.90	8.90	497.00
	6/25/2014	505.90	9.60	496.30
	9/22/2014	505.90	10.33	495.57
	10/8/2014	505.90	10.16	495.74
	11/12/2014	505.90	9.30	496.60
	5/24/2016	505.90	9.62	496.28
MW-4	5/6/1999	505.65	8.93	496.72
	8/11/1999	505.65	9.93	495.72
	12/28/1999	505.65	9.60	496.05
	3/30/2000	505.65	9.43	496.22
	8/2/2000	505.65	10.52	495.13
	7/16/2013	505.65	10.07	495.58
	3/27/2014	505.65	9.27	496.38
	6/25/2014	505.65	9.90	495.75
	9/22/2014	505.65	10.58	495.07
	10/8/2014	505.65	NM	--
	11/12/2014	505.65	9.65	496.00
	5/24/2016	505.65	9.90	495.75

Notes:

1. Reference elevation (i.e., top of casing) relative to City of Everett Datum, survey conducted in July 1997 by Hallin & Associates.
2. NM = Not measured.
3. -- = Not applicable; depth to groundwater was not measured.

Table 2 – Soil Sampling Analytical Results
Classic Cleaners
Everett, Washington

Sample Location (Depth)	Sample Date	HVOC concentrations (mg/kg)					
		PCE	TCE	cis-1,2-DCE	Vinyl Chloride	Chloroform	1,1,2 -TCA
	MTCA CUL (mg/kg)	0.05[a]	0.03[a]	160[b]	240[b]	800[b]	2[a]
HB-1 (8")	6/9/1997	**0.32**	<0.05	<0.05	<0.05	<0.05	<0.05
HB-2 (8")	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HB-3 (8")	6/9/1997	**0.13**	<0.05	<0.05	<0.05	<0.05	<0.05
HB-3 (3')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-1 (5')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-1 (7.5')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-1 (10')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-2 (5')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-2 (7.5')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-2 (10')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-3 (5')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-3 (7.5')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-3 (10')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW-1 (10')	7/30/1997	ND*	ND*	ND*	ND*	ND*	ND*
MW-2 (10')	7/30/1997	ND*	ND*	ND*	ND*	ND*	ND*
MW-3 (10')	7/30/1997	ND*	ND*	ND*	ND*	ND*	ND*
Core 1 (1')	5/6/1999	<0.0094	<0.0094	<0.0094	<0.0094	<0.0094	<0.0094
Core 2 (1')	5/6/1999	<0.0092	<0.0092	<0.0092	<0.0092	<0.0092	<0.0092
Core 3 (1')	5/6/1999	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009
MW-4/S-3 (12.5')	5/7/1999	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
HB-4 (1')	12/10/2002	**0.0013**	<1.28	<1.28	<1.28	<1.28	<1.28
HB-5 (1')	12/10/2002	**0.00919**	<1.12	<1.12	<1.12	<1.12	<1.12
HB-6 (3')	12/10/2002	**0.00514**	<1.21	<1.21	<1.21	<1.21	<1.21
B-4 (1-2')	9/22/2014	**0.0097**	<0.00028	<0.00028	<0.00028	NA	NA
B-4 (3')	9/22/2014	**0.0029**	<0.00035	<0.00035	<0.00035	NA	NA
B-5 (2'-3')	9/22/2014	**0.006**	<0.0003	<0.0003	<0.0003	NA	NA
B-5 (4.5')	9/22/2014	**0.0013**	<0.00027	<0.00027	<0.00027	NA	NA
B-6 (2'-3')	9/22/2014	**0.00057**	<0.0003	<0.0003	<0.0003	NA	NA
B-6 (4')	9/22/2014	**0.0016**	<0.00033	<0.00033	<0.00033	NA	NA
B-7 (0-1')	9/22/2014	**0.00095**	<0.00029	<0.00029	<0.00029	NA	NA
B-7 (7')	9/22/2014	**0.00065**	<0.00037	<0.00037	<0.00037	NA	NA
B-7 (1')	4/27/2016	**0.0129**	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
B-8 (1')	4/27/2016	**0.0225**	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044
B-8 (4')	4/27/2016	**0.0167**	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051
B-8 (9')	4/27/2016	**0.0024 J**	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048
B-9 (1')	4/27/2016	**0.0011 J**	<0.0024	<0.0024	<0.0024	<0.00024	<0.00024
VP-1 (1')	4/27/2016	**0.0130**	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052
VP-1 (3')	4/27/2016	**0.0024 J**	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056
VP-2 (1')	4/27/2016	**0.0029 J**	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044
VP-2 (4')	4/27/2016	**0.0067**	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056

Notes:

1. HVOC = Halogenated volatile organic compound.
2. PCE = Tetrachloroethene.
3. TCE = Trichloroethene.
4. DCE = Dichloroethene.
5. TCA = Trichloroethane.
6. MTCA CUL = Model Toxics Control Act Cleanup Level.
7. mg/kg = milligram per kilogram.
8. a = MTCA Method A Unrestricted Land Use Table Value.
9. b = MTCA Method B Non-Carcinogen CUL Standard Formula Value (Unrestricted Land Use).
10. ND* = Not detected at a concentration above the method detection limit, which is not available for this report.
11. < = Not detected at a concentration above the method reporting limit or practical quantitation limit.
12. Bold = analyte was detected at a concentration above the method detection limit.
13. Shaded = concentration exceeds the CUL.
14. J = Estimated value. Concentration detected between the method reporting limit and method detection limit.

Table 3 – Groundwater Analytical Results
Classic Cleaners
Everett, Washington

Sample Location	Sample Date	HVOC concentration (ug/L)					
		PCE	TCE	cis-1,2-DCE	Vinyl Chloride	Chloroform	1,1,1-TCA
	MTCA CUL (ug/L)	5[a]	5[a]	16[b]	0.2[a]	80[b]	200[a]
	Updated Vapor Intrusion SL (ug/L)	22.9	1.6	--	0.347	1.2	5,240
B-2-W	6/6/1997	**1.3**	<0.5	<0.5	<0.5	***5.3***	<0.5
B-3-W	6/6/1997	**3.6**	<0.5	<0.5	<0.5	***16***	<0.5
MW-1	7/31/1997	<0.5	<0.5	<0.5	<0.5	0.9	<0.5
	2/11/1998	<10	<10	<10	<10	<10	<10
	11/9/1998	<2	<2	<2	<2	<2	<2
	5/6/1999	<0.4	<0.4	<0.4	<0.2	<0.4	<0.4
	8/11/1999	<0.4	<0.4	<0.4	<0.2	<0.4	<0.4
	12/28/1999	<0.4	<0.4	<0.4	<0.2	<0.4	<0.4
	3/30/2000	<0.4	<0.4	<0.4	<0.2	<0.4	<0.4
	8/2/2000	<0.4	<0.4	<0.4	<0.2	<0.4	<0.4
	7/16/2013	<1	<1	<1	<1	<1	<1
	3/27/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	6/25/2014	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1
	6/25/2014 DUP	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1
	9/22/2014	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1
	11/12/2014	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1
	5/24/2016	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-2	7/31/1997	**3.8**	<0.5	<0.5	<0.5	***15***	<0.5
	2/11/1998	<2	<2	<2	<2	<2	<2
	11/9/1998	***3***	<0.4	<0.4	<0.2	***3***	**8**
	5/6/1999	**1.1**	<0.4	<0.4	<0.2	<0.4	<0.4
	8/11/1999	**1.2**	<0.4	<0.4	<0.2	**0.37**	<0.4
	12/28/1999	**1**	<0.4	<0.4	<0.2	***0.71***	<0.4
	3/30/2000	**0.62**	<0.4	<0.4	<0.2	<0.4	<0.4
	8/2/2000	**0.82**	<0.4	<0.4	<0.2	<0.4	<0.4
	7/16/2013	<1	<1	<1	<1	<1	<1
	7/16/2013 DUP	<1	<1	<1	<1	<1	<1
	3/27/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	3/27/2014 DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	6/25/2014	**0.24**	<0.1	<0.1	<0.02	<0.1	<0.1
	10/8/2014	**0.15**	**0.06 J**	**0.026**	<0.02	<0.1	<0.1
	11/12/2014	**0.2**	<0.1	<0.1	<0.02	<0.1	<0.1
	5/24/2016	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/24/16 DUP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-3	7/31/1997	**3.9**	<0.5	<0.5	<0.5	***15***	<0.5
	2/11/1998	<2	<2	<2	<2	***5.2***	<2
	11/9/1998	**3**	<0.4	<0.4	<0.2	***8***	<0.4
	5/6/1999	**1.3**	<0.4	<0.4	<0.2	**0.51**	<0.4
	8/11/1999	**1.4**	<0.4	<0.4	<0.2	**0.64**	3
	12/28/1999	**1.4**	<0.4	<0.4	<0.2	<0.4	<0.4
	3/30/2000	**1.2**	<0.4	<0.4	<0.2	<0.4	<0.4
	8/2/2000	**1.2**	<0.4	<0.4	<0.2	<0.4	<0.4
	7/16/2013	<1	<1	<1	<1	<1	<1
	3/27/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	6/25/2014	**0.18**	<0.1	<0.1	<0.02	<0.1	<0.1
	9/22/2014	**0.17**	**0.073**	**0.13 J**	<0.02	<0.1	<0.1
	10/8/2014	**0.21**	**0.087 J**	**0.12**	**0.031**	<0.1	<0.1
	10/8/2014 DUP	**0.21**	**0.068 J**	**0.13**	<0.02	<0.1	<0.1
	11/12/2014	**0.17**	<0.1	**0.11**	<0.02	<0.1	<0.1
	5/24/2016	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Please see notes at end of table.

Table 3 – Groundwater Analytical Results
Classic Cleaners
Everett, Washington

Sample Location	Sample Date	HVOC concentration (ug/L)					
		PCE	TCE	cis-1,2-DCE	Vinyl Chloride	Chloroform	1,1,1-TCA
MTCA CUL (ug/L)		5[a]	5[a]	16[b]	0.2[a]	80[b]	200[a]
Updated Vapor Intrusion SL (ug/L)		22.9	1.6	--	0.347	1.2	5,240
MW-4	5/6/1999	**0.41**	<0.4	<0.4	<0.2	***2.1***	<0.5
	8/11/1999	**0.16**	<0.4	<0.4	<0.2	***0.99***	<0.4
	12/28/1999	**0.11**	<0.4	<0.4	<0.2	**0.46**	<0.4
	3/30/2000	<0.4	<0.4	<0.4	<0.2	<0.4	<0.4
	8/2/2000	<0.4	<0.4	<0.4	<0.2	**0.4**	<0.4
	7/16/2013	<1	<1	<1	<1	<1	<1
	3/27/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	6/25/2014	<0.5	<0.5	<0.5	<0.5	**0.36**	<0.5
	9/22/2014	**0.062 J**	<0.025	<0.025	<0.013	**0.36**	<0.025
	11/12/2014	<0.1	<0.1	<0.1	<0.02	**0.33**	<0.1
	11/12/2014 DUP	<0.1	<0.1	<0.1	<0.02	**0.31**	<0.1
	5/24/2016	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
HB-4 GW	12/10/2002	**9.36**	<1	<1	<0.4	***3.08***	<1
HB-5 GW	12/10/2002	**4.92**	<1	<1	<0.4	<1	<1

Notes:

1. HVOC = Halogenated volatile organic compound.
2. PCE = Tetrachloroethene.
3. TCE = Trichloroethene.
4. DCE = Dichloroethene.
5. TCA = Trichloroethane.
6. MTCA CUL = Model Toxics Control Act Cleanup Level.
7. Updated Air and Vapor Intrusion Screening Levels (SL) from updated SL table at http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/2015-changes.html
8. -- = SL not available
9. ug/L = microgram per liter.
10. a = MTCA Method A Table Value.
11. b = MTCA Method B Non-Carcinogen CUL Standard Formula Value (Unrestricted Land Use).
12. < = Not detected at a concentration above the method reporting limit or practical quantitation limit.
13. Bold = analyte was detected at a concentration above the method detection limit.
14. Shaded concentration exceeds the groundwater CUL.
15. Italicized concentration exceeds the vapor intrusion SL.

Table 4 – Soil Vapor Analytical Results
Classic Cleaners
Everett, Washington

Sample Location (Depth)	Sample Date	HVOC concentrations (ug/m^3)			
		PCE	TCE	cis-1,2-DCE	Vinyl Chloride
Method B Soil Gas SL (ug/m3)		320	12	--	9.4
Temporary Soil Vapor Sample Locations					
VS-1 (3")	10/4/2013	***2,500***	<1.3	<6.5	<4.2
VS-2 (3")	10/4/2013	***3,600***	<2.7	<9.9	<6.4
VS-3 (3")	11/20/2013	***2,400***	<5.2	<3.8	<2.4
VS-4 (3")	11/20/2013	***990***	<5.1	<3.8	<2.4
VS-5 (3")	12/6/2013	<8.1	<6.4	<4.7	<3.0
VS-6 (3")	12/6/2013	**8.4**	<5.7	<4.2	<2.7
VS-7 (3")	12/6/2013	<7.1	<5.6	<4.1	<2.7
VS-8 (5')	12/19/2013	<8.3	<6.6	<4.9	<3.1
VS-9 (5')	12/19/2013	<7.1	<5.6	<4.1	<2.7
VS-10 (5')	12/19/2013	<7.0	<5.6	<4.1	<2.6
VS-11 (5')	12/19/2013	<6.8	<5.4	<4.0	<2.6
VS-12 (5')	12/19/2013	<7.1	<5.6	<4.1	<2.7
VS-13 (5')	12/19/2013	<6.8	<5.4	<4.0	<2.6
VS-14 (5')	12/19/2013	<7.0	**10**	<4.1	<2.6
VS-15 (5')	12/19/2013	<7.0	<5.5	<4.2	<2.6
VS-16 (3")	9/22/2014	**150**	**8.4**	**1.9**	<0.58
VS-17 (3")	9/22/2014	***5,600***	<23	<17	<11
VS-18 (3")	9/22/2014	9	<1.3	<0.99	<0.32
Permanent Soil Vapor Locations					
VP-1	5/24/2016	**8,800**	<19	<14	<8.9
VP-2	5/24/2016	**10,000**	<21	<16	<10

Notes:

1. HVOC = Halogenated Volatile Organic Compound.
2. PCE = Tetrachloroethene.
3. TCE = Trichloroethene.
4. DCE = Dichloroethene.
5. ug/m^3 = microgram per cubic meter.
6. Updated Vapor Intrusion Screening Levels (SL) from updated SL table at https://www.ezview.wa.gov/Portals/_1987/Documents/Documents/CLARC_VI_MethodB.pdf
7. Bold = analyte was detected at a concentration above the method detection limit.
8. Shaded = concentration exceeds the SL.
9. < = Not detected at a concentration above the method reporting limit or practical quantitation limit.

Table 5 - Ambient Air Results
Classic Cleaners
Everett, Washington

Sample Location (Depth)	Sample Date	HVOC concentrations (ug/m^3)			
		PCE	TCE	cis-1,2-DCE	Vinyl Chloride
Method B Indoor Air Cleanup Level (ug/m^3)		9.6	0.37	--	0.28
Ambient Air Stations					
AA-1 (Backgound)	12/6/2013	<0.21	<0.16	<0.12	<0.039
AA-2 (Indoors)	11/20/2013	<5.6	<4.5	<3.3	<2.1
AA-3 (Indoors)	11/20/2013	<5.6	<4.5	<3.3	<2.1
AA-4 (Background)	9/22/2014	<0.23	**0.2**	<0.14	<0.044
AA-5 (Indoors)	9/22/2014	**0.52**	<0.17	<0.13	<0.041
AA-6 (Indoors)	9/22/2014	<0.23	<0.18	<0.13	<0.043
AA-7 (Background)	5/24/2016	**1.3**	<0.22	<0.16	<0.053
AA-8 (Indoor)	5/24/2016	**5.4**	<0.19	<0.14	<0.044

Notes:

1. HVOC = Halogenated Volatile Organic Compound.
2. PCE = Tetrachloroethene.
3. TCE = Trichloroethene.
4. DCE = Dichloroethene.
5. ug/m^3 = microgram per cubic meter.
6. MTCA CUL = Model Toxics Control Act Cleanup Level (Unrestricted Land Use).
7. Bold = analyte was detected at a concentration above the method detection limit.
8. Shaded = concentration exceeds the SL.
9. < = Not detected at a concentration above the method reporting limit or practical quantitation limit.
10. Ambient air samples collected on May 24, 2016 named AA-1 (Background) and AA-2 (Indoor) were renamed AA-7 (Background) and AA-8 (Indoor) post sample collection and analaytical analyses to maintain cohesion in the sampling timeline. Tables and figures reflect the nomenclature change.
11. Updated Cleanup Levels from updated table at https://www.ezview.wa.gov/Portals/_1987/Documents/Documents/CLARC_VI_MethodB.pdf

Table 6 - Comparative Analysis of Cleanup Action Alternatives
Classic Cleaners
Everett, Washington

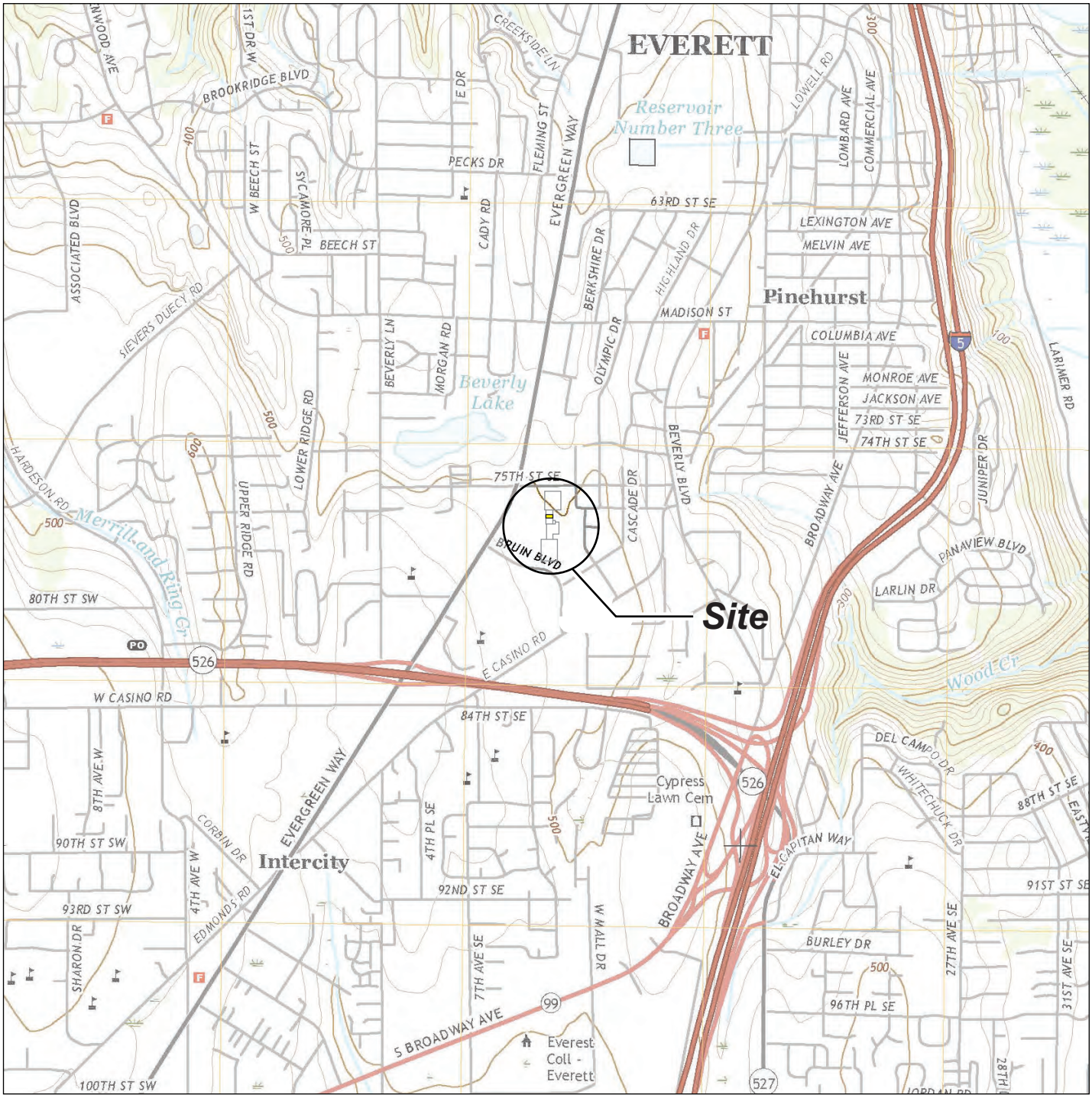
Soil Alternatives	Ranking Criteria																								Score	Rank
	Protectiveness				Permanence				Long-Term Effectiveness				Short Term Risk Management				Implementability				Public Concerns				Cost					
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
1 Soil Vapor Extraction		0	0	0		+	0	+		+	+	+		0	+	+		0	+	+		0	+	+		-	-	-	8	1
2 Subsurface Venting and Institutional Controls	0		0	0	-		-	0	0		+	+	0		+	+	0		+	+	0		+	+	+		+	-	7	2
3 Excavation	0	0		0	0	+		+	0	+		+	-	-		-	-	-		0	-	-		0	+	-		-	-4	3
4 Vapor Barrier	0	0	0		-	0	-		-	-	0		-	-	+		-	-	0		-	-	0		+	+	+		-6	4

Notes:

+ = The alternative is favored over the compared alternative (score = 1).

0 = The alternative is equal with the compared alternative (score = 0).

- = The alternative is less favorable than the compared alternative (score = -1).



Note: Base map prepared from USGS 7.5-minute quadrangle of Everett, WA, dated 2017 as provided by USGS.gov.

N

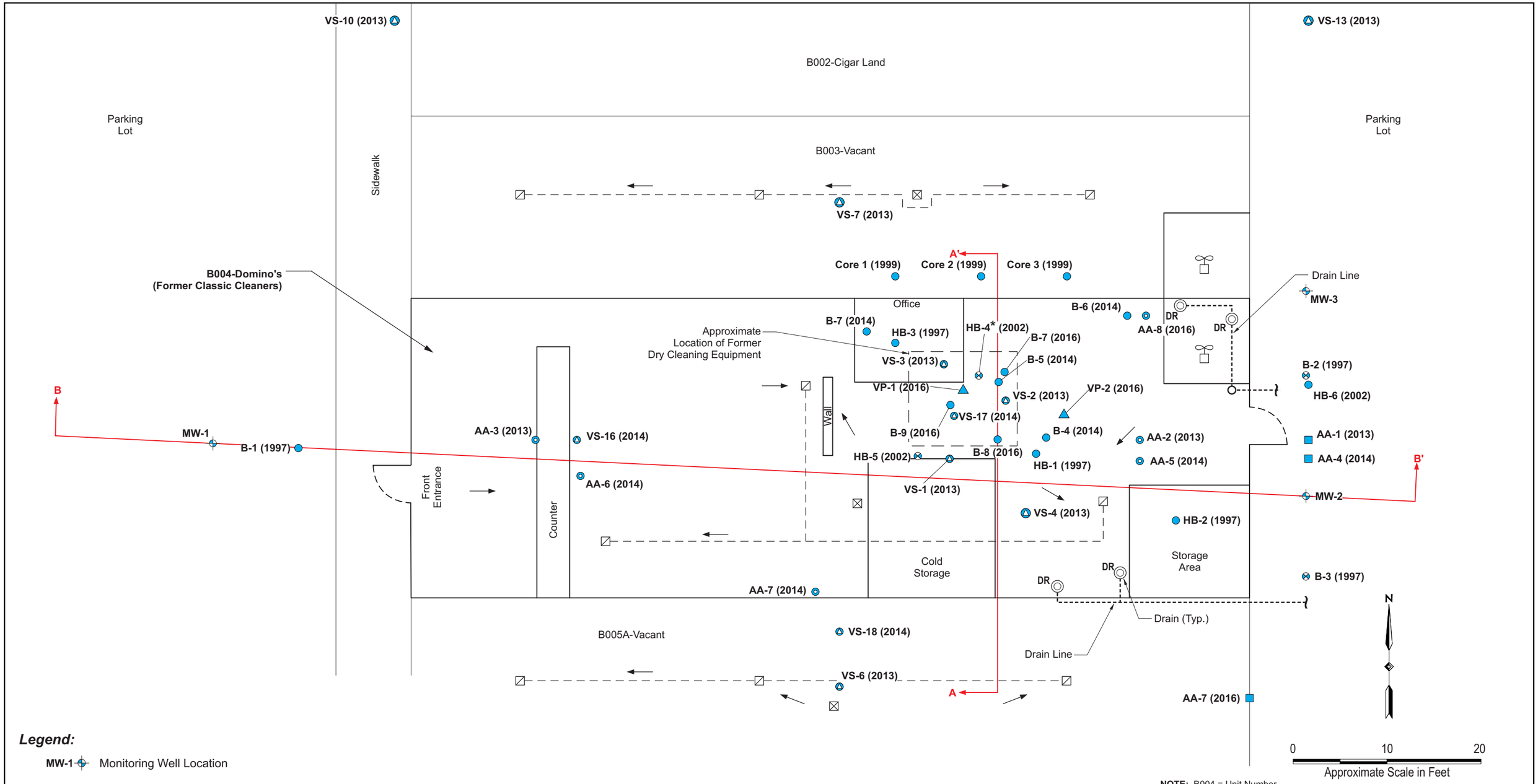
0 2,000 4,000

Approximate Scale in Feet

Site Location Map

Former Cascade Cleaners
Cascade Plaza
Everett, Washington

APEX Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	REGEN-360	Figure 1
	October 2019		



NOTE: B004 = Unit Number

Legend:

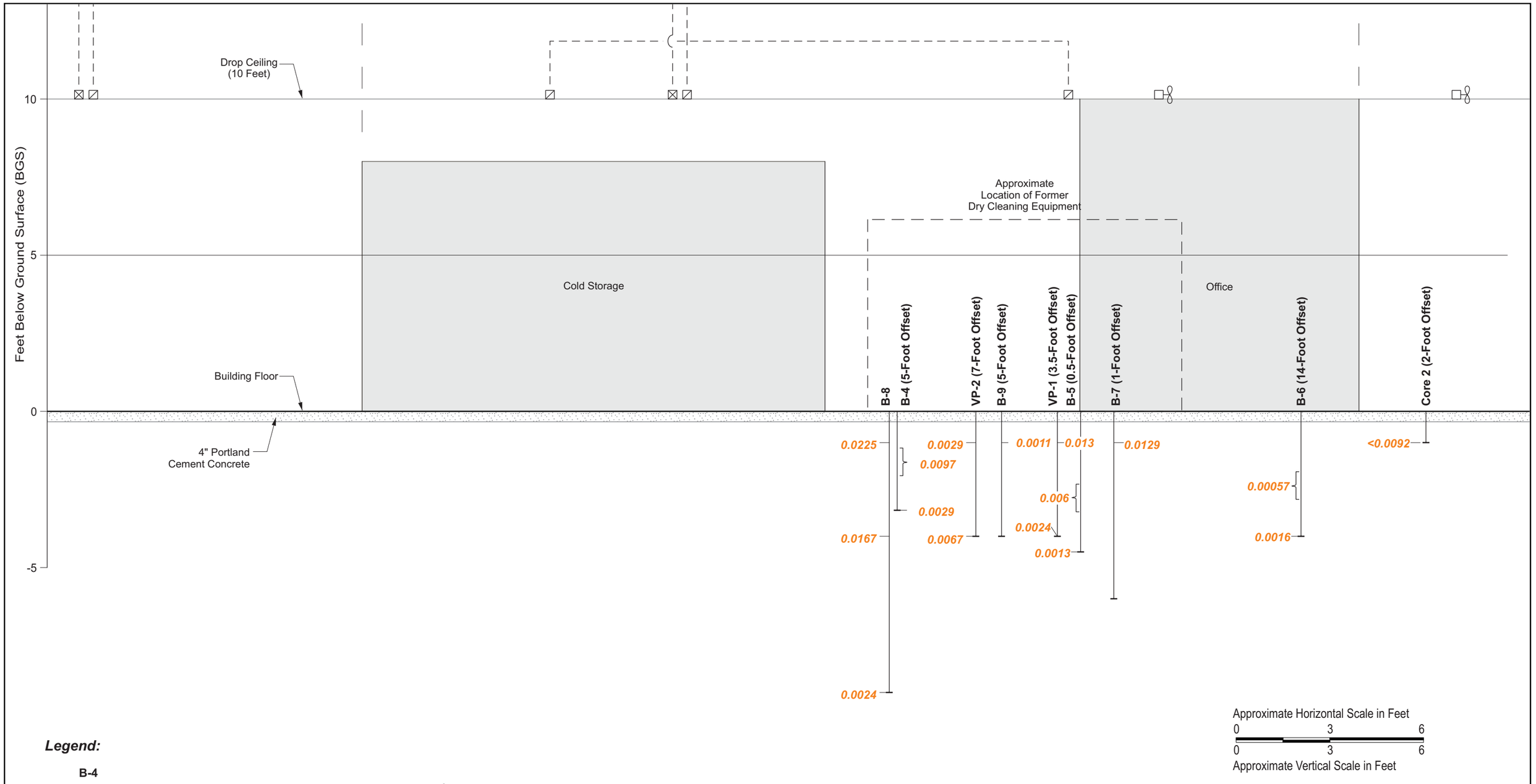
- MW-1 — Monitoring Well Location
- VS-3 (2013) — Soil Gas Sample Location (2013, 2014)
- AA-2 (2016) — Indoor Ambient Air Sample Location (2013, 2014, 2016)
- AA-1 (2016) — Outdoor Ambient Air Sample Location (2013, 2014, 2016)
- B-7 (2016) — Boring Location (1997, 1999, 2002, 2014, 2016)
- HB-4 (2002) — Soil and Groundwater Sample Location (1997, 2002)
- VP-1 (2016) — Permanent Soil Vapor Monitoring Location (2016)
- Axial Fan Location
- HVAC Return
- HVAC Vent
- Air Flow Direction (Inferred)
- A A' — Cross-Section Location (See Figures 3 and 4)

Site Plan

Former Cascade Cleaners
Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	Figure
REGEN-360	2
October 2019	



Legend:

B-4 — Boring Location

0.2 — Soil Tetrachloroethene Concentration in mg/kg

Axial Fan Location

HVAC Return

HVAC Vent

Air Flow Direction (Inferred)

Approximate Horizontal Scale in Feet

0 3 6

0 3 6

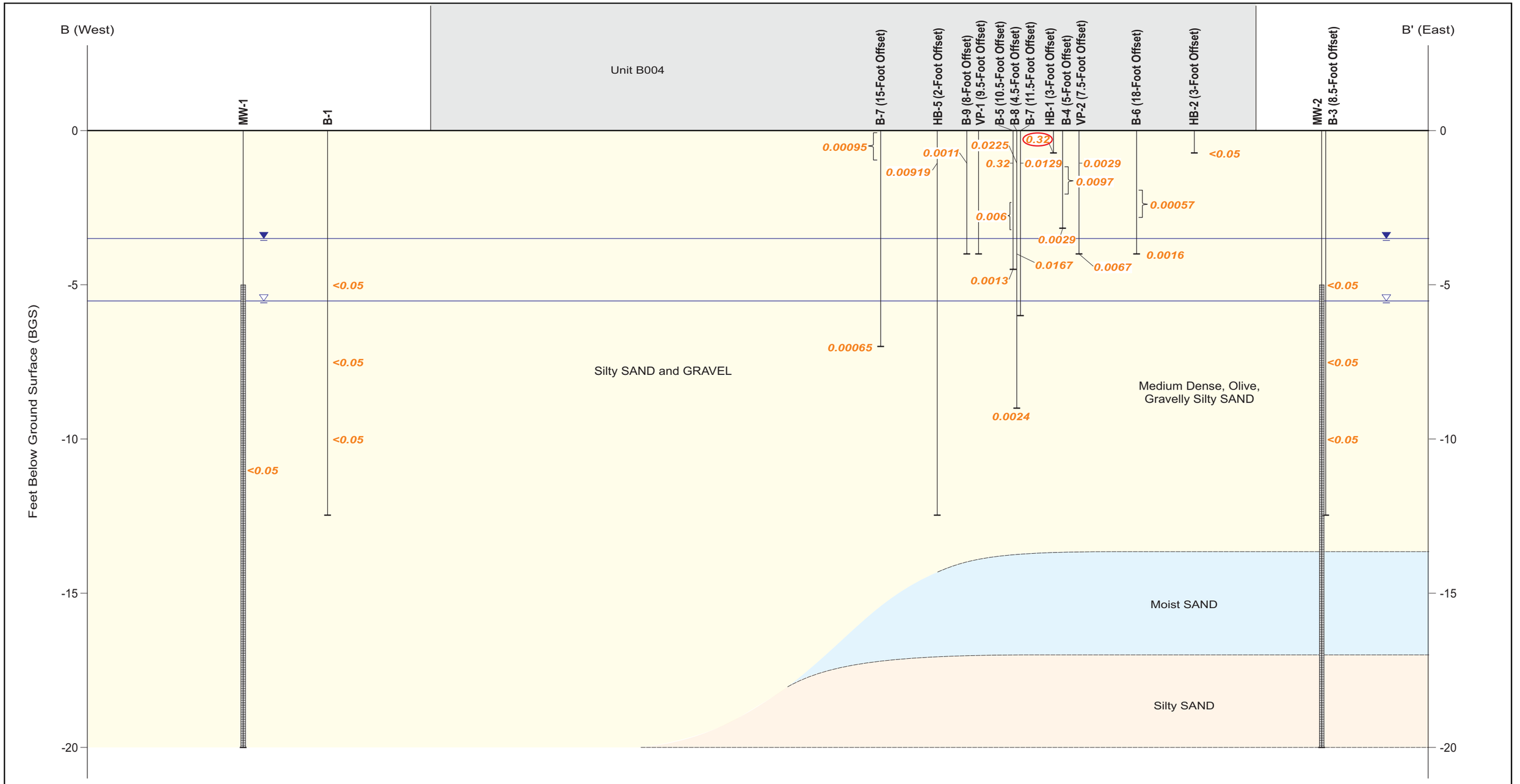
Approximate Vertical Scale in Feet

Cross-Section A-A'

Former Cascade Cleaners
Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	REGEN-360	Figure
October 2019		3



Legend:

MW-1 Monitoring Well Location

Typical High Groundwater Level - Gauged 3/27/2014

Typical Groundwater Level - Gauged 9/22/2014

0.2 Soil Tetrachloroethene (PCE) Concentration in mg/kg

Screen Interval

SAND

Gravelly SAND/SILT

Silty SAND

Concentration Exceeds MTCA Method A Soil Cleanup Level for PCE (0.05 mg/kg)

Approximate Horizontal Scale in Feet
0 10 20
0 3 6
Approximate Vertical Scale in Feet

Cross-Section B-B'

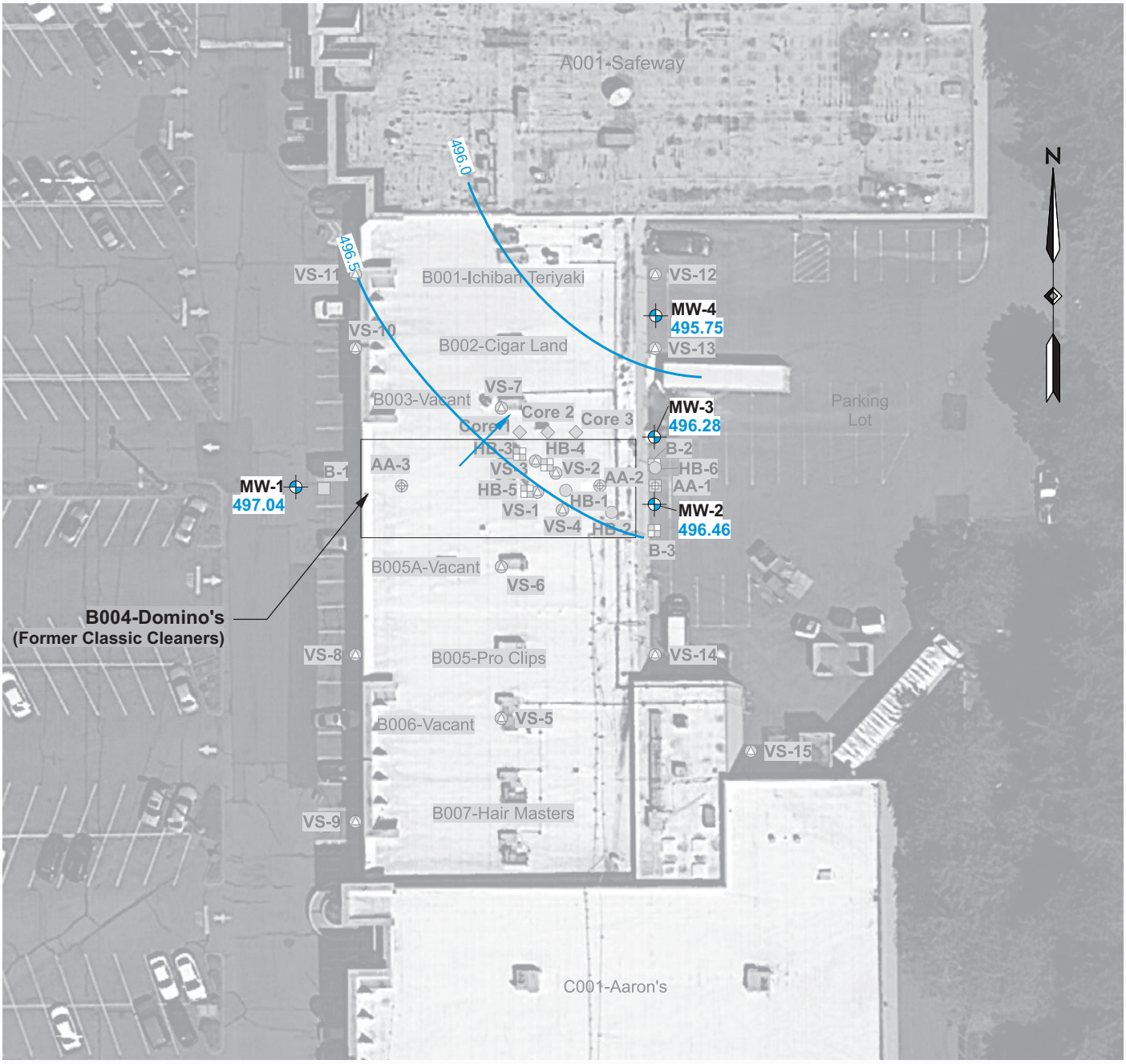
Former Cascade Cleaners
Cascade Plaza
Everett, Washington

APEX
Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number REGEN-360

October 2019

Figure 4



Legend:

MW-1 / 497.04 — Monitoring Well Location, Groundwater Elevation in Feet

496.0 — Groundwater Elevation Contour in Feet

Apparent Groundwater Flow Direction

VS-3 — Soil Gas Sample Location (2013)

AA-2 — Indoor Ambient Air Sample Location (2013)

AA-1 — Outdoor Ambient Air Sample Location (2013)

HB-1 — Soil Sample Location (2002)

Core 1 — Soil Sample Location (1999)

B-1 — Soil Sample Location (1997)

B-2 — Soil and Groundwater Sample Location (1997)

NOTES: Base map prepared from Google Earth Pro imagery. Aerial dated May 13, 2018.

B004 = Unit Number

0 50 100

Approximate Scale in Feet

Groundwater Elevations - May 24, 2016

Former Cascade Cleaners
Cascade Plaza
Everett, Washington

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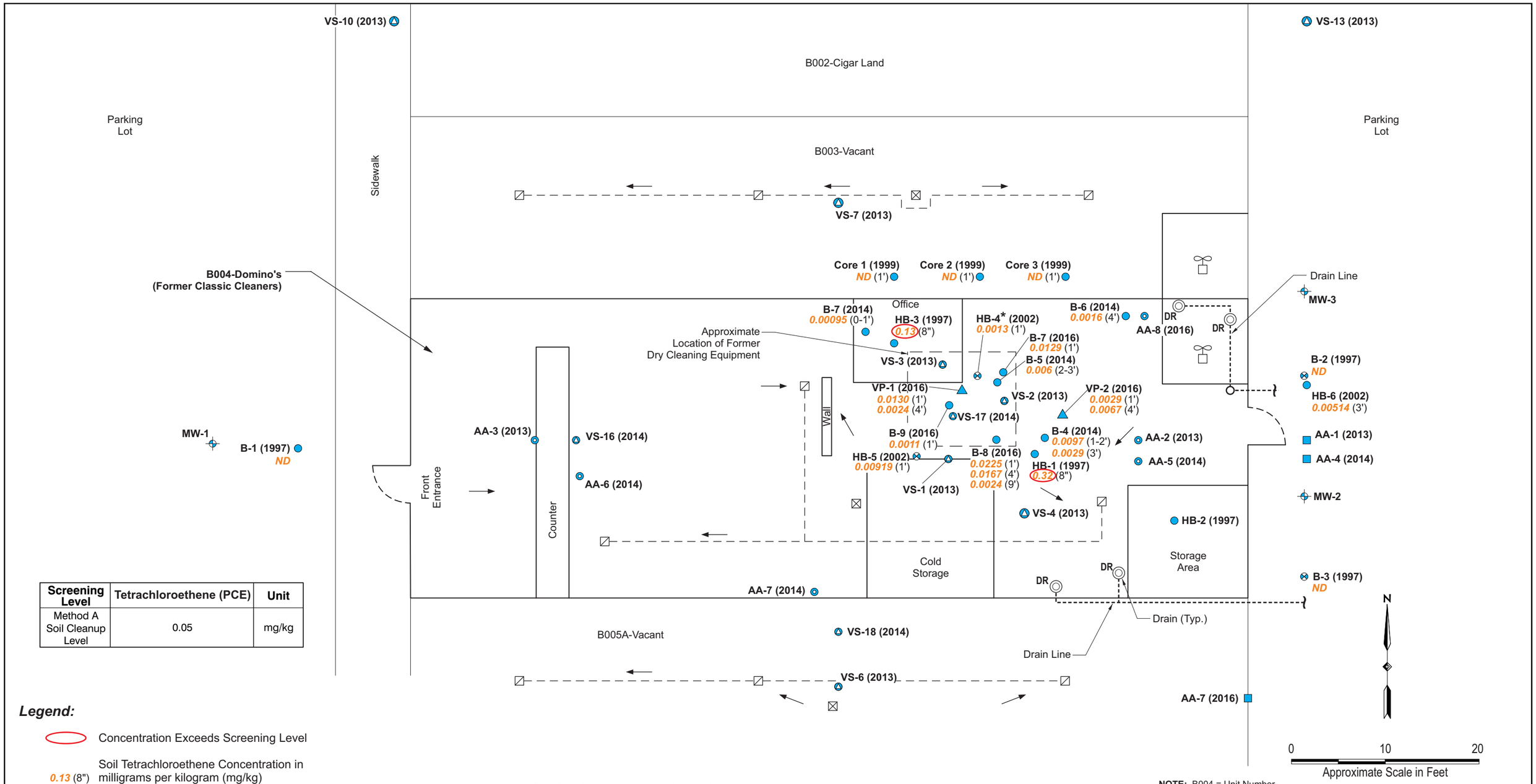
Portland, Oregon 97201

Project Number	REGEN-360	Figure
October 2019		5



Screening Level	Tetrachloroethene (PCE)	Unit
Method A Soil Cleanup Level	0.05	mg/kg

Legend:

- Concentration Exceeds Screening Level
- *0.13* (8") — Soil Tetrachloroethene Concentration in milligrams per kilogram (mg/kg) and (Sample Depth Below Ground Surface)
- MW-1 — Monitoring Well Location
- Axial Fan Location
- HVAC Return
- HVAC Vent
- Air Flow Direction (Inferred)
- VS-3 (2013) — Soil Gas Sample Location (2013, 2014)
- AA-2 (2016) — Indoor Ambient Air Sample Location (2013, 2014, 2016)
- AA-1 (2016) — Outdoor Ambient Air Sample Location (2013, 2014, 2016)
- B-7 (2016) — Boring Location (1997, 1999, 2002, 2014, 2016)
- HB-4 (2002) — Soil and Groundwater Sample Location (1997, 2002)
- VP-1 (2016) — Permanent Soil Vapor Monitoring Location (2016)

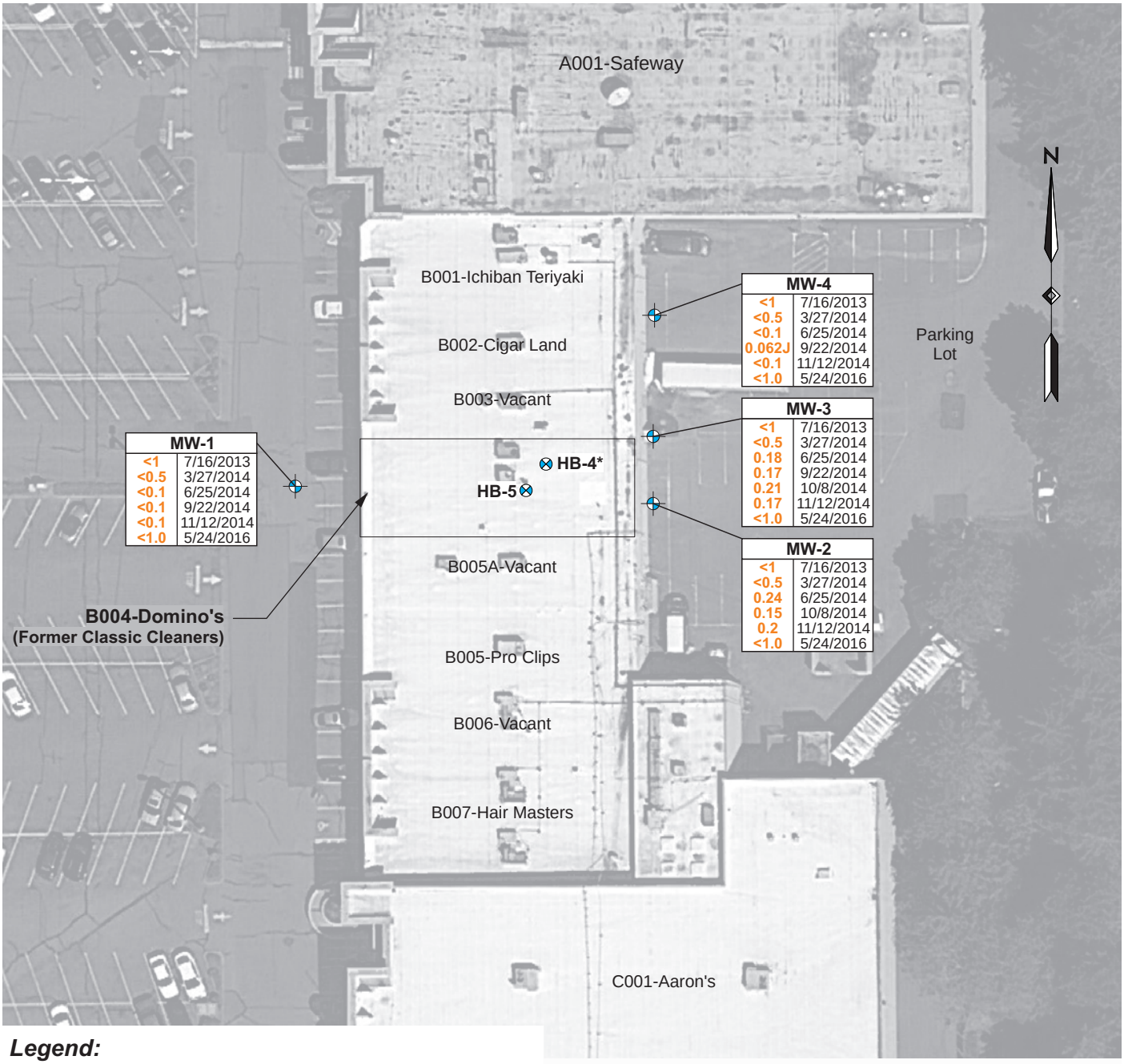
NOTE: B004 = Unit Number

Soil Results

Former Cascade Cleaners
Cascade Plaza
Everett, Washington

APEX
Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	Figure
REGEN-360	6
October 2019	



Legend:

MW-1 Monitoring Well Location

HB-5 Groundwater Sample Location (2002)

HB-4* HB-4 is the only Interior Sample Location Ever to Exceed the 5 µg/L Cleanup Level (9.36 µg/L) - This was a Discrete Groundwater Sample

MW-1	
<1	7/16/2013
<0.5	3/27/2014
<0.1	6/25/2014
<0.1	9/22/2014
<0.1	11/12/2014
<1.0	5/24/2016

Location Identification

Tetrachloroethene Concentration in micrograms per Liter (µg/L)

Sampling Date

Screening Level	Tetrachloroethene (PCE)	Unit
MTCA Method A Groundwater Cleanup Level	5	µg/L
Updated Vapor Intrusion Screening Level	22.9	µg/L

NOTES: Base map prepared from Google Earth Pro imagery. Aerial dated May 13, 2018.

B004 = Unit Number

0 50 100

Approximate Scale in Feet

Groundwater Results

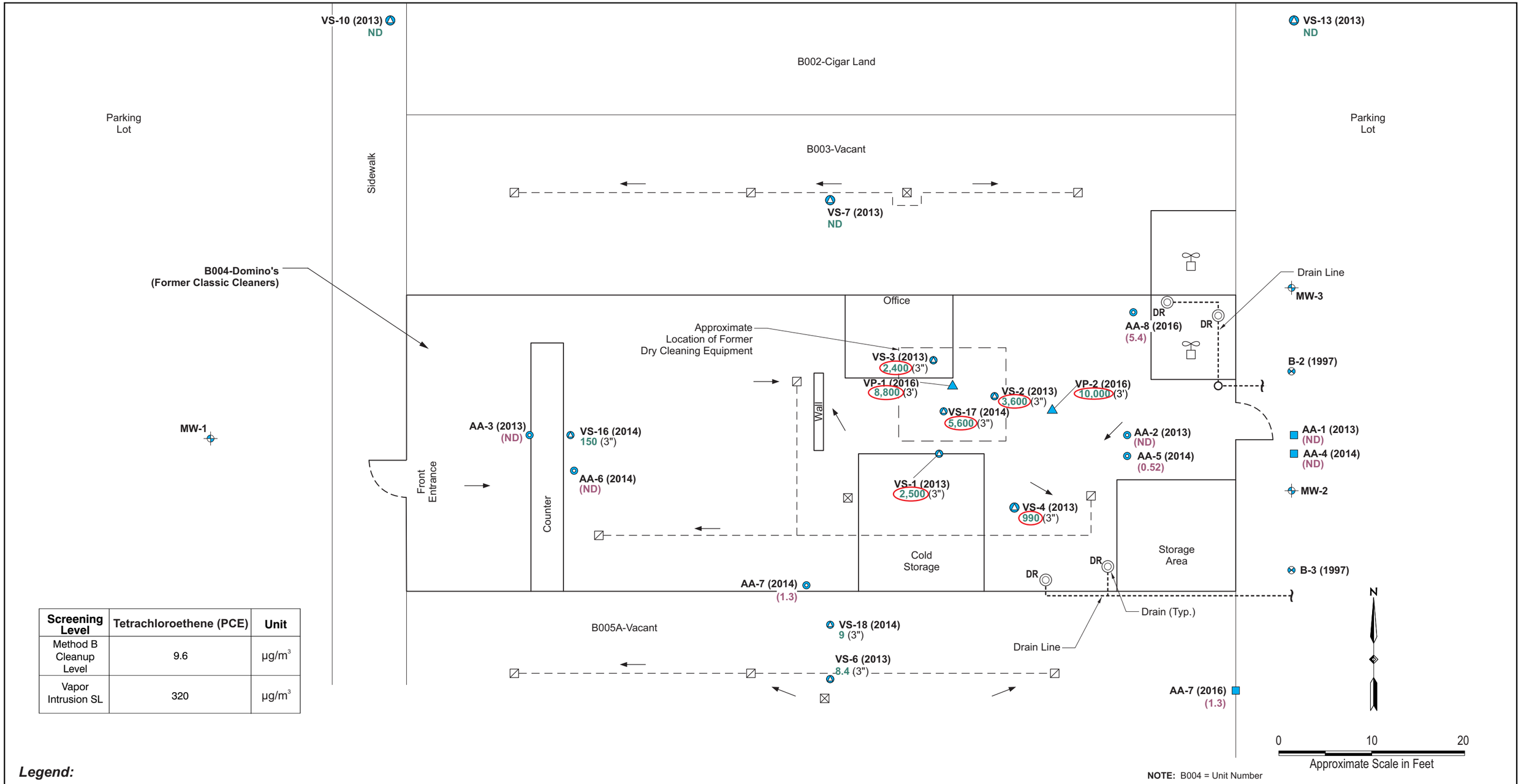
Former Cascade Cleaners
Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number REGEN-360

October 2019

Figure 7



Screening Level	Tetrachloroethene (PCE)	Unit
Method B Cleanup Level	9.6	µg/m^3
Vapor Intrusion SL	320	µg/m^3

NOTE: B004 = Unit Number

Legend:

- Concentration Exceeds Screening Level
- (1.3) Ambient Air Sample Tetrachloroethene Concentration in micrograms per cubic meter (µg/m^3)
- 1.56 (4.5') Soil Vapor Tetrachloroethene Concentration in µg/m^3 and (Soil Gas Sample Depth Below Ground Surface)
- MW-1 Monitoring Well Location
- VS-3 (2013) Soil Gas Sample Location (2013, 2014)
- AA-2 (2016) Indoor Ambient Air Sample Location (2013, 2014, 2016)
- AA-1 (2016) Outdoor Ambient Air Sample Location (2013, 2014, 2016)
- VP-1 (2016) Permanent Soil Vapor Monitoring Location (2016)
- Axial Fan Location
- HVAC Return
- HVAC Vent
- Air Flow Direction (Inferred)

PCE Soil Vapor and Ambient Air Results

Former Cascade Cleaners
Cascade Plaza
Everett, Washington

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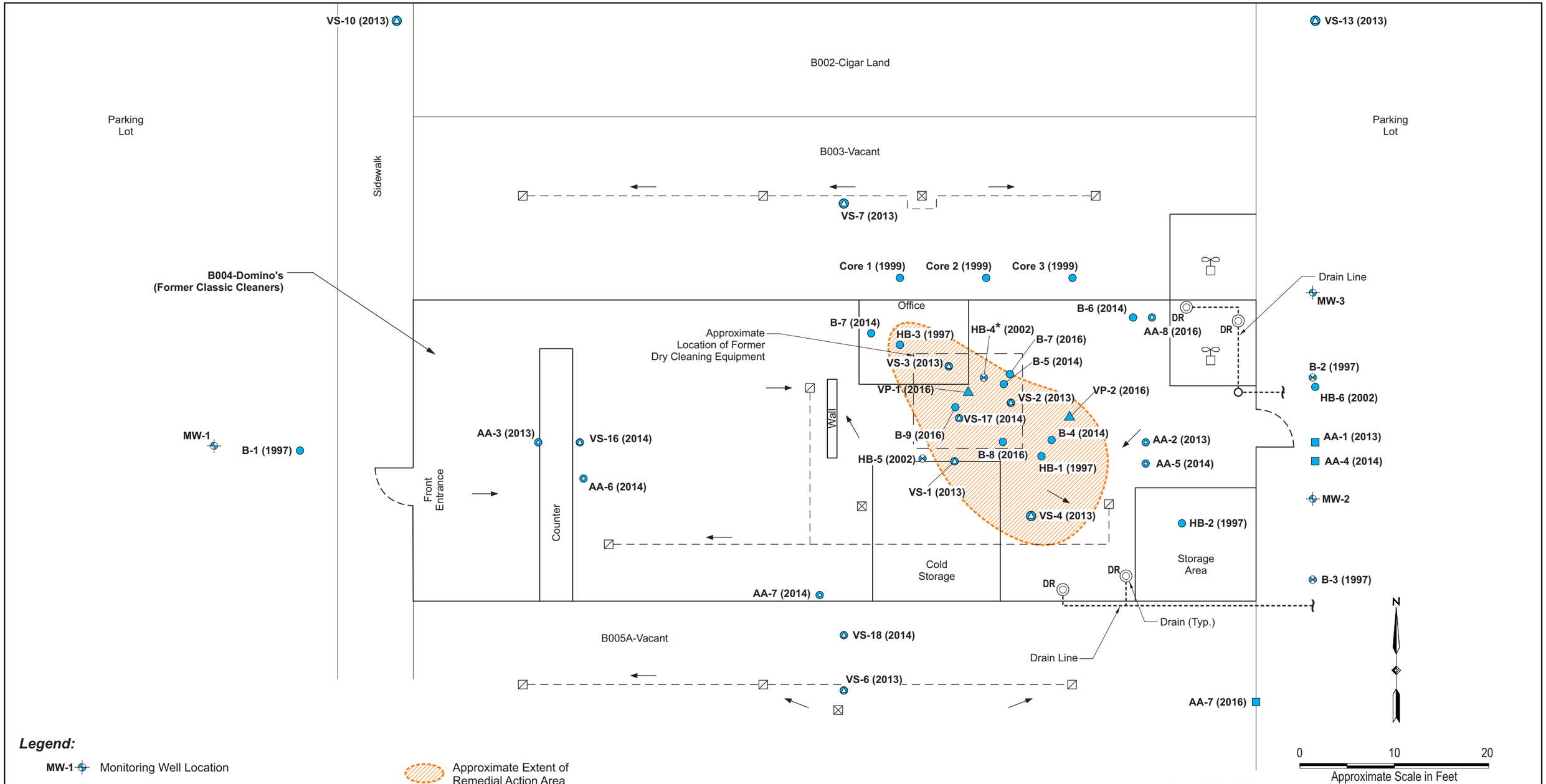
Project Number REGEN-360

October 2019

Figure 8



NOTE: B004 = Unit Number

Legend:

- MW-1 — Monitoring Well Location
- VS-3 (2013) — Soil Gas Sample Location (2013, 2014)
- AA-2 (2016) — Indoor Ambient Air Sample Location (2013, 2014, 2016)
- AA-1 (2016) — Outdoor Ambient Air Sample Location (2013, 2014, 2016)
- B-7 (2016) — Boring Location (1997, 1999, 2002, 2014, 2016)
- HB-4 (2002) — Soil and Groundwater Sample Location (1997, 2002)
- VP-1 (2016) — Permanent Soil Vapor Monitoring Location (2016)
- Approximate Extent of Remedial Action Area
- Axial Fan Location
- HVAC Return
- HVAC Vent
- Air Flow Direction (Inferred)

Remedial Action Area

Former Cascade Cleaners
Cascade Plaza
Everett, Washington

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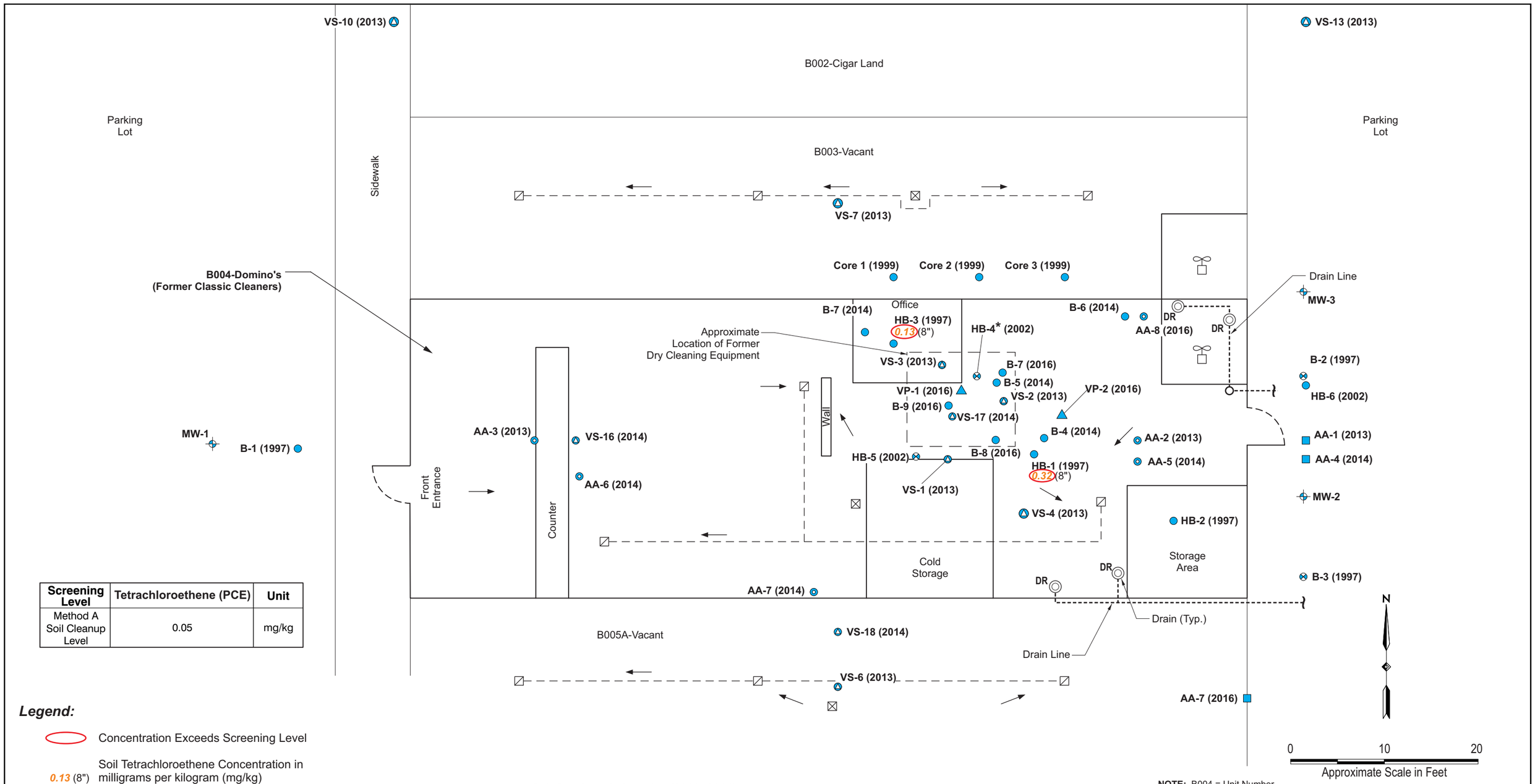
Project Number	REGEN-360	Figure
October 2019		9



Screening Level	Tetrachloroethene (PCE)	Unit
Method A Soil Cleanup Level	0.05	mg/kg

Legend:

- Concentration Exceeds Screening Level
- *0.13* (8") — Soil Tetrachloroethene Concentration in milligrams per kilogram (mg/kg) and (Sample Depth Below Ground Surface)
- MW-1 — Monitoring Well Location
- Axial Fan Location
- HVAC Return
- HVAC Vent
- Air Flow Direction (Inferred)
- VS-3 (2013) — Soil Gas Sample Location (2013, 2014)
- AA-2 (2016) — Indoor Ambient Air Sample Location (2013, 2014, 2016)
- AA-1 (2016) — Outdoor Ambient Air Sample Location (2013, 2014, 2016)
- B-7 (2016) — Boring Location (1997, 1999, 2002, 2014, 2016)
- HB-4 (2002) — Soil and Groundwater Sample Location (1997, 2002)
- VP-1 (2016) — Permanent Soil Vapor Monitoring Location (2016)

NOTE: B004 = Unit Number

Soil Results Above MTCA A Land Use Values

Former Cascade Cleaners
Cascade Plaza
Everett, Washington

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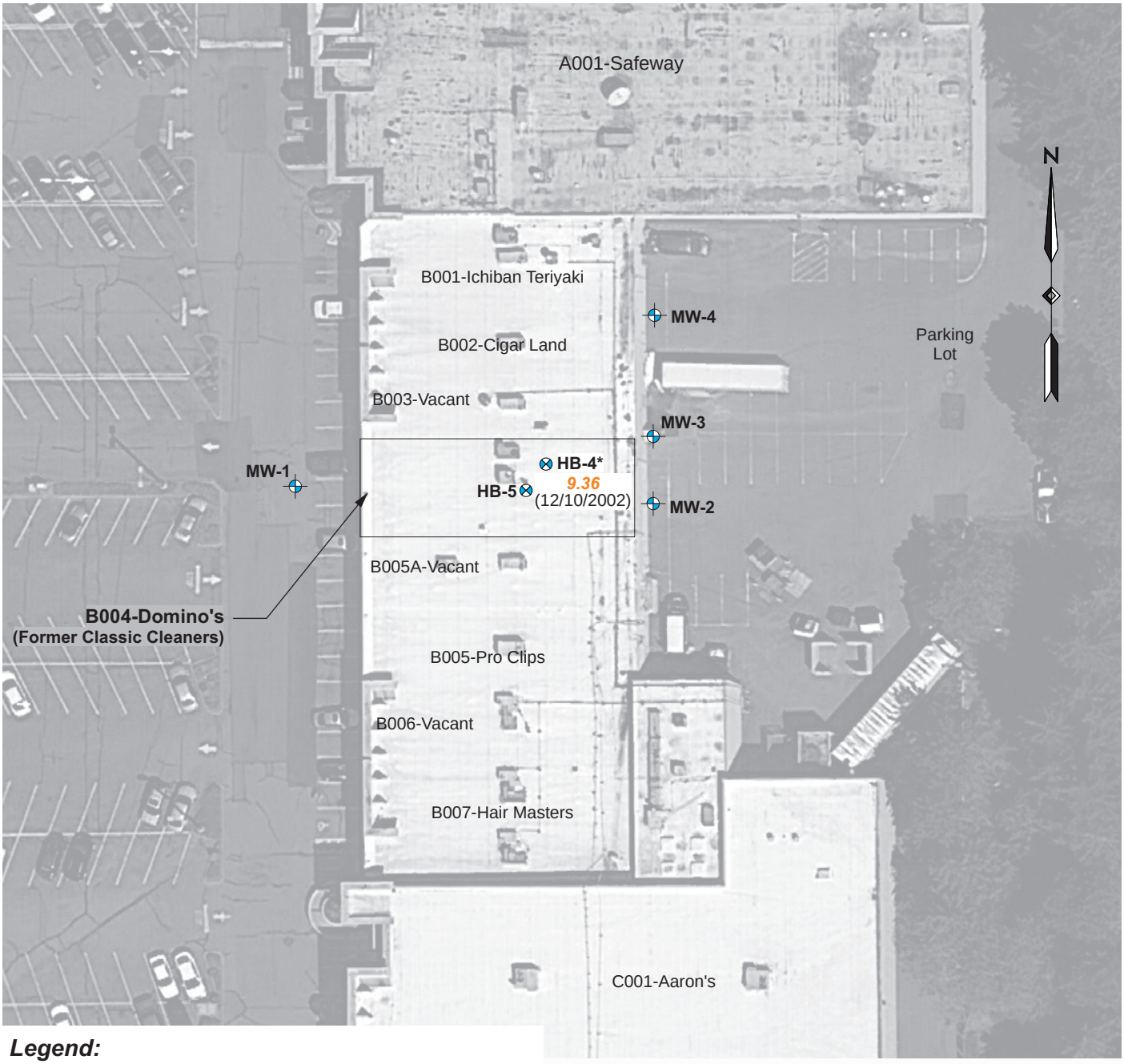
Portland, Oregon 97201

Project Number	Figure
REGEN-360	10
October 2019	



Legend:

MW-1 Monitoring Well Location

HB-5 Groundwater Sample Location (2002)

Concentration Exceeds Screening Level

9.36 (12/10/2002) Soil Tetrachloroethene Concentration in milligrams per kilogram (mg/kg) and (Sample Date)

HB-4* HB-4 is the only Interior Sample Location Ever to Exceed the 5 µg/L Cleanup Level (9.36 µg/L) - This was a Discrete Groundwater Sample

NOTES: Base map prepared from Google Earth Pro imagery. Aerial dated May 13, 2018.

B004 = Unit Number

0 50 100

Approximate Scale in Feet

Screening Level	Tetrachloroethene (PCE)	Unit
MTCA Method A Groundwater Cleanup Level	5	µg/L
Updated Vapor Intrusion Screening Level	22.9	µg/L

Groundwater Results Above MTCA A Land Use Values

Former Cascade Cleaners
Cascade Plaza
Everett, Washington

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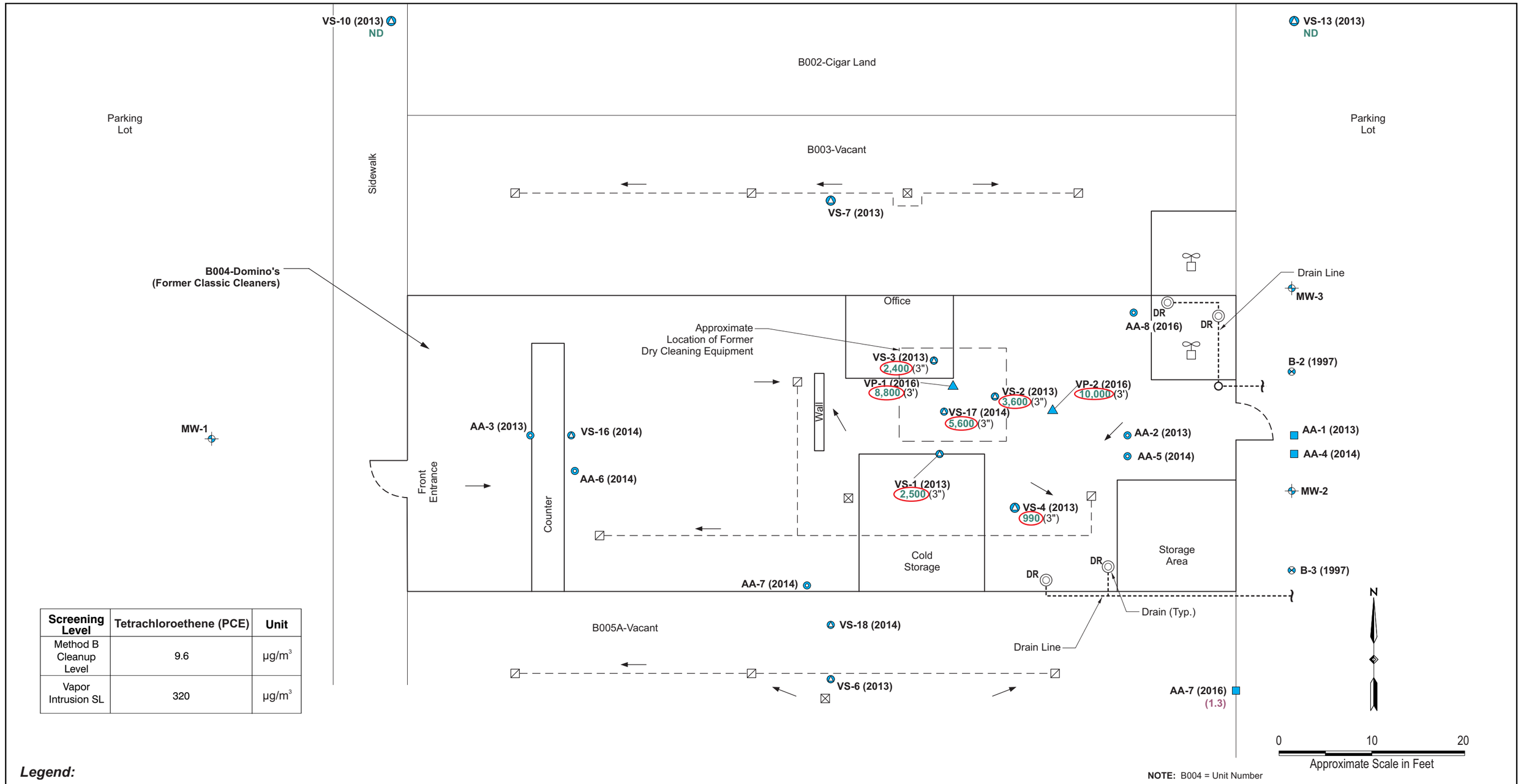
Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number REGEN-360

October 2019

Figure 11



Screening Level	Tetrachloroethene (PCE)	Unit
Method B Cleanup Level	9.6	µg/m^3
Vapor Intrusion SL	320	µg/m^3

NOTE: B004 = Unit Number

Legend:

- Concentration Exceeds Screening Level
- 1.56 (4.5') Soil Vapor Tetrachloroethene Concentration in µg/m^3 and (Soil Gas Sample Depth Below Ground Surface)
- MW-1 Monitoring Well Location
- VS-3 (2013) Soil Gas Sample Location (2013, 2014)
- AA-2 (2016) Indoor Ambient Air Sample Location (2013, 2014, 2016)
- AA-1 (2016) Outdoor Ambient Air Sample Location (2013, 2014, 2016)
- VP-1 (2016) Permanent Soil Vapor Monitoring Location (2016)
- Axial Fan Location
- HVAC Return
- HVAC Vent
- Air Flow Direction (Inferred)

Vapor Results Above MTCA B Land Use Values

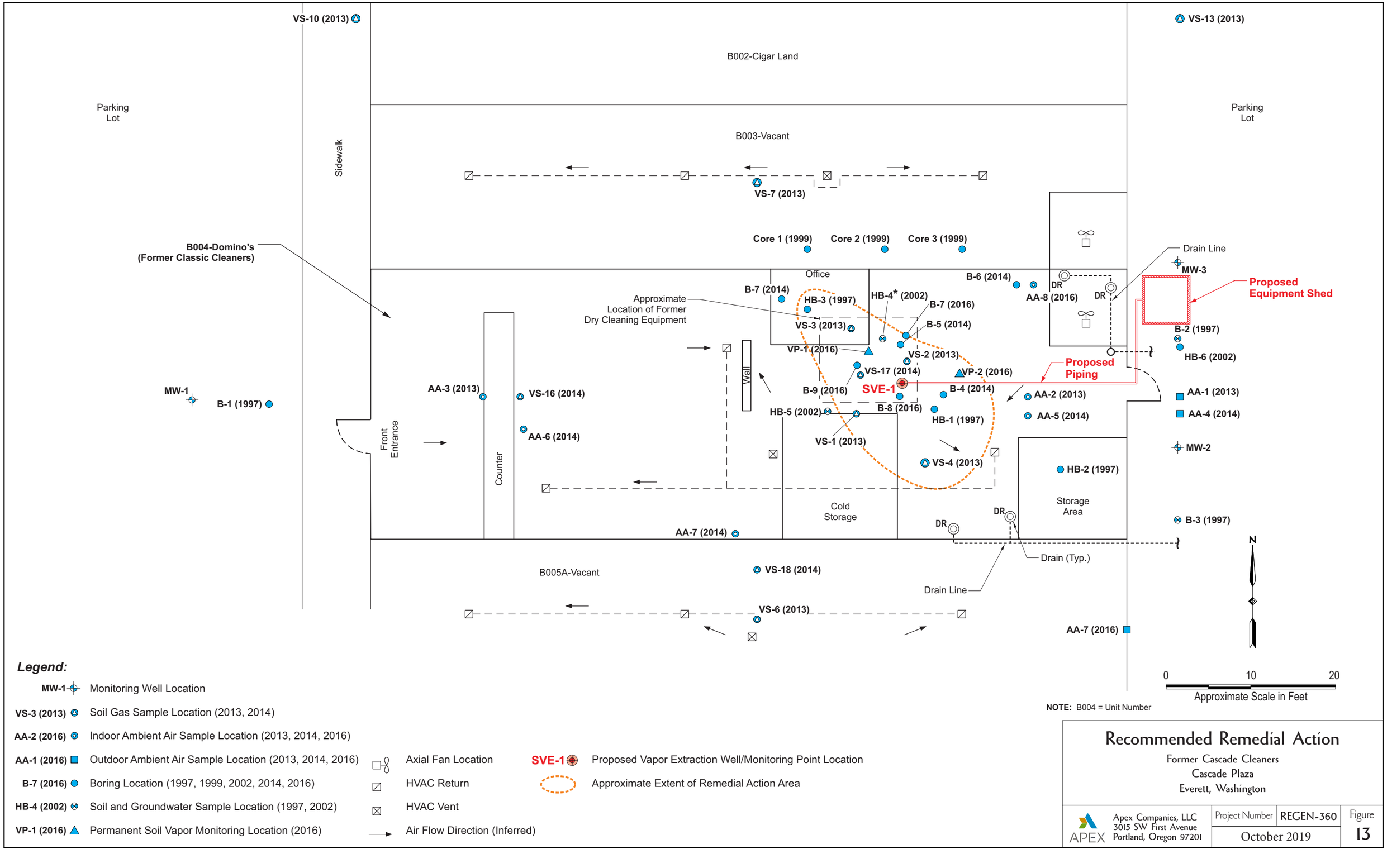
Former Cascade Cleaners
Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number REGEN-360

October 2019

Figure 12



NOTE: B004 = Unit Number

Legend:

- **MW-1** Monitoring Well Location
- **VS-3 (2013)** Soil Gas Sample Location (2013, 2014)
- **AA-2 (2016)** Indoor Ambient Air Sample Location (2013, 2014, 2016)
- **AA-1 (2016)** Outdoor Ambient Air Sample Location (2013, 2014, 2016)
- **B-7 (2016)** Boring Location (1997, 1999, 2002, 2014, 2016)
- **HB-4 (2002)** Soil and Groundwater Sample Location (1997, 2002)
- **VP-1 (2016)** Permanent Soil Vapor Monitoring Location (2016)
- Axial Fan Location
- HVAC Return
- HVAC Vent
- Air Flow Direction (Inferred)
- **SVE-1** Proposed Vapor Extraction Well/Monitoring Point Location
- Approximate Extent of Remedial Action Area

Recommended Remedial Action

Former Cascade Cleaners
Cascade Plaza
Everett, Washington

Apex Companies, LLC
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Portland, Oregon 97201

Project Number	Figure
REGEN-360	13
October 2019	

Appendix A

Exploration and Well Construction Logs

LOG OF EXPLORATORY BORING

(Seattle, Washington Office)

Client	MetLife		Boring No. B-1
Project	CLASSIC CLEANERS - CASCADE PLAZA		Project No. 81476.0302
Project Location	EVERETT, WASHINGTON		Date 06/09/97
Hole Location	4' FROM SIDEWALK		Elevation
Equipment	MOBILE DRILL RIG	Drilling Method HOLLOW STEM AUGER	Boring Size 8 INCH
Project Manager	NEIL GILHAM	Driller HOLT DRILLING, INC	Recorder N. Prime

Depth Ft.	Sample No.	Blow Counts	Percent Recovery	Profile	MATERIAL DESCRIPTION	WELL CONST	FIELD NOTES / PID SCREEN
0.0					Asphalt Surface 2" thickness, gravel fill		
	1	28-27-32	80		**SILTY SAND** (SM): Grey, some gravel, dense to very dense, mst, no odor		DRY / 0.0
5.0	2	30-40	40				DRY / 0.0
	3	30-40	40				MOIST / 0.0
	4	40	20		**ground water encountered at 10.0 feet bsg**		WET / 0.0
10.0	5	40	20				MOIST TO WET / 0.0
	6	40	20				MOIST TO DRY / 0.0
15.0					**BOTTOM OF BORING 15.0'**		
20.0							
25.0							

GROUNDWATER LEVELS	
Date	Depth

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuours Flight Auger
DC - Driven Casing
MD - Mud Drilling
RC - Rock Coring
CA - Casing Advancer

ATC

LOG OF EXPLORATORY BORING
(Seattle, Washington Office)

Client	MetLife		Boring No. B-2
Project	CLASSIC CLEANERS - CASCADE PLAZA		Project No. 81476.0302
Project Location	EVERETT, WASHINGTON		Date 06/09/97
Hole Location	PARKING LOT CASCADE CLEANERS		Elevation
Equipment	MOBILE DRILL RIG	Drilling Method HOLLOW STEM AUGER	Boring Size 8 INCH
Project Manager	NEIL GILHAM	Driller HOLT DRILLING, INC	Recorder N. Prime

Depth Ft.	Sample No.	Blow Counts	Percent Recovery	Profile	MATERIAL DESCRIPTION	WELL CONST	FIELD NOTES / PID SCREEN
0.0					Asphalt Surface 2" thickness, gravel fill		
	1	NA			**FILL**: Brown to Grey, silt with some gravel, dense to very dense, dry, no odor		DRY / 0.0
5.0	2	21-28-32	80				DRY / 0.0
	3	40	30		**SILTY SAND** (SM): Grey, some gravel (1/2" to 3/4"), dense to very dense, dry, no odor		DRY / 0.0
10.0	4	40	30		**ground water encountered at 11.0 feet bsg**		DRY TO MOIST / 0.0
	5	40	20				WET / 0.0
15.0	6	40	20				WET / 0.0
					BOTTOM OF BORING 15.0'		
20.0							
25.0							

GROUNDWATER LEVELS	
Date	Depth

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Auger
DC - Driven Casing
MD - Mud Drilling
RC - Rock Coring
CA - Casing Advancer

ATC

LOG OF EXPLORATORY BORING

(Seattle, Washington Office)

Client	MetLife		Boring No. B-3
Project	CLASSIC CLEANERS - CASCADE PLAZA		Project No. 81476.0302
Project Location	EVERETT, WASHINGTON		Date 06/09/97
Hole Location	PARKING LOT CASCADE CLEANERS		Elevation
Equipment	MOBILE DRILL RIG	Drilling Method HOLLOW STEM AUGER	Boring Size 8 INCH
Project Manager	NEIL GILHAM	Driller HOLT DRILLING, INC	Recorder N. Prime

Depth Ft.	Sample No.	Blow Counts	Percent Recovery	Profile	MATERIAL DESCRIPTION	WELL CONST	FIELD NOTES PID SCREEN
0.0					Asphalt Surface 3" thickness, gravel fill		
	1	5-5-7	80		**FILL**: Brown to Grey, silt with some gravel, dense to very dense, dry, no odor		DRY / 0.0
5.0	2	10-20-27	50		**SILTY SAND** (SM): Brown to Grey, some gravel (1/2" to 3/4"), dense to very dense, dry, no odor		DRY / 0.0
	3	40	40				DRY / 0.0
10.0	4	40	40		**ground water encountered at 10.5 feet bsg**		WET / 0.0
	5	40	20				WET / 0.0
15.0	6	40	20				WET / 0.0
					BOTTOM OF BORING 15.0'		
20.0							
25.0							

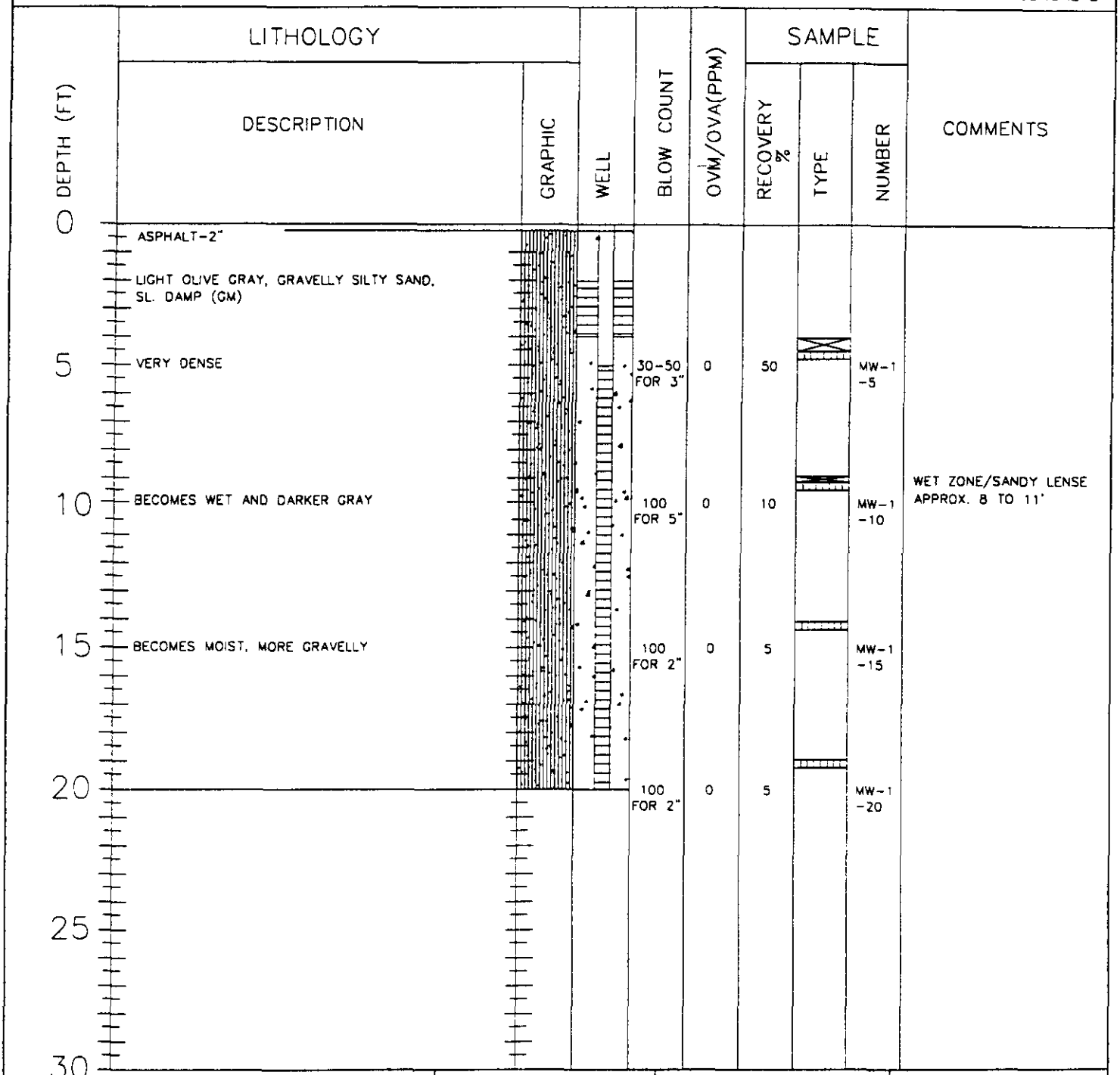
GROUNDWATER LEVELS	
Date	Depth

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Auger
DC - Driven Casing
MD - Mud Drilling
RC - Rock Coring
CA - Casing Advancer

ATC

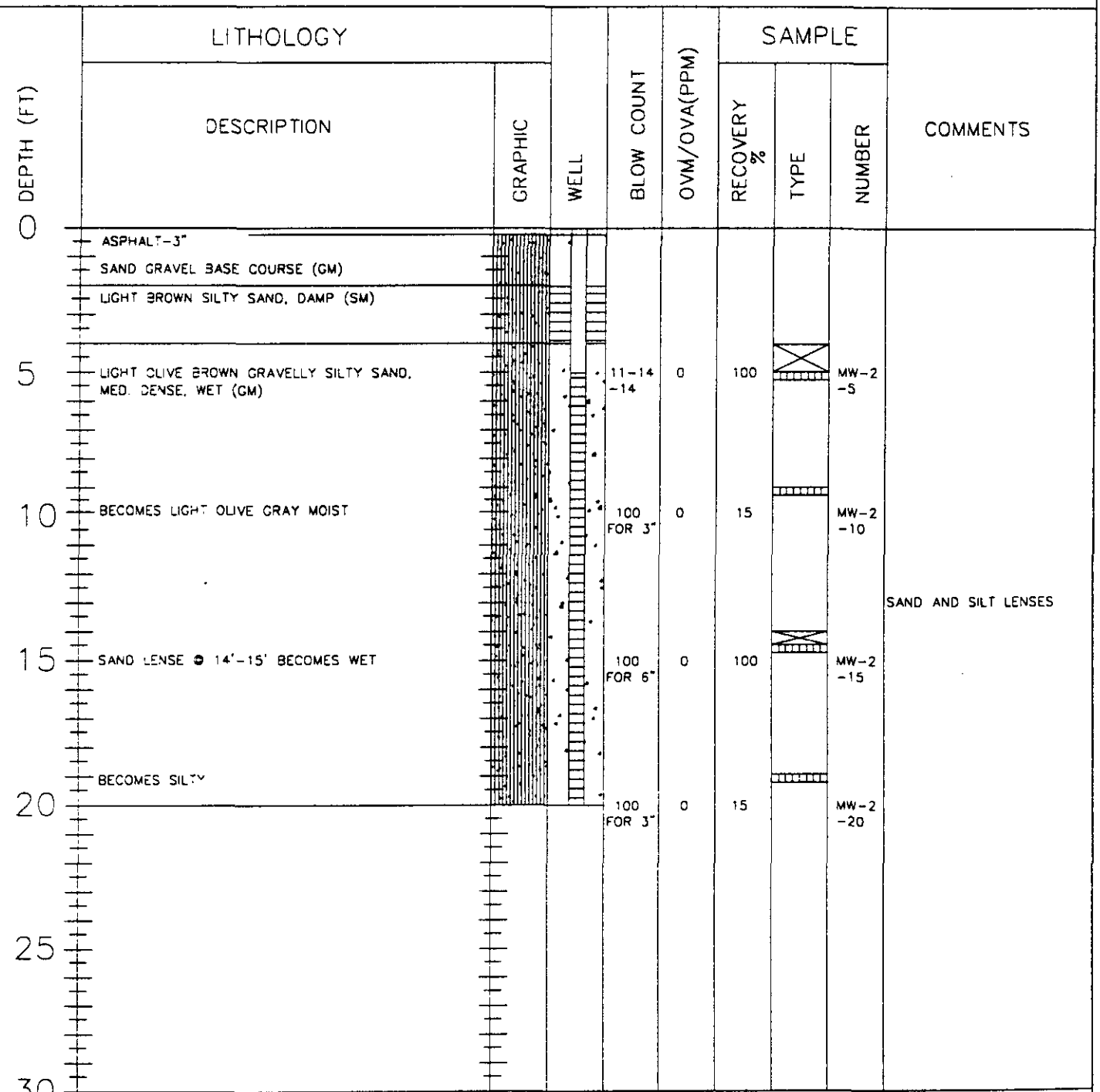
PROJECT: METLIFE CASCADE PLAZA-CLASSIC CLEANERS	ATC	PROJECT NUMBER: 81476.0303	
LOGGED BY: NEIL GILHAM		START DATE: 7/30/97	
CHECKED BY:		COMPLETION DATE: 7/30/97	
GROUND SURFACE ELEV. DATUM (FT-MSL)		DRILLING COMPANY: CASCADE DRILLING	
DRILLING EQUIPMENT: CME-75: 8 IN. O.D. HAS			
BORING DEPTH (FT): 20	WELL DEPTH (FT): 20	WATER DEPTH (FT)-Initial: 8 Completion:	
WELL MATERIALS: 2 IN. PVC-SCREEN: 0.010 IN. SLOTTED		WELL SCREEN INTERVAL (FT): 5 TO 20	
WELL CASING ELEVATION (FT-MSL):		OVM/OVA: PID (EI)	
BACKFILL MATERIAL: #2/12 SAND FROM 4 TO 20 FT.; BENTONITE FROM 2 TO 4 FT.; FLUSH MOUNTED WELL COVER IN CONCRETE			



BORING DESIGNATION MW-1	BORING LOG	PAGE NUMBER 1 OF 1

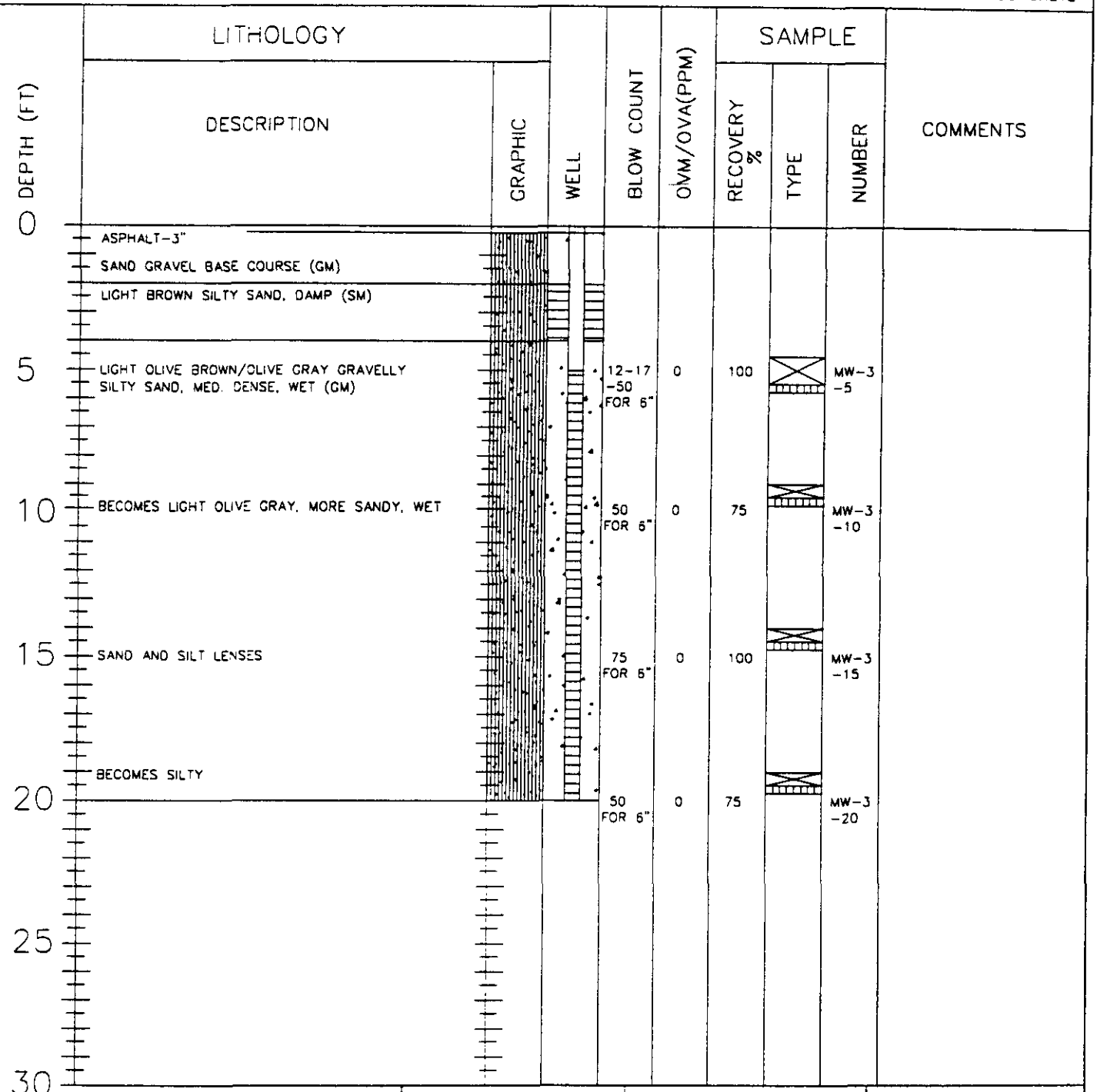
PROJECT: METLIFE CASCADE PLAZA-CLASSIC CLEANERS	ATC	PROJECT NUMBER: 81476.0303	
LOGGED BY: NEIL GILHAM		START DATE: 7/30/97	
CHECKED BY:		COMPLETION DATE: 7/30/97	
GROUND SURFACE ELEV. DATUM (FT-MSL)		DRILLING COMPANY: CASCADE DRILLING	
DRILLING EQUIPMENT: CME-75: 8 IN. O.D. HAS			
BORING DEPTH (FT): 20	WELL DEPTH (FT): 20	WATER DEPTH (FT)-Initial: 5 Completion:	
WELL MATERIALS: 2 IN. PVC-SCREEN: 0.010 IN. SLOTTED		WELL SCREEN INTERVAL (FT): 5 TO 20	
WELL CASING ELEVATION (FT-MSL):		OVM/OVA: PID (EI)	

BACKFILL MATERIAL: #2/'2 SAND FROM 4 TO 20 FT.; BENTONITE FROM 2 TO 4 FT.; FLUSH MOUNTED WELL COVER IN CONCRETE



BORING DESIGNATION MW-2	BORING LOG	PAGE NUMBER 1 OF 1

PROJECT: METLIFE CASCADE PLAZA-CLASSIC CLEANERS	ATC	PROJECT NUMBER: 81476.0303
LOGGED BY: NEIL GILHAM		START DATE: 7/30/97
CHECKED BY:		COMPLETION DATE: 7/30/97
GROUND SURFACE ELEV. DATUM (FT-MSL)		DRILLING COMPANY: CASCADE DRILLING
DRILLING EQUIPMENT: CME-75: 8 IN. O.D. HAS		
BORING DEPTH (FT): 20 | WELL DEPTH (FT): 20		WATER DEPTH (FT)-Initial: 7 Completion:
WELL MATERIALS: 2 IN. PVC-SCREEN: 0.010 IN. SLOTTED		WELL SCREEN INTERVAL (FT): 5 TO 20
WELL CASING ELEVATION (FT-MSL):		OVM/OVA: PID (EI)
BACKFILL MATERIAL: #2/12 SAND FROM 4 TO 20 FT.; BENTONITE FROM 2 TO 4 FT.; FLUSH MOUNTED WELL COVER IN CONCRETE		



BORING DESIGNATION MW-3	BORING LOG	PAGE NUMBER 1 OF 1

Project:	Client:	Boring:
Classic Cleaners Cascade Plaza Everett, Washington	Regency Realty Corporation	MW-4
	Driller: Env. Drilling Inc. / Method: Hollow-Stem Auger	Project No. WES-1193A
	Surface Elevation: 506' MSL / Reference: MW-2, MW-3	

Top of Casing Elev.: 505.65' MSL

Sample Data No.	Type	Depth	Recovery	N	OVM (ppm)	Soil Description
						3" Asphalt Brown SAND with gravel. Asphalt base FILL.
1	SS	2.5 – 4.0	6"	3/5/8	0	Mottled brown to grayish brown silty SAND, with gravel, several wood pieces, medium dense. FILL
2	SS	7.5 – 9.0	8"	7/ 14/ 50/6"	0	Grayish brown silty fine to medium SAND, Interlayered with mottled grayish brown silty, gravelly SAND, dense, moist. Weathered TILL.
3	SS	12.5 – 14	18"	12 /16 /21	0	Same, with several well defined silt zones. Moist to wet.
4	SS	17.5 – 19	18"	11 /29 /30	0	Monitoring Well MW-4 constructed in borehole. Monitoring well screened from 18.9 to 8.9 feet below ground surface (bgs) using a 2-inch diameter, flush threaded PVC screen with 0.010" slots. Screen surrounded with Colorado silica sand from a depth of 7.0' to 19 feet. Bentonite chip seal from 3' to 7' bgs. Concrete seal and flush mounted, bolting monument at ground surface. End of Boring at 19.0 Feet Below Ground Surface.

Water Level Data	Depth	Date/Time
First Encountered:	-12'	5-7-99/ 11:00
Stabilized:	-8.93'	5-7-99/ 3:20 pm

Whitman Environmental Sciences

ENVIRONMENTAL PARTNERS INC

Boring Designation: EB-1

Client: Safeway. Inc. Store No. 517
Logged By: Alex McKenzie-Johnson
Date of Drilling: 8/1/00
Sheet: 1 of 1

Drilling Contractor: Cascade
Method: Direct Push
Drill Rig: GeoProbe
Borehole: 2-Inch

Depth	SUBSURFACE PROFILE: Log	USCS Code	Description	SAMPLE: Spoon Interval	Recovery	Sample	Sheen	Odor	Well Data	Comments
0			Ground Surface							
			Asphalt							
1			*Fill*							
2			***Well-Graded Sand with Gravel and Silt*** Grey, dense, slightly moist. Mostly sand with little gravel and little silt. Fines generally increase with depth.			EB-1:3'	Slight	Petro		Distinct Petroleum Odor
3										
4		SW-SM								
5										
6			Refusal			EB-1:6'	None	Petro		
7			End of Borehole							
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Project No.: 082118.1

ENVIRONMENTAL PARTNERS INC

Boring Designation: EB-2

Client: Safeway, Inc. Store No. 517
Logged By: Alex McKenzie-Johnson
Date of Drilling: 8/1/00
Sheet: 1 of 1

Drilling Contractor: Cascade
Method: Direct Push
Drill Rig: GeoProbe
Borehole: 2-Inch

Depth	SUBSURFACE PROFILE: Log	USCS Code	Description	SAMPLE: Spoon Interval	Recovery	Sample	Sheen	Odor	Well Data	Comments
0			Ground Surface							
			Asphalt							
1			*Fill*							
2			***Well-Graded Sand with Gravel and Silt*** Grey, dense, slightly moist. Mostly sand with little gravel and little silt.			EB-2:3'	None	Petro		Slight Petroleum Odor
3										
4		SW-SM								
5			Decreasing Fines			EB-2:5'	None	None		
6							None	None		
7			Refusal							
			End of Borehole							
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Project No.: 082118.1

ENVIRONMENTAL PARTNERS INC

Boring Designation: EB-3

Client: Safeway, Inc. Store No. 517
Logged By: Alex McKenzie-Johnson
Date of Drilling: 8/1/00
Sheet: 1 of 1

Drilling Contractor: Cascade
Method: Direct Push
Drill Rig: GeoProbe
Borehole: 2-Inch

Depth	Log	USCS Code	Description	Spoon Interval	Recovery	Sample	Sheen	Odor	Well Data	Comments
			SUBSURFACE PROFILE			SAMPLE				
0			Ground Surface							
1			*Asphalt*							
			Fill							
2			*Well-Graded Sand with Gravel* Tan, dense, slightly moist. Mostly sand with some fine to medium gravel.			EB-3:3'	None	None		
3										
4		SW					None	None		
5										
6			Decreasing Gravel Increasing Fines			EB-3:7'	None	None		
7										
8							None	None		
9			Refusal End of Borehole							
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Project No.: 082118.1

ENVIRONMENTAL PARTNERS INC

Boring Designation: EB-4

Client: Safeway, Inc. Store No. 517
Logged By: Alex McKenzie-Johnson
Date of Drilling: 8/1/00
Sheet: 1 of 1

Drilling Contractor: Cascade
Method: Direct Push
Drill Rig: GeoProbe
Borehole: 2-Inch

Depth	Log	USCS Code	Description	Spoon Interval	Recovery	Sample	Sheen	Odor	Well Data	Comments
0			Ground Surface							
			Asphalt							
1			*Fill*							
2			*Clayey Well-Graded Sand* Tan, dense, slightly moist. Mostly fine to coarse sand with little clay and trace gravel. Decreasing fines with depth.			EB-4:3'	None	None		
3		SC								
4			*Well Graded Sand with Gravel* Tan, moist, medium dense. Mostly fine to coarse sand with little sub-angular to sub-rounded gravel and trace fines.				None	None		
5		SW								
6										
7						EB-4:7'	None	None		
8			Refusal							
			End of Borehole							
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Project No.: 082118.1

ENVIRONMENTAL PARTNERS INC

Boring Designation: EB-5

Client: Safeway, Inc. Store No. 517

Logged By: Alex McKenzie-Johnson

Date of Drilling: 8/1/00

Sheet: 1 of 1

Drilling Contractor: Cascade

Method: Direct Push

Drill Rig: GeoProbe

Borehole: 2-Inch

Depth	Log	USCS Code	Description	Spoon Interval	Recovery	Sample	Sheen	Odor	Well Data	Comments
			SUBSURFACE PROFILE			SAMPLE				
0			Ground Surface							
			Asphalt							
1			*Fill* Reddish-Brown Sand							
2										
3		SW	*Well Graded Sand with Gravel* Tan, moist, medium dense. Mostly fine to coarse sand with little sub-angular to sub-rounded gravel and trace fines.			EB-5:3 5'	None	None		
4										
5						EB-5:5.5'	None	None		
6							None	None		
7			Refusal End of Borehole							
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Project No.: 082118.1

Sample Descriptions

Classification of soils in this report is based on visual field and laboratory observations which include density/consistency, moisture condition, and grain size, and should not be construed to imply field nor laboratory testing unless presented herein. Visual-manual classification methods of ASTM D 2488 were used as an identification guide.

Soil descriptions consist of the following:
MAJOR CONSTITUENT with additional remarks; color, moisture, minor constituents, density/consistency.

Density/Consistency

Soil density/consistency in borings is related primarily to the Standard Penetration Resistance. Soil density/consistency in test pits and push probe explorations is estimated based on visual observation and is presented parenthetically on test pit and push probe exploration logs.

SAND and GRAVEL Density	Standard Penetration Resistance in Blows/Foot
Very loose	0 - 4
Loose	4 - 10
Medium dense	10 - 30
Dense	30 - 50
Very dense	>50

SILT or CLAY Density	Standard Penetration Resistance in Blows/Foot	Approximate Shear Strength in TSF
Very soft	0 - 2	<0.125
Soft	2 - 4	0.125 - 0.25
Medium stiff	4 - 8	0.25 - 0.5
Stiff	8 - 15	0.5 - 1.0
Very Stiff	15 - 30	1.0 - 2.0
Hard	>30	>2.0

Moisture

Dry	Little perceptible moisture.
Sl. Moist	Some perceptible moisture, probably below optimum.
Moist	Probably near optimum moisture content.
Wet	Much perceptible moisture, probably above optimum.

Minor Constituents

	Estimated Percentage
Not identified in description	0 - 5
Slightly (clayey, silty, etc.)	5 - 12
Clayey, silty, sandy, gravelly	12 - 30
Very (clayey, silty, etc.)	30 - 50

Sampling Symbols

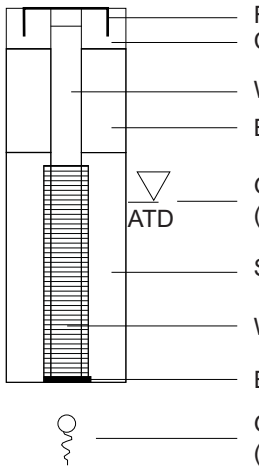
BORING AND PUSH-PROBE SYMBOLS

- Recovery
- No Recovery
- Temporarily Screened Interval
- PID — Photoionization Detector Reading
- W — Water Sample
- Sample Submitted for Chemical Analysis
- NS — No Sheen
- SS — Slight Sheen
- MS — Moderate Sheen
- HS — Heavy Sheen
- BF — Biogenic Film

TEST PIT SOIL SAMPLES

- Grab (Jar)
- Bag
- Shelby Tube

Groundwater Observations and Monitoring Well Construction



- Flush Mounted Monument
- Concrete Surface Seal
- Well Casing
- Bentonite Seal
- Groundwater Level on Date or (ATD) At Time of Drilling
- Sand Pack
- Well Screen
- End Cap
- Groundwater Seepage (Test Pits)

Key to Exploration Logs

Regency Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number REGEN-043

May 2016

Figure Key

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Regency Cascade Plaza
Everett, Washington

Boring Number: **B-7**

Project Number: **REGEN-043**
Logged By: J. Mattecheck
Date: April 27, 2016
Site Conditions: Indoors
Drilling Contractor: Cascade
Drilling Equipment: Limited Access Geoprobe
Sampler Type: Push-Probe
Depth to Water (ATD): --
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
			<5	NS	Concrete slab (4") over GRAVEL with fines (GM); gray (7.5YR 6/1), dry, loose to medium dense, (70% medium to fine-grained sand, 30% angular to subangular gravels, ~1/4" diameter).
		B-7(1)	<5	NS	Becomes very dense.
			<5	NS	Fine to medium-grained SAND (SP); light brown (7.5YR 6/3), dry, poorly graded, trace ~1/4" diameter angular gravel (<10%), very dense.
			<5	NS	
		B-7(2)	<5	NS	
5			<5	NS	SAND (SP) with cobbles; light brown (7.5YR 6/3), dry, very stiff to hard, (~50% poorly graded fine sand, 50% ~1.5" diameter rounded cobbles).
					Boring Refusal at 6' BGS.
10					
15					

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Regency Cascade Plaza
Everett, Washington

Boring Number: **B-8**

Project Number: **REGEN-043**
Logged By: J. Mattecheck
Date: April 27, 2016
Site Conditions: Indoors
Drilling Contractor: Cascade
Drilling Equipment: Limited Access Geoprobe
Sampler Type: Push-Probe
Depth to Water (ATD): --
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
		B-8(1)	<5	NS	Concrete slab (4") over GRAVEL with fines (GM); gray (7.5YR 6/1), dry, loose to medium dense, (70% medium to fine-grained sand, 30% angular to subangular gravels, ~1/4" diameter).
			<5	NS	Becomes dense.
			<5	NS	Fine SAND (SP); light brown (7.5YR 6/3), dry, light brown (7.5YR 6/3), poorly graded, trace ~1/4" diameter angular gravel (<10%), very dense.
			<5	NS	Trace silt.
		B-8(2)			No recovery. Cobbles lodged in sampler. Conditions indicate material transitions to SAND (SP); poorly graded with trace cobbles at 6', very dense to hard.
5					
		B-8(3)	<5	NS	SAND with silt (SM); light brown (7.5YR 6/3), slightly moist, very dense, (70% fine to medium-grained sand, 15% silt, 15% angular to subangular gravel, ~1/4" diameter).
			<5	NS	
10					Boring Refusal at 9.5' BGS.
15					

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Regency Cascade Plaza
Everett, Washington

Boring Number: **B-9**
Project Number: **REGEN-043**
Logged By: J. Mattecheck
Date: April 27, 2016
Site Conditions: Indoors
Drilling Contractor: Cascade
Drilling Equipment: Limited Access Geoprobe
Sampler Type: Push-Probe
Depth to Water (ATD): --
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
			<5	NS	Concrete slab (4") over GRAVEL with fines (GM); gray (7.5YR 6/1), dry, loose to medium dense, (70% medium to fine-grained sand, 30% angular to subangular gravels, ~1/4" diameter).
		B-9(1)	<5	NS	Becomes very dense.
			<5	NS	Fine SAND (SP) with trace silt; light brown (7.5YR 6/3), dry, poorly graded, trace ~1/4" diameter angular to subangular gravel (<10%), very dense.
		B-9(2)	<5	NS	Trace silt.
5					Boring Refusal on Hard Material and Cobbles at 4.2' BGS.
10					
15					

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

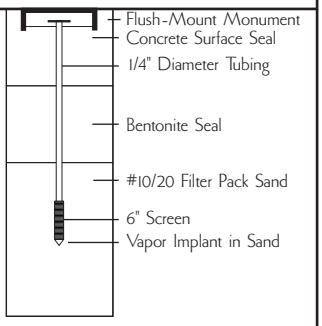
Regency Cascade Plaza
Everett, Washington

Boring Number: **VP-1**

Project Number: **REGEN-043**
Logged By: J. Mattecheck
Date: April 27, 2016
Site Conditions: Indoors
Drilling Contractor: Cascade
Drilling Equipment: Limited Access Geoprobe
Sampler Type: Push-Probe
Depth to Water (ATD): --
Surface Elevation: Not Measured

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
			<5	NS	Concrete slab (4") over GRAVEL with fines (GM); gray (7.5YR 6/1), dry, loose to medium dense, (70% medium to fine-grained sand, 30% angular to subangular gravels, ~1/4" diameter).
		VP-1(1)	<5	NS	Becomes very dense.
			<5	NS	Fine to medium-grained SAND (SP); light brown (7.5YR 6/3), dry, poorly graded, trace ~1/4" diameter angular gravel (<10%), very dense.
		VP-1(2)	<5	NS	
			<5	NS	
5			<5	NS	SAND (SP) with cobbles; light brown (7.5YR 6/3), dry, very stiff to hard, (~50% poorly graded fine sand, 50% ~1.5" diameter rounded cobbles).
					Boring Refusal at 6' BGS.
10					
15					

Vapor Point Construction and Notes:



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

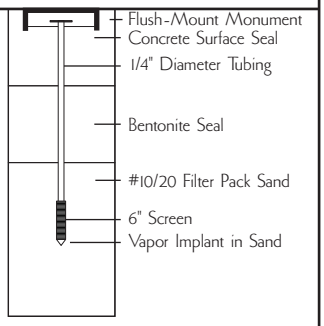
Regency Cascade Plaza
Everett, Washington

Boring Number: **VP-2**

Project Number: **REGEN-043**
Logged By: J. Mattecheck
Date: April 27, 2016
Site Conditions: Indoors
Drilling Contractor: Cascade
Drilling Equipment: Limited Access Geoprobe
Sampler Type: Push-Probe
Depth to Water (ATD): --
Surface Elevation: Not Measured

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
			<5	NS	Concrete slab (4") over GRAVEL with fines (GM); gray (7.5YR 6/1), dry, loose to medium dense, (70% medium to fine-grained sand, 30% angular to subangular gravels, ~1/4" diameter).
		VP-2(1)	<5	NS	Becomes very dense.
			<5	NS	Fine to medium-grained SAND (SP); light brown (7.5YR 6/3), dry, poorly graded, trace ~1/4" diameter angular gravel (<10%), very dense.
			<5	NS	
		VP-2(2)	<5	NS	
5			<5	NS	SAND (SP) with cobbles; light brown (7.5YR 6/3), dry, very stiff to hard, (~50% poorly graded fine to medium-grained sand, 50% ~1.5" diameter rounded cobbles).
					Boring Refusal at 6' BGS.
10					
15					

Vapor Point Construction and Notes:



Appendix B

Terrestrial Ecological Exclusion Documentation

Voluntary Cleanup Program

Washington State Department of Ecology
Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

Under the Model Toxics Control Act (MTCA), a terrestrial ecological evaluation is necessary if hazardous substances are released into the soils at a Site. In the event of such a release, you must take one of the following three actions as part of your investigation and cleanup of the Site:

1. Document an exclusion from further evaluation using the criteria in WAC 173-340-7491.
2. Conduct a simplified evaluation as set forth in WAC 173-340-7492.
3. Conduct a site-specific evaluation as set forth in WAC 173-340-7493.

When requesting a written opinion under the Voluntary Cleanup Program (VCP), you must complete this form and submit it to the Department of Ecology (Ecology). The form documents the type and results of your evaluation.

Completion of this form is not sufficient to document your evaluation. You still need to document your analysis and the basis for your conclusion in your cleanup plan or report.

If you have questions about how to conduct a terrestrial ecological evaluation, please contact the Ecology site manager assigned to your Site. For additional guidance, please refer to https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Terrestrial-ecological-evaluation.

Step 1: IDENTIFY HAZARDOUS WASTE SITE	
Please identify below the hazardous waste site for which you are documenting an evaluation.	
Facility/Site Name: Former Classic Cleaners Everett	
Facility/Site Address: 7601 Evergreen Way, Everett, Washington	
Facility/Site No: 1382746	VCP Project No.: NW2745

Step 2: IDENTIFY EVALUATOR		
Please identify below the person who conducted the evaluation and their contact information.		
Name: John Foxwell, LHg		Title: Principal
Organization: Apex Companies, LLC		
Mailing address: 3015 SW First Avenue		
City: Portland	State: Oregon	Zip code: 97201
Phone: 503-924-4704 x 1915	Fax: 503-943-6357	E-mail: jfoxwell@apexcos.com

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS

A. Exclusion from further evaluation.

1. Does the Site qualify for an exclusion from further evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 2**.*

☐ No or Unknown *If you answered **"NO" or "UNKNOWN,"** then skip to **Step 3B** of this form.*

2. What is the basis for the exclusion? *Check all that apply. Then skip to **Step 4** of this form.*

Point of Compliance: WAC 173-340-7491(1)(a)

☐ All soil contamination is, or will be,* at least 15 feet below the surface.

☒ All soil contamination is, or will be,* at least 6 feet below the surface (or alternative depth if approved by Ecology), and institutional controls are used to manage remaining contamination.

Barriers to Exposure: WAC 173-340-7491(1)(b)

☒ All contaminated soil, is or will be,* covered by physical barriers (such as buildings or paved roads) that prevent exposure to plants and wildlife, and institutional controls are used to manage remaining contamination.

Undeveloped Land: WAC 173-340-7491(1)(c)

☐ There is less than 0.25 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.

☒ For sites not containing any of the chemicals mentioned above, there is less than 1.5 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site.

Background Concentrations: WAC 173-340-7491(1)(d)

☐ Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709.

* An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology.

[±] "Undeveloped land" is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil.

[#] "Contiguous" undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife.

B. Simplified evaluation.

1. Does the Site qualify for a simplified evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No or Unknown *If you answered **"NO"** or **"UNKNOWN,"** then skip to **Step 3C** of this form.*

2. Did you conduct a simplified evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 3** below.*

☐ No *If you answered **"NO,"** then skip to **Step 3C** of this form.*

3. Was further evaluation necessary?

☐ Yes *If you answered **"YES,"** then answer **Question 4** below.*

☒ No *If you answered **"NO,"** then answer **Question 5** below.*

4. If further evaluation was necessary, what did you do?

☐ Used the concentrations listed in Table 749-2 as cleanup levels. *If so, then skip to **Step 4** of this form.*

☐ Conducted a site-specific evaluation. *If so, then skip to **Step 3C** of this form.*

5. If no further evaluation was necessary, what was the reason? *Check all that apply. Then skip to **Step 4** of this form.*

Exposure Analysis: WAC 173-340-7492(2)(a)

☒ Area of soil contamination at the Site is not more than 350 square feet.

☒ Current or planned land use makes wildlife exposure unlikely. Used Table 749-1.

Pathway Analysis: WAC 173-340-7492(2)(b)

☒ No potential exposure pathways from soil contamination to ecological receptors.

Contaminant Analysis: WAC 173-340-7492(2)(c)

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations that exceed the values listed in Table 749-2.

☒ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations that exceed the values listed in Table 749-2, and institutional controls are used to manage remaining contamination.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays, and institutional controls are used to manage remaining contamination.

C. Site-specific evaluation. A site-specific evaluation process consists of two parts: (1) formulating the problem, and (2) selecting the methods for addressing the identified problem. Both steps require consultation with and approval by Ecology. *See* WAC 173-340-7493(1)(c).

1. Was there a problem? *See* WAC 173-340-7493(2).

☐ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No *If you answered **"NO,"** then identify the reason here and then skip to **Question 5** below:*

- ☐ No issues were identified during the problem formulation step.
- ☐ While issues were identified, those issues were addressed by the cleanup actions for protecting human health.

2. What did you do to resolve the problem? *See* WAC 173-340-7493(3).

- ☐ Used the concentrations listed in Table 749-3 as cleanup levels. *If so, then skip to **Question 5** below.*
- ☐ Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. *If so, then answer **Questions 3 and 4** below.*

3. If you conducted further site-specific evaluations, what methods did you use?
Check all that apply. See WAC 173-340-7493(3).

- ☐ Literature surveys.
- ☐ Soil bioassays.
- ☐ Wildlife exposure model.
- ☐ Biomarkers.
- ☐ Site-specific field studies.
- ☐ Weight of evidence.
- ☐ Other methods approved by Ecology. If so, please specify:

4. What was the result of those evaluations?

- ☐ Confirmed there was no problem.
- ☐ Confirmed there was a problem and established site-specific cleanup levels.

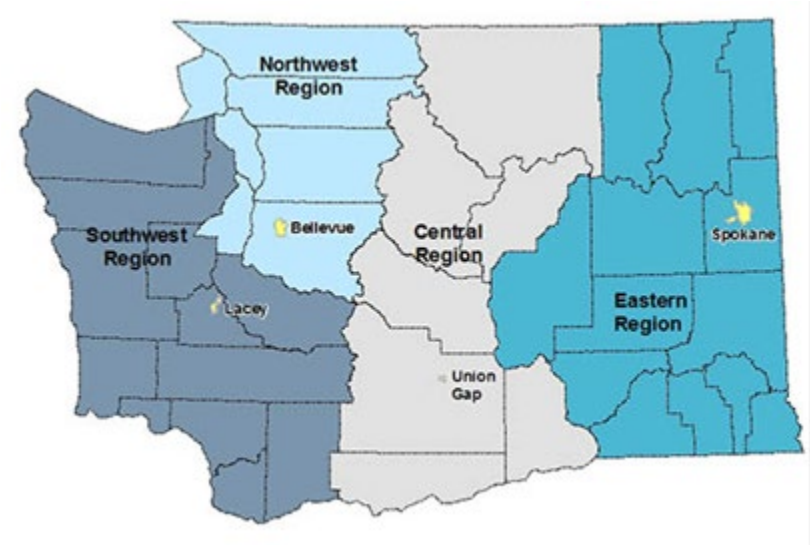
5. Have you already obtained Ecology's approval of both your problem formulation and problem resolution steps?

☐ Yes If so, please identify the Ecology staff who approved those steps:

☐ No

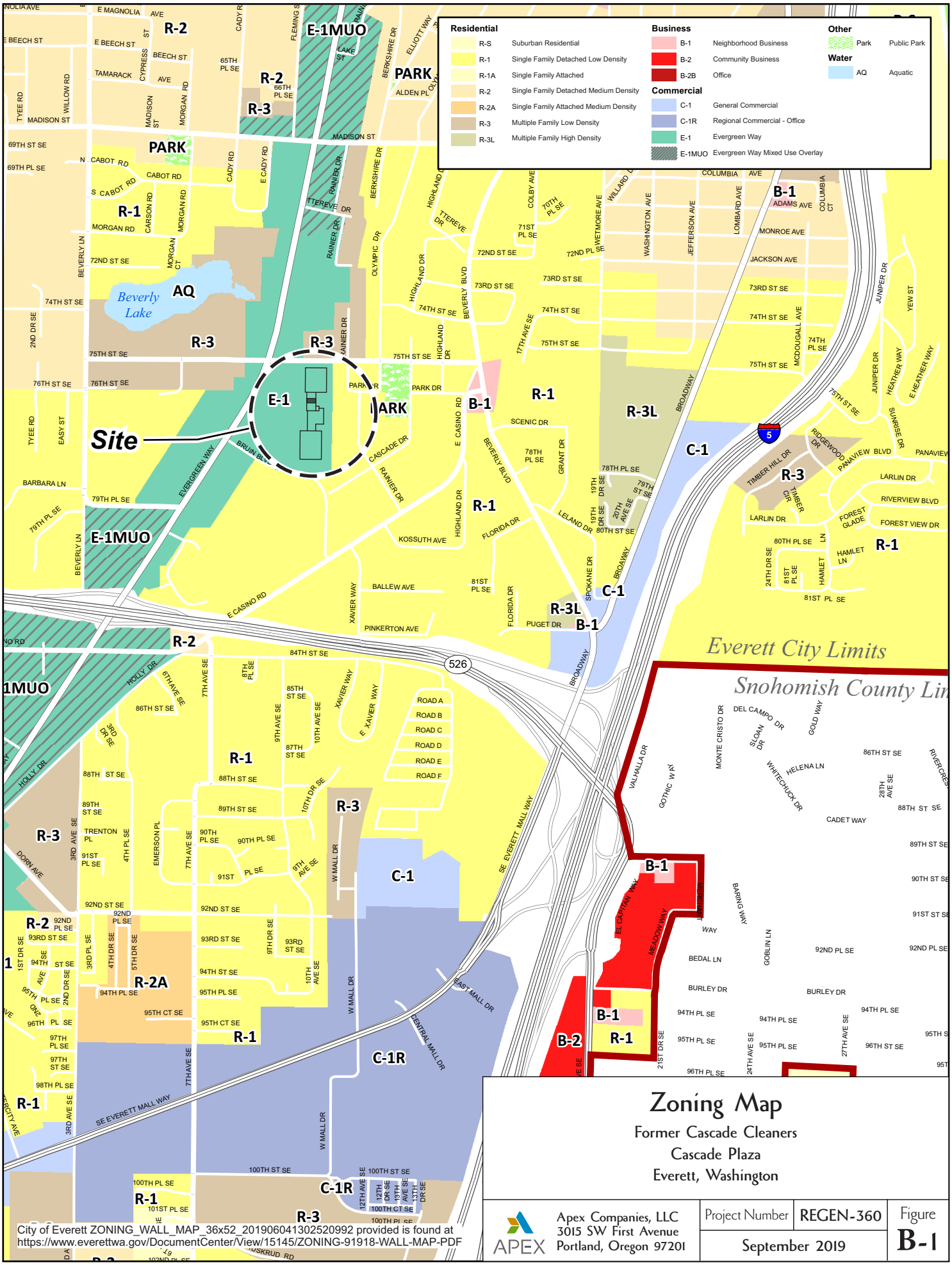
Step 4: SUBMITTAL

Please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.



Northwest Region: Attn: VCP Coordinator 3190 160th Ave. SE Bellevue, WA 98008-5452	**Central Region:** Attn: VCP Coordinator 1250 West Alder St. Union Gap, WA 98903-0009
Southwest Region: Attn: VCP Coordinator P.O. Box 47775 Olympia, WA 98504-7775	**Eastern Region:** Attn: VCP Coordinator N. 4601 Monroe Spokane WA 99205-1295

If you need this publication in an alternate format, please call the Toxics Cleanup Program at 360-407-7170. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call 877-833-6341.



Zoning Map

Former Cascade Cleaners
Cascade Plaza
Everett, Washington

City of Everett ZONING_WALL_MAP_36x52_20190604130252O992 provided is found at https://www.everettwa.gov/DocumentCenter/View/15145/ZONING-91918-WALL-MAP-PDF

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	REGEN-360	Figure
September 2019		B-1

NOTES: Base map prepared from Google Earth Pro imagery.
Aerial dated May 13, 2018.

B004 = Unit Number

0 200 400

Approximate Scale in Feet

Aerial Photograph of Site Vicinity

Former Cascade Cleaners
Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	REGEN-360	Figure
September 2019		B-2

Appendix C

Remedial Alternative Cost Estimates

Table C-1
Cost Estimate – Sub-Slab Venting
Classic Cleaners
Everett, Washington

Item Description	Personnel	Unit	Unit Cost	Quantity	Total[1]	Notes
Work Plan						
Prepare Draft and Final Work Plan	Apex	est.	$2,500	1	$2,500	
Pilot test	Apex	est.	$2,500	1	$2,500	
				Task Subtotal	**$5,000**	
Site Preparation						
Planning, preparation, subcontractor coordination	Senior Project	hour	$165	8	$1,320	
Utility Locate	Subcontractor	day	$500	1	$500	
HASP	--	est.	$500	1	$500	
				Task Subtotal	**$2,320**	
Install Sub-Slab Venting Systems						
Install Sub-Slab Venting Systems (one)	Subcontractor	est.	$12,000	1	$12,000	
Oversight during project	Apex	hour	$100	20	$2,000	Install 4 vapor sampling points concurrently
Expenses	Apex	est.	$500	1	$500	
Project manager	Senior Project	est.	$165	10	$1,650	
Senior oversight	Principal	hour	$235	4	$940	
				Task Subtotal	**$17,090**	
Vapor Point Installation						
Travel	Apex	hour	$100	0	$0	Conducted concurrent with installation of venting system
Expenses	Apex	est.	$500	0	$0	
Concrete coring subcontractor	Subcontractor	est.	$750	1	$750	
Install and sample points	Apex	hour	$100	0	$0	Install 4 vapor sampling points
Utility clearance	Subcontractor	est.	$500	0	$0	
Sample analysis	Subcontractor	sample	$200	4	$800	
				Task Subtotal	**$1,550**	
System O&M and Performance Monitoring						
O&M - Year 1	Apex	est.	$8,000	1	$8,000	Quartelry year 1, annual thereafter. Sample 4 vapor points per event
O&M - Years 2 and 3	Apex	year	$2,000	2	$4,000	
				Task Subtotal	**$12,000**	
Reporting						
System Install Report	Apex	est.	$3,000	1	$3,000	
Performance Monitoring Report	Apex	est.	$3,000	3	$9,000	
Closeout Report	Apex	est.	$3,000	1	$3,000	
				Task Subtotal	**$15,000**	
				TOTAL ESTIMATED COST[1]:	**$53,000**	

Note:

1. Cost estimate is for planning purposes and should be considered to have +/- 25% accuracy.

Table C-2
Cost Estimate – Soil Vapor Extraction
Classic Cleaners
Everett, Washington

Item Description	Personnel	Unit	Unit Cost	Quantity	Total[1]	Notes
Work Plan						
Prepare Draft and Final Work Plan	Apex	est.	$4,000	1	$4,000	
Pilot Test	Apex	est.	$2,500	1	$2,500	
				Task Subtotal	**$6,500**	
Site Preparation						
Planning, preparation, subcontractor coordiantion	Senior Project	hour	$165	16	$2,640	
Utility Locate	Subcontractor	day	$500	1	$500	
HASP	Apex	est.	$500	1	$500	
				Task Subtotal	**$3,640**	
Install SVE System						
Install SVE well	Subcontractor	well	$15,000	1	$15,000	SVE well, vapor monitoring piezometer.
Construct and install SVE system	Subcontractor	est.	$55,000	1	$55,000	
Oversight during project	Apex	hour	$100	40	$4,000	Five 8-hour days; install 4 vapor points concurrently
Expenses	Apex	est.	$1,500	1	$1,500	
Senior oversight and coordination	Senior Project	hour	$165	16	$2,640	
				Task Subtotal	**$78,140**	
Vapor Point Installation						
Point installation and initial sampling	Apex	hour	$105	10	$1,050	Install 4 vapor points and sample; conducted during SVE system install
Concrete coring subcontractor	Subcontractor	est.	$750	1	$750	
Sample analysis	Subcontractor	sample	$200	4	$800	4 vapor samples
				Task Subtotal	**$2,600**	
System O&M and Performance Monitoring						
O&M - First year of operation	Apex	year	$12,000	1	$12,000	Quartelry year 1, annual thereafter. Sample 4 vapor points per event
O&M - Years 2 and 3	Apex	year	$6,000	2	$12,000	
				Task Subtotal	**$24,000**	
Reporting						
System Install Report	Apex	est.	$4,500	1	$4,500	
Performance Monitoring Report	Apex	est.	$3,000	3	$9,000	
Closeout Report	Apex	est.	$5,000	1	$5,000	
				Task Subtotal	**$18,500**	
				TOTAL ESTIMATED COST[1]:	**$133,000**	

Note:

1. Cost estimate is for planning purposes and should be considered to have +/- 25% accuracy.

Table C-3
Cost Estimate – Excavation and Disposal
Classic Cleaners
Everett, Washington

Item Description	Personnel	Unit	Unit Cost	Quantity	Total[1]	Notes
Work Plan						
Prepare Draft and Final Work Plan	Apex	est.	$6,500	1	$6,500	
				Task Subtotal	**$6,500**	
Site Preparation						
Planning, preparation, subcontractor coordiantion	Senior Project	hour	$165	20	$3,300	
Remove concrete	Subcontractor	est.	$5,000	1	$5,000	
Utility Locate	Subcontractor	day	$500	1	$500	
HASP	Apex	est.	$500	1	$500	
				Task Subtotal	**$9,300**	
Contaminated Soil Excavation, Disposal, and Backfill						
Excavation	Subcontractor	est.	$7,500	1	$7,500	
Disposal	Subcontractor	ton	$250	32	$8,000	
Waste characterization soil sample analysis	Subcontractor	each	$500	5	$2,500	
Clean backfill	Subcontractor	ton	$250	32	$8,000	
Compaction	Subcontractor	est.	$2,000	1	$2,000	
Concrete replacement	Subcontractor	est.	$5,000	1	$5,000	
Oversight during project	Apex	hour	$100	40	$4,000	
Expenses	Apex	est.	$1,500	1	$1,500	
Senior oversight and coordination	Senior Project	hour	$165	24	$3,960	
				Task Subtotal	**$42,460**	
Reporting						
Closeout Report	Apex	est.	$5,000	1	$5,000	
				Task Subtotal	**$5,000**	
				TOTAL ESTIMATED COST[1]:	**$63,000**	

Note:

1. Cost estimate is for planning purposes and should be considered to have +/- 25% accuracy.

Table C-4
Cost Estimate – Vapor Barrier
Classic Cleaners
Everett, Washington

Item Description	Personnel	Unit	Unit Cost	Quantity	Total[1]	Notes
Work Plan						
Prepare Draft and Final Work Plan	Apex	est.	$6,500	1	$6,500	
				Task Subtotal	**$6,500**	
Site Preparation						
Planning, preparation, subcontractor coordiantion	Senior Project	hour	$165	10	$1,650	
Utility Locate	Subcontractor	day	$500	1	$500	
HASP	Apex	est.	$500	1	$500	
				Task Subtotal	**$2,650**	
Install Vapor Barrier						
Remove and reeplace concrete	Subcontractor	est.	$10,000	*1*	$10,000	
Vapor barrier installation	Subcontractor	est.	$10,000	1	$10,000	
Oversight during project	Apex	hour	$100	20	$2,000	
Expenses	Apex	est.	$1,000	1	$1,000	
Senior oversight and coordination	Senior Project	hour	$165	4	$660	
				Task Subtotal	**$23,660**	
Reporting						
Closeout Report	Apex	est.	$5,000	1	$5,000	
				Task Subtotal	**$5,000**	
				TOTAL ESTIMATED COST[1]:	**$38,000**	

Note:

1. Cost estimate is for planning purposes and should be considered to have +/- 25% accuracy.