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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Southwest Region Office
PO Box 47775 • Olympia, WA 98504-7775 • 360-407-6300

April 27, 2023

Emerald Erickson-Mulanax
Farallon Consulting, LLC
975 5th Ave NW
Issaquah, WA 98027-2419
eerickson@farallonconsulting.com

Re: No Further Action opinion for the following contaminated Site

Site name: Lake Tapps Mini Mart
Site address: 18215 9th St. E, Ste. 101, Sumner, Pierce County, WA 98390
Facility/Site ID: 2742912
Cleanup Site ID: 5295
VCP Project No.: SW0741

Dear Emerald Ericson-Mulanax:

The Washington State Department of Ecology (Ecology) received your request on May 16, 2022, for an opinion regarding the sufficiency of your independent cleanup of the Lake Tapps Mini Mart facility (Site) under the Voluntary Cleanup Program (VCP).[1] This letter provides our opinion and analysis. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70A.305 RCW.[2]

Opinion

Ecology has determined that no further remedial action is necessary to clean up contamination at the Site.

Ecology bases this opinion on an analysis of whether the remedial action meets the substantive requirements of MTCA and its implementing regulations, which are specified in chapter 70A.305 RCW and chapter 173-340 WAC[3] (collectively called "MTCA").

[1] https://www.ecy.wa.gov/vcp
[2] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.305
[3] https://apps.leg.wa.gov/WAC/default.aspx?cite=173-340

Site Description

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(s):

- Gasoline range total petroleum hydrocarbons (TPH-G) in soil and groundwater.
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) in soil and groundwater.

Enclosure A includes Figures and Tables for the Site.

The Lake Tapps Dry Cleaning facility (# 10057) also affects the parcel of real property associated with this Site. This opinion does not apply to any contamination associated with the Lake Tapps Dry Cleaning facility.

Basis for the Opinion

Ecology bases this opinion on information in the documents listed in Enclosure B.
You can request these documents by filing a records request.[4] For help making a request, contact the Public Records Officer at recordsofficer@ecy.wa.gov or call 360-407-6040.
Before making a request, check whether the documents are available on the Ecology's Cleanup Site Search web page.[5]

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

Analysis of the Cleanup

Ecology has concluded that no further remedial action is necessary to clean up contamination at the Site. Ecology bases its conclusion on the following analysis:

Characterizing the Site

Ecology has determined your completed Site characterization is sufficient for setting cleanup standards and selecting a cleanup action.

Farallon Consulting (Farallon) submitted a response letter (referred to below as Report or the Report) to Ecology's April 2021 opinion letter that addressed the issues Ecology discussed regarding the Site.

[4] https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests
[5] https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=5295

Ecology concurs that the Site has been adequately defined for setting cleanup standards and selecting a cleanup action based on a low risk of exposure assessment and meets the requirements of WAC 173-340-350(7).[6] Contaminated soil beneath the former dispensers was removed to the maximum extent practicable. There is still an area of benzene contaminated soil (sample MW-5-11.5-12.0, 0.71 milligrams per kilogram [mg/kg]) remaining below the excavated area (Farallon Figure 4, Farallon Table 3) that is in excess of the MTCA Method A soil cleanup level (CUL), but below the MTCA Method B soil CUL. Sample MW-5-11.5-12.0 is bound by a lower sample, MW-5-12.5-13, that is non detect for petroleum constituents.

Monitoring well MW-5 represented the greatest concentrations of Site hazardous substances in groundwater. Monitoring well MW-5 was decommissioned prior to the needed excavation to remove contaminated soil associated with the former dispenser island. Groundwater contamination at the Site has been below the MTCA Method A CULs or laboratory practical quantitation limits (PQLs) for the sampling events conducted between December 2012 and May 2015 when Site groundwater sampling ceased (Farallon Table 5).

This includes five consecutive quarters of groundwater sampling for the three wells (MW-18, MW-19, and MW-20) installed to determine compliance with CULs for groundwater after the excavation. The presence of hazardous substances in groundwater also decreased significantly after the removal of contaminated soil, as seen in monitoring well MW-18.

It is also demonstrated that the Lake Tapps Dry Cleaning Site is not comingled with the Lake Tapps Mini Mart Site located to the east on the same parcel (Farallon Figure 1, Farallon Table 4, and Farallon Table 6). The Lake Tapps Dry Cleaning Site is being remediated separately and is **not** covered in this opinion letter. Figures and tables representing the Site are included in **Enclosure A**.

Setting cleanup standards

Ecology has determined the cleanup levels and points of compliance you set for the Site do not meet the substantive requirements of MTCA in soil but do meet the substantive requirements of MTCA in groundwater.

Farallon is establishing MTCA Method A CULs for both soil and groundwater for the Site. Method A CULs for soil and groundwater are appropriate for the Site. Although the Site meets the Method A groundwater CULs, the Site still has exceedances of the Method A soil CUL for benzene. Because the benzene concentration of 0.71 mg/kg exceeds the Method A CUL of 0.03 mg/kg by more than twice the CUL, statistical methods as described in WAC 173-340-740(7)[7] are not applicable to meet Method A CULs.

[6] https://apps.leg.wa.gov/wac/default.aspx?cite=173-340-350
[7] https://apps.leg.wa.gov/wac/default.aspx?cite=173-340-740

Ecology compared the Site to MTCA Method B soil CULs provided in the Cleanup Levels and Risk Calculation (CLARC) Tables and determined the Site could meet the Method B CULs. Ecology evaluated the Method B CULs for total risk in accordance with WAC 173-340-705(4).[8] Because there are fewer than ten hazardous substances potentially associated with the Site,[9] and CLARC Method B values are established at a cancer risk of $1X10^{-6}$, it is not possible for the total cancer risk to exceed $1X10^{-5}$ even if all hazardous substances affected the same systems.

Ecology also evaluated the total hazard quotient (HQ) for the sites hazardous substances. The CUL for some substances did need to be reduced to keep the HQ for some systems from exceeding a value of 1. For those substances known to cause cancer, the Method B cancer CUL was evaluated. To keep the HQ at or below 1, the Method A CULs were applied as Method B CULs to toluene and ethylbenzene. Ecology's HQ assessment is included in **Enclosure C**.

Ecology considers the Method B CULs to be protective of groundwater by empirical demonstration in accordance with WAC 173-340-747(9)[10] and Implementation Memorandum No. 15: Frequently Asked Questions (FAQs) Regarding Empirical Demonstrations and Related Issues[11] in that:

- Groundwater contamination was highest in the area where contaminated soil was in direct contact with groundwater (monitoring well MW-5). Measured groundwater concentrations decreased after the removal of that contaminated soil and have been below Method A CULs since August of 2012.

- Because remaining contaminated soil has consistently been in contact with groundwater, a sufficient amount of time had passed for migration of hazardous substances to groundwater. A sufficient amount of post remediation action groundwater sampling has been conducted to demonstrate that remaining soil contamination is not having and will not have a significant impact on groundwater to cause groundwater contaminations to exceed the Method A CULs.

This Site is similar to Example 1 given in Section 5.0 of Implementation Memo No. 15.

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[8] https://apps.leg.wa.gov/wac/default.aspx?cite=173-340-705

[9] Only benzene, ethylene dibromide (EDB), ethylene dichloride (EDC), methyl tert-butyl ether (MTBE), and 1-methyl naphthalene are associated with the Site or potentially associated with the Site and are known my Ecology to cause cancer.

[10] https://apps.leg.wa.gov/wac/default.aspx?cite=173-340-747

[11] Ecology, Implementation Memorandum No. 15: Frequently Asked Questions (FAQs) Regarding Empirical Demonstrations and Related Issues, Publication No. 16-09-047, June 21, 2016. https://apps.ecology.wa.gov/publications/SummaryPages/1609047.html

Terrestrial Ecological Evaluation (TEE)

A TEE form was included as an attachment to the Report, though no evidence of a TEE conducted in accordance with WAC 173-340-7490[12] has been submitted. To expedite our review, Ecology conducted the TEE that is included in **Enclosure C** and determined that no further evaluation was necessary for the Site based on contaminants analysis under WAC 173-340-7492(2)(c).[13]

This requires that the MTCA Table 749-2[14] values for gasoline range total petroleum hydrocarbons (TPH-G) and lead be met at the Site and may require reduction of the Method A or Method B CULs. Using the MTCA Table 749-2 values for TPH-G and lead do not adversely affect the HQ assessment or cause any CUL exceedances at the Site for those hazardous substances.

Ecology assessed the applicable local, state, and federal laws for the Site, determined the following:

- MTCA Method B values presented in the CLARC Tables are calculated to meet the single substance requirements in WAC 173-340-720 through WAC 173-340-760.
    - Ecology considers the individual hazardous substances requirements of WAC 173-340-7492[15] (presented in MTCA Table 749-2)[16] to be relevant for the Site. Specifically for lead and gasoline range organics.
- WAC 173-340-708(5)[17] multiple hazardous substances requirement will require adjustment to Method B soil CULs for the Site.
- MTCA Method A groundwater CULs (WAC 173-340-900;[18] Table 720-1) are established to be compliant with state and federal laws including the maximum contaminant levels (MCLs) and MCL goals for noncarcinogens established under the Safe Drinking Water Act (40 C.F.R. 141).

No additional requirements were identified by the Governor's Office for Regulatory Innovation & Assistance online tool[19] that require adjustments to Site CULs.

[12] https://apps.leg.wa.gov/wac/default.aspx?cite=173-340-7490
[13] https://apps.leg.wa.gov/wac/default.aspx?cite=173-340-7492
[14] WAC 173-340-900
[15] https://apps.leg.wa.gov/wac/default.aspx?cite=173-340-7492
[16] WAC 173-340-900
[17] https://apps.leg.wa.gov/wac/default.aspx?cite=173-340-708
[18] https://apps.leg.wa.gov/wac/default.aspx?cite=173-340-900
[19] https://apps.oria.wa.gov/opas/index.asp

The CULs being applied to the Site for this no further action determination are as follows:

Hazardous Substances	CAS#	MTCA Method B Soil CUL (mg/kg)	MTCA Method A Groundwater CUL (µg/L)[20]
TPH-G	NONE	200	800
Benzene	71-43-2	18	5
Toluene	108-88-3	7	1,000
Ethylbenzene	100-41-4	6	700
Total Xylenes	1330-20-7	16,000	1,000
Ethylene dibromide (EDB)	106-93-4	0.50	0.01
Ethylene dichloride (EDC)	107-06-2	11	5
Methyl tert-butyl ether (MTBE)	1634-04-4	560	20
Lead	7439-92-1	220	15
Naphthalenes[21]	See Note	5	160
Naphthalene	91-20-3	1,600	Included as naphthalenes
1-methyl naphthalene	90-12-0	34	
2-methyl naphthalene	91-57-6	320	

The full assessment of potential applicable CULs for the Site is included in a Table in **Enclosure C**. As remaining contaminant concentrations in groundwater comply with CULs, the direct contact pathway for soil is the next most stringent, and the MTCA Method B CULs provided are protective of that pathway.

For those soil Method B CULs taken directly from the CLARC table, the lowest of either the direct contact non-cancer or direct contact cancer Method B CULs, and not reduced further to meet additional requirements, are the most protective applicable CUL and do not exceed any single substance HQ or cancer risk.

MTCA Method A CULs for toluene, ethylbenzene, and naphthalenes have been incorporated as Method B CULs at this Site as described in the *Concise Explanatory Statement*[22] (CES). The value for naphthalenes is used because Method B does not include a value for total naphthalenes, and the values for toluene and ethylbenzene are used as reasonable lower CUL values to meet HQ requirements and not cause CUL exceedances for the Site.

[20] µg/L = micrograms per Liter
[21] Naphthalenes includes naphthalene (CAS# 91-20-3), 1-methyl naphthalene (CAS# 90-12-0), and 2-methyl naphthalene (91-57-6).
[22] Washington Department of Ecology, Concise Explanatory Statement for the Amendments to the Model Toxics Control Act Cleanup Regulation Chapter 173-340 WAC, Publication No.: 01-09-043, February 12, 2001. https://apps.ecology.wa.gov/publications/summarypages/0109043.html

These CULs are being applied at the standard point of compliance for both soil and groundwater given in the following table.

Media	Points of Compliance
Soil – Direct Contact	Based on human exposure via direct contact, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface. *WAC 173-340-740 (6)(d)*
Soil – Protection of Groundwater	Based on the protection of groundwater, the standard point of compliance is throughout the Site. *WAC 173-340-747*
Soil – Protection of Plants, Animals, and Soil Biota	Based on ecological protection, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface. *WAC 173-340-7490(4)(b)*
Groundwater	Based on the protection of groundwater quality, the standard point of compliance 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. *WAC 173-340-720(8)(b)*

Naphthalenes were not included on the sampling plan for this Site in either soil or groundwater. Analysis of naphthalenes is not required for Sites using Method A CULs because they are included in the Method A TPH CUL.[23] Sites using Method B CULs must analyze soil and groundwater for naphthalenes. Considering concentrations of TPH-G and other associated Site petroleum substances have been greatly reduced, Ecology concludes that naphthalenes most likely have also been reduced to low-risk concentrations relative to the additional time and cost of additional investigation.

This is a Site-specific risk-based assessment for the Lake Tapps Mini Mart and should not be applied to or used as a framework for any other sites.

Selecting the cleanup action

Ecology has determined the cleanup action you selected for the Site meets the substantive requirements of MTCA.

Ecology believes that the cleanup action meets the threshold requirements of WAC 173-340-360(2)[24] in that:

- It is protective of human health and the environment, complies with cleanup standards, and complies with applicable state and federal laws.

[23] MTCA Table 830-1 footnote (14)(a)
[24] https://apps.leg.wa.gov/wac/default.aspx?cite=173-340-360

- The cleanup method used is permanent to the maximum extent practicable and provided for cleanup in a reasonable time frame.
- Since groundwater contamination levels have remained below CULs for at least four consecutive quarters of groundwater monitoring, cleanup actions conducted are considered permanent for groundwater.
- The Site is not expected to be used as a school or residential property. Planned future use of the Site is as a commercial shopping center.
- Although some of the petroleum contaminated soil (PCS) remaining at the Site in the form of benzene is left below the excavated area. Institutional controls are not being required at the Site.
- Because both the source and most of the contamination at the Site have been removed, cleanup actions have prevented any future release and minimized any future migration.
- Cleanup actions are not relying on dilution or dispersion.
- Remediation levels are not being used for this Site.

Implementing the cleanup action

Ecology has determined your cleanup meets the standards set for the Site.

The cleanup action performed was excavation and off-Site disposal of contaminated soil.

The removal of contaminated soil has reduced the contamination at the Site to below the established MTCA Method B soil CULs and MTCA Method A groundwater CULs.

You must decommission resource protection wells[25] installed as part of the remedial action that are not needed for any other purpose at the Site. Wells must be decommissioned in accordance with WAC 173-160-460.[26]

[25] https://app.leg.wa.gov/WAC/default.aspx?cite=173-160-410
[26] https://app.leg.wa.gov/WAC/default.aspx?cite=173-160-460

Listing of the Site

Based on this opinion, Ecology will remove the Site from the Leaking Underground Storage Tanks List and change the status of the Site to no further action in the Confirmed and Suspected Contaminated Sites List.

Limitations of the Opinion

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 70A.305.040(4).[27]

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 performed is substantially equivalent. Courts make that determination. See RCW 70A.305.080[28] and WAC 173-340-545.[29]

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 70A.305.170(6).[30]

[27] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.305.040
[28] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.305.080
[29] https://apps.leg.wa.gov/WAC/default.aspx?cite=173-340-545
[30] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.305.170

Termination of Agreement

Thank you for cleaning up the Site under the VCP. This opinion terminates the VCP Agreement governing VCP Project No. SW0741.

Questions

If you have any questions about this opinion or the termination of the Agreement, please contact me at 360-584-6212 or at aaren.fiedler@ecy.wa.gov.

Sincerely,

Aaren Fiedler

Aaren Fiedler, LG
Toxics Cleanup Program
Southwest Region Office

AF/tm

Enclosures (3): A – Site Figures and Tables
B – Basis for the Opinion: Documents List
C – Ecology Assessments

cc by email: Rob Olsen, TPCHD, ROlsen@tpchd.org
Steve Slivinski, S & V Properties Association II, sly@sunvalley.net
Jerome Lambiotte, Ecology, jerome.lambiotte@ecy.wa.gov
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Fiscal, VCP Fiscal Analyst (w/o encl)
TCP, Operating Budget Analyst (w/o encl)
Ecology Site File

Enclosure A

Figures and Tables

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Site Diagrams

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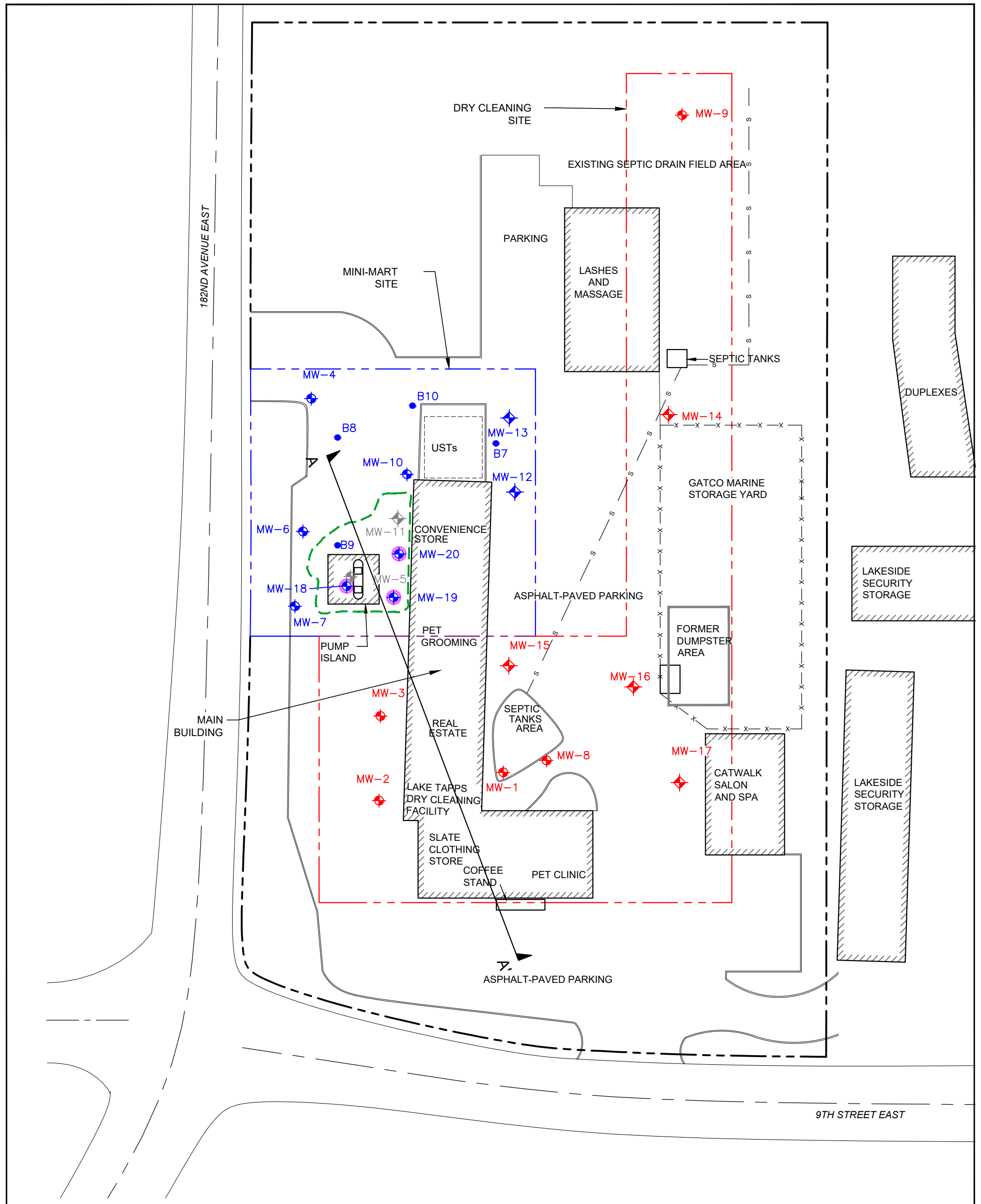

LEGEND

- PROPERTY BOUNDARY
- DRY CLEANING FACILITY BOUNDARY
- MINI-MARKET SITE BOUNDARY
- FENCE LINE
- 2011 EXCAVATION LIMITS
- MW–13 GROUNDWATER MONITORING WELL INSTALLED BY FARALLON CONSULTING, L.L.C.
- MW–8 GROUNDWATER MONITORING WELL INSTALLED BY ENVIRONMENTAL ASSOCIATES, INC.
- MW–18 POINT OF COMPLIANCE MONITORING WELL
- MW–5 DECOMMISSIONED MONITORING WELL
- UST = UNDERGROUND STORAGE TANK
- RED = DRY CLEANING FACILITY
- BLUE = MINI-MARKET SITE
- LINE OF CROSS SECTION

A A'

ALL LOCATIONS ARE APPROXIMATE

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Washington
Issaquah | Bellingham | Seattle

Oregon
Portland | Baker City

California
Oakland | Irvine

Drawn By: NM Checked By: CB

FIGURE 1

SITE PLAN
LAKE TAPPS MINI-MARKET
LAKE TAPPS, WASHINGTON

FARALLON PN: 571-001

R:\Projects\571-001\CAD\Figures\571-001 Figure Set.dwg 5/4/2022 10:31 AM (Nick Miller)

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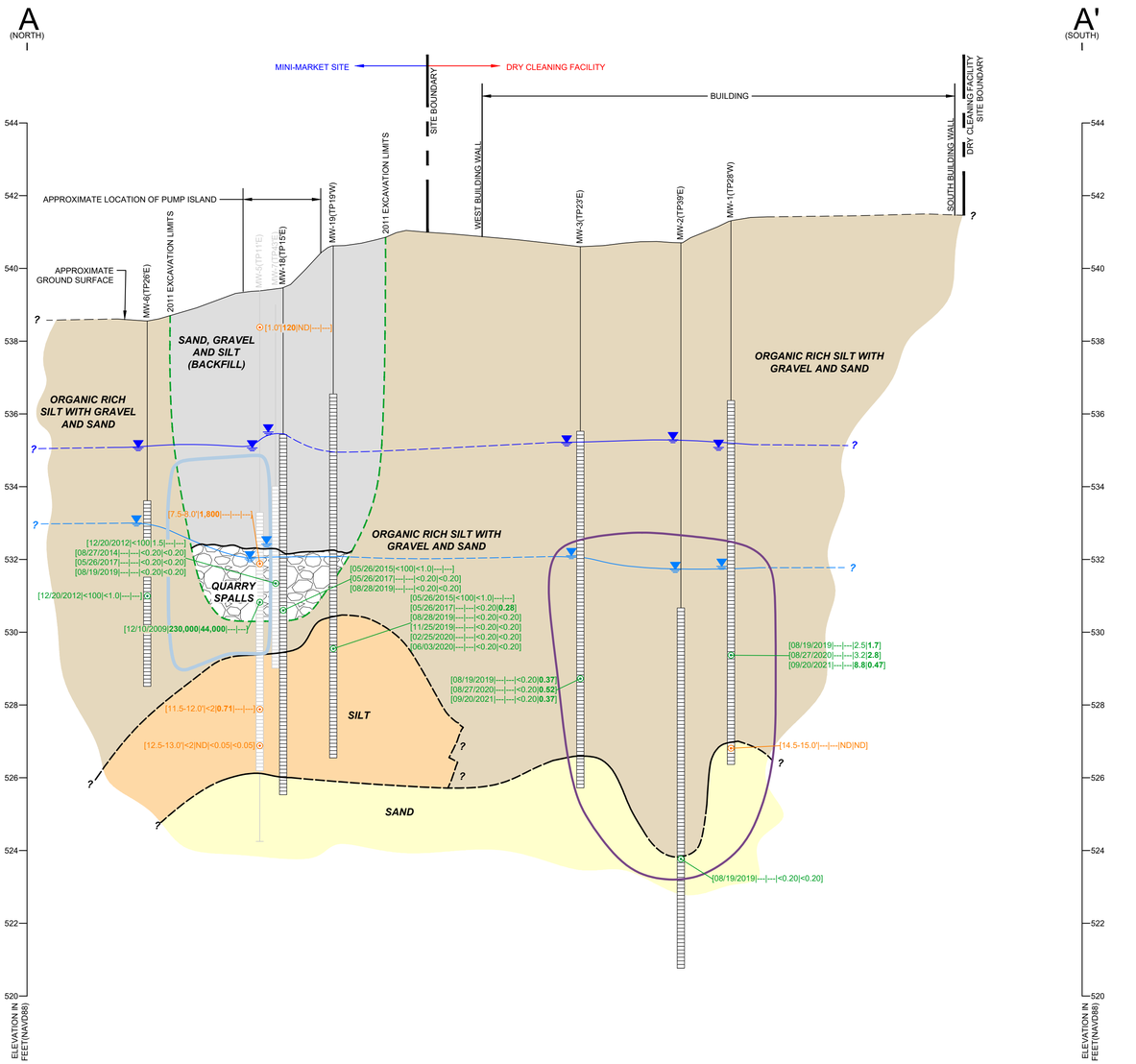
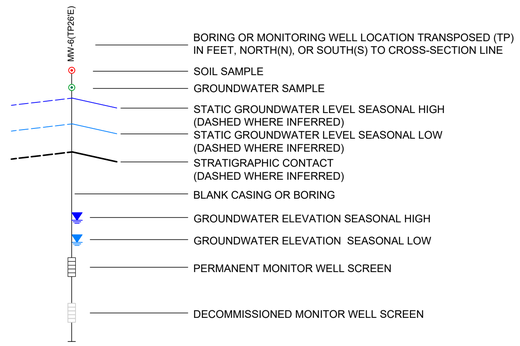
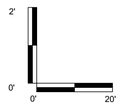


LEGEND



[14.5-15.0'|---|---|ND|ND]	=	SOIL ANALYTICAL RESULT [DEPTH BGS|GRO|BENZENE|PCE|VC] IN MILLIGRAMS PER KILOGRAM
[12/20/2012|<100|<1.0|---|---]	=	GROUNDWATER ANALYTICAL RESULT [SAMPLE DATE|GRO|BENZENE|PCE|VC] IN MICROGRAMS PER LITER
<	=	DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE LISTED REPORTING LIMIT
---	=	DENOTES SAMPLE NOT ANALYZED OR DATA UNKNOWN
BOLD	=	DENOTES CONCENTRATIONS THAT EXCEED THE WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION CLEANUP LEVEL
BGS	=	BELOW GROUND SURFACE
PCE	=	TETRACHLOROETHENE
GRO	=	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE RANGE ORGANICS
VC	=	VINYL CHLORIDE
ND	=	NOT DETECTED AT OR EXCEEDING AN UNKNOWN REPORTING LIMIT
RED	=	DRY CLEANING FACILITY
BLUE	=	MINI-MARKET SITE
	=	CURRENT EXTENT OF HALOGENATED VOLATILE ORGANIC COMPOUNDS (HVOCS) DETECTED ABOVE THE LABORATORY PRACTICAL QUANTITATION LIMITS IN SOIL AND GROUNDWATER
	=	FORMER EXTENT OF TOTAL PETROLEUM HYDROCARBONS DETECTED ABOVE LABORATORY PRACTICAL QUANTITATION LIMITS IN GROUNDWATER
	=	2011 EXCAVATION LIMITS



NOTES:
1. ALL LOCATIONS ARE APPROXIMATE
2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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Oregon: Portland | Baker City
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FIGURE 4

CROSS SECTION A-A'
LAKE TAPPS MINI-MARKET
LAKE TAPPS, WASHINGTON

FARALLON PN:571-001

Drawn By: NM Checked By: CB Date: 5/2/2022

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Table 3
Soil Analytical Results for TPH
Lake Tapps Mini-Market Site
Lake Tapps, Washington
Farallon PN: 571-001

Sample Location	Sample Identification	Sample Depth (feet)[1]	Sample Date	Analytical Results (milligrams per kilogram)							
				GRO[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Xylenes[3]	1,2-DCA[3]	MTBE[3]	Lead[4]
B7	B-7-5	5.0	9/26/2005	< 2	< 0.02	< 0.02	< 0.02	< 0.06	---	---	---
FB-1	FB-1-2.0	2.0	3/5/2009	7.3 T	**0.082**	0.079	<0.069	<0.138	---	---	---
	FB-1-4.5	4.5	3/5/2009	8.1 T	**0.40**	<0.074	<0.074	0.214	---	---	---
	FB-1-6.0	6.0	3/5/2009	<6.0	**0.031**	<0.060	<0.060	<0.120	---	---	---
	FB-1-12.0	12.0	3/5/2009	<4.3	<0.020	<0.043	<0.043	<0.086	---	---	---
MW-5	MW-5-1.0	1.0	11/16/2005	**120**	ND	ND	ND	ND	---	---	---
	MW-5-4	4.0	11/16/2005	---	---	---	---	---	---	---	< 1
	MW-5-7.5-8.0	7.5 - 8.0	11/16/2005	**1,800**	---	---	---	---	---	---	---
	MW-5-11.5-12.0	11.5 - 12.0	11/16/2005	< 2	**0.71**	0.28	0.16	0.71	---	< 0.05	---
	MW-5-12.5-13.0	12.5 - 13.0	11/16/2005	< 2	ND	ND	ND	ND	< 0.05	---	---
MW-10	MW-10-18	17.5 - 18.0	7/11/2006	< 2	< 0.02	< 0.02	< 0.02	< 0.06	---	---	---
	MW-10-26	25.5 - 26.0	7/11/2006	< 2	< 0.02	< 0.02	< 0.02	< 0.06	---	---	---
MW-11	MW-11-2.0	2.0	3/5/2009	**35** T	**1.1**	<0.15	1.3	2.92	---	---	---
	MW-11-4.5	4.5	3/5/2009	22 T	**0.53**	<0.063	0.76	1.75	---	---	---
	MW-11-17.0	17.0	3/5/2009	<5.4	<0.020	<0.054	<0.054	<0.108	---	---	---
MW-12	MW-12-21.5	21.5	3/4/2009	<5.7	<0.020	<0.057	<0.057	<0.114	---	---	---
MW-13	MW-13-10.5	10.5	3/4/2009	<4.9	<0.020	<0.049	<0.049	<0.098	---	---	---
	MW-13-22.5	22.5	3/4/2009	<4.9	<0.020	<0.049	<0.049	<0.098	---	---	---
2011 Excavation Confirmation Soil Samples											
Grid Section A3											
A3-PS32	A3-PS32-SW-6.0	6.0	12/2/2011	<10	**0.057**	<0.10	<0.05	<0.15	---	---	---
A3-PS40	A3-PS40-SW-2.5	2.5	12/5/2011	<10	0.025	<0.10	<0.05	<0.15	---	---	---
A3-PS43	A3-PS43-B-4.5	4.5	12/5/2011	<10	0.028	<0.10	<0.05	<0.15	---	---	---
Grid Section A4											
A4-PS16	A4-PS16-SW-2.0	2.0	11/30/2011	<10	**0.074**	<0.10	<0.05	<0.15	---	---	---
A4-PS17	A4-PS17-SW-7.0	7.0	11/30/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
Grid Section B2											
B2-PS41	B2-PS41-SW-3.0	3.0	12/5/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
B2-PS42	B2-PS42-B-4.5	4.5	12/5/2011	<10	0.021	<0.10	<0.05	<0.15	---	---	---
Grid Section B3											
B3-PS28	B3-PS28-SW-9.0	9.0	12/1/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
B3-PS33	B3-PS33-B-9.0	9.0	12/2/2011	<10	**0.55**	<0.10	<0.05	0.58	---	---	---
Grid Section B4											
B4-PS12	B4-PS12-SW-2.0	2.0	11/30/2011	<10	<0.02	<0.10	<0.05	0.24	---	---	---
B4-PS13	B4-PS13-SW-6.5	6.5	11/30/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
B4-PS26	B4-PS26-B-9.0	9.0	12/1/2011	<10	<0.02	<0.10	<0.05	0.43	---	---	---
Grid Section C1											
C1-PS37	C1-PS37-SW-2.0	2.0	12/2/2011	<10	0.026	<0.10	<0.05	0.18	---	---	---
Grid Section C2											
C2-PS36	C2-PS36-B-6.0	6.0	12/2/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
C2-PS44	C2-PS44-B-4.5	4.5	12/5/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
MTCA Method A Cleanup Levels for Soil[6]				**30/100[7]**	**0.03**	**7**	**6**	**9**	**11[8]**	**0.1**	**250**

Table 3
Soil Analytical Results for TPH
Lake Tapps Mini-Market Site
Lake Tapps, Washington
Farallon PN: 571-001

Sample Location	Sample Identification	Sample Depth (feet)[1]	Sample Date	Analytical Results (milligrams per kilogram)							
				GRO[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Xylenes[3]	1,2-DCA[3]	MTBE[3]	Lead[4]
Grid Section C3											
C3-PS21-B-8.5	C3-PS21-B-8.5	8.5	12/1/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
Grid Section C4											
C4-PS9	C4-PS9-SW-6.5	6.5	11/30/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
C4-PS10	C4-PS10-SW-2.0	2.0	11/30/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
C4-PS11	C4-PS11-B-7.5	7.5	11/30/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
Grid Section D1											
TP-4	TP-4-2.0	2.0	11/29/2011	22	**0.48**	<0.10	0.15	1.96	---	---	---
TP-4	TP-4-5.5	5.5	11/29/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
D1-PS20	D1-PS20-SW-6.0	6.0	11/30/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
D1-PS29	D1-PS29-SW-2.0	2.0	12/2/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
D1-PS30	D1-PS30-SW-2.0	2.0	12/2/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
Grid Section D2											
D2-PS22	D2-PS22-B-8.0	8.0	12/1/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
Grid Section D3											
TP-2	TP-2-2.0	2.0	11/29/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
TP-2	TP-2-6.0	6.0	11/29/2011	<10	0.03	<0.10	<0.05	<0.15	---	---	---
TP-3	TP-3-2.0	2.0	11/29/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
TP-3	TP-3-5.0	5.0	11/29/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
D3-PS15	D3-PS15-B-7.0	7.0	11/30/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
Grid Section D4											
TP-1	TP-1-2.0	2.0	11/29/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
TP-1	TP-1-4.5	4.5	11/29/2011	25	<0.02	0.12	<0.05	0.22	---	---	---
TP-1	TP-1-6.0	6.0	11/29/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
D4-PS8	D4-PS8-B-8.0	8.0	11/30/2011	<10	<0.02	<0.10	0.066	0.37	---	---	---
D4-PS38	D4-PS38-SW-5.5	5.5	12/5/2011	<10	<0.02	<0.10	<0.05	<0.15	---	---	---
MTCA Method A Cleanup Levels for Soil[5]				**30/100[6]**	**0.03**	**7**	**6**	**9**	**11[7]**	**0.1**	**250**

NOTES:

Results in **bold** denote concentrations exceeding applicable cleanup levels.

< denotes analyte not detected at or exceeding the laboratory reporting limit listed.

— denotes sample not analyzed.

[1]Depth in feet below ground surface.

[2]Analyzed by Northwest Method NWTPH-Gx.

[3]Analyzed by U.S. Environmental Protection Agency Method 8021B/8260B.

[4]Analyzed by U.S. Environmental Protection Agency Method 200.8.

[5]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.

[6]Cleanup level is 30 milligrams per kilogram if benzene is detected and 100 milligrams per kilogram if benzene is not detected.

[7]Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State MTCA, Standard Method B Formula Values for Soil from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

1,2-DCA = 1,2-Dichloroethane (EDC)

GRO = TPH as gasoline-range organics

MTBE = Methyl tertiary-butyl ether

ND = not detected at or above an unknown reporting limit

T = the sample chromatogram is not similar to a typical gasoline

TPH = total petroleum hydrocarbons

Table 4
Soil Analytical Results for HVOCs
Lake Tapps Mini-Market Site
Lake Tapps, Washington
Farallon PN: 571-001

Boring / Well Location	Sample Identification	Sample Date	Depth of Sample (feet) [1]	Analytical Results (milligrams per kilograms) [2]				
				PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
MW-5	MW-5-12.5-13.0	11/16/2005	12.5 - 13.0	< 0.05	< 0.03	< 0.05	< 0.05	< 0.05
MTCA Cleanup Levels for Soil				**0.05** [3]	**0.03** [3]	**160** [4]	**1,600** [4]	**0.67** [4]

NOTES:

< denotes analyte not detected at or above the reporting limit listed.

[1] Depth in feet below ground surface.

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

[3] Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A Soil Cleanup Level, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as amended November 2007.

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

cis-1,2-DCE = cis-1,2-dichlorethene
HVOCs = halogenated volatile organic compounds
PCE = tetrachloroethene
TCE = trichloroethene
trans-1,2-DCE = trans-1,2-dichlorethene

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Table 5
Groundwater Analytical Results for TPH
Lake Tapps Mini-Market Site
Lake Tapps, Washington
Farallon PN: 571-001

Sample Location	Sample Date	Analytical Results (micrograms per liter)									
		GRO[1]	Benzene[2]	Toluene[2]	Ethylbenzene[2]	Total Xylenes[2]	1,2-DBE[3]	1,2-DCA[2]	MTBE[2]	Dissolved Lead[4]	Total Lead[4]
Reconnaissance Groundwater Samples											
B7	9/26/2005	<100	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---
B8	9/26/2005	170	**7**	<1.0	<1.0	5	---	---	---	---	---
B9	9/26/2005	**1,000**	**290**	3.5	3.6	31	---	---	---	---	---
B10	9/26/2005	<500	<1.0	<1.0	<1.0	<1.0	< 1[2]	< 1	---	---	---
Monitoring Well Groundwater Samples											
MW-4	11/15/2005	<100	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---
	8/2/2006	<100	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---
	12/30/2006	<100	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---
	5/7/2008	<100	<0.20	<1.0	<0.20	<0.60	<0.0097	<0.20	<0.20	<1.0	<1.1
	9/16/2009	<400	<4.0	<4.0	<4.0	<8.0	---	---	---	---	---
	12/9/2009	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	1/25/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	4/25/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	8/15/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	12/20/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
MW-5[5]	11/15/2005	**250,000**	**42,000**	**57,000**	**4,600**	**25,300**	---	---	< 100	<1	---
	5/8/2008	**320,000**	**50,000**	**66,000**	**4,600**	**25,300**	<0.0098	<1000	<1000	<1.0	2.4
	3/25/2009	**270,000**	**47,000**	**57,000**	**5,300**	**26,900**	---	---	---	---	---
	9/16/2009	**260,000**	**40,000**	**55,000**	**4,200**	**23,200**	---	---	---	---	---
	12/10/2009	**230,000**	**44,000**	**64,000**	**4,500**	**24,200**	---	---	---	---	---
MW-6	11/15/2005	<100	**9**	1	<1.0	<3.0	---	---	---	---	---
	8/2/2006	<100	<1.0	1	<1.0	<3.0	---	---	---	---	---
	12/30/2006	<100	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---
	5/7/2008	<100	0.67	<1.0	<0.20	<0.60	<0.0097	<0.20	0.28	<1.0	<1.1
	3/24/2009	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	9/16/2009	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	12/9/2009	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	1/25/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	4/25/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	8/15/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	12/20/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
MTCA Method A Cleanup Levels for Groundwater [6]		**800/1,000[7]**	**5**	**1,000**	**700**	**1,000**	**0.01**	**5**	**20**	**5**	**15**

Table 5
Groundwater Analytical Results for TPH
Lake Tapps Mini-Market Site
Lake Tapps, Washington
Farallon PN: 571-001

Sample Location	Sample Date	Analytical Results (micrograms per liter)									
		GRO[1]	Benzene[2]	Toluene[2]	Ethylbenzene[2]	Total Xylenes[2]	1,2-DBE[3]	1,2-DCA[2]	MTBE[2]	Dissolved Lead[4]	Total Lead[4]
MW-7	11/15/2005	<100	2	3	<1.0	4	---	< 1	---	---	---
	8/2/2006	<100	<1.0	<1.0	<1.0	<3.0	< 1[2]	< 1	< 1	---	---
	12/30/2006	<100	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---
	5/7/2008	<100	<0.20	<1.0	<0.20	<0.60	<0.0096	<0.20	<0.20	<1.0	<1.1
	3/25/2009	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	9/16/2009	<400	<4.0	<4.0	<4.0	<8.0	---	---	---	---	---
	12/9/2009	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	1/25/2012	<100	1.1	<1.0	<1.0	<2.0	---	---	---	---	---
	4/25/2012	<100	1.1	<1.0	<1.0	<2.0	---	---	---	---	---
	8/15/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	12/20/2012	<100	1.5	<1.0	<1.0	<2.0	---	---	---	---	---
MW-10	8/2/2006	<100	<1.0	2	<1.0	<3.0	---	---	---	---	---
	12/30/2006	<100	<1.0	2	<1.0	<3.0	---	---	---	---	---
	5/8/2008	<100	<0.20	<1.0	<0.20	<0.60	<0.0099	<0.20	<0.20	<1.0	<1.1
	3/24/2009	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	9/16/2009	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	12/10/2009	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	1/25/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	4/25/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	8/15/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	12/20/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
MW-11[5]	3/24/2009	<100	2.3	<1.0	<1.0	<2.0	---	---	---	---	---
	9/15/2009	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	12/10/2009	<100	<1.0	<1.0	1.7	15.7	---	---	---	---	---
MW-12	3/24/2009	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	9/15/2009	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	12/10/2009	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	1/25/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	4/25/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	8/16/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	12/20/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
MW-13	3/24/2009	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	9/15/2009	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	12/10/2009	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	1/25/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	4/25/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	8/15/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	12/20/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
MTCA Method A Cleanup Levels for Groundwater [6]		**800/1,000[7]**	**5**	**1,000**	**700**	**1,000**	**0.01**	**5**	**20**	**5**	**15**

Table 5
Groundwater Analytical Results for TPH
Lake Tapps Mini-Market Site
Lake Tapps, Washington
Farallon PN: 571-001

Sample Location	Sample Date	Analytical Results (micrograms per liter)									
		GRO[1]	Benzene[2]	Toluene[2]	Ethylbenzene[2]	Total Xylenes[2]	1,2-DBE[3]	1,2-DCA[2]	MTBE[2]	Dissolved Lead[4]	Total Lead[4]
MW-18	1/25/2012	<100	**15**	<1.0	<1.0	<2.0	---	---	---	---	---
	4/25/2012	<100	**8.4**	<1.0	<1.0	<2.0	---	---	---	---	---
	8/15/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	12/20/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	8/27/2014	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	11/24/2014	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	2/25/2015	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	5/26/2015	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
MW-19	1/25/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	4/25/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	8/15/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	12/20/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	8/27/2014	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	11/24/2014	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	2/25/2015	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	5/26/2015	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
MW-20	1/25/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	4/25/2012	<100	3.7	<1.0	<1.0	<2.0	---	---	---	---	---
	8/15/2012	<100	**6.6**	<1.0	<1.0	<2.0	---	---	---	---	---
	12/20/2012	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	8/27/2014	<100	<1.0	<1.0	4.6	<2.0	---	---	---	---	---
	11/24/2014	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	2/25/2015	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
	5/26/2015	<100	<1.0	<1.0	<1.0	<2.0	---	---	---	---	---
MTCA Method A Cleanup Levels for Groundwater[6]		**800/1,000[7]**	**5**	**1,000**	**700**	**1,000**	**0.01**	**5**	**20**	**15**	

NOTES:

Results in **bold** denote concentrations exceeding applicable cleanup levels.

< denotes analyte not detected at or exceeding the reporting limit listed.

--- denotes sample not analyzed or data unknown.

[1] Analyzed by Northwest Method NWTPH-Gx.

[2] Analyzed by U.S. Environmental Protection Agency (EPA) Method 8021B or 8260B.

[3] Analyzed by EPA Method 8011.

[4] Analyzed by EPA Method 200.8.

[5] Monitoring wells MW-5 and MW-11 were abandoned and removed during the Farallon excavation conducted on November 21, 2011.

[6] Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A Cleanup Levels for Groundwater, Table 720-1 in Section 900 of Chapter 173-340 of the Washington Administrative Code, as amended 2013.

[7] Cleanup level is 800 micrograms per liter if benzene is detected, and 1,000 micrograms per liter if benzene is not detected.

1,2-DBE = 1,2-dibromoethane

1,2-DCA = 1,2-dichloroethane

GRO = total petroleum hydrocarbons as gasoline-range organics

MTBE = methyl tertiary-butyl ether

TPH = total petroleum hydrocarbons

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Table 6
Groundwater Analytical Results for HVOCs
Lake Tapps Mini-Market Site
Lake Tapps, Washington
Farallon PN: 571-001

Sample Location	Sample Date	Analytical Results (micrograms per liter) [1]						
		Tetrachloroethene	Trichloroethene	cis-1,2-DCE	1,1-DCE	trans-1,2- DCE	Vinyl Chloride	Trichlorofluoro-methane
Reconnaissance Groundwater Samples								
B10	9/26/2005	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	< 1
Monitoring Well Groundwater Samples								
MW-7	11/21/2005	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	---
	8/2/2006	<1.0	<1.0	<1.0	<1.0	<1.1	<0.20	< 1
	8/27/2014	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	---
	5/26/2017	<0.20	<0.20	<0.20	---	<0.20	<0.20	---
	8/19/2019	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	---
MTCA Cleanup Levels for Groundwater[2]		**5**	**5**	**16[3]**	**400[3]**	**160[3]**	**0.2**	**NE**
MW-18	5/26/2017	<0.20	<0.20	<0.20	---	<0.20	<0.20	---
	8/28/2019	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	---
MW-19	5/26/2017	<0.20	<0.20	0.30	---	<0.20	**0.28**	---
	8/28/2019	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	---
	11/25/2019	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	---
	2/25/2020	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	---
	6/3/2020	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	---
MTCA Cleanup Levels for Groundwater[2]		**5**	**5**	**16[3]**	**400[3]**	**160[3]**	**0.2**	**2,400[3]**

NOTES:

Results in **bold** denote concentrations exceeding applicable cleanup levels.

< Denotes analyte not detected at or exceeding the reporting limit listed.

--- denotes sample not analyzed or data unknown.

[1] Analyzed by U.S. Environmental Protection Agency Method 8260B, 8260C, or 8260D.

[2] Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A Groundwater Cleanup Levels, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as revised 2013 unless otherwise noted.

[3] MTCA Cleanup Levels and Risk Calculations, Standard Method B Values for Groundwater, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

1,1-DCE = 1,1-dichloroethene

cis-1,2-DCE = cis-1,2-dichloroethene

HVOCs = halogenated volatile organic compounds

NE = not established

trans-1,2-DCE = trans-1,2-dichloroethene

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Enclosure B

Basis for the Opinion: Documents List

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Documents List

1. Farallon Consulting (Farallon), *Response to April 1, 2021, Letter Regarding Further Action at the Lake Tapps Mini-Market*, letter, addressed to Aaren Fiedler, LG (Washington State Department of Ecology), May 9, 2022.

2. Farallon, *Groundwater Monitoring and Sampling and Mini-Market Site Closure Request*, memorandum, addressed to Aaren Fiedler, LG (Washington State Department of Ecology), December 2, 2020.

3. Farallon, *Dispenser Island Groundwater Monitoring and Sampling*, letter, addressed to Mr. Steve Slivinski (S & V Properties Association II), October 19, 2017.

4. Emerald Erickson-Mulanax (Farallon Consulting, L.L.C.), *Voluntary Cleanup Program Terrestrial Ecological Evaluation Form*, April 19, 2017.

5. Libby Environmental, Inc., letter, addressed to Jeff Kaspar (Farallon), February 16, 2016.

6. Ecology, *Further Action at the following Site*, letter, addressed to Mr. Steven Slivinski (S & V Properties Association), January 28, 2016.

7. Farallon, *Closure Report*, August 25, 2015.

8. Farallon, *Cleanup Action Progress Report*, May 16, 2012.

9. Ecology, *Opinion under WAC 173-340-515(5) on Proposed Cleanup Action for the following Hazardous Waste Site*, letter, addressed to S.D. Slivinski c/o Stu Clifford (S & V Properties), April 28, 2006.

10. Ecology, *Opinion under WAC 173-340-515(5) on Proposed Cleanup Action for the following Hazardous Waste Site*, letter, addressed to S.D. Slivinski c/o Stu Clifford (S & V Properties), February 7, 2006.

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Enclosure C

Ecology Assessments

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Oral Ingestion Health Quotients

CAS#	Hazardous Substances	Method B CUL	Adjusted CUL	Affected Oral Ingestion Systems	RfDo		Endocrine	Hepatic	Immune	Reproductive	Respiratory	Urinary
				Total System HQ:			**0.00**	**0.00**	**0.06**	**0.00**	**1.00**	**0.00**
NONE	TPH-G		200.00	NA	#N/A							
71-43-2	benzene	320	18	Immune	4.00E-03				0.06			
108-88-3	toluene	6,400	7.00	Urinary	8.00E-02							0.00
100-41-4	ethylbenzene	8,000	6.00	Hepatic, Urinary	1.00E-01			0.00		0.00		0.00
1330-20-7	xylenes	16,000	NONE	Other	2.00E-01							
106-93-4	ethylene dibromide (EDB)	720	0.50	Endocrine, Hepatic, Reproductive	9.00E-03		0.00	0.00		0.00		
107-06-2	NA	480	NONE	NA	6.00E-03							
1634-04-4	methyl tert-butyl ether (MTBE)		560.00	None Listed	0.00E+00							
7439-92-1	NA		NONE	NA	0.00E+00							
See Note	NA		NONE	NA	#N/A							
91-20-3	naphthalene	1,600	NONE	Other	2.00E-02							
90-12-0	NA	5,600	NONE	NA	7.00E-02							
91-57-6	methyl naphthalene;2-	320	NONE	Respiratory	4.00E-03						1.00	

Individual Hazardous Substances HQs

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Terrestrial ecological evaluation (TEE)[1] in accordance with WAC 173-340 Sections 7490 through 7493

WAC 173-340-7490

(2) Requirements. In the event of a release, of a hazardous substance to the soil, either (a) an exclusion shall be documented under WAC 173-340-7491,[2] (b) a simplified TEE is conducted under WAC 173-340-7492,[3] or (c) a Site specific TEE is conducted under WAC 173-340-7493.[4]

(4) Point of Compliance. Unless an environmental covenant is to be placed on the Site, a conditional point of compliance under subsection (a) is not appropriate. At the time of this review, Ecology is not aware if an environmental covenant is to be applied to the Site or if an environmental covenant is acceptable. Therefore a standard point of compliance under subsection (b) will be applied.

WAC 173-340-7491

(1)(a) Hazardous substances remain in place a depths shallower than 15 feet below ground surface.

- **An exclusion is not applicable and further evaluation is necessary.**

(1)(b) Although a parking lot surface covers the affected area, it is not know at this time that an environmental covenant will be placed on the Site, and the Feasibility Study (FS) and Disproportionate Cost Analysis (DCA) required for assessing the validity of an environmental covenant would need to be completed by the Sites cleanup team.

- **An exclusion is not applicable and further evaluation is necessary.**

(1)(c) There is an area of contiguous undeveloped land west of the Site, across 182nd Ave E that is within 500 feet of any area of the Site and is approximately 4.87 acres.[5] This is greater than the 1.5 acres allowed in subsection (i). This 4.87 acres is estimated using updated information that the ponds located west of the Site near the 500 foot distance limit are surrounded by a fence separating them from the forested land and utility corridor.

- **An exclusion is not applicable and further evaluation is necessary.**

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[1] https://apps.leg.wa.gov/wac/default.aspx?cite=173-340-7490

[2] https://apps.leg.wa.gov/wac/default.aspx?cite=173-340-7491

[3] https://apps.leg.wa.gov/wac/default.aspx?cite=173-340-7492

[4] https://apps.leg.wa.gov/wac/default.aspx?cite=173-340-7493

[5] see map included at the end of this TEE assessment.

The hazardous substances listed in subsection (ii) are not know to be present on the Site, and a reduction of the contiguous undeveloped land allowed within 500 feet of the Site is not necessary.

(1)(d) Natural background levels have not been established under WAC 173-340-709.[6] However, given the nature of the release, it is unlikely that there would be site hazardous substances naturally occurring in soils.

- **An exclusion is not applicable and further evaluation is necessary.**

(2) According to information from Washington Department of Fish and Wildlife Priority Habitats and Species: Maps,[7] the Site is not (i) located on, or directly adjacent to, an area where management or land use plans will maintain or restore native or seminative vegetation, and (ii) the Site is not used by a threatened or endangered species. The property that the Site is on is less than 10 acres and mostly covered by buildings and pavement and therefore cannot (iii) contain ten acres of native vegetation.

- **A Site specific TEE is not required under this section. Therefore a simplified TEE may be a viable option for the Site.**

WAC 173-340-7492

(1) No further evaluation is necessary to conclude that a Site does not pose a substantial threat of significant adverse effects to terrestrial ecological receptors *if* any steps is subsection (2) are satisfied.

(2)(a) Exposure analysis. (i) As Ecology currently understands the Site, the area of soil contamination is not sufficiently understood to determine if the total area is less than 350 square feet,[8] and (ii) MTCA Table 749-1[9] (completed table and map attached) indicates that the Site does not meet the exposure analysis criteria.

(2)(b) Pathways analysis. Although man-made physical barriers are present, it is not known to Ecology if an environmental covenant is possible for this Site and the FS/DCA necessary to supports the environmental covenant option would need to be completed by the Site cleanup team. However, Ecology does not believe an environmental covenant is necessary as addressed in the next paragraph.

(2)(c) Contaminants analysis. There are no priority chemicals of ecological concern listed in MTCA Table 749-2[10] associated with this Site that exceed the unrestricted land use soil concentrations listed. For this Site, only lead and gasoline range organics are associated with

[6] https://apps.leg.wa.gov/wac/default.aspx?cite=173-340-709
[7] https://wdfw.wa.gov/species-habitats/at-risk/phs/maps
[8] The Site is using a worst case scenario to define the extents of hazardous substances.
[9] WAC 173-340-900[9]; Completed table is included at the end of this TEE assessment.
[10] WAC 173-340-900

the Site and included in MTCA Table 749-2. The unrestricted land use soil concentrations for lead (220 mg/kg) and gasoline range organics (200 mg/kg) could be used as the Method B CULs for those substances at this Site.

- **Method A CULs are less than the MTCA Table 749-2 values and the values can be used as Method B CULs and would appear to not cause any CUL exceedances. Ecology recommends using the contaminants analysis option and ending the evaluation as the Site appears to be compliant with the simplified TEE under WAC 173-340-7492(2)(c).**

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Table 749-1

Simplified Terrestrial Ecological Evaluation-Exposure Analysis Procedure

Estimate the area of contiguous (connected) undeveloped land on the site or within 500 feet of any area of the site to the nearest 1/2 acre (1/4 acre if the area is less than 0.5 acre).	
1) From the table below, find the number of points corresponding to the area and enter this number in the field to the right.	12
Area (acres) / Points 0.25 or less / 4 0.5 / 5 1.0 / 6 1.5 / 7 2.0 / 8 2.5 / 9 3.0 / 10 3.5 / 11 4.0 or more / 12	4.87 acres (map attached)
2) Is this an industrial or commercial property? If yes, enter a score of 3. If no, enter a score of 1	3
3)[a] Enter a score in the box to the right for the habitat quality of the site, using the following rating system[b]. High=1, Intermediate=2, Low=3	1
4) Is the undeveloped land likely to attract wildlife? If yes, enter a score of 1 in the box to the right. If no, enter a score of 2.[c]	1
5) Are there any of the following soil contaminants present: Chlorinated dioxins/furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, pentachlorobenzene? If yes, enter a score of 1 in the box to the right. If no, enter a score of 4.	4
6) Add the numbers in the boxes on lines 2-5 and enter this number in the box to the right. If this number is larger than the number in the box on line 1, the simplified evaluation may be ended.	9

Notes for Table 749-1

[a] It is expected that this habitat evaluation will be undertaken by an experienced field biologist. If this is not the case, enter a conservative score of (1) for questions 3 and 4.

[b] **Habitat rating system.** Rate the quality of the habitat as high, intermediate or low based on your professional judgment as a field biologist. The following are suggested factors to consider in making this evaluation:

> **Low:** Early successional vegetative stands; vegetation predominantly noxious, nonnative, exotic plant species or weeds. Areas severely disturbed by human activity, including intensively cultivated croplands. Areas isolated from other habitat used by wildlife.

High: Area is ecologically significant for one or more of the following reasons: Late-successional native plant communities present; relatively high species diversity; used by an uncommon or rare species; priority habitat (as defined by the Washington Department of fish and Wildlife); part of a larger area of habitat where size or fragmentation may be important for the retention of some species.

Intermediate: Area does not rate as either high or low.

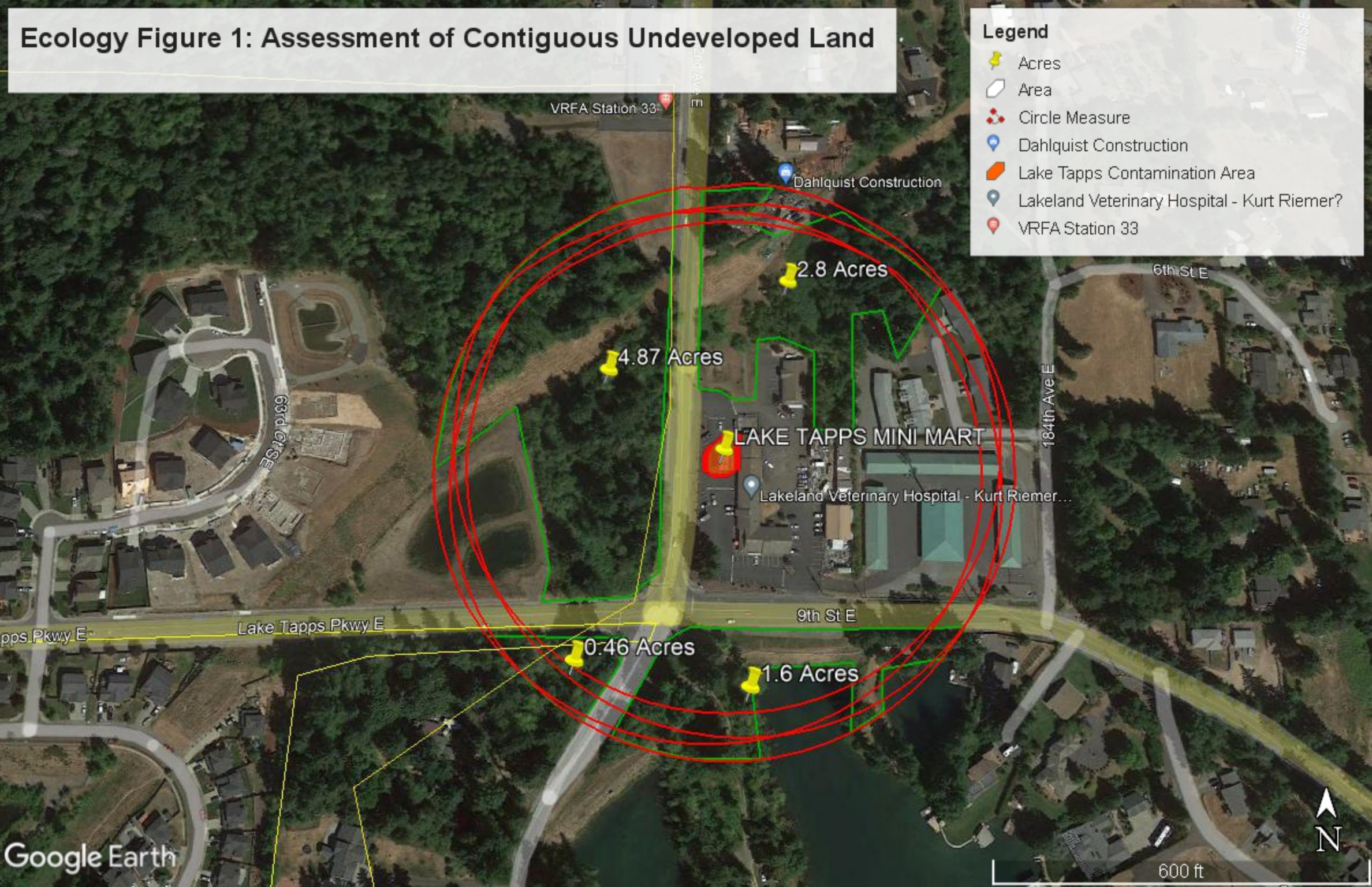
[c] Indicate "yes" if the area attracts wildlife or is likely to do so. Examples: Birds frequently visit the area to feed; evidence of high use b mammals (tracks, scat, etc.); habitat "island" in an industrial area; unusual features of an area that make it important for feeding animals; heavy use during seasonal migrations.

[Area Calculation Aid] [Aerial Photo with Area Designations] [TEE Table 749-1] [Index of Tables]

[Exclusions Main] [TEE Definitions] [Simplified or Site-Specific?] [Simplified Ecological Evaluation] [Site-Specific Ecological Evaluation] [WAC 173-340-7493]

[TEE Home]

Ecology Figure 1: Assessment of Contiguous Undeveloped Land



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Assessment of aplicable cleanup levels (CULs) for the Lake Tapps Mini Mart Site
FSID2742912 CSID5295 VCPSW0741

Hazardous Substances	CAS#	Lowest Soil Concentration Remaining (mg/kg)	Highest Soil Concentration Remaining (mg/kg)	MTCA Method A Soil CUL (mg/kg)	MTCA Method B Soil CUL^ (mg/kg)	Table 749-2 Unrestricted Land Use (mg/kg)	Lowest Groundwater Concentration Remaining (µg/L)	Highest Groundwater Concentration Remaing (µg/L)	MTCA Method A Groundwater CUL (µg/L)	MTCA Method B Groundwater CUL (µg/L)
TPH-G	NONE	<2	8.1	30	Calculated#	200	<100	<100	800	Calculated#
Benzene	71-43-2	<0.02	0.71	**0.03**	18	--	<1	1.5	5	**0.8**
Toluene	108-88-3	<0.02	0.28	7	6,400	--	<1	<1	1,000	640
Ethylbenzene	100-41-4	<0.02	0.16	6	8,000	--	<1	<1	700	800
Total Xylenes	1330-20-7	<0.06	0.71	9	16,000	--	<1	<1	1,000	1,600
ethylene dibromide (EDB)	106-93-4	NS	NS	0.005	0.5	--	<0.01	<0.01	0.01	0.022
ethylene dichloride (EDC)	107-06-2	<0.05	<0.05	PQL	11	--	<0.2	<0.2	5	0.48
MTBE	1634-04-4	<0.05	<0.05	0.1	560	--	<0.2	0.28	20	24
Lead	7439-92-1	<1	<1	250	Calculated#	220	<1.1	<1.1	15	PQL
Naphthalenes@	See Note	NS	NS	5	--	--	NS	NS	160	--
Naphthalene	91-20-3	NS	NS	Included as Naphthalenes	1,600	--	NS	NS	Included as Naphthalenes	160
1-methyl naphthalene	90-12-0	NS	NS		34	--	NS	NS		560
2-methyl naphthalene	91-57-6	NS	NS		320	--	NS	NS		32

Notes:

@ : Naphthalenes includes naphthalene, 1-methyl naphthalene, and 2-methyl naphthalene.

PQL : Laboratory practical quantitation limit (PQL).

^ : Lowest value of the Soil Method B direct contact non-cancer and soil Method B direct contact cancer values presented in the Cleanup Levels and Risk Calculation (CLARC) Tables.

: MTCA Method B total petroleum hydrocarbon (TPH) and lead CULs need to be calculated on a Site specific basis.

-- : There are no values provided for this hazardous substances.

NS : Analyte not sampled.

RED : Site has an exceedanc of this CUL.

CUL : cleanup level.