STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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April 5, 2016

Ms. Linda Anderson
P.O. Box 821669
Vancouver, WA 98682-0038

Re: Opinion on Proposed Cleanup of the following Site:

- **Site Name:** Grace's Cleaners
- **Site Address:** 717 W Main St, Battle Ground, Clark County, WA 98604
- **Cleanup Site ID:** 578
- **Facility/Site No.:** 86416754
- **VCP Project No.:** SW0597

Dear Ms. Anderson:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your proposed cleanup of the Grace's Cleaners 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

Upon completion of the proposed cleanup, will further remedial action likely be necessary to clean up contamination at the Site?

No. Ecology has determined that, upon completion of your proposed investigation, no further remedial action will likely be 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 release:

- Chlorinated Hydrocarbons into the Soil, Groundwater, and Air.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

Basis for the Opinion

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

1. Draft Cleanup Action Work Plan, Former Grace's Plaza Cleaners Site, 717 West Main Street, Battle Ground, WA, dated July 7, 2015 by Farallon Consulting, LLC. (Farallon).

This document is 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 these documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that, upon completion of your proposed cleanup, **no 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 sufficient to establish cleanup standards and select a cleanup action. The Site as presently known is described below.

The Site is located at 717 West Main Street in Battle Ground, Clark County, Washington. The Site is part of Battle Ground Plaza, a shopping complex that consists of strip mall-type buildings. The building that housed the former Grace's Plaza Cleaners tenant space includes tenant spaces that currently are unoccupied. A Site location map and Site layout map are included as Figures 1 and 2 in the Enclosures.
In January 2001, Surveys, Inc. completed a Phase I Environmental Site Assessment of the Battle Ground Plaza that identified the Site as an area of potential environmental concern. Surveys, Inc. subsequently conducted a Limited Scope Phase II Subsurface Investigation in May 2001 that included completion of four direct-push drilling borings

to depths ranging from 6 to 10 feet below ground surface (bgs). Tetrachloroethylene (PCE) and/or its degradation products were detected in two of the four boreholes.

In October 2001, 3 Kings Environmental Inc. (3 Kings) completed seven direct-push borings inside the dry cleaner facility. Concentrations of PCE were present above Method A Cleanup Levels at the base of the borings at 6 to 8 ft bgs. In March 2002, 3 Kings started soil remediation activities that consisted of excavating the soil beneath Grace's Plaza Cleaners and the adjacent liquor store. 3 Kings considered the remediation complete and requested a No Further Action (NFA) determination from Ecology. Ecology issued a NFA for the Site on April 11, 2002.

GeoEngineers conducted two investigations at the Site. The first was performed in August 2002 to confirm the effectiveness of the cleanup activities conducted by 3 Kings. The second was performed in March 2003 to further investigate the limits of contamination. GeoEngineers' first investigation concluded that chlorinated hydrocarbon contamination still remained in the soil and additional investigation was required. GeoEngineers' second investigation included drilling additional direct-push borings. Concentrations above Method A Cleanup Levels were reported from the boreholes drilled inside the building.

On July 16 and July 23, 2004, Farallon Consulting LLC, (Farallon) drilled three borings completed as monitoring wells MW-1 through MW-3. No measurable groundwater was present in the wells.

As a response to the Ecology opinion letter, dated January 7, 2005, and Ecology's response to comments, dated March 24, 2005, Farallon conducted additional investigations on May 15 and 20, 2005 and, again, between August and October 2005. Farallon installed three deep monitoring wells (MW-lD, MW-2D, and MW-3D), each to a depth of 86 to 87.5 feet bgs. The monitoring wells were screened across the first consistent water-bearing zone which was located from approximately 72.5 feet to 87.5 feet bgs. As part of the investigation, the borehole for monitoring well MW-lD was advanced to a total depth of 105 feet bgs to assess the thickness of a dry soil layer that could be considered an aquiclude or aquitard. Groundwater was encountered in MW-lD at depths of 72.5 feet and 102ft bgs. Groundwater was encountered in MW-2D and MW-3D at 72.5 feet bgs.

No chlorinated hydrocarbons were detected in the samples from MW-lD. PCE was detected in soil samples collected from depths of 20 to 25 feet bgs and 50 to 55feet bgs in MW-2D. No PCE or degradation products were detected in samples from MW-3D.

Between August and October of 2005, the vertical distribution of PCE and its natural degradation products were assessed by drilling a continuous multichannel tubing (CMT) monitoring well into the deep water-bearing zone(s), located between 100 and 139 feet bgs. The first CMT channel was constructed with a well screen set at a depth of 103 to 106 feet bgs. The second channel was screened from 131 to 134 feet bgs. The third channel was screened at the base of the water-bearing zone, at an approximate depth of 137 to 139 feet bgs.

In October 2005, Farallon conducted a groundwater monitoring and sampling event at monitoring wells MW-1D through MW-3D, and the CMT well MPW-2. Groundwater samples were submitted for analysis of volatile organic compounds (VOCs). The groundwater sampling results for the October 2005 sampling event indicated that neither PCE nor its degradation products were detected in groundwater samples collected from monitoring wells MW-ID through MW-3D or the three sampling channels of CMT well MPW-2.

In March and April of 2006, GeoEngineers conducted further soil characterization adjacent to Grace's Dry Cleaner facility. Nine additional direct push boreholes (GP-14 through GP-22) were advanced to maximum depth before refusal (approximately 9 to 13 feet bgs). Also in March of 2006, GeoEngineers performed a preliminary screening of indoor air quality at several locations in the building that was occupied by the former Grace's Plaza Cleaners business. The indoor air evaluation also included collection of indoor air in a vacant tenant space in the building north of the former Grace's Cleaners business area. The samples collected were submitted for analysis of volatile organic compounds (VOCs) by EPA Method T0-15.

In November 2006, GeoEngineers installed monitoring well MW-5D at a location approximately25 feet downgradient of the residual source area. Drilling was completed to a total depth of approximately 88 feet bgs. Fourteen soil samples were submitted for analysis of VOCs. The analytical results indicated that only one soil sample, collected at a depth of 20 feet bgs, contained a concentration of PCE above the MTCA Method A Cleanup Level. The well screen was installed to intersect the water-bearing zone encountered between approximately 72 and 87 feet bgs.

In 2007, Farallon prepared a Cleanup Action Plan (CAP) that included excavation and off-site disposal for the soil in the area with the highest concentrations of PCE, and application of soil vapor extraction (SVE) to treat the residual PCE. Ecology approved this CAP and Site work began in early 2008. A total of 248 tons of soil with the highest PCE concentrations was excavated and transported off-Site between May and June 2008.

The SVE system was installed and began operation in July 2008.

Performance sampling to determine the effectiveness of the CAP occurred in April 2009, June 2009, December 2012, February 2015, and March 2015. A groundwater sampling event took place in December 2012, and the indoor air was been tested in March 2013.

Results from the performance sampling events indicate that concentrations of PCE are decreasing with the exception of the soil samples collected from borings in the northeastern portion of the Site. Between 2012 and 2015, 18 of the 125 soil samples collected exceeded the MTCA Method A Cleanup Level. Soil analytical results from the most recent round of performance soil sampling are shown on Table 1 and Figure 1 both included in the Enclosures. Groundwater samples collected during the 2012 sampling event indicate that no constituents of concern were detected exceeding their laboratory reporting limits. These results are shown on Exhibit I included in the Enclosures.

Farallon shut down the SVE system in March 2013 to conduct sub-slab soil gas and indoor air sampling to evaluate the level of PCE within the building. PCE and TCE were both detected at less than the calculated commercial exposure (and residential exposure) at all air sample locations. PCE was detected at concentrations less than the commercial screening level for sub-slab soil gas at all locations. TCE was detected at concentrations less than commercial screening level for sub-slab soil gas at all locations with the exception of one sample located in the former liquor store tenant space. Corresponding air space concentrations for TCE in the former liquor store tenant space were all less than residential exposure levels. The air sample results are shown on Exhibit J included in the Enclosures.

The results of the performance sampling events indicated the need for additional cleanup. Farallon prepared a draft Cleanup Action Work Plan in July 2015. The work plan evaluated three technologies for use at the Site. These included additional soil excavation, continued SVE, and in-situ chemical oxidation (ISCO). These three technologies were previously evaluated during the feasibility study conducted in 2007 and were considered to be viable for the Site.

The work plan proposed to excavate the PCE impacted soils in the southwestern corner outside the former Grace's cleaner tenant space. The proposed plan included shoring the building and using slot-trenching to allow the impacted soils to be excavated without damage to the existing building. The excavation would extend to approximately 15 feet bgs and confirmation soil samples would be collected following the excavation to ensure that the concentrations of PCE are less than the MTCA Method A Cleanup Level. It was estimated that approximately 150 to 200 cubic yards of soil will be excavated. The anticipated extent of excavation is shown on Figure 10 included in the Enclosures.

The work plan also proposed the use of ISCO (a 1 to 2 percent concentration potassium permanganate solution) in the northeastern portion of the Site to address impacted soils in those areas. The proposed locations for these injections are also shown on Figure 10 in the Enclosures.

Farallon also proposed to decommission the SVE system and groundwater wells on the Site following receipt of a NFA from Ecology.

2. Establishment of cleanup standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site meet the substantive requirements of MTCA.

a. Cleanup levels.

The MTCA Method A Cleanup Levels for soil, groundwater, and air for unrestricted land uses are being used to characterize the Site.

b. Points of compliance.

Standard points of compliance are being used for the Site.

The Points of Compliance are:

Soil -Direct Contact: For soil cleanup levels based on human exposure via direct contact, the point of compliance is: "*...throughout the Site from ground surface to 15 feet below the ground surface.*"

Groundwater: For groundwater, the standard point of compliance as established under WAC 173-340-720(8) is: "*...throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the site.*"

Soil - Vapor: For Soil - Vapor, the standard point of compliance is: "*...ambient air throughout the Site.*"

3. Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site does not meet the substantive requirements of MTCA because confirmational soil and groundwater samples have not demonstrated the Site meets all cleanup levels.

Soil excavation and SVE have been used at the Site. Farallon is proposing to remove the remaining impacted soils along the eastern edge of the building, inject a 1 to 2 percent concentration potassium permanganate solution in this area as well as other areas on the Site where impacted soils remain, and collect confirmation sampling to verify the

effectiveness of these remedial actions. **Ecology concurs that these remedial technologies are appropriate for the Site**; however, final confirmational soil samples and continued groundwater monitoring is needed to achieve final closure.

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

1. Ecology concurs with the proposal for excavation of PCS and the use of ISCO injection in the other impacted areas on the Site.

2. When collecting confirmation soil samples, in general, Ecology expects that the areas where previous detections above MTCA are located require investigation to ensure they are below MTCA before moving forward.

3. When collecting confirmation soil samples, it is imperative that there be no residual ISCO solution present within the confirmation soil sample. This is particularly important when collecting the soil confirmation sample from the walls of the proposed excavation if the ISCO flooding procedure is used.

4. Ecology agrees that the SVE system has reached its maximum potential and agrees that the system can be decommissioned.

5. Following the completion of the proposed remedial actions, Ecology recommends that a round of groundwater samples, from all wells on the Site, be collected to ensure that the recent remedial activities have not impacted the groundwater at the Site.

6. In accordance with WAC 173-340-7490, a Terrestrial Ecological Evaluation (TEE) needs to be completed for the Site. Please fill out the TEE form and submit it to Ecology (along with supporting information, as appropriate). The form can be found on our website at http://www.ecy.wa.gov/biblio/ecy090300.html.

7. 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.** Be advised that Ecology requires up to two weeks to process the data once it is received.

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.

3. Opinion is limited to proposed cleanup.

This letter does not provide an opinion on whether further remedial action will actually be necessary at the Site upon completion of your proposed cleanup. To obtain such an opinion, you must submit a report to Ecology upon completion of your cleanup and request an opinion under the VCP.

4. 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 your Property under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may resubmit your proposal for our review. 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) 407-7263 or e-mail at Thomas.Middleton@ecy.wa.gov.

Sincerely,

Thomas Middleton L.HG.
SWRO Toxics Cleanup Program

TMM: anf

Enclosures:
A – Site Description
Figure 1 – Site Location Map
Figure 2 – Site Plan
Table 1 – Summary of Soil Analytical Results (2015)
Exhibit I – Groundwater Results (2012)
Exhibit J – Vapor Sampling Results (2013)
Figure 10 – Proposed Excavation and ISCO Injection Points

By certified mail [9171999991703627959545]

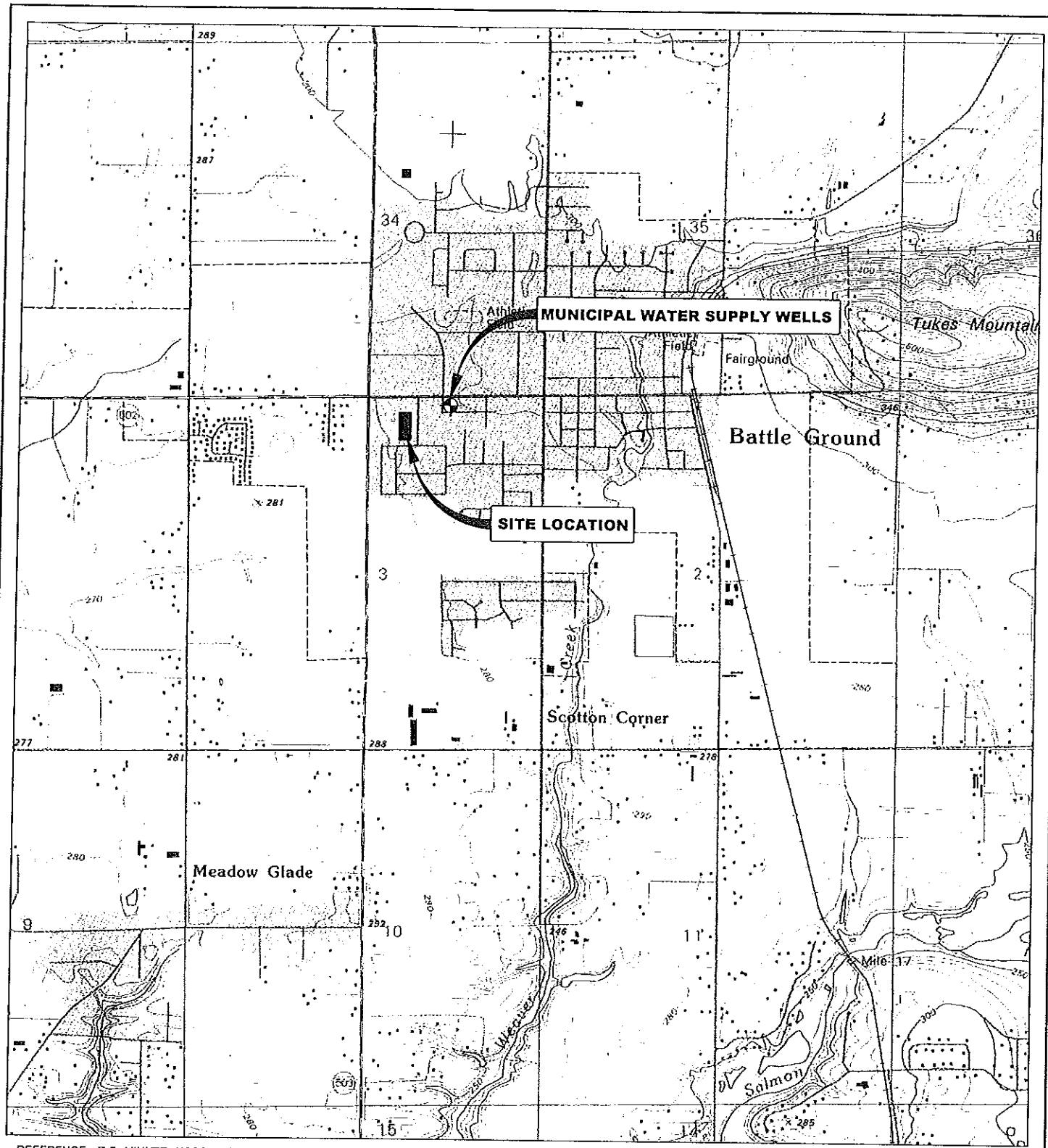
cc: Mr. Jeff Kaspar, Farallon Consulting, Inc.
Bryan DeDoncker, Clark County Health
Nicholas Acklam, Ecology
Matthew Alexander, Ecology

Enclosure A

Site Description

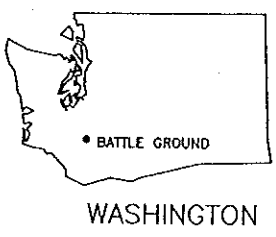
The Site is located at 717 West Main Street in Battle Ground, Clark County, Washington. The Site is part of Battle Ground Plaza, a shopping complex that consists of strip mall-type buildings. The building that housed the former Grace's Plaza Cleaners tenant space includes tenant spaces that currently are unoccupied.

The geology of Battle Ground consists of catastrophic flood deposits derived from the late Pleistocene floods in the Columbia River valley from glacial Lake Missoula and the scablands of Eastern Washington. The flood deposits consist of sand, silt, gravel, and various size rocks up to boulder size material. The alluvial deposits may be as thick as 75 feet in the Battle Ground area. Underlying the flood deposits is the alluvial-fan member of the Troutdale Formation that was derived from Pleistocene glacial outwash as plains of gravel that can be up to 100 feet thick. The City of Battle Ground has two municipal wells (Well No. 1 and Well No. 2) that are located at the intersection of 5th Avenue and Southwest 1st Street, approximately 700 feet northeast of the Site. Both of these wells were installed in 1954 and remain active. The wells were drilled to depths of 144 to 152 feet bgs and are screened from approximately 94 feet to as deep as 144 feet bgs. Boring logs for these two wells indicate that soil types that are consistent with catastrophic flood deposits are present near the Site to a depth of 67 feet bgs. Soil consistent with the alluvial-fan member of the Troutdale Formation was observed in the borings from 67 feet bgs to the total depth of approximately 152 feet bgs. Municipal Wells No. 1 and No.2 are completed in the alluvial-fan member of the Troutdale Formation. Groundwater at the Site is present from approximately72 to 87 feet bgs in the shallowest zone and between 102 and 139 feet bgs in the deep aquifer.



REFERENCE: 7.5 MINUTE USGS QUADRANGLE BATTLE GROUND, WASHINGTON, DATED 1953 AND PHOTOREVISED 1981

DRAFT



FARALLON CONSULTING

Washington
Issaquah | Bellingham | Seattle

Oregon
Portland | Bend

California
Oakland | Sacramento | Irvine

Quality Service for Environmental Solutions | farallonconsulting.com

FIGURE 1

SITE VICINITY MAP
FORMER GRACE'S PLAZA CLEANERS
BATTLE GROUND, WASHINGTON

FARALLON PN: 1201-001

Drawn By: DJR Checked By: JK Date: 6/3/2015 Disk Reference: 355-001

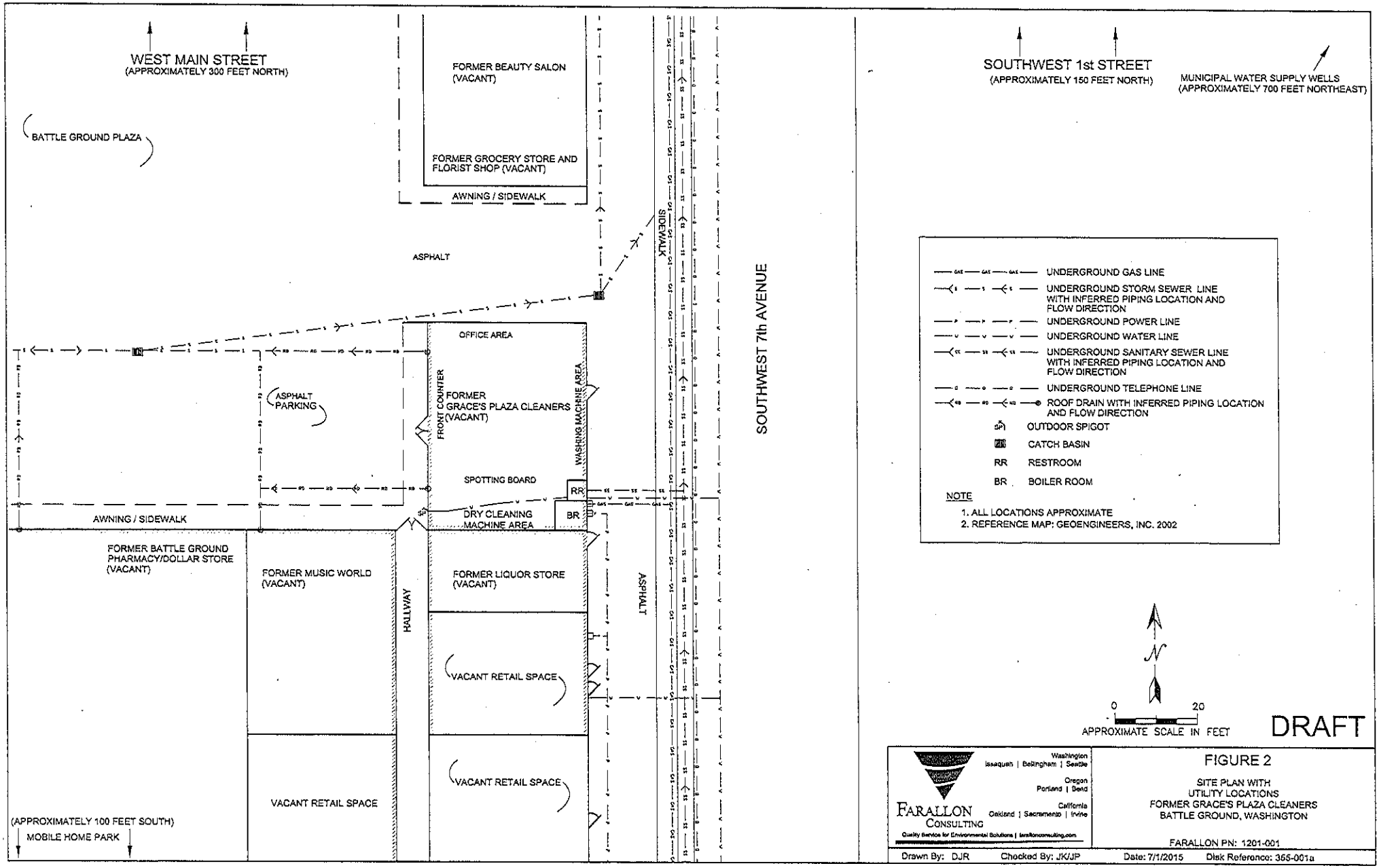

WEST MAIN STREET
(APPROXIMATELY 300 FEET NORTH)
SOUTHWEST 1st STREET
(APPROXIMATELY 150 FEET NORTH)
MUNICIPAL WATER SUPPLY WELLS
(APPROXIMATELY 700 FEET NORTHEAST)
BATTLE GROUND PLAZA
FORMER BEAUTY SALON
(VACANT)
FORMER GROCERY STORE AND
FLORIST SHOP (VACANT)
AWNING / SIDEWALK
SIDEWALK
ASPHALT
SOUTHWEST 7th AVENUE
OFFICE AREA
FRONT COUNTER
WASHING MACHINE AREA
ASPHALT
PARKING
FORMER
GRACE'S PLAZA CLEANERS
(VACANT)
SPOTTING BOARD
RR
BR
AWNING / SIDEWALK
DRY CLEANING
MACHINE AREA
FORMER BATTLE GROUND
PHARMACY/DOLLAR STORE
(VACANT)
FORMER MUSIC WORLD
(VACANT)
HALLWAY
FORMER LIQUOR STORE
(VACANT)
ASPHALT
VACANT RETAIL SPACE
VACANT RETAIL SPACE
VACANT RETAIL SPACE
(APPROXIMATELY 100 FEET SOUTH)
MOBILE HOME PARK
UNDERGROUND GAS LINE
UNDERGROUND STORM SEWER LINE
WITH INFERRED PIPING LOCATION AND
FLOW DIRECTION
UNDERGROUND POWER LINE
UNDERGROUND WATER LINE
UNDERGROUND SANITARY SEWER LINE
WITH INFERRED PIPING LOCATION AND
FLOW DIRECTION
UNDERGROUND TELEPHONE LINE
ROOF DRAIN WITH INFERRED PIPING LOCATION
AND FLOW DIRECTION
OUTDOOR SPIGOT
CATCH BASIN
RESTROOM
BOILER ROOM
NOTE
1. ALL LOCATIONS APPROXIMATE
2. REFERENCE MAP: GEOENGINEERS, INC. 2002
N
0
20
APPROXIMATE SCALE IN FEET
DRAFT
FARALLON CONSULTING
Quality Service for Environmental Solutions | farallonconsulting.com
Washington
Issaquah | Bellingham | Seattle
Oregon
Portland | Bend
California
Oakland | Sacramento | Irvine
FIGURE 2
SITE PLAN WITH
UTILITY LOCATIONS
FORMER GRACE'S PLAZA CLEANERS
BATTLE GROUND, WASHINGTON
FARALLON PN: 1201-001
Drawn By: DJR
Checked By: JK/JP
Date: 7/1/2015
Disk Reference: 365-001a

Table 1
Soil Analytical Results for HVOCs
Graces Plaza Cleaners
Battle Ground, WA
Farallon PN: 1201-001

Sample Location	Sample Identification	Sample Depth (feet)[1]	Date	Analytical Results (milligrams per kilogram)[2]				
				PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
PB-1	PB1-5.5	**5.5**	02/16/2015	**0.156**	< 0.0100	< 0.0100	< 0.0100	< 0.0100
	PB1-9.0	**9.0**	02/16/2015	**0.0678**	< 0.00902	< 0.00902	< 0.00902	< 0.00902
	PB1-21.0	21.0	02/16/2015	< 0.0113	< 0.0113	< 0.0113	< 0.0113	< 0.0113
	PB1-31.0	31.0	02/16/2015	< 0.0114	< 0.0114	< 0.0114	< 0.0114	< 0.0114
PB-2	PB2-8.5	**8.5**	02/16/2015	**0.18**	< 0.0116	< 0.0116	< 0.0116	< 0.0116
	PB2-10.5	**10.5**	02/16/2015	**0.142**	< 0.0123	< 0.0123	< 0.0123	< 0.0123
	PB2-18.0	18.0	02/18/2015	< 0.0128	< 0.0128	< 0.0128	< 0.0128	< 0.0128
	PB2-23.0	23.0	02/18/2015	< 0.0112	< 0.0112	< 0.0112	< 0.0112	< 0.0112
	PB2-27.5	27.5	02/18/2015	< 0.0114	< 0.0114	< 0.0114	< 0.0114	< 0.0114
	PB2-31.0	31.0	02/18/2015	< 0.0113	< 0.0113	< 0.0113	< 0.0113	< 0.0113
PB-3	PB3-8.3	**8.3**	02/18/2015	**0.0513**	< 0.0136	< 0.0136	< 0.0136	< 0.0136
	PB3-10.2	10.2	02/18/2015	< 0.0112	< 0.0112	< 0.0112	< 0.0112	< 0.0112
	PB3-19.0	19.0	02/18/2015	< 0.0115	< 0.0115	< 0.0115	< 0.0115	< 0.0115
	PB3-25.0	25.0	02/18/2015	< 0.0115	< 0.0115	< 0.0115	< 0.0115	< 0.0115
	PB3-29.5	29.5	02/18/2015	< 0.0131	< 0.0131	< 0.0131	< 0.0131	< 0.0131
	PB3-35.0	35.0	02/19/2015	< 0.0114	< 0.0114	< 0.0114	< 0.0114	< 0.0114
PB-4	PB4-11.0	**11.0**	02/19/2015	**0.0514**	< 0.0127	< 0.0127	< 0.0127	< 0.0127
	PB4-15.0	15.0	02/19/2015	< 0.0120	< 0.0120	< 0.0120	< 0.0120	< 0.0120
	PB4-22.0	22.0	02/19/2015	< 0.0129	< 0.0129	< 0.0129	< 0.0129	< 0.0129
	PB4-28.0	28.0	02/19/2015	< 0.0121	< 0.0121	< 0.0121	< 0.0121	< 0.0121
	PB4-37.5	37.5	02/19/2015	< 0.0108	< 0.0108	< 0.0108	< 0.0108	< 0.0108
PB-5	PB5-5.0	5.0	02/20/2015	0.0251	< 0.0103	0.0222	< 0.0103	< 0.0103
	PB5-9.0	9.0	02/20/2015	< 0.0127	< 0.0127	< 0.0127	< 0.0127	< 0.0127
PB-6	PB6-10.0	10.0	02/23/2015	< 0.0210	< 0.0210	< 0.0210	< 0.0210	< 0.0210
	PB6-14.0	14.0	02/23/2015	< 0.0265	< 0.0265	< 0.0265	< 0.0265	< 0.0265
	PB6-16.0	16.0	02/23/2015	< 0.0196	< 0.0196	< 0.0196	< 0.0196	< 0.0196
PB-7	PB7-5.0	5.0	02/23/2015	< 0.0175	< 0.0175	< 0.0175	< 0.0175	< 0.0175
	PB7-9.5	9.5	02/23/2015	< 0.0208	< 0.0208	< 0.0208	< 0.0208	< 0.0208
	PB7-12.3	12.3	02/23/2015	< 0.0247	< 0.0247	< 0.0247	< 0.0247	< 0.0247
PB-8	PB8-8	8.0	03/05/2015	0.0238	< 0.0181	< 0.0181	< 0.0181	< 0.0181
	PB8-13	13.0	03/05/2015	0.0305	< 0.0282	< 0.0282	< 0.0282	< 0.0282
	PB8-23	23.0	03/05/2015	< 0.0213	< 0.0213	< 0.0213	< 0.0213	< 0.0213
	PB8-33	33.0	03/05/2015	< 0.0170	< 0.0170	< 0.0170	< 0.0170	< 0.0170
PB-9	PB9-3	3.0	03/05/2015	< 0.0173	< 0.0173	< 0.0173	< 0.0173	< 0.0173
	PB9-7	7.0	03/05/2015	< 0.0191	< 0.0191	< 0.0191	< 0.0191	< 0.0381
	PB9-14	14.0	03/05/2015	0.0380	< 0.0257	< 0.0257	< 0.0257	< 0.0257
	PB9-23	**23.0**	03/05/2015	**0.0739**	< 0.0212	< 0.0212	< 0.0212	< 0.0212
	PB9-29	29.0	03/05/2015	< 0.0193	< 0.0193	< 0.0193	< 0.0193	< 0.0193
PB-10	PB10-4.5	4.5	03/05/2015	< 0.0167	< 0.0167	< 0.0167	< 0.0167	< 0.0167
	PB10-13	13.0	03/05/2015	< 0.0220	< 0.0220	< 0.0220	< 0.0220	< 0.0220
	PB10-23	**23.0**	03/05/2015	**0.214**	< 0.0222	< 0.0222	< 0.0222	< 0.0222
	PB10-30	30.0	03/05/2015	< 0.0175	< 0.0175	< 0.0175	< 0.0175	< 0.0175
PB-11	PB11-14	14.0	03/05/2015	< 0.0232	< 0.0232	< 0.0232	< 0.0232	< 0.0232
	PB11-23	23.0	03/05/2015	< 0.0255	< 0.0255	< 0.0255	< 0.0255	< 0.0255
PB-12	PB12-5.5	5.5	03/23/2015	< 0.0169	< 0.0169	< 0.0169	< 0.0169	< 0.0339
	PB12-10	10.0	03/23/2015	< 0.0214	< 0.0214	< 0.0214	< 0.0214	< 0.0429
	PB12-12	12.0	03/23/2015	< 0.0186	< 0.0186	< 0.0186	< 0.0186	< 0.0373
	PB12-15	15.0	03/23/2015	< 0.0211	< 0.0211	< 0.0211	< 0.0211	< 0.0422
	PB12-20	20.0	03/23/2015	< 0.0193	< 0.0193	< 0.0193	< 0.0193	< 0.0386
	PB12-27	27.0	03/23/2015	< 0.0181	< 0.0181	< 0.0181	< 0.0181	< 0.0363
	PB12-33.5	33.5	03/23/2015	< 0.0134	< 0.0134	< 0.0134	< 0.0134	< 0.0268
PB-13	PB13-12	12.0	03/24/2015	< 0.0228	< 0.0228	< 0.0228	< 0.0228	< 0.0457
PB-14	PB14-6	6.0	03/24/2015	< 0.0158	< 0.0158	< 0.0158	< 0.0158	< 0.0315
	PB14-9	9.0	03/24/2015	< 0.0180	< 0.0180	< 0.0180	< 0.0180	< 0.0360
	PB14-15	15.0	03/24/2015	< 0.0220	< 0.0220	< 0.0220	< 0.0220	< 0.0440
	PB14-19	19.0	03/24/2015	< 0.0199	< 0.0199	< 0.0199	< 0.0199	< 0.0398
PB-15	PB15-5	5.0	03/25/2015	0.0142	< 0.0142	< 0.0142	< 0.0142	< 0.0284
	PB15-10	10.0	03/25/2015	< 0.0184	< 0.0184	< 0.0184	< 0.0184	< 0.0369
	PB15-16	16.0	03/25/2015	< 0.0209	< 0.0209	< 0.0209	< 0.0209	< 0.0418
	PB15-22	22.0	03/25/2015	< 0.0182	< 0.0182	< 0.0182	< 0.0182	< 0.0363
	PB15-31	31.0	03/25/2015	< 0.0147	< 0.0147	< 0.0147	< 0.0147	< 0.0294
PB-16	PB16-17	17.0	03/25/2015	< 0.0213	< 0.0213	< 0.0213	< 0.0213	< 0.0426
PB-17	PB17-5	5.0	03/26/2015	< 0.0155	< 0.0155	< 0.0155	< 0.0155	< 0.0155
	PB17-10	10.0	03/26/2015	< 0.0160	< 0.0160	< 0.0160	< 0.0160	< 0.0160
	PB17-15	15.0	03/26/2015	< 0.0225	< 0.0225	< 0.0225	< 0.0225	< 0.0225
	PB17-21	21.0	03/26/2015	< 0.0233	< 0.0233	< 0.0233	< 0.0233	< 0.0233
	PB17-26	26.0	03/26/2015	< 0.0216	< 0.0216	< 0.0216	< 0.0216	< 0.0216
	PB17-31	31.0	03/26/2015	< 0.0170	< 0.0170	< 0.0170	< 0.0170	< 0.0340
	PB17-37	37.0	03/26/2015	< 0.0163	< 0.0163	< 0.0163	< 0.0163	< 0.0326
	PB17-41	41.0	03/26/2015	< 0.0201	< 0.0201	< 0.0201	< 0.0201	< 0.0401
	PB17-51	51.0	03/26/2015	< 0.0158	< 0.0158	< 0.0158	< 0.0158	< 0.0316
	PB17-61	61.0	03/26/2015	< 0.0158	< 0.0158	< 0.0158	< 0.0158	< 0.0316
PB-18	Not sampled due to rock encountered at 13.5 feet below the ground surface at interface with controlled density fill.							
PB-19	PB19-5	**5.0**	03/27/2015	**0.0668**	< 0.0143	< 0.0143	< 0.0143	< 0.0286
	PB19-10	10.0	03/27/2015	0.0411	< 0.0177	< 0.0177	< 0.0177	< 0.0355
PB-20	PB20-5	**5.0**	03/30/2015	**0.35**	< 0.0178	< 0.0178	< 0.0178	< 0.0355
	PB20-10	**10.0**	03/30/2015	**3.12**	< 0.0191	< 0.0191	< 0.0191	< 0.0383
	PB20-14.5	14.5	03/30/2015	0.0348	< 0.0256	< 0.0256	< 0.0256	< 0.0511
	PB20-19	19.0	03/30/2015	0.0356	< 0.0241	< 0.0241	< 0.0241	< 0.0482
MTCA Cleanup Levels for Soil				0.05[3]	0.03[3]	160[4]	1,600[4]	0.67[4]

Notes:

Results in bold denote concentrations exceeding applicable cleanup levels.

< denotes analyte not detected at or exceeding the laboratory practical quantitation limit

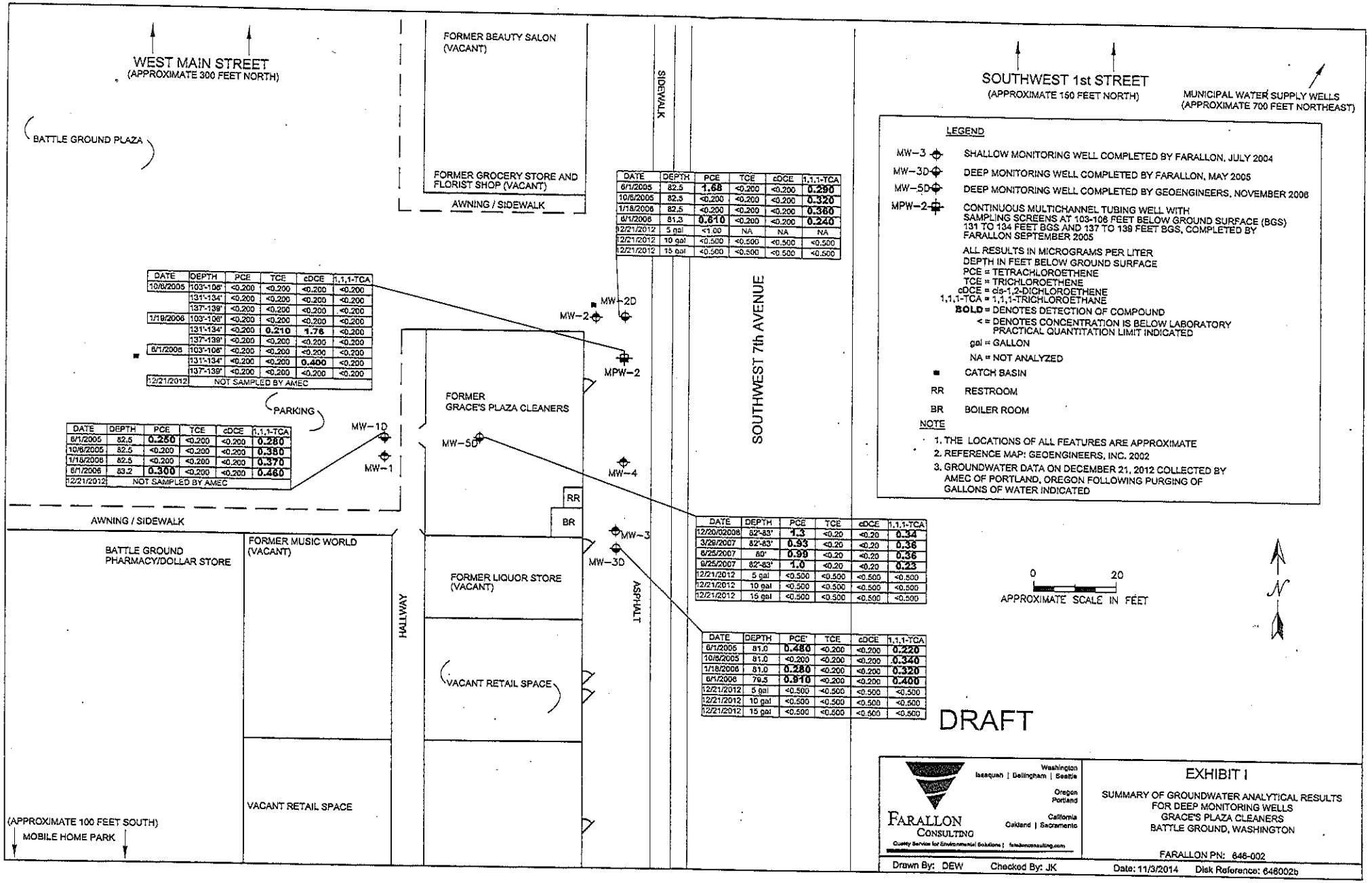
[1]Depth in feet below ground surface.

[2]Analyzed by U.S. Environmental Protection Agency Method 5035/8260B.

[3]Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A Soil Cleanup Levels for Unrestricted Land Uses, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as revised 2013.

[4]Washington State Cleanup Levels and Risk Calculations under the Washington State Model Toxics Control Act Cleanup Regulation, Standard Method B Formula Values for Soil (Unrestricted Land Use) - Direct Contact (Ingestion Only) and Leaching Pathway, https://fortress.wa.gov/ecy/clarc/Reporting/ChemicalQuery.aspx

DCE = dichloroethene
HVOCs = halogenated volatile organic compounds
PCE = tetrachloroethene
TCE = Trichloroethene



DATE	DEPTH	PCE	TCE	cDCE	1,1,1-TCA
6/1/2005	82.5	**1.68**	<0.200	<0.200	**0.290**
10/6/2005	82.5	<0.200	<0.200	<0.200	**0.320**
1/18/2006	82.5	<0.200	<0.200	<0.200	**0.360**
6/1/2006	81.3	**0.610**	<0.200	<0.200	**0.240**
12/21/2012	5 gal	<1.00	NA	NA	NA
12/21/2012	10 gal	<0.500	<0.500	<0.500	<0.500
12/21/2012	15 gal	<0.500	<0.500	<0.500	<0.500

DATE	DEPTH	PCE	TCE	cDCE	1,1,1-TCA
10/6/2005	103'-106'	<0.200	<0.200	<0.200	<0.200
	131'-134'	<0.200	<0.200	<0.200	<0.200
	137'-139'	<0.200	<0.200	<0.200	<0.200
1/18/2006	103'-106'	<0.200	<0.200	<0.200	<0.200
	131'-134'	<0.200	**0.210**	**1.76**	<0.200
	137'-139'	<0.200	<0.200	<0.200	<0.200
6/1/2006	103'-106'	<0.200	<0.200	<0.200	<0.200
	131'-134'	<0.200	<0.200	**0.400**	<0.200
	137'-139'	<0.200	<0.200	<0.200	<0.200
12/21/2012	NOT SAMPLED BY AMEC				

DATE	DEPTH	PCE	TCE	cDCE	1,1,1-TCA
6/1/2005	82.5	**0.250**	<0.200	<0.200	**0.260**
10/6/2005	82.5	<0.200	<0.200	<0.200	**0.380**
1/18/2006	82.5	<0.200	<0.200	<0.200	**0.370**
6/1/2006	83.2	**0.300**	<0.200	<0.200	**0.460**
12/21/2012	NOT SAMPLED BY AMEC				

DATE	DEPTH	PCE	TCE	cDCE	1,1,1-TCA
12/20/02008	82'-83'	**1.3**	<0.20	<0.20	**0.34**
3/29/2007	82'-83'	**0.93**	<0.20	<0.20	**0.36**
6/25/2007	80'	**0.98**	<0.20	<0.20	**0.36**
9/25/2007	82'-83'	**1.0**	<0.20	<0.20	**0.23**
12/21/2012	5 gal	<0.500	<0.500	<0.500	<0.500
12/21/2012	10 gal	<0.500	<0.500	<0.500	<0.500
12/21/2012	15 gal	<0.500	<0.500	<0.500	<0.500

DATE	DEPTH	PCE	TCE	cDCE	1,1,1-TCA
6/1/2005	81.0	**0.480**	<0.200	<0.200	**0.220**
10/6/2005	81.0	<0.200	<0.200	<0.200	**0.340**
1/18/2006	81.0	**0.280**	<0.200	<0.200	**0.320**
6/1/2006	79.5	**0.910**	<0.200	<0.200	**0.400**
12/21/2012	5 gal	<0.500	<0.500	<0.500	<0.500
12/21/2012	10 gal	<0.500	<0.500	<0.500	<0.500
12/21/2012	15 gal	<0.500	<0.500	<0.500	<0.500

LEGEND

MW-3 SHALLOW MONITORING WELL COMPLETED BY FARALLON, JULY 2004

MW-3D DEEP MONITORING WELL COMPLETED BY FARALLON, MAY 2005

MW-5D DEEP MONITORING WELL COMPLETED BY GEOENGINEERS, NOVEMBER 2006

MPW-2 CONTINUOUS MULTICHANNEL TUBING WELL WITH SAMPLING SCREENS AT 103-106 FEET BELOW GROUND SURFACE (BGS) 131 TO 134 FEET BGS AND 137 TO 139 FEET BGS, COMPLETED BY FARALLON SEPTEMBER 2005

ALL RESULTS IN MICROGRAMS PER LITER
DEPTH IN FEET BELOW GROUND SURFACE
PCE = TETRACHLOROETHENE
TCE = TRICHLOROETHENE
cDCE = cis-1,2-DICHLOROETHENE
1,1,1-TCA = 1,1,1-TRICHLOROETHANE
BOLD = DENOTES DETECTION OF COMPOUND
< = DENOTES CONCENTRATION IS BELOW LABORATORY PRACTICAL QUANTITATION LIMIT INDICATED
gal = GALLON
NA = NOT ANALYZED

■ CATCH BASIN

RR RESTROOM

BR BOILER ROOM

NOTE

1. THE LOCATIONS OF ALL FEATURES ARE APPROXIMATE
2. REFERENCE MAP: GEOENGINEERS, INC. 2002
3. GROUNDWATER DATA ON DECEMBER 21, 2012 COLLECTED BY AMEC OF PORTLAND, OREGON FOLLOWING PURGING OF GALLONS OF WATER INDICATED

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California
Oakland | Sacramento

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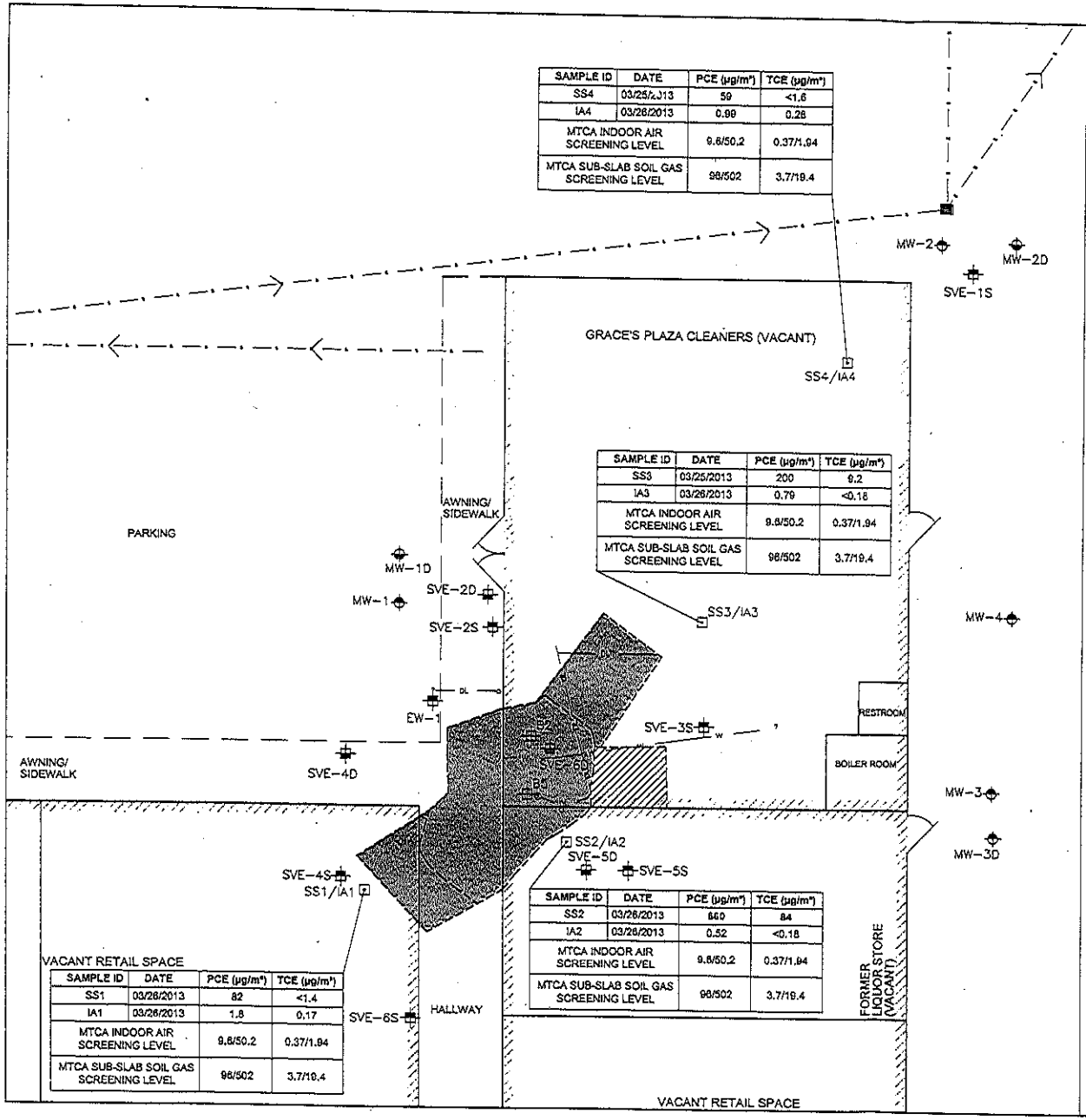
EXHIBIT I

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
FOR DEEP MONITORING WELLS
GRACE'S PLAZA CLEANERS
BATTLE GROUND, WASHINGTON

FARALLON PN: 646-002

Drawn By: DEW Checked By: JK Date: 11/3/2014 Disk Reference: 646002b



LEGEND

- SS4/IA4 ⊡ SUBSLAB SOIL GAS SAMPLE AND INDOOR AIR SAMPLE LOCATION
- B5 ⊕ SHALLOW AIR INLET WELL
- SVE-4S ⊕ SHALLOW SOIL VAPOR EXTRACTION (SVE) WELL
- SVE-5D ⊕ DEEP SVE WELL AND SOIL SAMPLE LOCATION
- MW-2 ⊕ SHALLOW MONITORING WELL/SVE WELL
- MW-2D ⊕ DEEP MONITORING WELL
- EXCAVATION LIMITS FOR 2008 REMEDIAL EXCAVATION (FARALLON)
- AREA OVER EXCAVATED TO PROVIDE WORKING BENCH FOR EXCAVATION EQUIPMENT (FARALLON 2008)
- AREA OF MARCH 2002 REMEDIAL EXCAVATION (3 KINGS ENVIRONMENTAL)
- ⊗ STEAM LINE DRAIN
- CATCH BASIN
- ROOF DRAIN LINE
- WATER LINE
- UNDERGROUND STORM SEWER LINE WITH INFERRED PIPING LOCATION AND FLOW DIRECTION
- UNDERGROUND SANITARY SEWER LINE WITH INFERRED PIPING LOCATION AND FLOW DIRECTION
- ? PIPING LOCATION UNKNOWN BEYOND THIS LOCATION

(µg/m³) = MICROGRAMS PER CUBIC METER

BOLD = DENOTES EXCEEDANCE OF WASHINGTON STATE DEPARTMENT OF ECOLOGY MODEL TOXICS CONTROL ACT METHOD B CLEANUP LEVEL FOR COMMERCIAL SETTING (CALCULATED)

MTCA METHOD B CLEANUP LEVELS = RESIDENTIAL SETTING/COMMERCIAL SETTING

< = DENOTES ANALYTE NOT DETECTED AT OR ABOVE LABORATORY PRACTICAL QUANTITATION LIMIT INDICATED

PCE = TETRACHLOROETHENE

TCE = TRICHLOROETHENE

ALL LOCATIONS ARE APPROXIMATE

0 10

APPROXIMATE SCALE IN FEET

N

DRAFT

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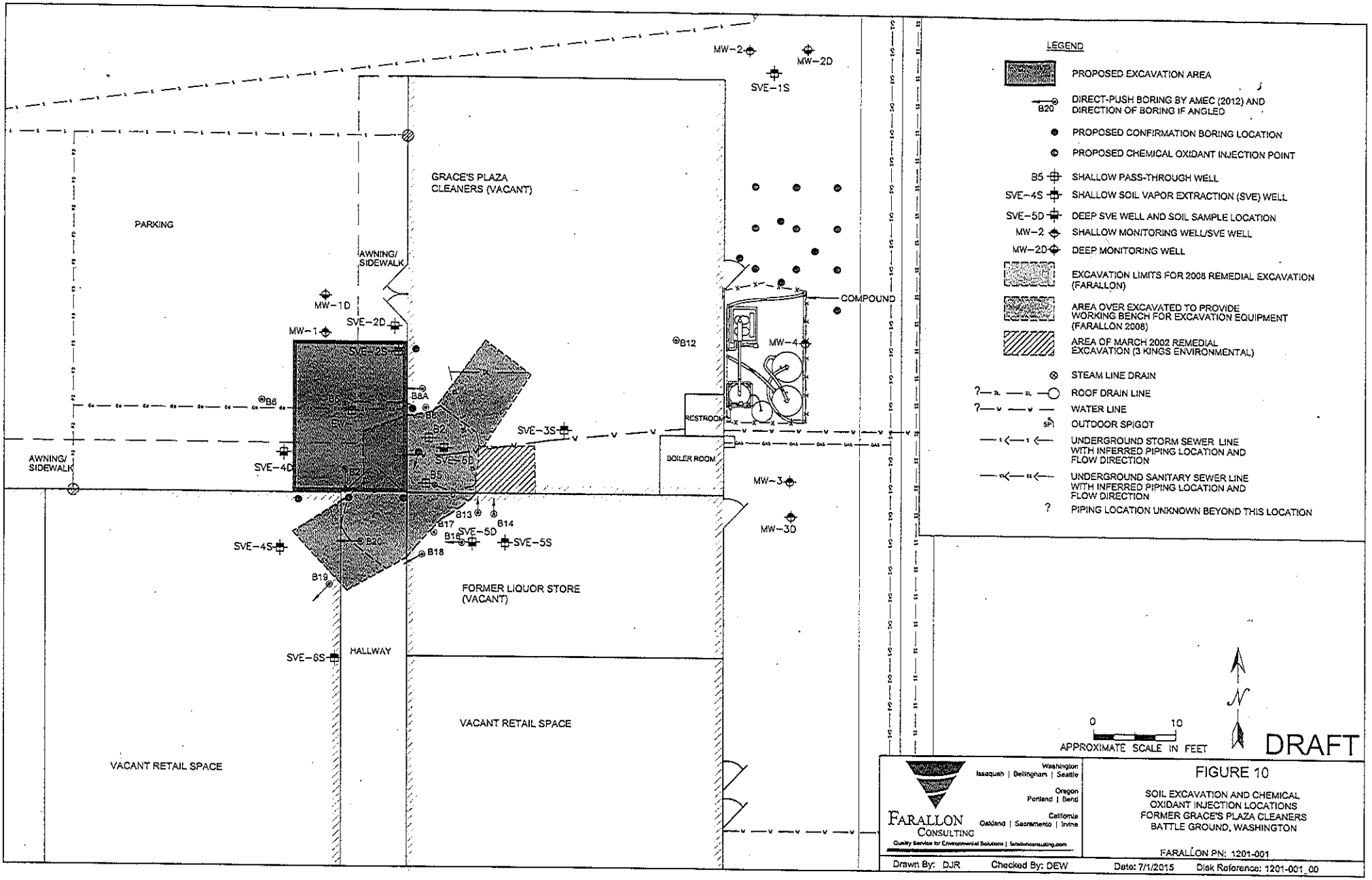
Oregon: Portland
California: Oakland | Sacramento

EXHIBIT J

INDOOR AIR AND SOIL GAS SAMPLE RESULTS, MARCH 2013
GRACE'S PLAZA CLEANERS
BATTLE GROUND, WASHINGTON

FARALLON PN: 646-002

Drawn By: DEW | Checked By: JK | Date: 11/4/2014 | Disk Reference: 646002a


MW-2
MW-2D
SVE-1S
GRACE'S PLAZA CLEANERS (VACANT)
PARKING
AWNING/ SIDEWALK
MW-1D
SVE-2D
MW-1
SVE-2S
B6
B8A
B8
B7
B2
SVE-3S
SVE-4D
SVE-5D
B5
B1
AWNING/ SIDEWALK
B12
MW-4
COMPOUND
RESTROOM
BOILER ROOM
MW-3
MW-3D
B13
B17
B14
B16
SVE-5D
SVE-5S
SVE-4S
B20
B18
B19
FORMER LIQUOR STORE (VACANT)
SVE-6S
HALLWAY
VACANT RETAIL SPACE
VACANT RETAIL SPACE
LEGEND
PROPOSED EXCAVATION AREA
B20 DIRECT-PUSH BORING BY AMEC (2012) AND DIRECTION OF BORING IF ANGLED
PROPOSED CONFIRMATION BORING LOCATION
PROPOSED CHEMICAL OXIDANT INJECTION POINT
B5 SHALLOW PASS-THROUGH WELL
SVE-4S SHALLOW SOIL VAPOR EXTRACTION (SVE) WELL
SVE-5D DEEP SVE WELL AND SOIL SAMPLE LOCATION
MW-2 SHALLOW MONITORING WELL/SVE WELL
MW-2D DEEP MONITORING WELL
EXCAVATION LIMITS FOR 2008 REMEDIAL EXCAVATION (FARALLON)
AREA OVER EXCAVATED TO PROVIDE WORKING BENCH FOR EXCAVATION EQUIPMENT (FARALLON 2008)
AREA OF MARCH 2002 REMEDIAL EXCAVATION (3 KINGS ENVIRONMENTAL)
STEAM LINE DRAIN
ROOF DRAIN LINE
WATER LINE
OUTDOOR SPIGOT
UNDERGROUND STORM SEWER LINE WITH INFERRED PIPING LOCATION AND FLOW DIRECTION
UNDERGROUND SANITARY SEWER LINE WITH INFERRED PIPING LOCATION AND FLOW DIRECTION
? PIPING LOCATION UNKNOWN BEYOND THIS LOCATION
0
10
APPROXIMATE SCALE IN FEET
DRAFT
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Washington Issaquah | Bellingham | Seattle
Oregon Portland | Bend
California Oakland | Sacramento | Irvine
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FIGURE 10
SOIL EXCAVATION AND CHEMICAL OXIDANT INJECTION LOCATIONS
FORMER GRACE'S PLAZA CLEANERS
BATTLE GROUND, WASHINGTON
FARALLON PN: 1201-001
Drawn By: DJR
Checked By: DEW
Date: 7/1/2015
Disk Reference: 1201-001_00