

DATA GAP ASSESSMENT WORKPLAN

U-Haul Facility No. 702080 / Former Church of God in Christ Facility (COGIC)

9201 Pacific Avenue
Tacoma, Washington 98444

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1.0 INTRODUCTION

Partner Engineering and Science, Inc. (Partner), on behalf of AMERCO Real Estate Company (AREC / the "Client"), has prepared this Data Gap Assessment Workplan (Workplan) for the property located at 9201 Pacific Avenue, Tacoma, Washington, (herein referred to as the "Site"). This Workplan describes the proposed scope of work for additional Site investigation to address data gaps previously identified by the Washington State Department of Ecology (Ecology).

1.1 Objective

The primary objectives of this document are 1) to report on recent Site characterization activities performed by ATC Group Services (ATC) a previous consultant which were related to releases originating from the Site from former on-site dry-cleaning operations, from an on-site transformer spill and potentially from an off-site petroleum source and 2) prepare a Data Gap Assessment Work Plan for submittal to Ecology. The report will be used to initiate discussions with Ecology about potential pathways to regulatory closure with an NFA determination.

1.2 Scope

The scope of the Data Gap Assessment project will include the advancement of eleven borings and the performance of an indoor air quality (IAQ) survey of the commercial building located at the Site. Two borings will be completed as monitoring wells for further delineation of groundwater impacts and to supplement the existing Site monitoring well network and seven borings will serve as sample locations for further delineation of soil and/or soil vapor impacts. The project will conform to the applicable requirements of the State of Washington Department of Ecology (Ecology), and the United States Environmental Protection Agency (EPA). The project will be performed under the responsible charge of a qualified Partner representative.

1.3 User Reliance

Partner was engaged by AREC, or their authorized representative, to prepare this Workplan. The engagement agreement specifically states the scope and purpose of the investigation, as well as the contractual obligations and limitations of both parties. This Workplan and the information therein, are for the exclusive use of the Addressee. This report has no other purpose and may not be relied upon, or used, by any other person or entity without the written consent of Partner. Third parties that obtain this report, or the information therein, shall have no rights of recourse or recovery against Partner, its officers, employees, vendors, successors or assigns.

This Workplan has been completed under specific Terms and Conditions relating to scope, relying parties, limitations of liability, indemnification, dispute resolution, and other factors relevant to any reliance on this report. Any parties relying on this report do so having accepted Partner's standard Terms and Conditions, a copy of which can be found at <http://www.partneresi.com/terms-and-conditions.php>.

2.0 SITE DESCRIPTION AND HISTORY

2.1 Site Description

The Site is located on the east side of Pacific Avenue South in Tacoma, Washington. The 8.9-acre Site is developed with an approximately 61,419 square foot commercial building occupied by a U-Haul Moving & Storage facility. Surrounding property usage consists of a mix of commercial businesses and residential developments. Refer to **Figure 1** for a Site Location Map showing Site features and surrounding properties.

2.2 Site Background

Partner reviewed various reports, data and communications by ATC Group Services, LLC (ATC), provided by AMERCO to complete the scope development for the Site.

Site assessment to date has identified the following releases of volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs) to soil and groundwater below the Site. Based on review of these documents, Partner understands three potential releases have been documented at the Site as follows:

- Soil: release of dry-cleaning solvents from activities at a dry cleaner that operated on the Site between approximately 1965-1984 including VOC compounds PCE, TCE and cis-1,2 DCE;
- Soil Vapor: VOC compounds (chloroform, PCE, TCE and cis-1,2 DCE and benzene, toluene, ethylbenzene, and total xylenes (BTEX)) associated with the dry cleaner release;
- Groundwater: VOC compounds (PCE and TCE) associated with the dry cleaner release.

A documented release from an on-site transformer because of vandalism occurred at the Site during 2013. Soil samples collected and analyzed during 2017 indicated soil analytical results to be below laboratory detection levels and below applicable cleanup levels.

Previous consultants have theorized potential gasoline-impacted groundwater may possibly be encroaching from an adjacent property (9001 Pacific Avenue).

The Site is enrolled in the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP). The most recent correspondence from Ecology (with the exception of notifications of Site Manager change and Change of Contact forms) provided by AMERCO or available on the Ecology's website was a letter dated April 4, 2017, which detailed the agency's request for additional site characterization. Although a round of groundwater sampling and monitoring was scheduled to occur on December 26, 2023, Partner was unable to locate any further information (field notes, analytical data or report text) related to that event to review.

The following information was compiled by ATC and taken directly from the document *Site Characterization Work Plan, U-Haul Facility No. 881090 / Former Church of God in Christ Facility, 9201 Pacific Avenue South, Tacoma (Pierce County) Washington 98444*, ATC Project No. 1052109001 dated October 4, 2016.

Andersen Environmental [Andersen] performed a Phase I Environmental Site Assessment for the Site during 2014. At that time, it was noted that the Site was developed as a commercial nursery as early as 1941 through at least 1965 before being re-developed as a strip mall known as the Pacific Center and functioned in this capacity through 1997. Tenants within the strip mall included the Pacific Launder Center (from 1965 through at least 1974) and the Tacoma Dry Cleaning & Laundry Center (from as early as 1979 through at

least 1984). The dry cleaners reportedly operated in the north end of the building. The subject site was reportedly purchased and occupied by the Church of God in Christ and operated as a place of worship/religious convention center with a child daycare facility from 1999 through 2013, when the property was transferred into receivership. Andersen identified the former dry-cleaning operations as a recognized environmental condition and recommended a Phase II ESA to address potential impacts.

During December 2014 and March 2015, Andersen performed Phase II subsurface investigations that included a total of 13 soil borings drilled to depths ranging between seven and 21 feet below ground surface (bgs). Five borings (B7 through B11) were advanced through the foundation inside the north end of the building to facilitate collection of soil samples; groundwater grab samples were collected at borings B7 and B9. Eight additional borings (B1 through B6, B12 and B13) were advanced in the parking lot northwest, north and northeast of the building to facilitate collection of soil samples; groundwater grab samples were collected at borings B5 and B12. Four of the exterior boring locations (B1, B3, B6 and B13) were completed as permanent groundwater monitoring wells MW-1, MW-2, MW-3 and MW-4. The monitoring wells were constructed with a five-foot screen interval extending to a maximum depth of 19 feet bgs. The boring logs indicated that first encountered groundwater occurred between 14 and 17 feet bgs, with static water levels in the completed wells ranged between 8.7 and 14.4 feet below top of well casing (suggesting a confined or semi-confined aquifer). Soil was described as predominantly un-weathered glacial till consisting of outwash gravel, sand and surficial loam to the maximum depth of the borings (21 feet bgs). The underlying hydrogeologic unit at the subject site is classified as Quaternary Vashon Till, a semi-confining unit consisting of a grey, unsorted, highly compact mixture of clay, silt, sand, and gravel with occasional glacial erratics that extends to an approximate depth of 325 feet above mean sea level (United States Geological Survey [USGS], 1999). The 2015 Phase II incorporated the findings of an earlier (but previously unavailable) limited subsurface investigation conducted by Environmental Associates, Inc. (EA, 2013) which included soil and groundwater grab sampling and analyses at six borings (B-1 through B-6). Soil and groundwater laboratory analytical data obtained during both Phase II investigations quantified chlorinated VOC commonly associated with dry cleaning operations, including trichloroethene (TCE) and tetrachloroethene (PCE) at concentrations exceeding Model Toxics Control Act (MTCA) Method A Cleanup Levels.

Andersen concluded that the TCE and PCE concentrations in soil did not represent a significant risk to human health and that monitored natural attenuation (MNA) was a feasible option for groundwater remediation, based on the concentrations, groundwater flow direction (generally toward the north) and the absence of sensitive receptors in the vicinity of the dissolved phase plume. Andersen recommended three additional quarters of groundwater monitoring and sampling to establish groundwater elevation and flow direction trends and to monitor concentrations of chemicals of concern. **Figure 2** presents a Site Plan depicting the sample locations. **Figure 3** presents groundwater analytical results that exceeded cleanup levels. **Tables 1** through **3** present soil, soil vapor and groundwater analytical results from the previous studies.

The subject site was purchased by AREC at auction in January 2016. Based on a brief review of the 2015 Phase II report, AREC believed that the apparently limited environmental risks would be sufficiently addressed by the suggested MNA groundwater sampling schedule. Following acquisition, AREC requested ATC to evaluate the Phase II reports and execute the proposed scope of work or develop an alternative approach as needed. Following a review of the 2015 Phase II report by Andersen, several data gaps were

noted including the absence of a soil vapor survey. An investigative search in Ecology's intranet database (Fortress) yielded a Further Action opinion letter addressed to Andersen from Ecology and dated August 26, 2015. Per the Ecology correspondence, Andersen had requested an opinion for their proposed independent cleanup of the Church of God in Christ facility, which had an Ecology-assigned Voluntary Cleanup Program (VCP) project number. The opinions presented by Ecology were based on the 2013 limited subsurface investigation, the 2014 Phase I and the 2015 Phase II. A copy of the Ecology opinion letter is included in attached **Appendix A**.

Following a discussion with the VCP Case Manager in April 2016, ATC submitted a VCP application (to re-assign the designated responsible party from Andersen to AREC). In correspondence dated June 8, 2016, Ecology notified AREC that their VCP application had been accepted (with the original Church of God in Christ retained as the VCP site name).

2.3 2016 -2017 Site Characterization Activities by ATC

The following activities were performed by ATC from January through December 2017.

- During January 2017, six interior sub slab vapor probes (SSV1 through SSV6) and three exterior soil vapor borings (SV7 through SV9) were advanced at the Site. Soil samples collected at 2.5 and 5 feet bgs at the exterior borings were analyzed from VOCs. Soil vapor samples were collected from the sub slab vapor pins and from vapor probes placed at 5 feet bgs in the exterior borings;
- During February 2017, ATC provided oversight for the installation of monitoring well EB1/MW-5 located north of the Site building. The monitoring well was screened between 30 and 40 feet bgs in order to intercept groundwater impacted with dense chlorinated solvents;
- In August 2017, ATC conducted an investigation on the east side of the existing building at the request of the Tacoma Water Department, to evaluate soil conditions at areas where the historical vandalism-related release of transformer oil had occurred. VOC analyses did not quantify any chemicals of concern in the soil samples;
- Two indoor air quality (IAQ) surveys were conducted at the Site building during February and August 2017;
- Monitoring wells MW-1 through MW-5 were sampled during February 2017;
- Monitoring wells MW-1 through MW-5 were sampled during September and again during December 2017 for a total of three rounds of Site-wide groundwater monitoring and sampling events.

During April 2017 Ecology provided an opinion on the adequacy of ATC's independent cleanup actions at the Site. In their letter, Ecology indicated that further remedial action would likely be necessary to clean up contamination at the Site. Ecology referenced earlier reporting that suggested Stoddard Solvent detected in groundwater during a 2013 investigation was UST-related and originated from a release from a leaking UST located at 9001 Pacific Avenue, an adjacent property to the north of the Site. Ecology challenged this assertion based on the lack of documentation that a release had occurred at 9001 Pacific Avenue and that Stoddard Solvent was in fact historically used a dry-cleaning solvent. Ecology further indicated that despite numerous groundwater sampling and monitoring events, no soil or groundwater samples had been analyzed for petroleum hydrocarbons as Stoddard Solvent. Ecology requested the following items be addressed:

- Additional information should be added to Site figures to show the configuration of the former dry cleaner including locations of the back door, dry cleaning machine, chemical storage and any identified preferred pathways;
- The lateral and vertical extent of PCE impacts in soil, soil vapor and groundwater needed to delineated;
 - A Tier II Vapor Intrusion (VI) Assessment would be required at the former dry cleaning tenant space due to concentrations of PCE in the underlying groundwater;
 - The soil source contributing to the groundwater impacts had not been identified and required delineation;
 - The vertical extent of groundwater impacts had not been adequately characterized;
- The Conceptual Site Model (CSM) required refinement and cross-sections of the subsurface would be necessary to adequately depict Site conditions;
- Data generated as a result of ATC's investigation needed to be uploaded to the Environmental Information Management (EIM) system;
- Cleanup standards could not be established because the extent of impacts at the Site had not been fully defined;
- Ecology requested the development of isoconcentration figures, both in plan view and cross section for impacted soil, soil vapor and groundwater at the Site;
- Ecology requested continuance of regular groundwater monitoring;
- Ecology requested a single proposed vertical delineation boring to advance to and sample above, at and below the contact with the underlying low permeability strata at the Site, if the presence of a low permeability formation is to be considered as a vertical containment for groundwater impacts in the Site CSM;
- Ecology requested additional soil and groundwater sample points to the north, west and south of boring B2 and to the east and west of boring B-12 with sampling depths designed for vertical delineation of groundwater impacts;
- Ecology requested that further sub-slab and IAQ sampling be done concurrently;
- Ecology suggested additional COCs (Freon 113, 1,1,1-Trichloroethane and 1,4-Dioxane) may be appropriate;
- Ecology indicated that a Terrestrial Ecological Evaluation (TEE) would be required with results incorporated into the Site CSM.

ATC recognized that Ecology requirements for an all-inclusive 'Remedial Investigation' report and focused efforts on developing preparatory documents including site maps depicting the chemicals of concern (PCE, trichloroethene [TCE] and cis-1,2-dichloroethene [cis-1,2-DCE] in soil and soil vapor.

ATC concluded that PCE, TCE and cis-1,2-DCE were present in the soil, soil vapor and groundwater below the Site, but results of the August 2017 IAQ survey demonstrated no exceedances of the MTCA Method B Cleanup Levels, therefore, that the air quality did not pose an imminent threat to human health. ATC does not appear to have submitted a Remedial Investigation report to Ecology.

2.4 2024 Groundwater Monitoring

During June 2024 Partner conducted a groundwater sampling and monitoring event at the Site to evaluate the current groundwater condition with respect to petroleum and VOC concentrations.

Petroleum constituents (GRO, DRO and RRO) were not detected in any of the analyzed groundwater samples at concentrations above laboratory RDLs. Laboratory RDLs were well below applicable CULs.

VOC compounds including PCE, TCE and cis-1,2 DCE were detected in the analyzed sample collected from monitoring well MW-2 at concentrations exceeding their respective MTCA Method B groundwater CULs.

Partner anticipates Ecology will require further lateral and vertical delineation of soil vapor and groundwater impacts below the Site as well as performance of quarterly groundwater sampling and monitoring.

During 2017, ATC installed a single deep monitoring well in the vicinity of existing monitoring well MW-2 for vertical delineation of the VOC impacts in groundwater.

This document includes a CSM developed with existing data as well as work plan to further adequate characterization of the Site including lateral and vertical delineation of soil, soil vapor and groundwater impacts.

3.0 CONCEPTUAL SITE MODEL

The Conceptual Site Model (CSM) summarizes the findings of the previous Site investigations and interim remedial actions performed by others to date and includes a discussion of Site geology and hydrogeology and the distribution of contaminants of concern in environmental media at the Site.

3.1 Site Geology and Hydrogeology

Review of the United States Geological Survey (USGS) Tacoma North, Washington Quadrangle topographic map, indicates the Site is situated approximately 388 feet above mean sea level, and the local topography is generally flat with slight relief toward the west/northwest. The nearest surface water body is Charlton Lake, located approximately 1.2 miles to the west. Refer to **Figure 4** for a topographic map of the site vicinity.

The Site is situated within the Puget Lowland physiographic province of the State of Washington. The uppermost geologic formation underlying the soils at the Site is the Pleistocene Age Vashon Till formation. The Vashon Till formation comprises the underlying stratigraphy and consists mostly of a non-sorted mixture of clay, silt, sand, pebbles, cobbles, and boulders deposited by ice advancing over an eroded, irregular surface of older formations and sediments. The thickness of the Vashon Till formation is estimated to be 6 to 50 feet. Borings advanced during earlier stages of Site characterization generally consisted of sands with varying amounts of silt, gravel and cobbles.

Groundwater is present beneath the Site at depths ranging from approximately 8.82 feet to 14.0 feet bgs in the Site's shallow (depths between 17.4 to 18.5 feet bgs) monitoring wells (MW-1 through MW-4) and as deep as 25.3 feet bgs in monitoring well MW-5, which was advanced into a deeper groundwater regime (40 feet bgs). The direction of groundwater flow direction across the Site has been predominantly to the west-southwest. **Figure 5** presents a Groundwater Potentiometric Surface Map. Based on borings advanced during the previous investigations, the underlying subsurface of the Site generally consists of coarse-grained sediments, predominantly sand with varying amounts of silt and gravel.

3.2 Site Contaminants of Concern

Previous Site investigations, remedial actions and groundwater monitoring performed by others have identified the following contaminants of concern (COCs) for the Site:

- Soil: Dry cleaner release (VOC compounds including PCE, TCE and cis-1,2 DCE) a
- Soil Vapor: VOC compounds including PCE, TCE and cis-1,2 DCE and benzene, toluene, ethylbenzene, and total xylenes (BTEX)
- Groundwater: Dry cleaner release (VOC compounds including PCE and TCE)

Ecology suggested additional COCs (Freon 113, 1,1,1-Trichloroethane and 1,4-Dioxane) may be appropriate.

3.3 Primary and Secondary Sources of COCs

The former dry cleaner tenants are presumed to be the primary release location for the Site. Secondary sources of COCs include migration to surface and subsurface soil and percolation down to groundwater

3.4 Primary Release Mechanisms

The primary release mechanisms for the VOC impacts appear to be spills, leaking piping and or improper disposal of dry cleaning solvents.

3.5 Nature and Extent of the Release

Based on existing data, the release of VOCs has impacted soil, soil vapor and groundwater below the Site.

Soil

Ecology has determined that the soil source for the groundwater and soil vapor VOC impacts does not appear to have been identified and has previously requested that additional efforts be made to identify and delineate this material. Based on the results of the previous investigations, additional lateral delineation of VOC impacts will be required to the north, west and south of existing boring B2 (2014) and to the east and west of existing boring B12 and efforts towards vertical delineation should be focused on the area bounded by borings B1 through B3 (2013).

Ecology's working model for this Site includes silty and clayey sands (inferred to be recessional glacial outwash) to the depths of existing shallow borings followed by low permeability Vashon Till. This low permeability till material typically overlies advance outwash deposits that are likely the main water bearing zone.

Because PCE has been noted to penetrate the low permeability till Ecology's objective with regard to vertical delineation is to collect soil and groundwater samples from the base of the overlying unconfined aquifer and from lenses of low permeability strata when encountered. During the installation of existing monitoring well MW-5, soil samples were collected from five-foot intervals from 5 to 40 feet bgs and analyzed for VOCs. PCE was reported in the samples collected from 5 and 10 feet bgs, however, was not reported to be present above laboratory detection limits in samples collected from 15 to 40 feet bgs. No other VOC compounds were detected, suggesting vertical delineation of soil impacts was achieved. Lateral soil impacts appear delineated with the current boring configuration and associated soil sample laboratory analytical results. **Figures 6 and 7** present cross sections A-A' and B-B' and include PCE, TCE and 1, 2-DCE soil concentration isocontours.

Soil Vapor

The lateral extent of soil vapor impacts appears undelineated. The highest detected concentrations have been documented in the area of SSV2, SV8 and SV9; however, all sub slab or soil vapor data report exceedances of PCE and TCE.

Indoor Air

Because the MTCA Method B vapor intrusion (VI) screening level for PCE in groundwater (22.9 ug/L) was exceeded based on earlier groundwater sample analytical results collected from borings B3 and B12 (2014), two IAQ surveys were performed at the Site during February and August 2017. Results indicate benzene concentrations exceeded MTCA Method B cancer SLs during both events and PCE concentrations exceeded MTCA Method B cancer SLs for the February event only. It should also be noted that although most individual VOC concentrations, including PCE, TCE and cis-1,2-DCE, were reported to be below laboratory

detection limits for both sampling events, the laboratory detection limits exceeded the applicable SLs, therefore, Site COCs cannot be ruled out as concerns for indoor air.

Groundwater

Based on groundwater analytical results from samples collected and analyzed from 2013 through 2017, PCE and TCE concentrations exceed their MTCA Method A CUL of 5 ug/L. with the highest concentrations reported in grab samples collected from borings advanced in locations within the former dry cleaner suite and from monitoring well MW-2, located in parking lot are immediately north of the suite. Based on Partner's July 2024 groundwater sampling and monitoring event, petroleum constituents (GRO, DRO and RRO) were not detected in any of the analyzed groundwater samples at concentrations above laboratory detection limits. VOC compounds including PCE, TCE and cis-1,2 DCE were detected in the analyzed sample collected from monitoring well MW-2 at concentrations exceeding their respective MTCA Method A or B groundwater CULs or MCLs. Site COCs were not reported in samples collected from monitoring wells MW1 or MW-3 through MW-4. Monitoring well MW-5 was not sampled during the July 2024 event; however, no COCs were detected in samples collected from monitoring well MW-5 during five earlier sampling events performed between February 2017 and March 2021. Figure

Based on the above information and the fact that Site COCs were not reported to be present above laboratory detection limits in samples collected from 15 to 40 feet bgs in monitoring well MW-5, the lateral and vertical extent of groundwater impacts appears delineated. **Figures 8 through 10** provide PCE, TCE and cis-1,2-DCE concentration isocontours in groundwater.

3.6 Preferential Pathways

Sewer laterals and other utility lines may provide preferential pathways for impacts to travel through the subsurface if they are present on-Site. The facility is connected to municipal water and sewer services. Sewer lines exit the Site towards the west and Pacific Avenue South. Water service enters the Site from the north and runs south behind the east side of the building before turning west into the building or below the north parking lot area. Stormwater exits the Site to the west and Pacific Avenue South. (**Appendix B**).

Based on the limited available Site characterization data, no other preferential pathways for groundwater movement, such as fractures or sand lenses have been identified.

3.7 Exposure Pathways and Potential Receptors

The COC concentrations detected in soil, soil gas and groundwater during previous Site investigations were used to evaluate potential exposure pathways and receptors. The following criteria were used to evaluate if a complete exposure pathway exists:

- A source and mechanism for the COC to be released into the environment;
- A transport mechanism such as air, soil, groundwater, or vapor migration through soils, for the COC to move from the source to the receptor;
- A point of potential contact of the receptor with the medium (points of exposure such as drinking water wells); and
- An exposure route or means of taking the COC into the body, such as ingestion or inhalation or by dermal contact.

Potential exposure pathways identified in this CSM included soil (ingestion and/or dermal contact) and groundwater (potable water use).

The Site is currently used for commercial purposes. Although customers do enter the Site for brief periods of time to purchase supplies or manage stored items, the potential for customer exposure to Site COCs is minimal. Site potential receptors include employees or future construction/utility workers. Potential off-site receptors include future construction/utility workers.

3.7.1 Soil

As discussed above, GRO and DRO soil impacts have been documented on the north part of the Site and below the building. The ground surfaces at the Site are covered with building foundations or paved surfaces. Therefore, the direct soil exposure pathway from undiscovered soil impacts to current and future on-Site and off-Site occupants is incomplete and exposure to current or future on-Site and off-Site construction or utility workers is considered complete.

3.7.2 Soil Vapor

As discussed above, the lateral and vertical extent of soil vapor impacts appear undelineated and based on two IAQ surveys performed during 2017, the reporting limits for most of the analytes exceeded applicable SLs; therefore, the inhalation exposure pathway via vapor intrusion (VI) to current and future on-Site occupants and on-Site/off-Site construction or utility workers is considered potentially complete.

3.7.3 Groundwater

As with soil, groundwater impacts have been documented on the north part of the Site and appear delineated. Area residential and commercial development is currently connected to the public water supply and potential on- and off-Site receptors would not likely have contact with impacted groundwater beneath the Site unless they were construction or utility workers. As a result, the groundwater exposure pathway is incomplete for current and future on-Site occupants but potentially complete for on-Site/off-Site construction or utility workers.

A diagram of the CSM, which illustrates in a schematic manner the potential sources, release mechanisms, exposure pathways and on- and off-Site receptors is presented as **Figure 11**.

4.0 DATA GAP ASSESSMENT FIELD ACTIVITIES

The proposed scope of work is based upon the data gaps identified in the Conceptual Site Model and/or previously requested by Ecology.

4.1 Pre-Fieldwork Activities

4.1.1 Health and Safety Plan

Partner will develop a site-specific Health and Safety Plan (HASP) and will review the HASP with on-site personnel involved in the project prior to the commencement of field activities. A safety meeting will be performed with on-site project personnel each morning prior to the initiation of drilling and related field activities.

4.1.2 Permitting

No permits are anticipated to be required for the proposed work.

4.2 Fieldwork

4.2.1 Utility Clearance

Partner will delineate the work areas with white spray chalk and notify the Washington Utility Notification Center (WUNC) to clear public utility lines as required by law at least two business days prior to drilling activities.

Partner will additionally subcontract with a private utility locator to further clear boring locations of utility lines through the use of electromagnetic induction (EM) equipment, magnetometers, ground penetrating radar (GPR), and/or utility tracers. Boring placement will be adjusted as necessary based on the utility survey results to avoid potential conflicts with subsurface features. Additionally, to the extent practical based on-site conditions, the upper 3 feet of the borings will be cleared using hand tools.

4.2.2 Drilling Equipment

Boring locations that are only intended to be used for soil sampling will be advanced using direct-push drilling technology and borings elected to be completed as monitoring wells will be advanced using hollow-stem auger (HSA) drilling technology. All drilling rigs will be operated by a state-licensed water well drilling contractor.

4.2.3 Decontamination

Drilling and sampling equipment will be pre-cleaned prior to arriving on-site. Downhole equipment and materials will be decontaminated in a detergent/tap water wash and double-rinsed with tap water or with a pressure washer between samples and/or borings to reduce the potential for cross-contamination.

4.3 Proposed Boring Locations and Sample Analysis

Based on the results of the previous investigations, additional lateral delineation of VOC impacts will be required to the north, west and south of existing boring B2 (2014) and to the east and west of existing boring B12 and efforts towards vertical delineation should be focused on the area bounded by borings B1 through B3 (2013).

Partner proposes that ten new borings be advanced at the Site to facilitate the collection of samples necessary for delineation of soil vapor impacts and proposes two new borings be advanced and completed as new monitoring wells as follows:

- Additional soil vapor borings to further lateral delineation of VOC impacts are proposed to be advanced to a depth of approximately 30 feet bgs as follows:
 - Six borings will be sited surrounding the north, west and east exterior of the north part of the building for lateral delineation of soil vapor impacts;
 - Three borings will be sited at locations within the building top the south of the dry-cleaning suite for lateral delineation of soil vapor impacts;
 - One boring advanced within the building in the area bounded by borings B1 through B3 (2013) for vertical delineation of soil vapor impacts.
- Collect up to two soil samples from each of the proposed borings to potentially be analyzed for VOCs using EPA Method 8260;
- Install soil gas probes in each of the ten new borings at 5, 15 and 30 (or just above any observed moist zones) feet bgs. The final screening depth at each borehole will be adjusted based on the encountered lithology. In general, probes will be screened within coarser-grained materials and clayey/saturated intervals will be avoided, if possible;
- Purge each probe, then collect and prepare up to 30 soil gas samples plus two duplicates (32 soil gas samples total) for laboratory analysis using laboratory-provided, batch-certified SUMMA canisters and flow controllers with a 5- to 10-minute sample period;
- Analyze each soil gas sample (up to 32 soil gas samples total) for VOCs via EPA Method 8260;
- Analyze selected soil samples (up to ten soil samples total) for VOCs using EPA Method 8260 and GRO using method NWTPH-G, if field screening results suggest the presence of soil impacts;
- Advance two borings to the east and west of existing monitoring well MW2 (to be completed as monitoring wells MW-6 and MW-7) to the deepest identified water bearing zone with depths to 40 feet bgs and anticipated screened intervals from 30 to 40 feet bgs, based on the depth and boring log of previously-installed monitoring well MW-5;
- Develop the new monitoring wells per Ecology requirements;
- Up to two soil samples will be collected from the borings associated with these two new monitoring wells (MW-6 and MW-7), but will only be analyzed if field screening results suggest the presence of soil impacts.
- Collect groundwater samples from all monitoring wells (MW-1 through MW-6) and analyze for GRO using method NWTPH-Gx and for VOCs using EPA Method 8260.

Refer to **Figure 12** for proposed soil boring and monitoring well locations.

4.3.1 Soil Sampling and Analysis

At each boring location, soil samples will be collected using a 5-foot long by 2.25-inch diameter MacroCore sampler with a 5-foot-long acetate liner, advanced by the direct-push/hollow-stem auger drill rigs. The sampler will be driven into the subsurface to allow undisturbed soil to enter the open MacroCore barrel and be retrieved in 5-foot intervals within the soil-filled liners.

A lengthwise section of each acetate liner will be removed with a splitting tool to expose the soil. The soil column will be visually inspected for discoloration, monitored for odors, and classified in accordance with the Unified Soil Classification System (USCS). Select intervals will be placed in sealable plastic bags and field-screened with a photoionization detector (PID) calibrated to isobutylene.

Soil samples selected for laboratory analysis will be collected directly from the liners using a disposable plastic syringe and retained in one or more methanol-preserved volatile organics analysis (VOA) vial(s) in accordance with United States Environmental Protection Agency (EPA) Method 5035 sampling protocol. A sample will also be collected by transferring soil into one or more laboratory-supplied, four-ounce, wide-mouth, unpreserved glass jars, which will be sealed with a threaded, Teflon-lined lid. The jars will be filled with soil to capacity to minimize headspace and reduce the potential for volatilization. The jars and VOA vials will be labeled for identification and stored in an iced cooler for transport under chain-of-custody protocol to the analytical laboratory. Selected soil samples will be analyzed for GRO by Ecology Method NWTPH-G and for VOCs by EPA Method 8260.

4.4 Soil Gas Probe Installation Methodology

Nested soil gas probes will be constructed within the borings to the terminal depth. New ¼-inch diameter Nylaflow tubing with an inert vapor implant at the terminal end will be inserted into the boring to the deepest desired sampling depth. Sand will be poured into the boring annulus to form an approximately 1-foot thick sand pack around the vapor implant. Approximately 1 foot of dry, granular bentonite will be placed atop the sand pack and the boring annulus will be backfilled with hydrated bentonite to the next desired sampling depth where the soil gas probe will be similarly constructed. Upon installation of the shallowest probe, the remainder of the boring annulus will be backfilled with hydrated bentonite to approximately 6 inches bgs to form a seal. The outer casing will be retrieved from the boring as the soil gas probes are constructed. Each probe will be fitted with a valve on the sampling end of the tubing and labeled for identification. A 6-inch diameter, flush-mounted, traffic-rated vault will be installed at the ground surface within a concrete pad to house the soil gas probes. **Figure 13** depicts the construction of a typical soil gas probe.

4.5 Soil Gas Sample Collection Methodology

Soil gas samples will be collected from all existing Site soil gas probes no sooner than 48 hours after the new soil gas probe installation and in general accordance with the July 2015 DTSC and Los Angeles Regional Water Quality Control Board (LARWQCB) "Advisory – Active Soil Gas Investigations."

The soil gas samples will be analyzed for site-related VOCs in accordance with EPA Method 8260B by an on-site mobile laboratory certified by the State of California for analysis of soil gas samples. Samples will be collected using gas-tight glass syringes, which will allow the analytical results to be available within approximately 30 minutes after the samples are collected.

The proposed sampling methodology for the soil gas samples is presented in the SAP from the Site Characterization Work Plan). Sampling procedures include conducting a shut-in test and leak test, as well as monitoring the sample flow rate.

4.5.1 Leak Testing

Three purge volumes will be purged from the probes prior to sample collection. According to the Advisory – Active Soil Gas Investigations, July 2015, a purge volume includes the following:

- The internal volume of the tubing and probe tip;
- The void space of the sand pack around the probe tip;
- The void space of the dry bentonite in the annular space.

Partner will document details of the leak test and purging in the field documents, including the purging and leak test start time and finish time and any adjustments made for a failed test.

4.5.2 Shut-In Testing

Partner will also perform a Shut-In Test Prior to purging or sampling in order to check for leaks in the above-ground sampling system. Partner will assemble the above-ground valves, lines and fittings downstream from the top of the probe and will evacuate the system to a minimum measured vacuum of about 100 inches of water using a purge pump. The test is conducted while the sampling canister, if used, is attached with its valve in the closed position. Partner will observe the vacuum gauge connected to the system with a “T”-fitting for at least one minute or longer. If there is any observable loss of vacuum, the fittings will be adjusted until the vacuum in the sample train does not noticeably dissipate. After a successful shut-in test, the sampling train will not be altered. The selected vacuum gauge will be calibrated and sensitive enough to indicate a water pressure change of 0.5 inches. Partner will document the start and finish time of the shut-in test and any adjustments made for a failed shut-in test in the field documentation.

6.8.3 Sample Collection

During sample collection Partner will:

- Securely close the valve of the summa canister and the attached flow controller by screwing on a cap at the top of the flow controller with a wrench;
- Conduct the first part of the leak detection test by tapping on the summa canister’s rim to see if there were any changes to the air pressure gauge attached on the flow controller while both summa canister and flow controller were closed;
- After the first part of the leak detection test showed no changes in air pressure on the flow controller’s air pressure gauge, the same procedure will be conducted once more while the summa canister valve is turned open and the flow controller spout is still closed off with a cap; and
- Once this final part of the leak detection test demonstrates no change in air pressure gauge readings from the indicated vacuum air pressure of the summa canister, then the canister is determined to have passed the leak detection test as administered, the valve will be closed and the canisters will be ready to receive the sample.

4.6 Proposed Monitoring Well Construction

At the proposed monitoring well locations, following potential soil sampling, monitoring wells will be constructed by installing 2-inch diameter screens and risers within the MacroCore barrels at each boring

location. Each monitoring well will consist of a 10-foot long, 2-inch diameter, 0.010-inch slotted schedule 40 polyvinyl chloride (PVC) well screen at the terminal end and blank PVC risers from the top of the screen interval to the ground surface. The well will be suspended approximately six inches above the boring terminal depth and the annulus will be backfilled from the bottom upwards as the MacroCore barrels are removed with sand to approximately 2 feet above the well screen, followed by a bentonite seal and cement-bentonite grout. A locking cap will be placed on the wellhead, which will be enclosed in an eight-inch diameter, flush-mounted, traffic-rated vault constructed within a concrete pad. Monitoring wells are anticipated to be installed to a depth 40 feet bgs. A typical well construction diagram is presented in **Figure 14** presents a typical monitoring well construction diagram.

4.6.1 Monitoring Well Development

Following well installation, but at least 72-hours after construction, the new monitoring wells will be developed by block-surfing, bailing sediment and over-pumping the well casing. Well development will cease once the extracted development water is visually observed to show signs of decreased turbidity and/or the well has been completely dewatered a total of three times.

4.6.2 Wellhead Survey

Partner will subcontract a State of Washington licensed surveyor to survey the top of casing (TOC) elevations and coordinates of the monitoring wells using State Plane Coordinates Grid, Washington North Zone, North American Datum 1983 (NAD83), with a vertical datum of North American Vertical Datum 1988 (NAVD88) to provide surveyed measuring-point elevations that will be used to assess the elevation of the water table in the monitoring wells.

4.7 Quarterly Groundwater Sampling

Quarterly groundwater monitoring at the Site will be performed in accordance with Ecology's recommendations following the installation of these new monitoring wells to the well network. Quarterly groundwater monitoring activities will include gauging each well prior to sampling utilizing a water level meter. Additionally, the depth of each well will be measured. Groundwater will be sampled using the low-flow purge method using a peristaltic pump. Turbidity, pH, conductivity, dissolved oxygen, temperature, and salinity will be measured at three-minute intervals during purging using a Horiba YSI-556 meter. Samples will be collected using a new section of 3/8-inch diameter polyethylene tubing fed through a peristaltic pump and retained in hydrochloric acid-preserved VOA vials, unpreserved VOA vials, and one 250 milliliter (ml) unpreserved polypropylene bottle. The sample vials and bottles will be labeled for identification and stored in an iced cooler for transport to the analytical laboratory under chain-of-custody protocols.

4.8 Indoor Air Quality Sampling

To address the potential for VI concerns at the Site, Partner proposes to collect two indoor air samples plus one duplicate indoor air sample and two exterior ambient air samples using laboratory-provided Summa canisters. Two indoor air samples plus one duplicate will be collected from selected spaces within the Site building. Two exterior ambient air samples will be collected at upwind and downwind locations to be determined at the time of sample collection.

4.9 Investigation-Derived Waste

Investigation-derived waste (IDW) will be stored in 55-gallon drums on-Site pending waste profiling and transportation off-Site for disposal at an appropriate waste handling facility upon acceptance of the waste.

5.0 REPORTING

At the conclusion of the fieldwork, Partner will prepare a Data Gap Assessment Report for the Site. This report will be submitted to Ecology for review and to be used as a basis for a determination if the Site has been adequately characterized or if additional assessment and/or corrective actions will be required to address the Site environmental conditions.

6.0 SIGNATURES OF PARTICIPATING PROFESSIONALS

Thank you for the opportunity to be of service. If you have any questions concerning this work plan, or if we can assist you in any other matter, please contact Mitchell Williams at (206) 947-6594.

Sincerely,

Partner Engineering and Science, Inc.



Mitchell Williams, LG
Senior Project Manager



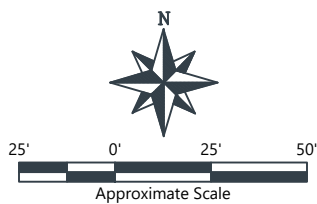
Levi Langevin, LSRP
Technical Director
Environmental Solutions Group

FIGURES



Legend and Notes:

— Site Boundary



Title: Site Location Map			
Figure: 1	Prepared By: AS	Date: August 2024	Project Number: ES24-444966
Address: 9201 Pacific Avenue Tacoma, Washington 98444			
PARTNER Engineering and Science, Inc.			

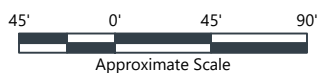
Pacific Avenue

A Street South

Legend and Notes:

-  Monitoring Well Location (Andersen, 2014)
-  Soil Boring Location (Environmental Associates, 2013)
-  Soil Boring Location (Andersen, 2014)
-  Groundwater Grab Sample (2013, 2014)
-  Summa Cannister Air Sample
-  Sub-Slab Soil Vapor Probe Location

-  Former Dry Cleaner Suite
-  Former Dry Cleaning Machine (circa 1965)
-  Former Floor Drain (circa 1965)
-  Storm Sewer Line
-  Sanitary Sewer Line
-  Groundwater Flow Direction



Title: Site Plan			
Figure: 2	Prepared By: AS	Date: May 2025	Project Number: ES24-444966
Address: 9201 Pacific Avenue Tacoma, Washington 98444			
			

MW-4			
VOCs via 8260C (ug/L)	MTCA Method A U/LU	July 2024	
PCE	5	1.03	
TCE	5	<1.0	
cis-1,2-DCE	80	0.195	
GRO	800*	<100	
DRO	500	<66.7	
RRO	500	<88.3	

MW-2			
VOCs via 8260C (ug/L)	MTCA Method A U/LU	July 2024	
PCE	5	116	
TCE	5	25.9	
cis-1,2-DCE	80	50.4	
GRO	800*	88.3	
DRO	500	<66.7	
RRO	500	<83.3	

B4 (2013)			
VOCs via 8260C (ug/L)	MTCA Method A U/LU	April 2013	
PCE	5	7.0	
TCE	5	2.4	
cis-1,2-DCE	80	9.3	
Stoddard Solvent	800*	630	
Toluene	1,000	17	
Ethylbenzene	700	10	
Total Xylenes	1,000	91	

MW-1			
VOCs via 8260C (ug/L)	MTCA Method A U/LU	July 2024	
PCE	5	<1.0	
TCE	5	<1.0	
cis-1,2-DCE	80	<1.0	
GRO	800*	<100	
DRO	500	185.1	
RRO	500	176.1	

B5 (2013)			
VOCs via 8260C (ug/L)	MTCA Method A U/LU	April 2013	
PCE	5	<1.0	
TCE	5	<1.0	
cis-1,2-DCE	80	<1.0	
Stoddard Solvent	800*	380	
Toluene	1,000	12	
Ethylbenzene	700	7.7	
Total Xylenes	1,000	64	

B2 (2013)			
VOCs via 8260C (ug/L)	MTCA Method A U/LU	April 2013	
PCE	5	21	
TCE	5	4.7	
cis-1,2-DCE	80	26	
Stoddard Solvent	800*	520	
Toluene	1,000	10	
Ethylbenzene	700	6.3	
Total Xylenes	1,000	61	

B6 (2013)			
VOCs via 8260C (ug/L)	MTCA Method A U/LU	April 2013	
PCE	5	<1.0	
TCE	5	<1.0	
cis-1,2-DCE	80	<1.0	
Stoddard Solvent	800*	160	
Toluene	1,000	3.4	
Ethylbenzene	700	2.5	
Total Xylenes	1,000	24	

B9 (2014)			
VOCs via 8260C (ug/L)	MTCA Method A U/LU	July 2024	
PCE	5	5.6	
TCE	5	0.96	
cis-1,2-DCE	80	0.67	
Stoddard Solvent	800*	NA	
Toluene	1,000	<1.0	
Ethylbenzene	700	0.42	
Total Xylenes	1,000	2.45	

B12 (2017)			
VOCs via 8260C (ug/L)	MTCA Method A U/LU	July 2024	
PCE	5	25	
TCE	5	5.5	
cis-1,2-DCE	80	17	
Stoddard Solvent	800*	NA	
Toluene	1,000	NA	
Ethylbenzene	700	NA	
Total Xylenes	1,000	NA	

B5 (2014)			
VOCs via 8260C (ug/L)	MTCA Method A U/LU	July 2024	
PCE	5	<0.20	
TCE	5	<0.20	
cis-1,2-DCE	80	<0.20	
Stoddard Solvent	800*	NA	
Toluene	1,000	<1.0	
Ethylbenzene	700	0.41	
Total Xylenes	1,000	1.92	

B7 (2017)			
VOCs via 8260C (ug/L)	MTCA Method A U/LU	July 2024	
PCE	5	17	
TCE	5	3.3	
cis-1,2-DCE	80	6.9	
Stoddard Solvent	800*	NA	
Toluene	1,000	<1.0	
Ethylbenzene	700	0.35	
Total Xylenes	1,000	1.35	

MW-3			
VOCs via 8260C (ug/L)	MTCA Method A U/LU	July 2024	
PCE	5	1.1	
TCE	5	<1.0	
cis-1,2-DCE	80	<1.0	
GRO	800*	<100	
DRO	500	<66.7	
RRO	500	<88.3	

B3 (2013)			
VOCs via 8260C (ug/L)	MTCA Method A U/LU	April 2013	
PCE	5	44	
TCE	5	16	
cis-1,2-DCE	80	32	
Stoddard Solvent	800*	410	
Toluene	1,000	6.5	
Ethylbenzene	700	4.4	
Total Xylenes	1,000	38	

B1 (2013)			
VOCs via 8260C (ug/L)	MTCA Method A U/LU	April 2013	
PCE	5	2.4	
TCE	5	<1.0	
cis-1,2-DCE	80	<1.0	
Stoddard Solvent	800*	490	
Toluene	1,000	7.7	
Ethylbenzene	700	5.2	
Total Xylenes	1,000	49	

Legend and Notes:

Site Boundary

Monitoring Well Location

Soil Boring Location (Environmental Associates, 2013)

Soil Boring Location (Andersen, 2014)

Former Dry Cleaner Suite

Concentration Exceeds MTCA Method A

- PCE = Tetrachloroethene

- TCE = Trichloroethene

- DCE = Dichloroethene

- GRO = Gasoline Range Organics

- DRO = Diesel Range Organics

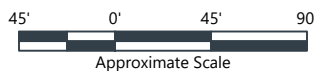
- RRO = Residual Range Organics

- < = not detected above indicated laboratory Reporting Detection Limit (RDL) or Method Detection Limit (MDL)

- J = detected at a concentration below the laboratory RDL, but above the MDL

- * = Results in the diesel range caused by carryover from the gasoline range

- Concentrations in mg/L (micrograms per liter)

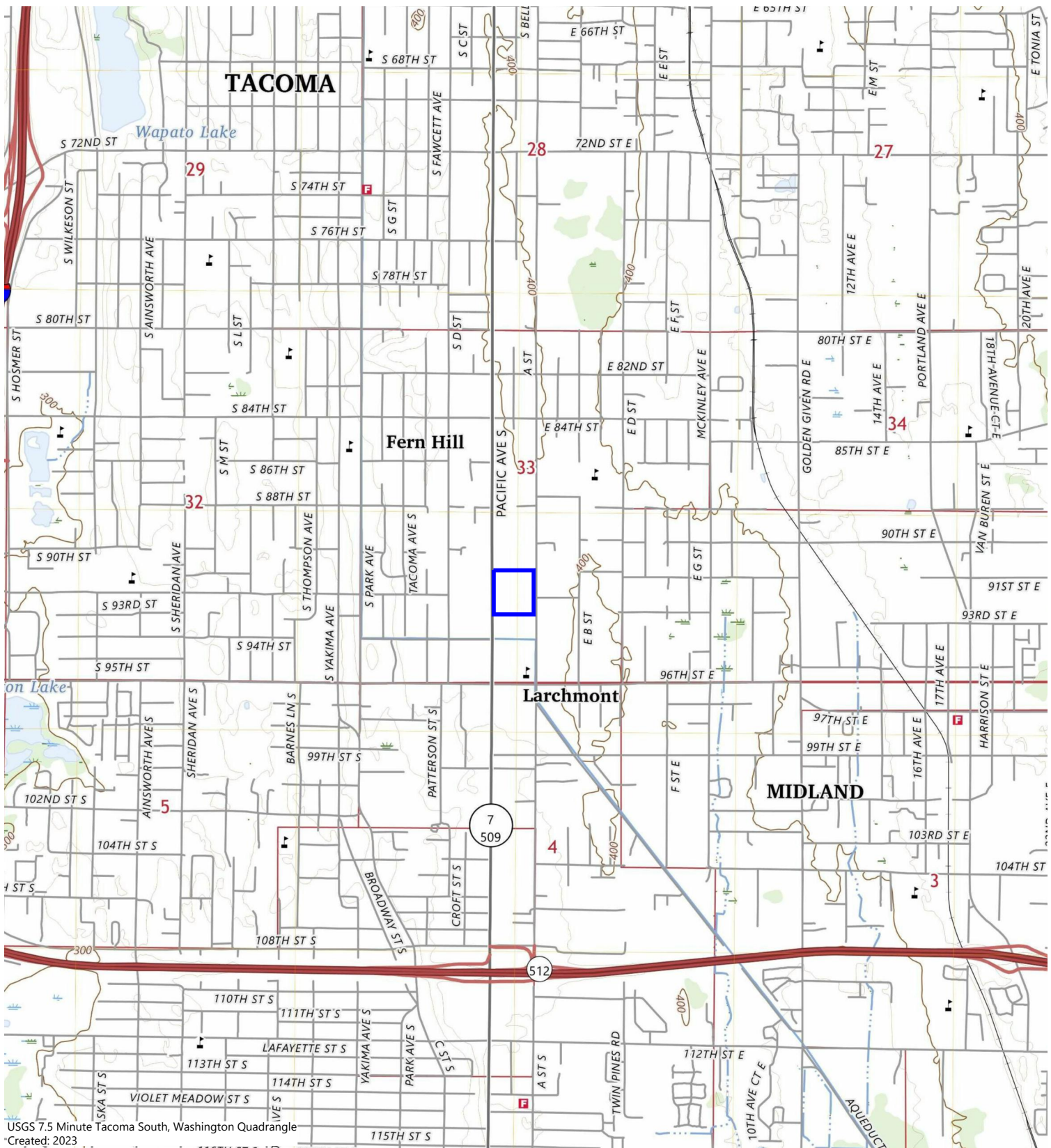


Title: **Groundwater Analytical Results Exceeding Cleanup Levels**

Figure: **3** Prepared By: **AS** Date: **May 2025** Project Number: **ES24-444966**

Address: **9201 Pacific Avenue
Tacoma, Washington 98444**

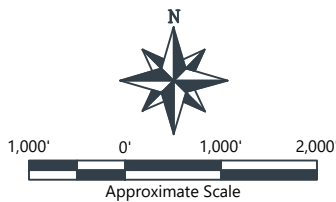
PARTNER
Engineering and Science, Inc.



USGS 7.5 Minute Tacoma South, Washington Quadrangle
Created: 2023

Legend and Notes:

Site Boundary

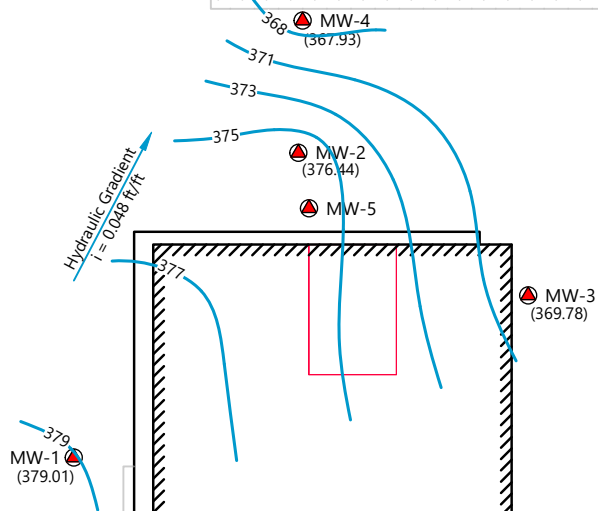


Title: Topographic Map			
Figure: 4	Prepared By: AS	Date: August 2024	Project Number: ES24-444966
Address: 9201 Pacific Avenue Tacoma, Washington 98444			

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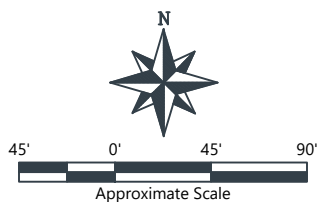
Pacific Avenue

A Street South

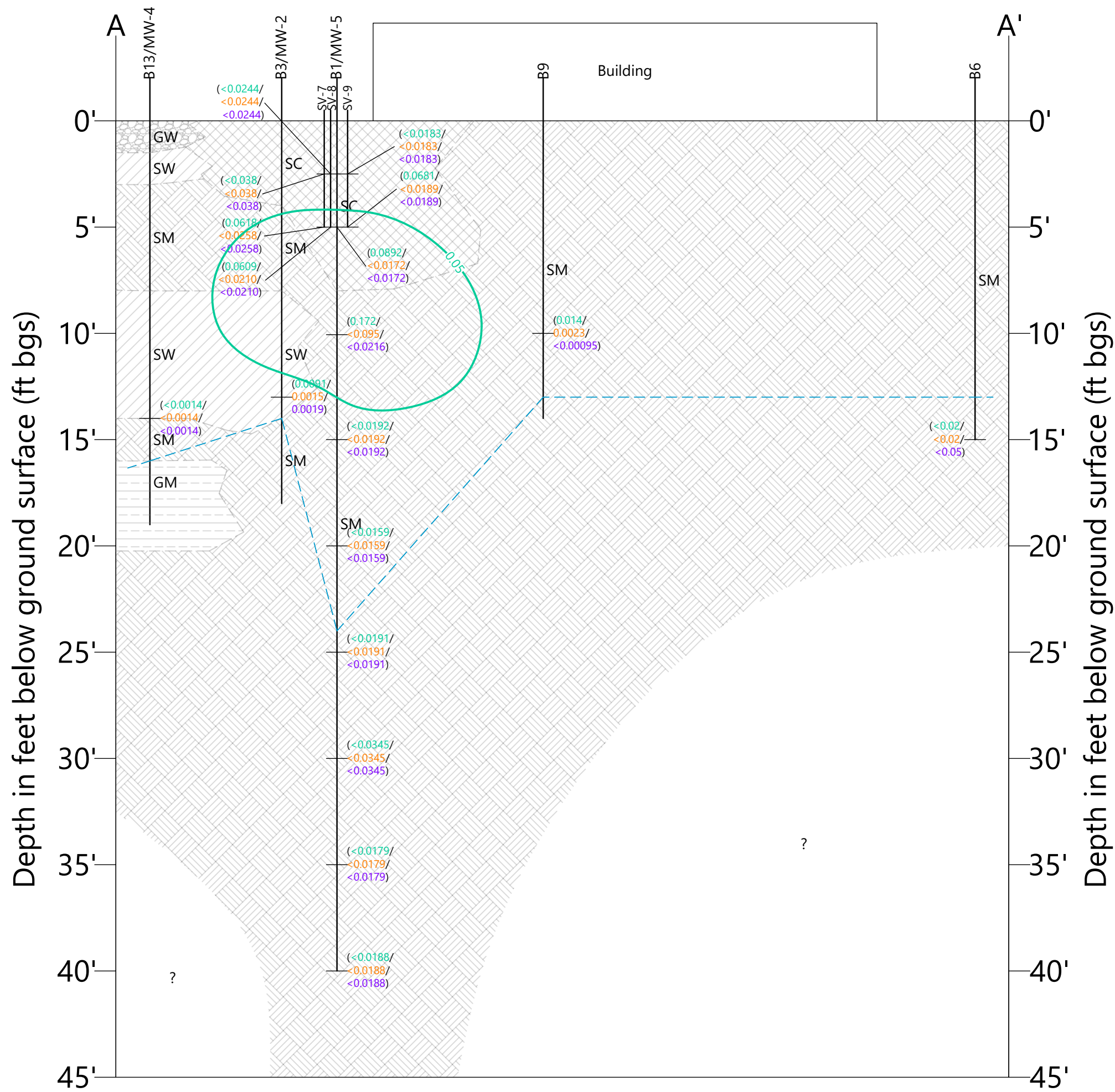


Legend and Notes:

- Site Boundary
- Monitoring Well Location
- Former Dry Cleaner Suite
- Groundwater elevation in feet above mean sea level (ft amsl)
- Wells gauged on July 24, 2024



Title: Groundwater Potentiometric Surface Map			
Figure: 5	Prepared By: AS	Date: August 2024	Project Number: ES24-444966
Address: 9201 Pacific Avenue Tacoma, Washington 98444			
PARTNER Engineering and Science, Inc.			



SM Silty Sand

SC Clayey Sand

SW Well Graded Sand

GW Well Graded Gravel

GM Silty Gravel

Groundwater Elevation

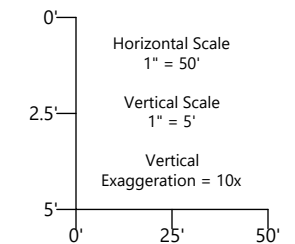
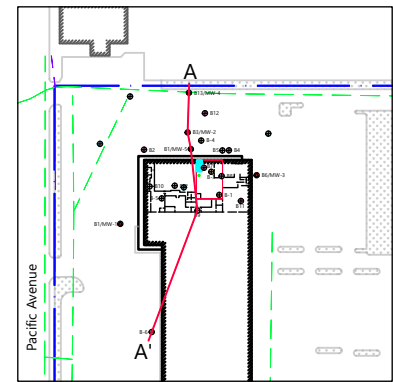
(0.014/0.0023/<0.00095) PCE/TCE/cis-1,2-DCE Concentration in Soil

PCE Isocontours in Soil

TCE Isocontours in Soil

cis-1,2-DCE Isocontours in Soil

- VOCs = Volatile Organic Compounds
- PCE = Tetrachloroethene
- TCE = Trichloroethene
- DCE = Dichloroethene
- Concentrations in mg/kg (milligram per kilogram)
- < = not detected above specified minimum laboratory method reporting limit
- Isocontours dashed where inferred, queried where unknown



Title:

Cross-Section A-A' - VOCs in Soil

Figure:

6

Prepared By:

AS

Date:

May 2025

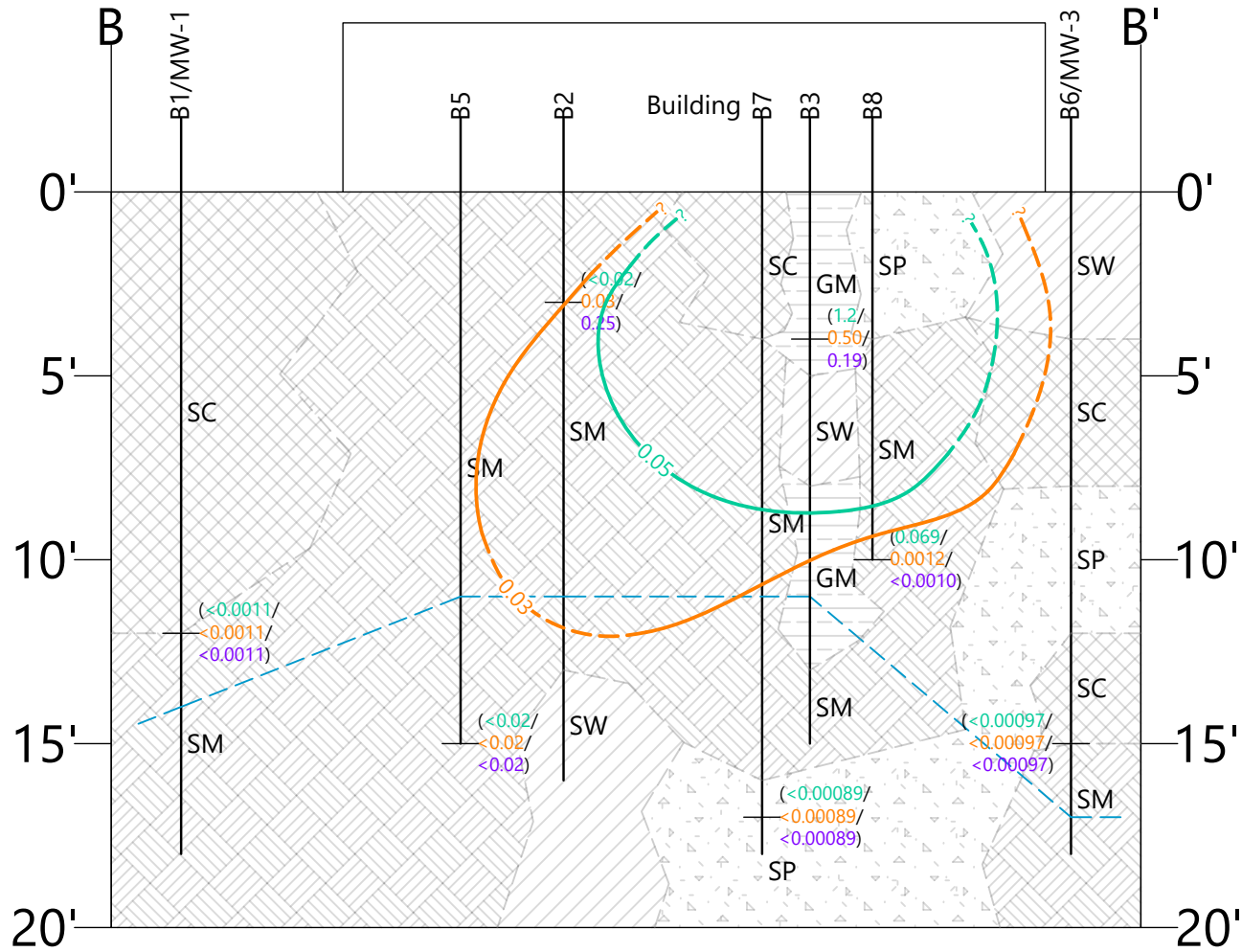
Project Number:

ES24-444966

Address:

9201 Pacific Avenue
Tacoma, Washington 98444

Depth in feet below ground surface (ft bgs)

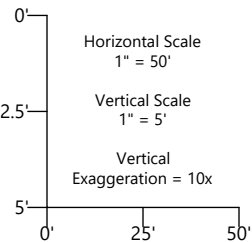
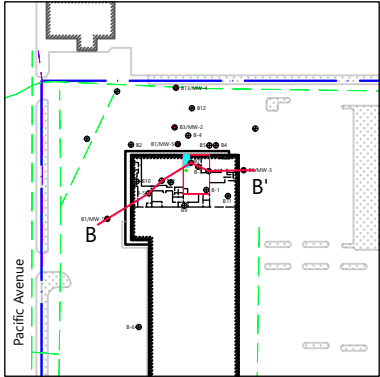


Depth in feet below ground surface (ft bgs)

Legend and Notes:

- SM Silty Sand
- SC Clayey Sand
- SW Well Graded Sand
- SP Poorly Graded Sand
- GM Silty Gravel
- Groundwater Elevation
- (0.014/0.0023/<0.00095) PCE/TCE/cis-1,2-DCE Concentration in Soil
- PCE Isocontours in Soil
- TCE Isocontours in Soil
- cis-1,2-DCE Isocontours in Soil

- VOCs = Volatile Organic Compounds
- PCE = Tetrachloroethene
- TCE = Trichloroethene
- DCE = Dichloroethene
- Concentrations in mg/kg (milligram per kilogram)
- < = not detected above specified minimum laboratory method reporting limit
- Isocontours dashed where inferred, queried where unknown

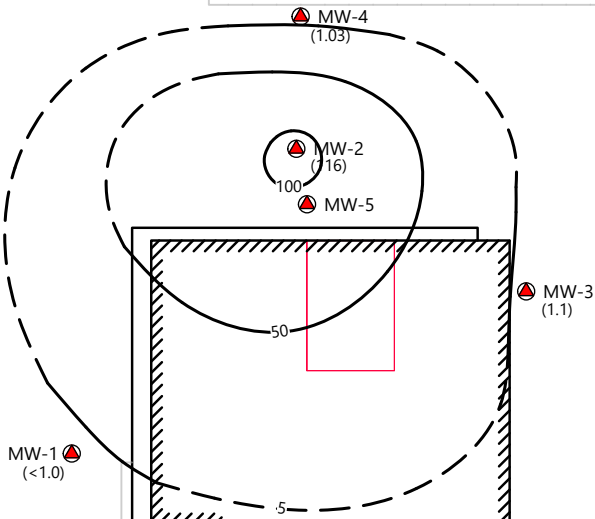


Title: Cross-Section B-B' - VOCs in Soil			
Figure: 7	Prepared By: AS	Date: May 2025	Project Number: ES24-444966
Address: 9201 Pacific Avenue Tacoma, Washington 98444			

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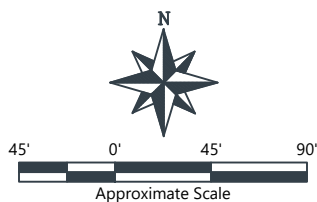
Pacific Avenue

A Street South



Legend and Notes:

- Site Boundary
- Monitoring Well Location
- Former Dry Cleaner Suite
- PCE = Tetrachloroethene
- Concentrations in ug/L (micrograms per liter)
- Contours dashed where inferred, quaried where unknown



Title:
PCE Concentration Isocontours in Groundwater

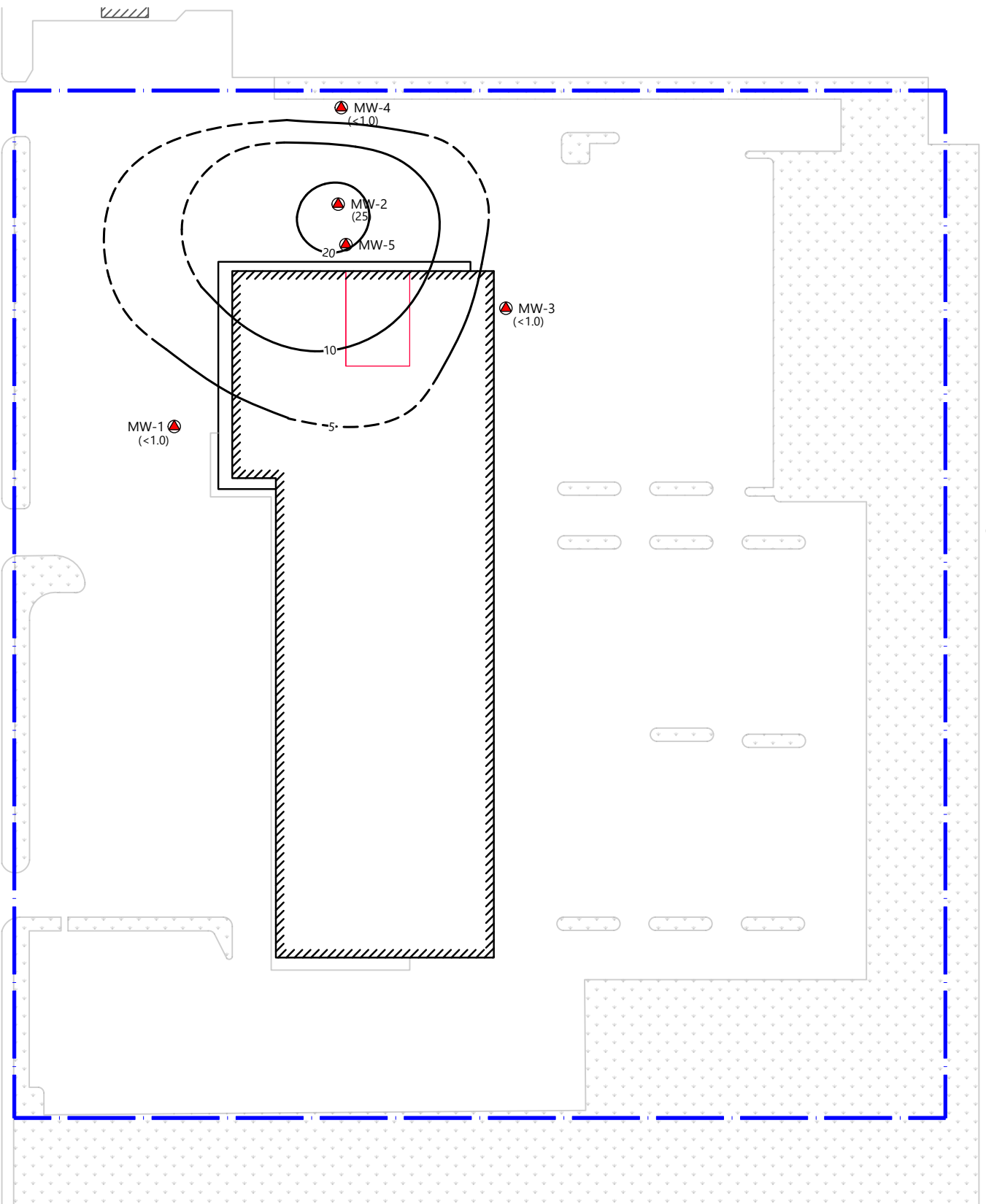
Figure:	Prepared By:	Date:	Project Number:
8	AS	August 2024	ES24-444966

Address:
9201 Pacific Avenue
Tacoma, Washington 98444

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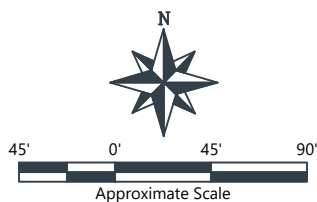
Pacific Avenue

A Street South



Legend and Notes:

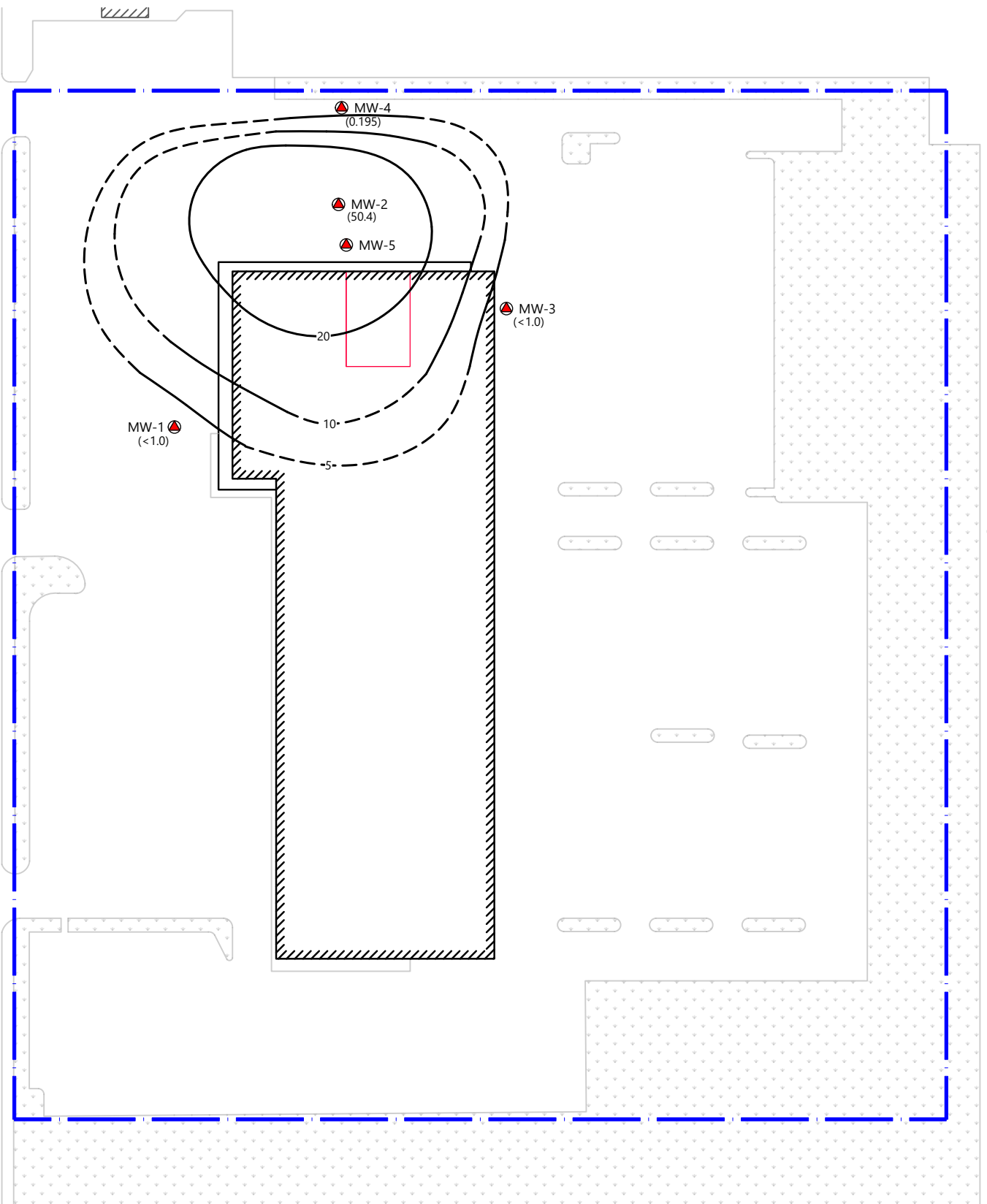
- TCE = Trichloroethene
 - Concentrations in ug/L (micrograms per liter)
 - Contours dashed where inferred, queried where unknown
- Site Boundary
- Monitoring Well Location
- Former Dry Cleaner Suite



Title: TCE Concentration Isocontours in Groundwater			
Figure: 9	Prepared By: AS	Date: August 2024	Project Number: ES24-444966
Address: 9201 Pacific Avenue Tacoma, Washington 98444			
PARTNER Engineering and Science, Inc.			

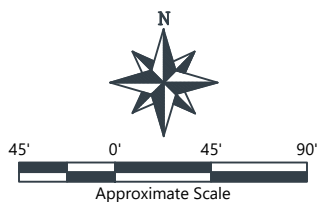
Pacific Avenue

A Street South



Legend and Notes:

- Site Boundary
- Monitoring Well Location
- Former Dry Cleaner Suite
- DCE = Dichloroethene
- Concentrations in ug/L (micrograms per liter)
- Contours dashed where inferred, queried where unknown



Title: cis-1,2-DCE Concentration Isocontours in Groundwater			
Figure: 10	Prepared By: AS	Date: August 2024	Project Number: ES24-444966
Address: 9201 Pacific Avenue Tacoma, Washington 98444			

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Primary
Sources

Primary
Release
Mechanism

Secondary
Sources

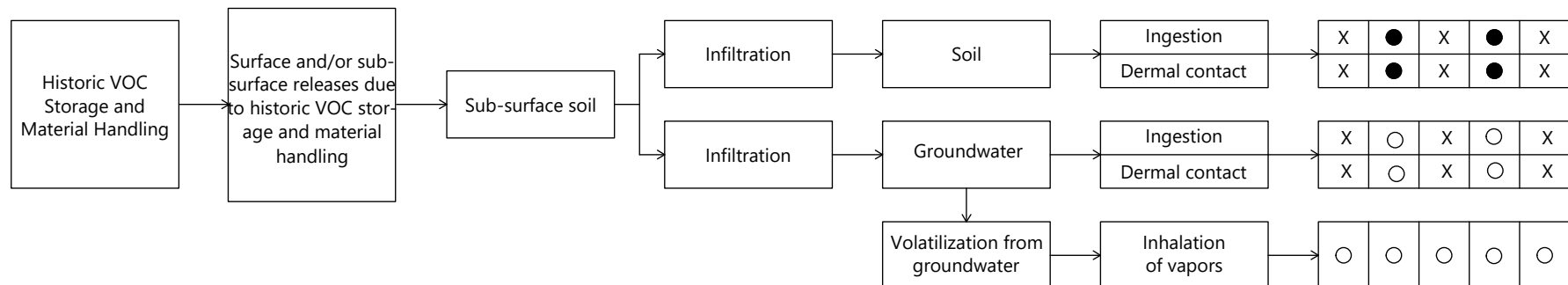
Secondary
Release
Mechanism

Pathway

Exposure
Route

Receptor

On-site		Off-site		
Current and future on-site commercial occupants	Future on-site construction/utility workers	Current and future off-site commercial occupants	Future off-site construction/utility workers	Current and future off-site residents



Legend and Notes:

- X Incomplete Exposure Pathway
- Potentially Complete Exposure Pathway
- Complete Exposure Pathway

Title: Conceptual Site Model			
Figure: 11	Prepared By: AS	Date: July 2025	Project Number: ES24-444966
Address: 9201 Pacific Avenue Tacoma, Washington 98444			
PARTNER Engineering and Science, Inc.			

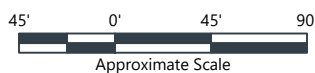
Pacific Avenue

A Street South

Legend and Notes:

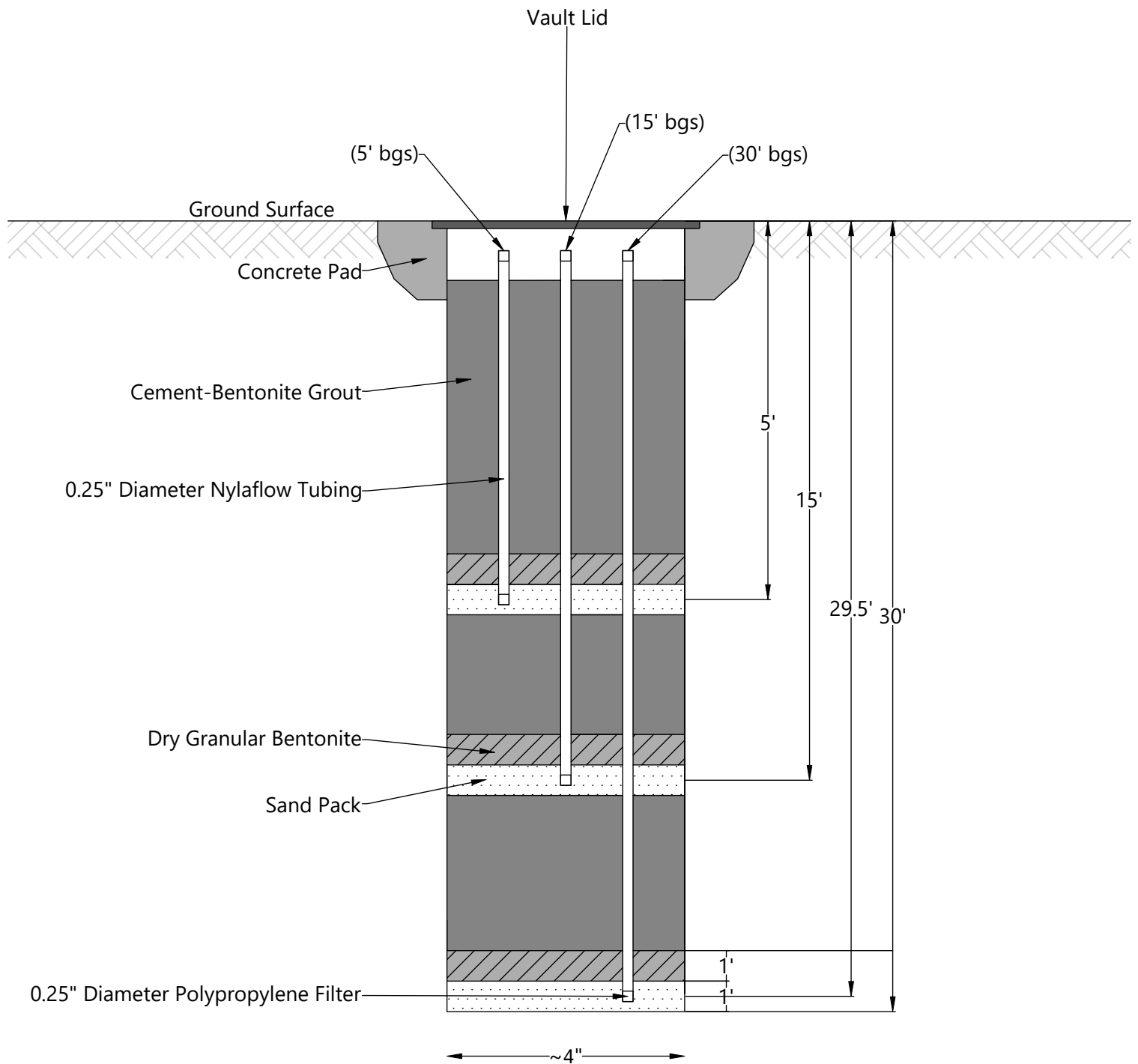
-  Monitoring Well Location (Andersen, 2014)
-  Soil Boring Location (Environmental Associates, 2013)
-  Soil Boring Location (Andersen, 2014)
-  Groundwater Grab Sample (2013, 2014)
-  Summa Cannister Air Sample
-  Sub-Slab Soil Vapor Probe Location
-  Proposed Additional Soil Vapor Boring Location
-  Proposed Additional Monitoring Well Location

-  Former Dry Cleaner Suite
-  Former Dry Cleaning Machine (circa 1965)
-  Former Floor Drain (circa 1965)
-  Storm Sewer Line
-  Sanitary Sewer Line
-  Groundwater Flow Direction



Title: Proposed Additional Soil Vapor Borings and Monitoring Wells			
Figure: 12	Prepared By: AS	Date: July 2025	Project Number: ES24-444966
Address: 9201 Pacific Avenue Tacoma, Washington 98444			

PARTNER
Engineering and Science, Inc.



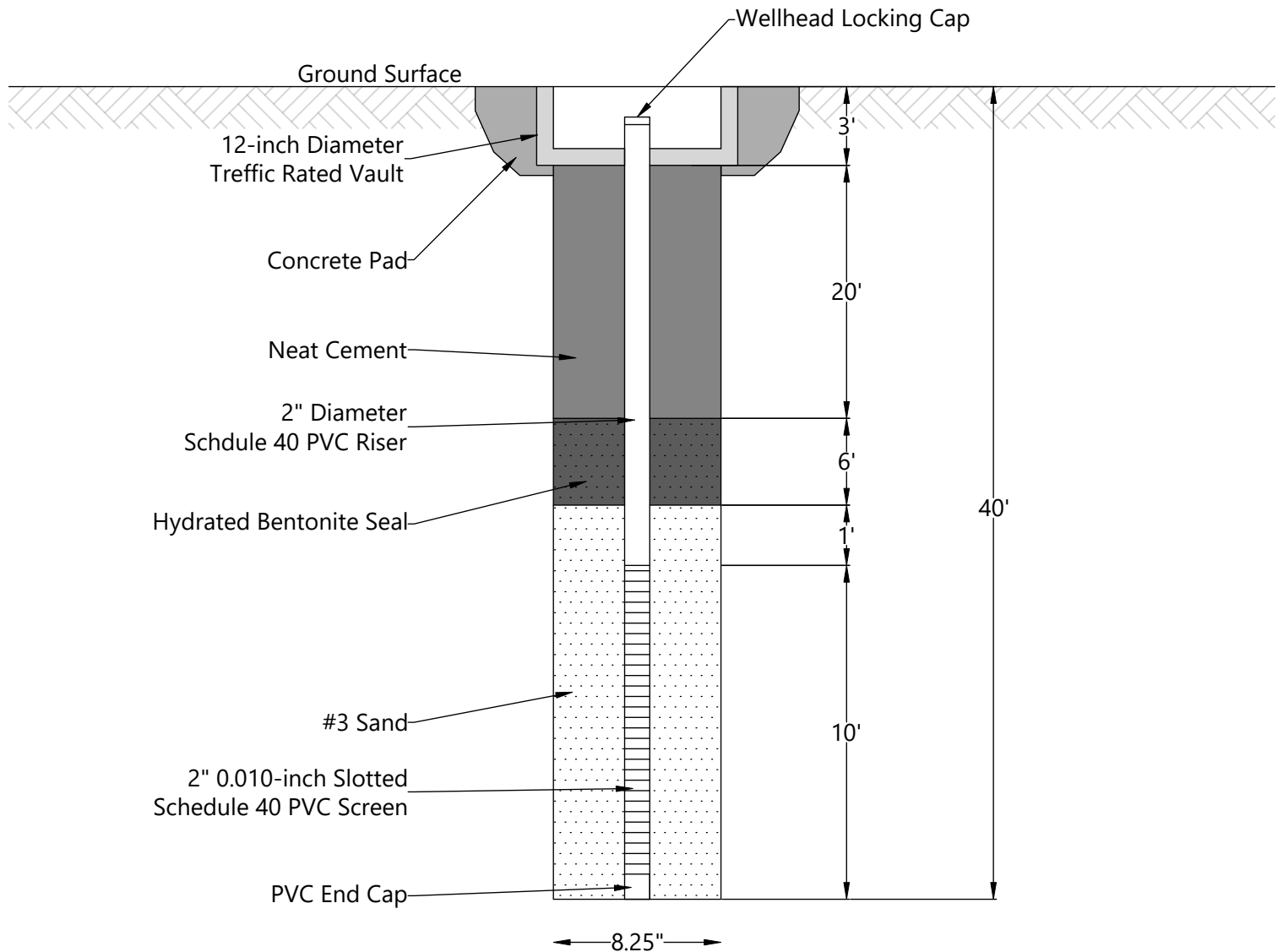
Notes:

- Not to scale.

Abbreviations:

- " = Inches
- ' = Feet

Title: Soil Vapor Boring Construction Diagram			
Figure: 13	Prepared By: AS	Date: July 2025	Project Number: ES24-444966
Address: 9201 Pacific Avenue Tacoma, Washington 98444			
PARTNER Engineering and Science, Inc.			



Notes:

- Not to scale.

Abbreviations:

- " = Inches
- ' = Feet

Title: Monitoring Well Construction Diagram			
Figure: 14	Prepared By: AS	Date: July 2025	Project Number: ES24-444966
Address: 9201 Pacific Avenue Tacoma, Washington 98444			
PARTNER Engineering and Science, Inc.			

TABLES

Table 1: Monitoring Well Details
Former Church of God in Christ Facility (COGIC)
U-Haul Facility No. 702080
9201 Pacific Avenue
Tacoma, Washington, 98444
Project Number: ES24-444964
July 2024

Well Identification	Casing Diameter (inches)	Casing Material	Well Depth (feet bgs)	Screen Length (feet)	Screened Interval (feet bgs)	Reference Elevation (feet amsl)
MW-1	2	PVC	18	5	13-18	387.07
MW-2	2	PVC	18	5	13-18	386.99
MW-3	2	PVC	18	5	13-18	387.59
MW-4	2	PVC	19	5	14-19	386.46
MW-5	2	PVC	40	10	30-40	388.80

Notes:
N/A = Not applicable
bgs = below ground surface
TOC = top of well casing
amsl = above mean sea level
PVC (S40) = polyvinyl chloride (schedule 40)

Table 2: Groundwater Gauging Data
Former Church of God in Christ Facility (COGIC)
U-Haul Facility No. 702080
9201 Pacific Avenue
Tacoma, Washington, 98444
Project Number: ES24-444964
July 2024

Well Identification	Date Sampled	Reference Elevation (ft amsl)	Depth to Groundwater (ft bmp)	Groundwater Elevation (ft amsl)
MW-1	07/24/24	387.07	8.82	378.25
MW-2	07/24/24	386.99	11.32	375.67
MW-3	07/24/24	387.59	10.94	376.65
MW-4	07/24/24	386.46	14.00	372.46
MW-5	07/24/24	388.80	NS	NS

Notes:

ft amsl = feet above mean sea level

ft bmp = Feet below surveyed measuring point on north side of polyvinyl chloride (PVC) well casing. Wells were surveyed by previous consultant.

Table 3: Groundwater GRO, DRO and RRO Analytical Results
Former Church of God in Christ Facility (COGIC)
U-Haul Facility No. 702080
9201 Pacific Avenue, Tacoma, Washington, 98444
Project Number: ES24-444964
July 2024

EPA Method Units	GRO, DRO and RRO via NWTPH-Gx/Dx/Extended (µg/L)				
Sample Identification	Date Sampled	GRO	DRO	RRO	DRO/RRO Combined
MW-1	12/29/2014	NA	NA	NA	NA
	3/12/2015	NA	NA	NA	NA
	2/8/2017	NA	NA	NA	NA
	9/12/2017	NA	NA	NA	NA
	12/5/2017	NA	NA	NA	NA
	12/22/2020	NA	NA	NA	NA
	3/24/2021	NA	NA	NA	NA
	7/24/2024	<100	185 J	176 J	361
MW-2	12/29/2014	NA	NA	NA	NA
	3/12/2015	NA	NA	NA	NA
	2/8/2017	NA	NA	NA	NA
	9/12/2017	NA	NA	NA	NA
	12/5/2017	NA	NA	NA	NA
	12/22/2020	NA	NA	NA	NA
	3/24/2021	NA	NA	NA	NA
	7/24/2024	88.3 B,J	<66.7	<83.3	<66.7
MW-3	1/13/2015	NA	NA	NA	NA
	3/12/2015	NA	NA	NA	NA
	2/8/2017	NA	NA	NA	NA
	9/12/2017	NA	NA	NA	NA
	12/5/2017	NA	NA	NA	NA
	12/22/2020	NA	NA	NA	NA
	3/24/2021	NA	NA	NA	NA
	7/24/2024	<100	<66.7	<83.3	<66.7
MW-4	2/25/2015	NA	NA	NA	NA
	3/12/2015	NA	NA	NA	NA
	2/8/2017	NA	NA	NA	NA
	9/12/2017	NA	NA	NA	NA
	12/5/2017	NA	NA	NA	NA
	12/22/2020	NA	NA	NA	NA
	3/24/2021	NA	NA	NA	NA
	7/24/2024	<100	<66.7	<83.3	<66.7
MW-5	2/8/2017	NA	NA	NA	NA
	9/12/2017	NA	NA	NA	NA
	12/5/2017	NA	NA	NA	NA
	12/22/2020	NA	NA	NA	NA
	3/24/2021	NA	NA	NA	NA
	7/24/2024	NS	NS	NS	NS
MTCA Cleanup Levels Method A Industrial		800* / 1,000**	500	500	500

Notes:

NWTPH = Northwest Total Petroleum Hydrocarbons

GRO = gasoline-range organics

DRO = diesel-range organics

RRO = residual range organics

µg/L = micrograms per liter

MTCA Method A = groundwater cleanup levels based on protection of groundwater for noncarcinogenic

effects during drinking water use (Washington State Department of Ecology [Ecology], Model Toxic Control

< = not detected above indicated laboratory Method Detection Limit (MDL)

Bold values exceed laboratory MDLs

* = GRO cleanup levels for GRO with no detectable benzene

NA = not analyzed

** = GRO cleanup levels for GRO with benzene present

Table 4: Groundwater VOCs Analytical Results
Former Church of God in Christ Facility (COGIC)
U-Haul Facility No. 702080
9201 Pacific Avenue
Tacoma, Washington, 98444
Project Number: ES24-444964
July 2024

EPA Method	Method																						
Units	VOCs via EPA method 8260D																						
	Units	(µg/L)																					
Sample Identification	Date Sampled	Acetone	Benzene	sec-Butylbenzene	tert-Butylbenzene	1,1,1-Trichloroethane	Chloroform	1,1-Dichloroethane	trans-1,2-Dichloroethene	1,2-Dichloroethane	cis-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	Methyl tert-butyl ether	PCE	Toluene	TCE	1,2,4-trimethylbenzene	1,2,3-trimethylbenzene	1,3,5-trimethylbenzene	Xylenes	Other VOCs	
MW-1	12/29/2014	<5.0	0.40	0.36	ND	ND	<0.20	ND	<0.20	0.33	<0.20	0.29	0.26	ND	<0.20	<1.0	<0.20	0.43	ND	ND	1.55	ND	
	3/12/2015	NA	---	ND	ND	ND	ND	ND	---	---	---	---	ND	ND	---	---	---	---	ND	ND	ND	---	ND
	2/8/2017	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<0.500	<1.00	<1.00	<1.00	<1.00	ND	
	9/12/2017	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<0.500	<1.00	NA	<1.00	<1.00	ND
	12/5/2017	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<0.500	<1.00	NA	<1.00	<1.00	ND
	12/22/2020	<0.548	0.0230 J	<0.101	0.0930 J	<0.0110	<0.0166	<0.0230	<0.572	<0.0190	<0.0276	<0.0212	<0.0345	<0.0118	<0.0280	<0.0500	<0.0160	<0.0464	<0.0460	<0.0432	<0.191	ND	
	3/24/2021	<0.548	<0.0160	<0.101	0.0810 J	<0.0110	<0.0166	<0.0230	<0.572	<0.0190	<0.0276	<0.0212	<0.0345	<0.0118	<0.0280	<0.0500	<0.0160	<0.0464	<0.0460	<0.0432	<0.191	ND	
	7/24/2024	<11.3	<0.0941	<0.125	<0.127	<0.149	<0.111	<0.100	<0.149	<0.0819	<0.126	<0.137	<0.105	<0.101	<0.300	<0.278	<0.190	<0.322	<0.104	<0.104	<0.174	ND	
MW-2	12/29/2014	<5.0	<0.20	<0.20	ND	ND	0.24	ND	0.78	<0.20	39	<0.20	ND	ND	40	<1.0	11	<0.20	ND	ND	0.72	ND	
	3/12/2015	NA	---	ND	ND	ND	ND	ND	---	---	---	---	ND	ND	---	---	---	---	ND	ND	ND	---	ND
	2/8/2017	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	6.12	<1.00	<1.00	<1.00	30.1	<1.00	4.41	<1.00	<1.00	<1.00	<1.00	ND	
	9/12/2017	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	47.2	<1.00	<1.00	<1.00	81.2	<1.00	18.9	<1.00	NA	<1.00	<1.00	ND	
	12/5/2017	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	14.4	<1.00	<1.00	<1.00	44.9	<1.00	8.14	<1.00	NA	<1.00	<1.00	ND	
	12/22/2020	<0.548	0.0280 J	<0.101	<0.0620	<0.0110	0.427	<0.0230	0.793	<0.0190	70.7	<0.0212	<0.0345	<0.0118	85.8	<0.0500	25.4	<0.0464	<0.0460	<0.0432	<0.191	ND	
	3/24/2021	<0.548	0.0260 J	<0.101	<0.0620	<0.0110	0.305	0.0300 J	0.901	<0.0191	71.3	<0.0212	<0.0345	<0.0118	130	<0.0500	30.8	<0.0464	<0.0460	<0.0432	<0.191	ND	
	7/24/2024	<11.3	<0.0941	<0.125	<0.127	<0.149	<0.111	<0.100	0.866 J	<0.0819	50.4	<0.137	<0.105	<0.101	116	<0.278	25.9	<0.322	<0.104	<0.104	<0.174	ND	
MW-3	1/13/2015	<5.0	<0.20	<0.20	ND	ND	<0.20	ND	<0.20	<0.20	<0.20	<0.20	<0.20	ND	<0.20	<1.0	ND	<0.20	ND	ND	<0.040	ND	
	3/12/2015	NA	---	ND	ND	ND	ND	ND	---	---	---	---	ND	ND	---	---	---	---	ND	ND	ND	---	ND
	2/8/2017	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<0.500	<1.00	<1.00	<1.00	<1.00	ND	
	9/12/2017	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<0.500	<1.00	NA	<1.00	<1.00	ND
	12/5/2017	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<0.500	<1.00	NA	<1.00	<1.00	ND
	12/22/2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/24/2021	1.08	<0.0160	<0.101	<0.0620	0.0420 J	<0.0166	<0.0230	<0.572	<0.0190	0.0720 J	<0.0212	<0.0345	<0.0118	0.303	<0.0500	0.047	<0.0464	<0.0460	<0.0432	<0.191	ND	
	7/24/2024	<11.3	<0.0941	<0.125	<0.127	<0.149	<0.111	<0.100	<0.149	<0.0819	<0.126	<0.137	<0.105	<0.101	<0.300	<0.278	<0.190	<0.322	<0.104	<0.104	<0.174	ND	
MW-4	2/25/2015	<5.0	<0.20	<0.20	ND	ND	<0.20	ND	<0.20	<0.20	0.21	<0.20	<0.20	ND	1.1	---	<0.20	<0.20	ND	ND	<0.040	ND	
	3/12/2015	ND	---	ND	ND	ND	ND	ND	---	---	---	---	ND	ND	---	---	---	---	ND	ND	ND	---	ND
	2/8/2017	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<0.500	<1.00	<1.00	<1.00	<1.00	ND	
	9/12/2017	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<0.500	<1.00	NA	<1.00	<1.00	ND	
	12/5/2017	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<0.500	<1.00	NA	<1.00	<1.00	ND
	12/22/2020	<0.548	14.1	<0.101	<0.0620	<0.0110	<0.0166	<0.0230	<0.572	<0.0190	0.388	0.373	<0.0345	0.0270 J	1.51	54.6	0.206	0.368	1.08	0.698	37.4	ND	
	3/24/2021	1.06	<0.0160	<0.101	<0.0620	<0.0110	0.770 J	<0.0230	<0.572	<0.0190	0.253	<0.0212	<0.0345	<0.0118	0.970	<0.0500	0.120	<0.0464	<0.0460	<0.0432	<0.191	ND	
	7/24/2024	<11.3	<0.0941	<0.125	<0.127	<0.149	<0.111	<0.100	<0.149	<0.0819	0.195 J	<0.137	<0.105	<0.101	1.03	<0.278	<0.190	<0.322	<0.104	<0.104	<0.174	ND	
MW-5	2/8/2017	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<0.500	<1.00	<1.00	<1.00	<1.00	ND	
	9/12/2017	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<0.500	<1.00	ND	<1.00	<1.00	ND	
	12/5/2017	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<0.500	<1.00	NA	<1.00	<1.00	ND	
	12/22/2020	<0.548	<0.0160	<0.101	<0.0620	<0.0110	<0.0166	<0.0230	<0.572	<0.0190	<0.0276	<0.0212	<0.0345	<0.0118	<0.0280	0.0650 J	<0.0160	<0.0464	<0.0460	<0.0432	<0.191	ND	
	3/24/2021	<0.548	<0.0160	<0.101	<0.0620	<0.0110	<0.0166	<0.0230	<0.572	<0.0190	<0.0276	<0.0212	<0.0345	<0.0118	0.0900 J	<0.0500	<0.0160	<0.0464	<0.0460	<0.0432	<0.191	ND	
	7/24/2024	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MTCA Method A ULU		NE	5	NE	NE	200	NE	NE	NE	5	NE	700	NE	20	5	1,000	5	NE	NE	NE	1,000	Varies	
MTCA Method B Cancer		NE	0.8	NE	NE	NE	1.4	7.7	160	0.48	NE	NE	NE	24	21	NE	0.54	NE	NE	NE	NE	Varies	
MTCA Method B Noncancer		7,200	32	800	800	16000	80	1600	NE	48	16	800	NE	NE	48	640	4	800	800	800	1,600	Varies	
Groundwater MCL		7,200	5	NE	NE	200	80	NE	100	5	70	700	NE	NE	5	1000	5	NE	NE	NE	10,000	Varies	

Notes:
BTEX = Benzene, toluene, ethylbenzene and xylenes
EPA = United States Environmental Protection Agency
µg/L = micrograms per liter
MTBE = methyl tert-butyl ether
MTCA Method A = groundwater cleanup levels based on protection of groundwater for noncarcinogenic effects during drinking water use (Washington State Department of Ecology [Ecology], Model Toxics Control Act [MTCA], Cleanup Levels and Risk Calculation [CLARC], February 2021)
MTCA Method B = Groundwater cleanup level for direct contact (Ecology, MTCA, CLARC, February 2021)
< = not detected above indicated laboratory Method Detection Limit (MDL)

Bold values exceed laboratory MDLs
J = the identification of the analyte is acceptable; the reported value is an estimate
NE = a cleanup level has not been established NA = not analyzed

APPENDIX A: Correspondence with Ecology



Electronic Copy

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

August 26, 2015

Mr. Nels B. Cone
Andersen Environmental
P.O. Box 85418
Seattle, WA 98145

Re: Further Action at the following Site:

- **Site Name:** Church of God in Christ
- **Site Address:** 9201 Pacific Avenue South, Tacoma, Pierce County
- **Facility/Site No.:** 19947
- **Cleanup Site ID:** 12404
- **VCP Project No.:** SW1467

Dear Mr. Cone:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your proposed independent cleanup of the Church of God in Christ facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

YES. Ecology has determined that further remedial action is necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Volatile Organic Compounds (VOCs), into the Soil and Groundwater.

Enclosure A includes a detailed description and diagram of the Site, as currently known to Ecology.

Please note the parcel(s) of real property associated with this Site are also located within the projected boundaries of the Tacoma Smelter Plume facility (# 62855481). At this time, we have no information that those parcel(s) are actually affected; however, Ecology recommends that any soil samples collected from the Site be analyzed for lead and arsenic to determine whether the Site has been impacted. This opinion does not apply to any contamination associated with the Tacoma Smelter Plume facility.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Andersen Environmental, Phase II Environmental Site Assessment (ESA) for 9201 Pacifica Avenue South, Tacoma, Washington, dated April 20, 2015.
2. Andersen Environmental, Phase I Environmental Site Assessment (ESA) for 9201 Pacifica Avenue South, Tacoma, Washington, dated September 16, 2014.
3. Limited Soil and Groundwater Sampling and Testing, Commercial Property, 9201 Pacific Avenue, Tacoma, Washington, dated April 26, 2013.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. You can make an appointment by calling the SWRO resource contact at (360) 407-6365.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that, upon completion of your proposed cleanup, **further remedial action** will likely be necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Ecology has determined your characterization of the Site is not sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.**

The Site is located at 9201 Pacific Avenue South, Tacoma, Washington, and has been vacant since approximately 2014. The Site is approximately 8.86 acres and is occupied by a one-story building that is approximately 61,230 square feet. The property was originally developed as strip shopping mall, and later occupied by a church and associated activity center. The property was transferred into receivership in approximately 2013.

Previous investigations indicate that the northeast portion of the property building was developed for commercial dry-cleaning operations including the Pacific Launder Center (1969 to 1979) and the Tacoma Dry-Cleaning and Laundry Center (1979 to 1984). The Site was listed on Ecology's Confirmed and Suspected Contaminated Sites List in 2013.

In October 2014, soil and groundwater samples were collected from each boring and analyzed for Volatile Organic Compounds (VOCs), gasoline-range petroleum hydrocarbons (TPH-Gx), and Metals.

Laboratory analytical results for the October 2014 investigation indicated the following:

- VOCs including tetrachloroethylene (PCE), trichloroethylene (TCE), and cis-1,2-Dichloroethene (DCE) in soils beneath the slab foundation to a maximum depth of approximately 4 feet bgs. Concentrations of PCE and TCE were above the respective MTCA Method A Cleanup Levels (CULs).
- Cadmium was detected above the respective MTCA Method A CUL in soil boring B5 at an approximate depth of 3 feet bgs underneath the building's slab foundation.

- In addition, laboratory analytical results indicated concentrations of PCE and/or TCE above MTCA CULs in groundwater samples collected from soil borings B2, B3, and B4.

Between December 2014 and March 2015, an additional investigation was conducted at the Site to further delineate the contamination encountered previously in October 2014. Four of the soil borings were eventually completed as groundwater monitoring wells MW1 through MW4.

Laboratory analytical results for the December 2014 to March 2015 investigation indicated that concentrations of PCE were detected in groundwater samples ranging from 1.1 micrograms per liter ($\mu\text{g/L}$) at groundwater monitoring well MW-4 to 40 $\mu\text{g/L}$ at groundwater monitoring well MW-3.

Based on a review of the above-listed documents, Ecology has the following comments:

1. Additional information should be added to the Site figures to show the configuration of the dry cleaning business when it was operating, including: the location of the back door; the position of the dry cleaning equipment; location of where the dry cleaning chemicals were offloaded and stored (e.g. loading dock); and whether there are potential preferential pathways such utility vaults, sewer lines, and septic tank/drain-field.
2. The areal and vertical extent of the PCE contamination present at the Site has not been adequately defined. The following comments No. 3 through No. 5 describe Ecology's recommendations for further characterization of vapor, soil and groundwater at the Site.
3. Existing data indicates that the current tenant space may be exposed to a PCE Vapor Intrusion (VI) risk which may threaten the health of future building occupants. The current MTCA Method B vapor intrusion screening level for groundwater is 22.9 $\mu\text{g/L}$. Since groundwater concentrations exceed the screening level, the Site requires a Tier II assessment (as discussed in Ecology's 2009 Draft VI Guidance) or mitigation is required.
4. The soil source mass that is contributing to the groundwater contamination has not been adequately identified. Historical information about the Site described in comment No. 1 will help in better delineating the source of the soil contamination.

5. The vertical depth of contamination within the aquifer has not been adequately characterized. We recommend collecting groundwater samples from the base of the aquifer, and at depth-discrete zones within the aquifer.
6. Following additional Site characterization, the conceptual site model (CSM) should be refined to show the subsurface conditions beneath the Site (i.e. cross sections). A comprehensive CSM will give a better picture of the confining layers and more permeable zones between the confining layers. In addition, we recommend recalculating the potentiometric surface contours to better depict the groundwater flow direction.
7. Please prepare a work plan for the further characterization activities noted above and provide to Ecology for review. This will help ensure that the additional work meets the substantive requirements of MTCA.
8. In accordance with WAC 173-340-840(5) and Ecology Toxics Cleanup Program Policy 840 (Data Submittal Requirements), data generated for Independent Remedial Actions shall be submitted simultaneously in both a written and electronic format. For additional information regarding electronic format requirements, see the website <http://www.ecy.wa.gov/eim>. Be advised that according to the policy, any reports containing sampling data that are submitted for Ecology review are considered incomplete until the electronic data has been entered. Please ensure that data generated during on-site activities is submitted pursuant to this policy. Data must be submitted to Ecology in this format for Ecology to issue a No Further Action determination. Please be sure to submit all soil and groundwater data collected to date, as well as any future data, in this format. Data collected prior to August 2005 (effective date of this policy) is not required to be submitted; however, you are encouraged to do so if it is available. Be advised that Ecology requires up to two weeks to process the data once it is received.

2. Establishment of cleanup standards.

Ecology has determined the cleanup levels and points of compliance established for the Site do not meet the substantive requirements of MTCA.

Cleanup standards cannot be established because the Site has yet to be fully defined.

MTCA Method A CULs for soil and groundwater for unrestricted land uses have been used initially to characterize the Site. Standard points of compliance are being used

for the Site. The point of compliance for protection of groundwater shall be established in the soils throughout the Site. For soil cleanup levels based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway, the point of compliance shall be established in the soils throughout the Site from the ground surface to 15 feet bgs. In addition, the point of compliance for the groundwater shall be established throughout the Site from the uppermost level of the saturated zone extending vertically to the lowermost depth that could potentially be affected by the Site.

3. Selection of cleanup action.

Ecology has determined the cleanup action (Monitored Natural Attenuation of Groundwater) you proposed for the Site does not meet the substantive requirements of MTCA. The Site requires additional characterization before selecting a cleanup action.

4. Cleanup.

No cleanup has been performed at the Site.

Limitations of the Opinion

1. Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you proposed will be substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

Mr. Nels B. Cone
August 26, 2015
Page 7

3. State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. See RCW 70.105D.030(1)(i).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion, please contact me by phone at (360) 407-6265 or e-mail at john.rapp@ecy.wa.gov.

Sincerely,



John F Rapp, LHG
Project manager
SWRO Toxics Cleanup Program

JFR: knf

Enclosures: A – Description and Diagrams of the Site

By certified mail: 9171082133393970418566

cc: Mr. Brian Martisan, Andersen Environmental
Ms. Sharon Bell, Tacoma-Pierce County Health Department
Ms. Richelle Perez, Ecology
Mr. Steve Teel, Ecology
Ms. Dolores Mitchell, Ecology

Enclosure A

Description and Diagrams of the Site

Site Description

According to the Pierce County Assessor's Office, the Site is located in the City of Tacoma, and is described by the Assessor's Parcel Number: 0320333304; Township 20N, Range 03 East, Section 33.

The Site address is listed as 9201 Pacific Avenue, Tacoma Washington (Figure 1). It is located on the east side of Pacific Avenue and the west side of "A" Street, approximately 600 feet north of 96th Street, and encompassing approximately three city blocks within the City of Tacoma. The Site is listed as approximately 386,100 square feet (8.86 acres) in size and is developed with a large one story building reported as approximately 61,230 square feet in size (Figure 2).

The Site is unoccupied and has been vacant for over one year. The building is roughly separated into three major units, 9201A (north end), 9201B (middle) and 9201C (south end). The middle unit is further divided into two sections, and the north end divided into one main section and several smaller sections with distinct entrances for each. Originally built as a strip shopping mall, the building was most recently used as a church and its associated activity center. These operations continued into 2013 when the property transferred into receivership.

The remaining portion of the Site consists of a fenced-in playground attached to the north end of the building, large surrounding parking areas, a designated wetlands located in the northeast corner, an overgrown storm-water detention area located in the southeast corner and various landscaped areas located along the perimeters. The eastern half of the subject property is presently enclosed with a chain-link fence. The surrounding area is mostly used for residential and light commercial purposes. Groundwater is estimated to vary between 9 and 14 feet below ground surface in the area of the Site.

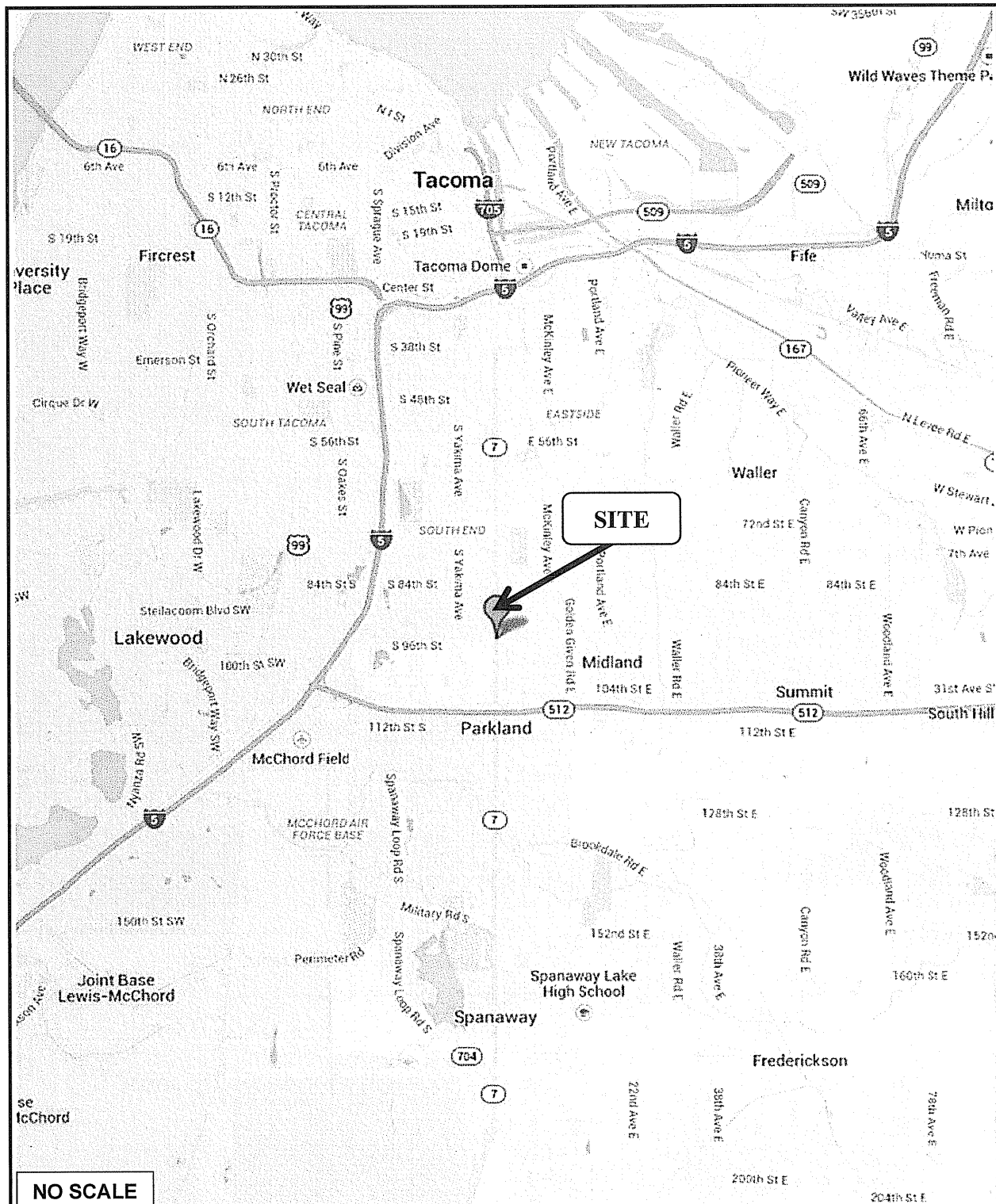
Previous investigations indicate the northeast portion of the property building was historically developed for commercial dry-cleaning operations. These business operations included the Pacific Launder Center, operating onsite from approximately 1969 to 1979, and the Tacoma Dry-Cleaning and Laundry Center operating onsite from approximately 1979 to 1984. It is not known which of these operations may have contributed to the chlorinated volatile organic compounds (CVOC) release or releases; however due to industry standard practices used during this period, the potential for either or both of these operations to have released dry-cleaning chemicals to the environment exists. The Site is listed on Ecology's Confirmed and Suspected Contaminated Sites List (CSCSL) in 2013.

The elevation of the Site is approximately 385 feet above sea level (USGS Tacoma South 7.5 minute topographic quadrangle). The underlying soils in the vicinity of the Site are classified as Quaternary Vashon Till (Qdvt) consisting of grey, unsorted, un-stratified, highly compact mixture of clay, silt, sand, gravel and with possible erratics (large boulders) directly deposited by recessional glaciers (Geological Map of the South Half of the Tacoma Quadrangle, 1987). Soils overlaying un-weathered till consist of outwash gravel, sand and surficial loam.

These lithologic classifications are consistent with Site conditions identified by Andersen Environmental during field investigation activities where un-weathered till was encountered to maximum depths of 25 feet below ground surface (bgs).

Recent field investigations performed by Andersen Environmental indicate groundwater depth beneath the Site varies from approximately 9 to 14 feet bgs with general gradient direction to the north.

Site Diagrams



NO SCALE

AE ANDERSEN
ENVIRONMENTAL

Figure 1: Site Location Map

9201 South Pacifica Avenue
Tacoma, Washington 98444

Source: Google, Inc., 2015

AE Project Number: 1412-2091

Drawn By: Shayan Simantob

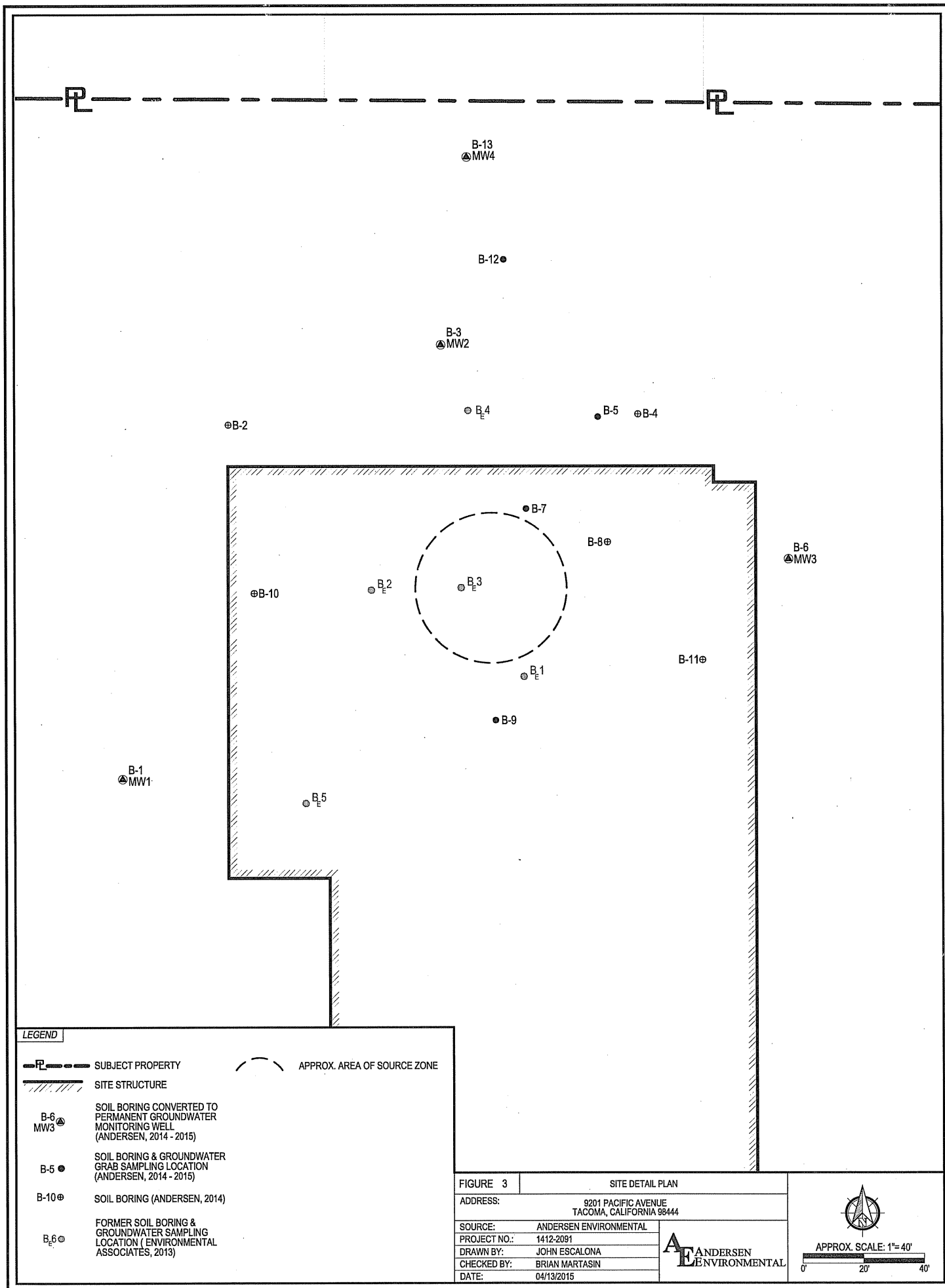




Table 1: Volatile Organic Compounds in Soil
COGIC Property
 9201 South Pacific Avenue, Tacoma, Washington 98444

Sample ID	Sample Date	Sample Depth (ft bgs)	EPA Method 8260C (mg/kg)										Acetone	All Other 8260C VOC Analytes
			Tetrachloro-ethylene (PCE)	Trichloro-ethylene (TCE)	cis-1,2-Dichloro-ethylene	trans-1,2-Dichloro-ethylene	Vinyl Chloride	1,2, Dichloro-ethane	1,1,1-Trichloro-ethane	Naphthalene	1,2,4-Trimethyl-benzene			
B _E 1-3	4/17/2013	3	ND<0.02	0.03	0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND	
B _E 1-3dup	4/17/2013	3	ND<0.02	0.04	0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND	
B _E 2-3	4/17/2013	3	ND<0.02	0.03	0.25	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND	
B _E 3-4	4/17/2013	4	1.2	0.5	0.19	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND	
B _E 4-3	4/17/2013	3	0.03	ND<0.02	0.17	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND	
B _E 5-15	4/17/2013	15	ND<0.02	ND<0.02	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND	
B _E 6-15	4/17/2013	15	ND<0.02	ND<0.02	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND	
B1-12	12/29/14	12	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.048	ND<0.2000	0.011 Y	ND	
B2-14	12/29/14	14	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.048	ND<0.2000	ND<0.0056	ND	
B3-13	12/29/14	13	0.0091	0.0015	0.0019	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.048	ND<0.2000	ND<0.0056	ND	
B4-14	12/29/14	14	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.048	ND<0.2000	ND<0.0056	ND	
B5-14	12/29/14	14	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.048	ND<0.2000	ND<0.0056	ND	
B6-15	12/29/14	15	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	0.27	0.0015	ND<0.0056	ND	
B7-17	12/30/14	17	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.048	ND<0.2000	ND<0.0056	ND	
B8-10	12/30/14	10	0.0069	0.0012	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.048	ND<0.2000	ND<0.0056	ND	
B9-10	12/30/14	10	0.014	0.0023	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.048	ND<0.2000	ND<0.0056	ND	
B10-7	12/30/14	7	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.048	ND<0.2000	ND<0.0056	ND	
B11-10	12/30/14	10	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.048	ND<0.2000	ND<0.0056	ND	
B12-16	02/25/15	16	0.011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.048	ND<0.2000	ND<0.0056	ND	
B13-14	02/25/15	14	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.0011	ND<0.048	ND<0.2000	ND<0.0056	ND	
		CUL	0.05(A)	0.03(A)	160(B)	1600(B)	240(B)	1600(A)	2.0(A)	5.0(A)	NE	7200(B)	Varies	

Notes:
 "B_E-1-3" - Environmental Associates, 2013
 "B1-12" - Andersen Environmental, 2014 - 2015
 ND - Analyte not detected above Practical Quantitation Limit
 NE - Not Established
 PQL - Practical Quantitation Limit
 CUL - Existing CleanUp Level under MTCA Method (A) or Method (B)
 Detections in bold, detections exceeding screening criteria shaded in gray
 Y - Laboratory calibration parameters not within nominal range. See laboratory report.
 mg/kg = milligrams per kilogram

TABLES

Table 2: Volatile Organic Compounds in Groundwater
COGIC Property
 9201 South Pacific Avenue, Tacoma, Washington 98444

Sample ID	Sample Date	EPA Method 8260C (µg/l)														Acetone	All Other 8260C VOC Analytes
		Tetrachloro-ethylene (PCE)	Trichloro-ethylene (TCE)	cis-1,2-Dichloro-ethylene	trans-1,2-Dichloro-ethylene	Vinyl Chloride	1,2-Dichloro-ethane	Chloroform	Benzene	Ethyl-benzene	Total Xylenes	Isopropyl-benzene	sec-Butyl-benzene	1,2,4-Tri-methyl-benzene			
B _e 1	4/17/2013	2.4	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<10	ND	
B _e 1-dup	4/17/2013	2.3	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<10	ND	
B _e 2	4/17/2013	21	4.7	26	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<10	ND	
B _e 3	4/17/2013	44	16	32	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<10	ND	
B _e 4	4/17/2013	7	2.4	9.3	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<10	ND	
B _e 5	4/17/2013	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<10	ND	
B _e 6	4/17/2013	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<10	ND	
B1/MW1	12/29/14	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<10	ND	
B3/MW2	12/29/14	40	11	39	0.78	ND<0.2	0.33	ND<0.2	0.4	0.29	1.55	0.26	0.36	0.43	ND<5	ND	
B5	12/29/14	ND<0.2	ND	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.72	ND<0.2	ND<0.2	ND<0.2	ND<5	ND	
B6/MW3	01/23/15	ND<0.2	ND	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	1.92	ND<0.2	ND<0.2	ND<0.2	ND<5	ND	
B7	12/30/14	16	3.3	6.9	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.04	ND<0.2	ND<0.2	ND<0.2	ND<5	ND	
B9	12/30/14	5.6	0.96	0.67	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.2	0.42	1.45	ND<0.2	ND<0.2	ND<0.2	ND<5	ND	
B12	02/25/15	25	5.5	17	0.21	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.04	ND<0.2	ND<0.2	ND<0.2	10 Y	ND	
B13/MW4	02/25/15	1.1	ND<0.2	0.21	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.04	ND<0.2	ND<0.2	ND<0.2	ND<5	ND	
Trip Blank	10/30/14	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.04	ND<0.2	ND<0.2	ND<0.2	ND<5	ND	
CUL		5	5	80	160	0.2	5	80	5	700	1000	NE	80	80	7200	Varies	

Notes:
 "BE1" - Environmental Associates, 2013
 "B1" - Andersen Environmental, 2014 - 2015
 ND - Analyte not detected above Practical Quantitation Limit
 NE - Not established
 PQL - Practical Quantitation Limit
 CUL - Existing CleanUp Level under MTCA Method A or CLARC Tables
 Detections in bold, detections exceeding screening levels shaded in gray

APPENDIX B: Subsurface Utility Maps



Wastewater Network (Tacoma)

✓ Authoritative



Private Member ⓘ

City of Tacoma GIS

Summary

Public Tacoma Wastewater Network in the City of Tacoma.

[View Full Details](#)

Details



Map

Map Service



Weekly

Date Updated: August 1, 2023



October 10, 2018

Published Date



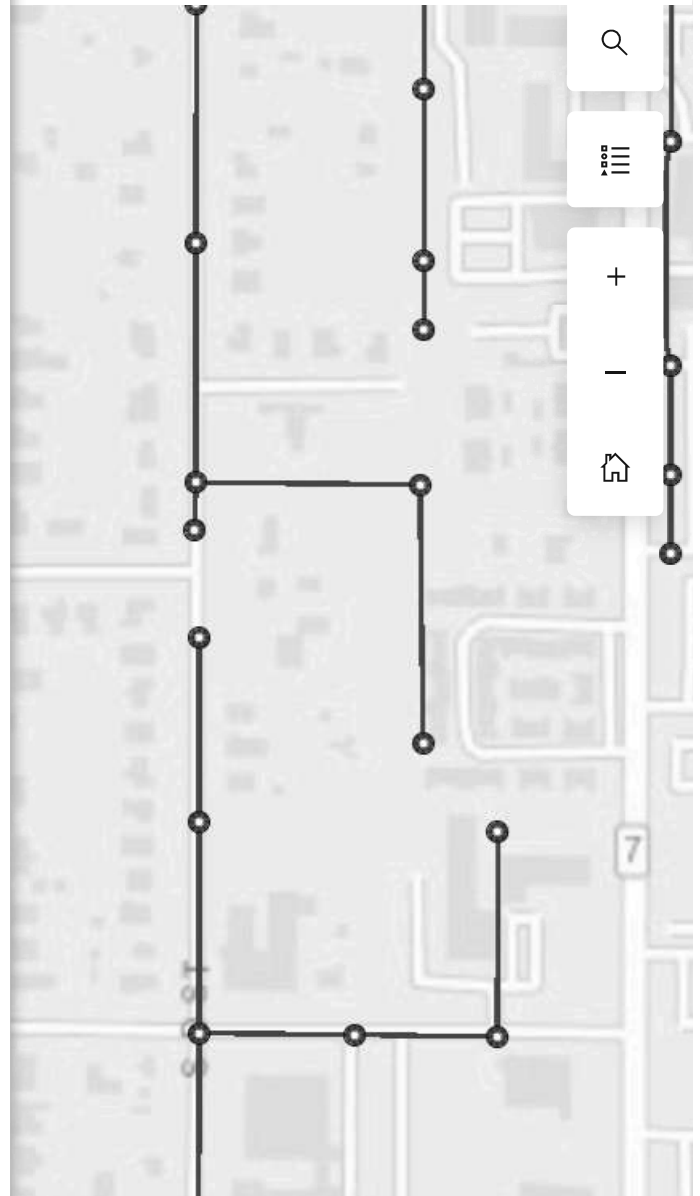
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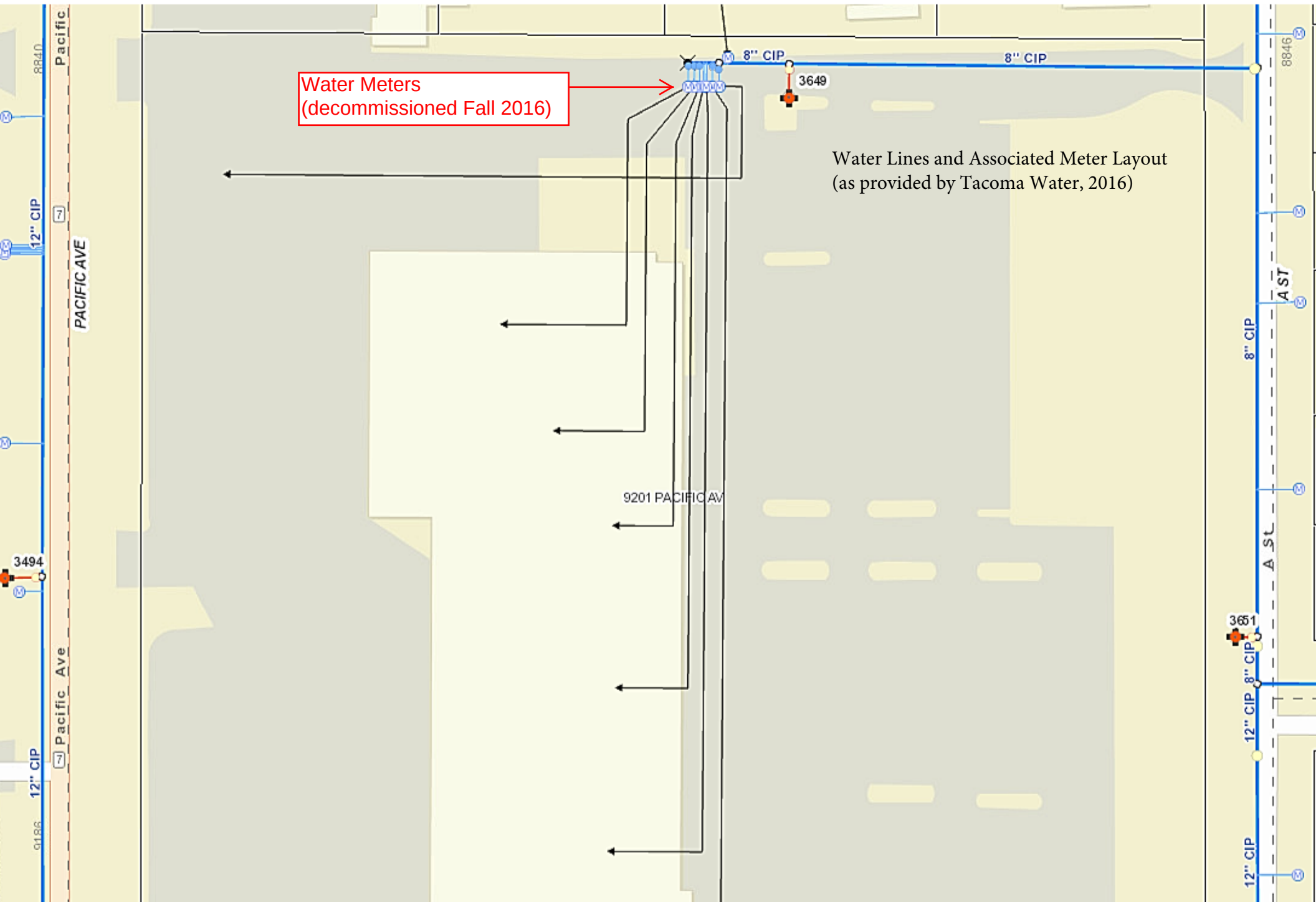
City of Tacoma, County of King, Bureau o... Powered by Esri

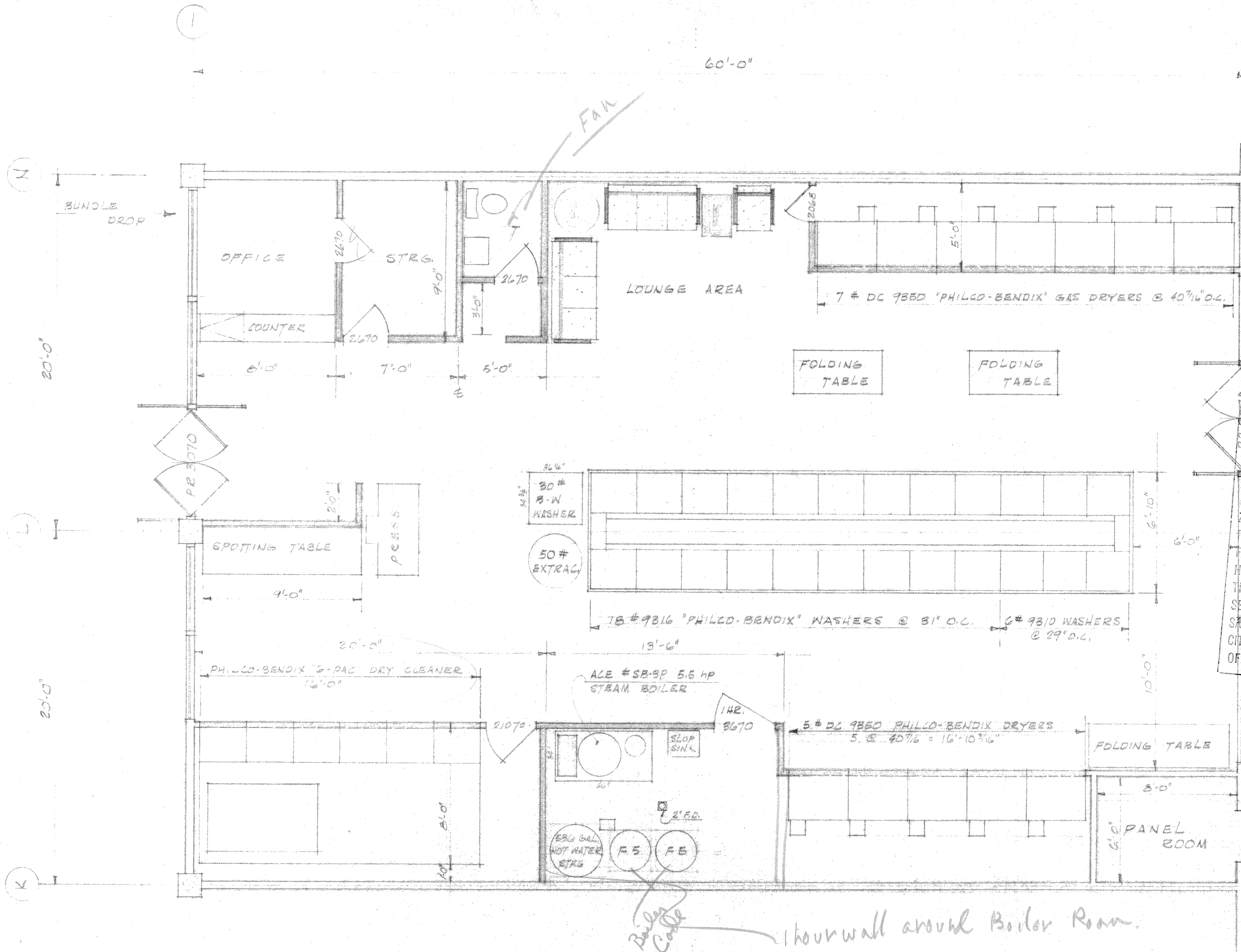


About



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Public Works Department
Division of Building Inspection
Tacoma, Wash.

PLANS APPROVED

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FURNACE CODE		
HOUSING		
TRAFFIC ENGR.		
SEWER ENGR.		
SANITARY ENGR.		
CITY ENGR.		
OFFICE		

EQUIPMENT INSTALLATION FLOOR PLAN - SCALE 1/4" = 1'-0"

COIN-OP LAUNDRY & DRY CLEANING SHOP
FOR MESSRS ALTON & ALFRED NELSON
9201 PACIFIC AVE., TACOMA, WASH.

EQUIPMENT INSTALLATION PLAN

REGISTERED ARCHITECT
SETH W. YERRINGTON
STATE OF WASHINGTON

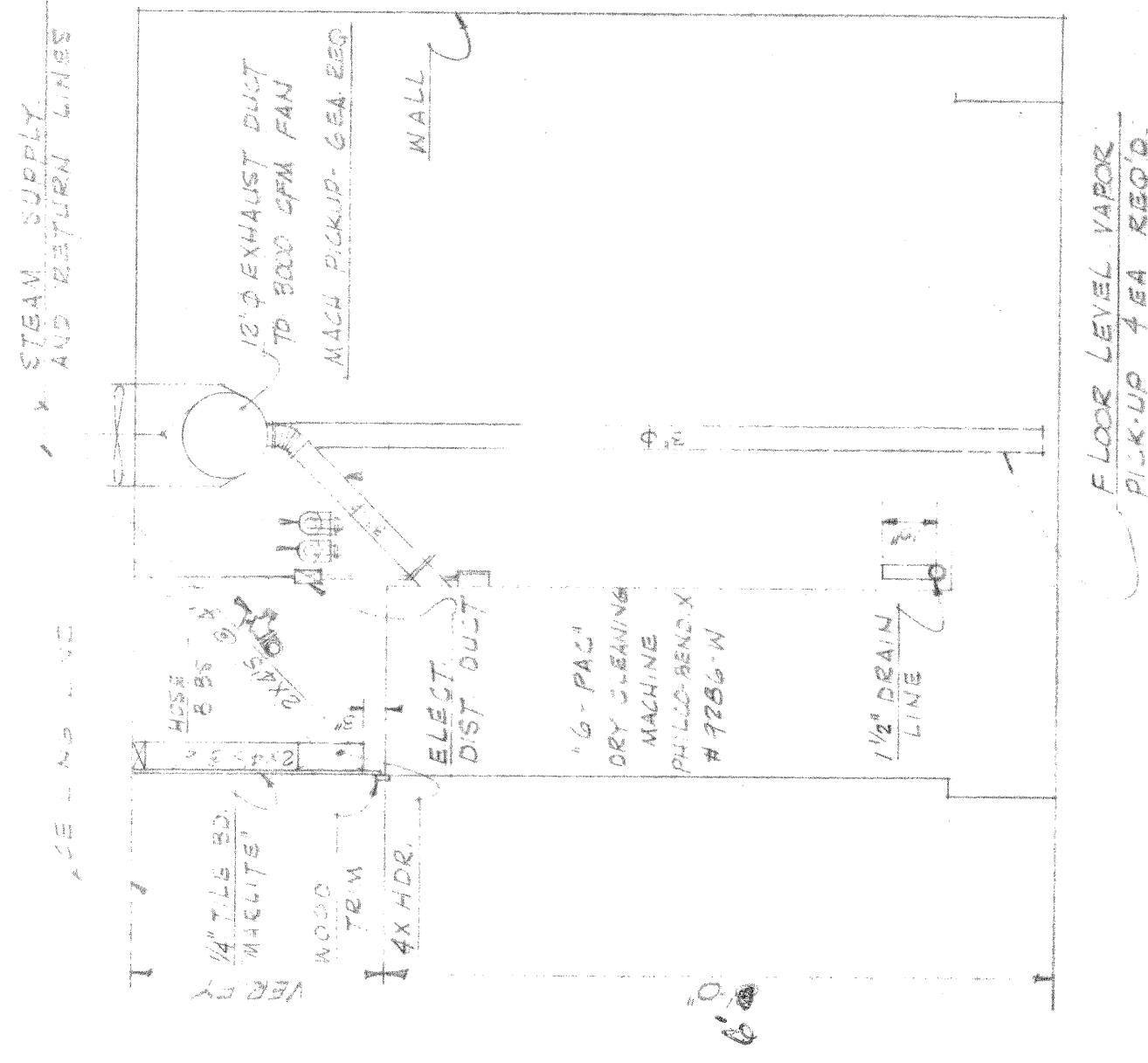
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ARCHITECT

11311 - 31 ST AVENUE N.E.
SEATTLE, WASH. - 98125
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SECTION THRU "G-PAC" DRY CLEANING MACHINE

