

June 4, 2013

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DEPT. OF ECOLOGY

Washington State Department of Ecology  
Toxics Cleanup Program  
3190 160<sup>th</sup> Avenue SE  
Bellevue, Washington 98008-5452

Subject: MTCA Notification of Discovery of Historic Hazardous Substance Releases at the following property:

Former Dry Cleaner  
Current Lynnwood Public Facilities District Property  
3815 196<sup>th</sup> Street Southwest, Washington  
Snohomish County Tax Parcel 00372600400602

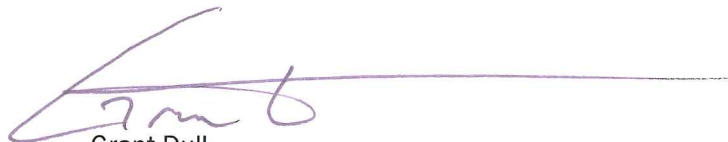
This letter is intended to notify the Washington State Department of Ecology (Ecology) of discovery of historic releases of dry cleaning chemicals/solvents per the release reporting requirements of MTCA WAC 173-340-300. Confirmation of hazardous substances in soil and groundwater at concentrations greater than MTCA cleanup levels was identified at the parcel listed above.

Between November 2012 and May 30, 2013, GeoEngineers completed a Phase II Environmental Site Assessment (Phase II ESA) on the parcel on behalf of the Lynnwood Public Facilities District (Lynnwood PFD) to evaluate subsurface soil and groundwater conditions.

Chemical analytical results of soil and groundwater samples obtained during the Phase II ESA identified concentrations of halogenated volatile organic compounds (HVOCs) greater than the corresponding MTCA Method A or B cleanup levels. A copy of the Phase II ESA Report is attached.

Please contact me at the number below with questions regarding this notification.

Sincerely,



Grant Dull  
Executive Director, Lynnwood Public Facilities District  
425-640-7631

Attachments:

GeoEngineers Phase II ESA Report, dated May 30, 2013.

**Phase II Environmental Site Assessment**

Former Dry Cleaner Lynnwood Public Facilities  
District Property  
3815 196<sup>th</sup> Street SW  
Lynnwood, Washington

*for*

**Lynnwood Public Facilities District**

May 31, 2013

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**GEOENGINEERS** 

Plaza 600 Building  
600 Stewart Street, Suite 1700  
Seattle, Washington 98101  
206.728.2674

# Phase II Environmental Site Assessment

## Former Dry Cleaner Lynnwood Public Facilities District Property 3815 196<sup>th</sup> Street SW Lynnwood, Washington

File No. 17787-001-03

May 31, 2013


Prepared for:

Lynnwood Public Facilities District  
3815 196th Street SW, Suite 136  
Lynnwood, Washington 98036

Attention: Grant Dull

Prepared by:

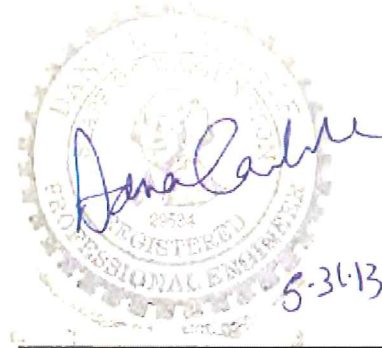
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Fasih Khan  
Environmental Engineer

FK:DLC:tt:tlh



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Dana L. Carlisle, PE  
Principal

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## 1.0 INTRODUCTION AND BACKGROUND

This report summarizes the results of the March 2013 Phase II Environmental Site Assessment of the former dry cleaner on the Lynnwood Public Facilities District (PFD) property (Figure 1). The PFD property, Snohomish County tax parcel 00372600400602, comprises approximately 13 acres. The mailing address of the property is 3711 196<sup>th</sup> Street SW in Lynnwood, Washington (hereinafter referred to as the "site"). The former dry cleaner address was 3815 196<sup>th</sup> Street SW, in Lynnwood, Washington. The former dry cleaner was located in the existing strip mall building on the property (Figure 2). The existing strip mall address is 3815 196<sup>th</sup> Street SW.

According to the information provided by PFD, the property was originally developed as a shopping center in approximately 1963. A dry cleaner and a coin-operated laundry business known as "Maytag Center" operated in the southern portion of the strip mall building between approximately 1963 and 1978. The coin-operated laundry was in the southernmost tenant space currently occupied by a restaurant, and the dry cleaner was in the south-central tenant space currently occupied by a grocery store.

## 2.0 SCOPE OF SERVICES

The objectives of the Phase II ESA were to investigate soil vapor conditions and soil and groundwater quality in the vicinity of the former dry cleaner to evaluate potential source locations where dry cleaning solvents may have been released, and to evaluate contaminant nature and extent.

Our scope of services included:

1. Notify the public utilities notification service (one-call) to mark public utilities on and adjacent to the Site. Subcontract a private utility locate to mark the locations of underground utilities at the Site
2. Complete a passive soil gas survey by installing 16 GORE® Modules into shallow soil beneath and surrounding the former dry cleaner. The modules were installed at locations beneath the suspected former dry cleaner tenant suites in the building, outside the building, and adjacent to potential release points or migration pathways such as sumps, drains and sanitary sewer lines. The modules were installed into 1-inch to 1½ -inch diameter borings at depths of 12- to 18-inches below ground surface. The modules were retrieved after approximately 7 to 10 days and submitted to the Gore laboratory for analysis. The borings were backfilled with the soil cuttings and sealed at the surface pending final restoration.
3. Observe the completion 12 direct-push explorations in the vicinity of the presumed footprint of the former dry cleaner. Locations were selected in part based on the results of the passive soil gas survey findings.
4. Field screen discrete soil samples at 2- to 4-foot depth intervals from the continuous cores for evidence of petroleum hydrocarbons and volatiles using visual, water sheen, and headspace vapor screening methods. Visually classify samples in accordance with ASTM D 2488 and maintain a detailed log of each exploration. Field procedures are described in Appendix A.

5. Submit two or three soil samples from each boring for chemical analysis of HVOCs by EPA Method 8260B or equivalent.
6. Obtain one-time grab groundwater samples from the direct-push explorations for chemical analysis of HVOCs by EPA Method 8260B or equivalent.
7. Evaluate the soil and groundwater analytical results relative to Model Toxics Control Act (MTCA) Method A cleanup levels.

### **3.0 FINDINGS**

#### **3.1. Site Conditions**

The PFD property comprises commercial retail, office and restaurant buildings, paved parking and paved access areas located west and north of the Lynnwood Convention Center. Tenants in the strip mall building west of the Convention Center currently include a tanning salon, a grocery and a restaurant. The former dry cleaner was reportedly located in the tenant spaces currently occupied by the grocery and the restaurant. A currently vacant building identified as the “Vet Building” and a restaurant (Tacos Guayamos) are located approximately 50 feet south from the retail strip mall building.

The site surface topography slopes gently downward toward the south-southwest. The narrow area between the strip mall building and the western property line is paved and occasionally used for parking or storage of small equipment used by tenants. Several underground utilities are present in this area that generally extend in a north-south orientation with east-west extending service lines to the various tenant suites. Based on PFD records and recent utility location, the utilities in this area include natural gas, water, sanitary sewer and a storm drain. A large underground concrete vault approximately 6 feet by 4 feet in plan dimensions and approximately 4 feet deep is situated west of the restaurant. This vault is identified as a “grease trap” in PFD drawings but is currently empty. A storm drain catch basin is situated downslope and southwest of the strip mall building near the dumpster. Utility drawings showing general location of some of the subsurface utilities are presented in Appendix B.

Washington Energy Services occupies the warehouse building on the adjacent western property.

#### **3.2. Passive Soil Gas Survey**

GeoEngineers performed a passive soil gas survey in November 2012 by installing 16 GORE® modules beneath the assumed footprint of the former dry cleaning facility, e.g., the southernmost and south-central tenant spaces of the strip building, and areas to the west, south and southwest of the existing building. The modules provide data on the relative mass of HVOCs. The data were used to identify potential HVOC source areas and hot spots, and to support planning for the Phase II ESA explorations. The results of the passive soil gas survey are included in Appendix C. The soil gas survey indicated tetrachloroethene (PCE), trichloroethene (TCE), and associated breakdown products in soil vapor within and downgradient of the assumed footprint of the former dry cleaning facility.

### **3.2.1. General**

Twelve direct-push soil boring explorations (DP-1 through DP-12) were completed on March 28 and 29, 2013 at the approximate locations shown in Figure 2. The exploration locations were selected based on results of previous environmental investigation studies, the results of the November 2012 soil vapor survey, the presumed footprint of the former dry cleaner, and the locations of underground utilities. To minimize disruption to current business operations and due to practical limitations of building footprint and layout, exploratory borings were not completed inside existing buildings. Field procedures and the exploration logs are included in Appendix A. Field screening results of soil samples from the borings are included in the exploration logs and in Table 1 for soil samples submitted for chemical analysis. The Phase II ESA soil and groundwater sample chemical analytical data are summarized in Tables 1 and 2. The chemical analytical laboratory reports and our review of the laboratory quality assurance/quality control (QA/QC) information are included in Appendix D.

### **3.2.2. Soil and Groundwater Conditions**

Soil borings DP-1 through DP-12 extended to depths ranging from approximately 10 to 25 feet below ground surface (bgs). DP-1 through DP-10 were closest to the presumed footprint of the former dry cleaner and extended to between 14 and 25 feet bgs. DP-11 and DP-12 were situated north of the Vet building and extended to 10 feet bgs.

The explorations generally encountered fill or reworked native soil comprising loose to medium dense silty sand with occasional gravel material and organics, overlying very dense gray silty sand with gravel (glacial till). The thickness of the upper layer of loose to medium dense soil ranged from approximately 11 to 19 feet. Drilling refusal occurred in very dense glacial till at depths ranging from approximately 14 to 25 feet bgs.

No groundwater was observed in DP-1, DP-2, DP-3, DP-6, or DP-12. Perched groundwater was observed in the remaining explorations at approximate depths ranging between 5 and 21 feet bgs. Groundwater monitoring data for the former Chevron service station indicated the depth to groundwater in this area of the property ranged from about 27 to 35 feet bgs. Based on several years of quarterly groundwater monitoring related to the former ARCO facility previously located where the Convention Center is, the direction of groundwater flow beneath the property is generally toward the south-southwest.

### **3.3. Soil Field Screening**

Discrete soil samples were obtained at approximately 2- to 4-foot depth intervals from the borings for field screening and potential chemical analysis. Each soil sample was screened in the field for evidence of petroleum hydrocarbons and volatiles using visual, water sheen testing, and headspace vapor screening methods. Soil field screening methods and sample handling procedures are described in Appendix A. No field screening evidence of petroleum or volatiles was observed in soil samples from the borings. Field screening results are shown on the exploration logs and summarized in Table 1 for samples submitted for chemical analysis.

### 3.4. Soil Chemical Analytical Results

Twenty soil samples, one or two from each boring, were selected for chemical analysis from the March 2013 explorations. The selection of samples from DP-1 through DP-10 was based on the sample depths in relation to the former dry cleaner location and underground utilities as well as depth of apparent perched groundwater. Two shallow soil samples were selected from DP-11 and DP-12 based in part on foundation depths of the Vet building. Selected soil samples were submitted to OnSite Environmental Laboratory (OnSite) in Redmond, Washington for chemical analysis of HVOCs by EPA Method 8260C. The soil chemical analytical data are summarized in Table 1 and analytical data for contaminants of concern are presented on Figure 3.

- Tetrachloroethene (PCE) was detected at concentrations greater than the MTCA Method A Cleanup Level in samples DP-2-4.0, DP-4-4.0, DP-5-23.0, and DP-6-2.0. PCE either was not detected or was detected at concentrations less than the MTCA Method A Cleanup Level in the remaining samples submitted for chemical analysis. The detected concentrations of PCE in the March 2013 soil samples ranged from 0.0037 to 0.16 mg/kg.
- Trichloroethene (TCE) was detected at a concentration greater than the MTCA Method A Cleanup Level in sample DP-10-4.0. TCE either was not detected or was detected at concentrations less than the MTCA cleanup level in the remaining samples submitted for chemical analysis. The detected concentrations of TCE in the March 2013 soil samples ranged from 0.0012 to 0.74 mg/kg.
- Common breakdown products of PCE and TCE such as (cis) 1, 2-Dichloroethene, (trans) 1, 2-Dichloroethene, and vinyl chloride either were not detected or were detected at concentrations less than their respective MTCA Method A or B cleanup levels in soil.

### 3.5. Groundwater Sampling and Chemical Analytical Results

Groundwater quality was evaluated by collecting grab groundwater samples from the explorations. Groundwater samples were obtained from DP-4, DP-5, and DP-7 through DP-11. Groundwater was not encountered in remaining borings to the maximum depth explored. The groundwater samples were submitted for chemical analysis of HVOCs by EPA Method 8260C. Field procedures for groundwater sampling are described in Appendix A. Groundwater chemical analytical data are summarized in Table 2 and analytical data for contaminants of concern are presented on Figure 4.

- PCE was detected at concentrations greater than the MTCA Method A Cleanup Level in five (DP-4, DP-5, DP-7, DP-10 and DP-11) of the seven groundwater samples. PCE was detected at a concentration less than the MTCA cleanup level in DP-8, and PCE was not detected in DP-9. The detected concentrations of PCE in the March 2013 groundwater samples ranged from 8 to 33 µg/l.
- TCE was detected at a concentration greater than the MTCA Method A Cleanup Level in the groundwater sample from DP-10. TCE either was not detected or was detected at concentrations less than the MTCA cleanup level in the remaining groundwater samples. The detected concentrations of TCE in the March 2013 groundwater samples ranged from 1.2 to 5.9 µg/l.



- Common breakdown products of PCE and TCE such as (cis) 1, 2-Dichloroethene, (trans) 1, 2-Dichloroethene, and vinyl chloride either were not detected or were detected at concentrations less than their respective MTCA Method A or B cleanup levels in groundwater.
- Methylene chloride and chloroform, both common laboratory contaminants, were detected at concentrations less than the MTCA Method cleanup levels in one or more of the groundwater samples.

#### 4.0 SUMMARY AND DISCUSSION

Key findings based on our review and interpretation of the results of previous environmental studies and the findings of the Phase II ESA are as follows:

- A dry cleaner was located in the south-central tenant space of the strip mall building on the property between approximately 1963 and 1978. No historical information has been located regarding dry cleaner products used, types and specific locations of dry cleaning equipment and waste disposal practices associated with the dry cleaner.
- The soil vapor survey and the results of soil and groundwater sampling indicate evidence of a release of PCE and TCE, likely associated with the former dry cleaner on the property.
- The highest detected concentrations of PCE or TCE were in shallow soil samples at 2 or 4 feet bgs. However, the three samples with the highest detected concentrations of PCE or TCE are widely distributed: directly south of the building (DP-4 at 4 feet bgs), directly west of the presumed dry cleaner space (DP-6 at 2 feet bgs) and southwest of the building near several underground utilities (DP-10 at 4 feet bgs).
- HVOCs were not detected in soil samples from two of the three explorations along the eastern margin of the building (DP-1 and DP-3); however, PCE was detected in the soil samples from 4 feet and 8 feet bgs in DP-2 situated east of the former dry cleaner space.
- Detectable HVOCs extended to the maximum depths explored in three of the borings located south and southwest of the building: DP-4, DP-5 and DP-10. Due to the limitations of direct push exploration equipment, the borings could not be extended deeper. Hollow-stem auger drilling equipment would be needed to obtain deeper samples.
- The groundwater samples with the highest concentrations of PCE were at DP-4, DP-10 and DP-11, south and southwest of the building and in downgradient locations in relation to the former dry cleaner space. Groundwater encountered in the borings appeared to be perched and may be present in this area of the property at varying depths in discontinuous lenses of more permeable soil.

The results of the Phase II ESA indicate evidence of a reportable release under MTCA (Chapter 70.105D RCW, WAC 173-340-300 and MTCA Policy 300 Site Discovery).

#### 5.0 LIMITATIONS

We have prepared this report for the exclusive use of the Lynnwood Public Facilities District and their authorized agents. Within the limitations of scope, schedule and budget, our services have

been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Please refer to Appendix E, titled “Report Limitations and Guidelines for Use,” for additional information pertaining to use of this report.

## **6.0 REFERENCES**

W. L. Gore & Associates, Inc., “Mapping Report, Former Alderwood Dry Cleaners, Lynnwood, Washington.” Prepared for GeoEngineers, Inc., dated November 29, 2012.

**Table 1**  
**Summary of Soil Field Screening and Chemical Analytical Data<sup>1</sup>**  
**Halogenated Volatile Organic Compounds (HVOCs)**  
**Phase II ESA - Former Dry Cleaner**  
**Lynnwood, Washington**

Sample Identification <sup>2</sup>	Sample Date	Sample Depth (feet bgs)	Field Screening Results <sup>3</sup>		HVOCs <sup>4</sup> (mg/kg)		
			Sheen	Headspace vapor (ppm)	Tetrachloroethene	Trichloroethene	(cis) 1, 2-Dichloro ethene
DP-1-4.0	3/28/2013	4.0	NS	<1	<0.0011	<0.0011	<0.0011
DP-2-4.0	3/28/2013	4.0	SS	<1	<b>0.0610</b>	<0.0012	<0.0012
DP-2-8.0	3/28/2013	8.0	NS	<1	<b>0.0039</b>	<0.00089	<0.00089
DP-3-2.0	3/28/2013	2.0	SS	<1	<0.0010	<0.0010	<0.0010
DP-3-6.0	3/28/2013	6.0	SS	<1	<0.0011	<0.0011	<0.0011
DP-4-4.0	3/28/2013	4.0	SS	<1	<b>0.160</b>	<b>0.0023</b>	<0.0012
DP-4-20.0	3/28/2013	20.0	NS	<1	<b>0.0075</b>	<0.00095	<0.00095
DP-4-25.0	3/28/2013	25.0	NS	<1	<b>0.0091</b>	<0.00087	<0.00087
DP-5-8.0	3/28/2013	8.0	NS	<1	<b>0.0026</b>	<0.00099	<b>0.0046</b>
DP-5-23.0	3/28/2013	23.0	NS	<1	<b>0.0690</b>	<b>0.0047</b>	<b>0.0034</b>
B-4, S-6 <sup>5</sup>	12/7/2001	23.0	-	-	<b>0.0460</b>	na	na
DP-6-2.0	3/28/2013	2.0	SS	<1	<b>0.120</b>	<b>0.0017</b>	<0.0010
DP-6-12.0	3/28/2013	12.0	NS	<1	<b>0.0210</b>	<0.00087	<0.00087
DP-7-6.0	3/29/2013	6.0	NS	<1	<b>0.0037</b>	<0.00098	<0.00098
DP-7-10.0	3/29/2013	10.0	NS	<1	<b>0.0080</b>	<0.00096	<0.00096
DP-8-2.0	3/29/2013	2.0	NS	<1	<0.00093	<0.00093	<0.00093
DP-8-6.0	3/29/2013	6.0	NS	<1	<0.00091	<0.00091	<0.00091
DP-10-4.0	3/29/2013	4.0	NS	<1	<0.0011	<b>0.740</b>	<0.0011
DP-10-15.0	3/29/2013	15.0	NS	<1	<b>0.020</b>	<b>0.0012</b>	<0.00082
DP-11-2.0	3/29/2013	2.0	NS	<1	<b>0.015</b>	<0.0010	<0.0010
DP-12-6.0	3/29/2013	6.0	NS	<1	<b>0.0075</b>	<0.0084	<0.0084
MTCA Method A Cleanup Level - Unrestricted Land Use					0.05	0.03	160 <sup>6</sup>

**Notes:**

<sup>1</sup>Chemical analyses performed by OnSite Environmental of Redmond, Washington. Chemical analytical laboratory reports included in Appendix B.

<sup>2</sup>The approximate exploration locations are shown in Figure 2.

<sup>3</sup>Field screening methods are presented in Appendix A.

<sup>4</sup>HVOCs were analyzed by EPA Method 8260C. Vinyl chloride and (trans)1, 2-Dichloroethene were not detected. Other method analytes also were not detected.

<sup>5</sup>Sample obtained by Zipper Zeman Associates from a boring B-4/MW-4 completed during their Limited Phase II ESA in December 2001.

<sup>6</sup>MTCA Method B Cleanup Level.

bgs = below ground surface

mg/kg = milli gram per kilogram

NS = No sheen; SS = Slight sheen

na = not available

MTCA = Model Toxics Control Act

**Bolded** value indicates an analyte has been detected at the listed concentration.

Shaded value represents concentrations that are greater than the MTCA Method A cleanup level.

**Table 2**  
**Summary of Groundwater Chemical Analytical Data<sup>1</sup>**  
**Halogenated Volatile Organic Compounds (HVOCs)**  
**Phase II ESA - Former Dry Cleaner**  
**Lynnwood, Washington**

Sample Identification <sup>2</sup>	Sample Date	HVOCs <sup>3</sup> (ug/L)					
		<i>PCP</i> Tetrachloroethene	<i>TCF</i> Trichloroethene	(cis) 1, 2-Dichloroethene	(trans) 1, 2-Dichloroethene	Chloroform	Methylene Chloride
DP-4-GW	3/28/2013	<b>28.0</b>	<b>1.2</b>	<b>0.34</b>	<0.2	<0.2	<0.2
DP-5-GW	3/28/2013	<b>11.0</b>	<b>3.2</b>	<b>14.0</b>	<b>0.39</b>	<b>1.1</b>	<0.2
DP-7-GW	3/29/2013	<b>8.0</b>	<0.2	<b>0.78</b>	<0.2	<0.2	<0.2
DP-8-GW	3/29/2013	<b>0.31</b>	<0.2	<0.2	<0.2	<b>2.7</b>	<0.2
DP-9-GW	3/29/2013	<0.2	<0.2	<0.2	<0.2	<b>1.6</b>	<0.2
DP-10-GW	3/29/2013	<b>33.0</b>	<b>5.9</b>	<b>6.6</b>	<b>0.23</b>	<b>0.35</b>	<0.2
DP-11-GW	3/29/2013	<b>18.0</b>	<b>1.6</b>	<b>1.6</b>	<0.2	<0.2	<b>1.0</b>
MTCA Method A Cleanup Level - Unrestricted Land Use		5.0	5.0	16 <sup>4</sup>	160 <sup>4</sup>	80 <sup>4</sup>	5.0

**Notes:**

<sup>1</sup>Chemical analyses performed by OnSite Environmental of Redmond, Washington. Chemical analytical laboratory reports included in Appendix B.

<sup>2</sup>The approximate exploration locations are shown in Figure 2.

<sup>3</sup>HVOCs were analyzed by EPA Method 8260C. Vinyl chloride and other method analytes were not detected.

<sup>4</sup>MTCA Method B Cleanup Level.

ug/L = micrograms per liter

MTCA = Model Toxics Control Act

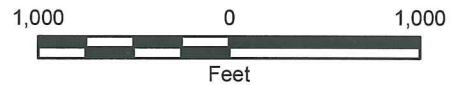
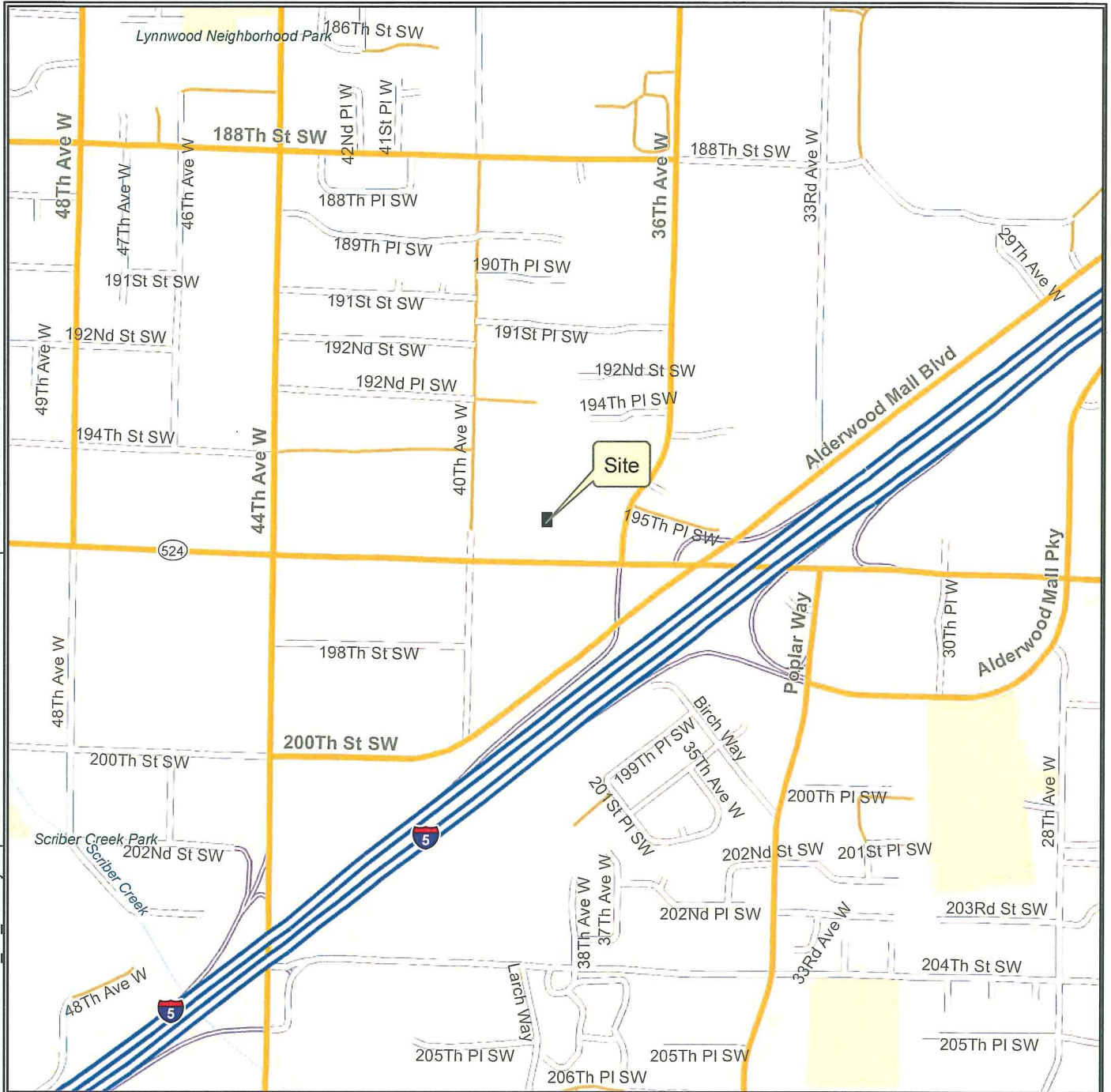
**Bolded** value indicates an analyte has been detected at the listed concentration.

Shaded value represents concentrations that are greater than the MTCA Method A cleanup level.

Map Revised: 5/20/2013 EL

Path: \\red\projects\1711778001\GIS\177800103\_F1\_VicinityMap.mxd

Office: Redmond



**Notes:**

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
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Data Sources: ESRI Data & Maps, Street Maps 2005  
 Transverse Mercator, Zone 10 N North, North American Datum 1983  
 North arrow oriented to grid north

**Vicinity Map**

Former Dry Cleaner  
 3816 196th St SW  
 Lynnwood, Washington



**Figure 1**

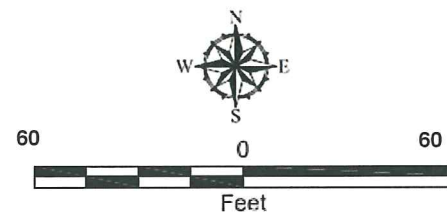


**LEGEND:**

- DP-1 Soil Boring by GeoEngineers (March 2013)
- MW-4 Former Soil Boring/Monitoring Well by Zipper Zeman Associates (December 2001)
- Presumed approximate footprint of Former Dry Cleaner
- Parcel Line

**NOTES:**

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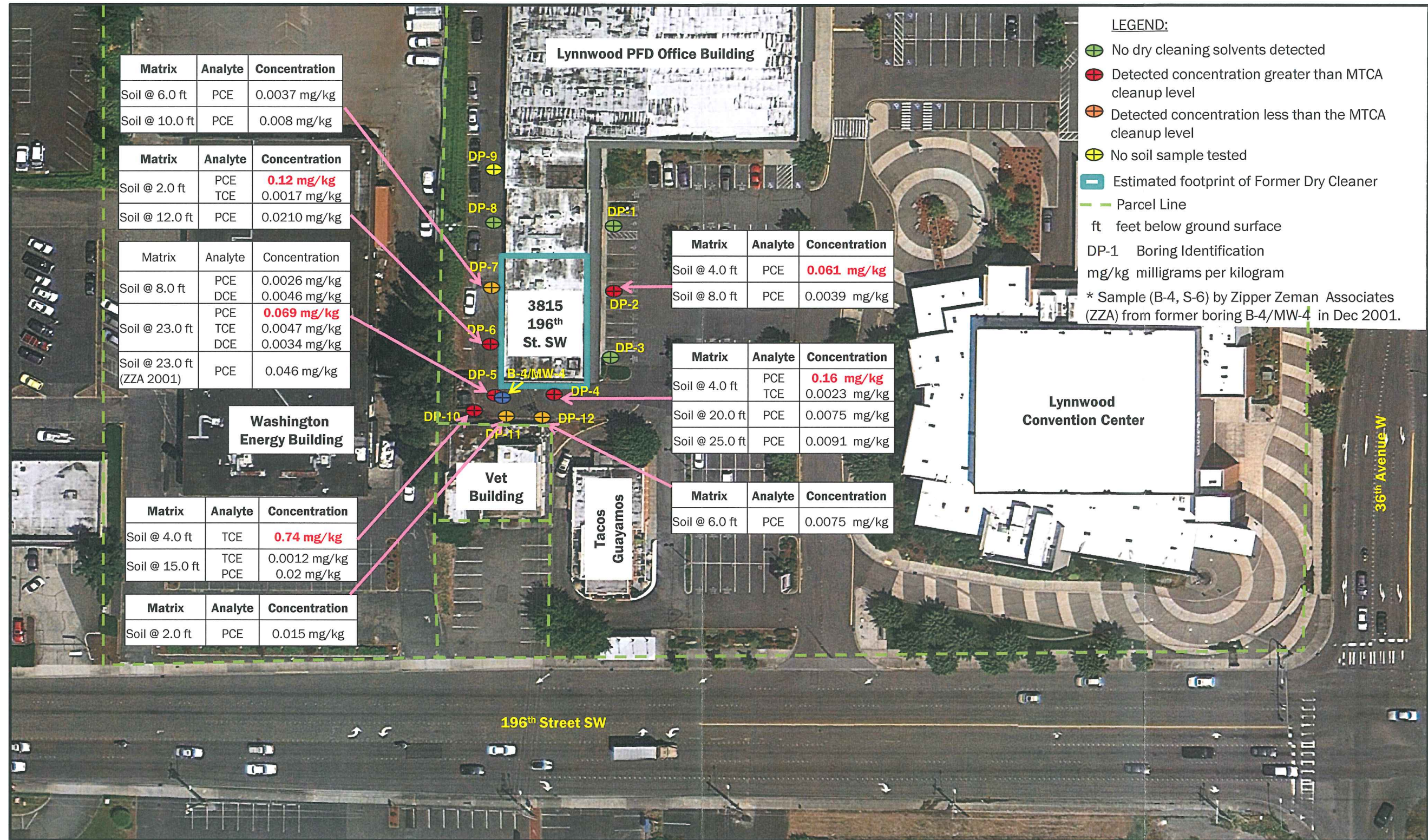


**Site Plan - Exploration Locations**

**Former Dry Cleaner  
3816 196<sup>th</sup> Street SW, Lynnwood, Washington**



**Figure 2**



Matrix	Analyte	Concentration
Soil @ 6.0 ft	PCE	0.0037 mg/kg
Soil @ 10.0 ft	PCE	0.008 mg/kg

Matrix	Analyte	Concentration
Soil @ 2.0 ft	PCE	<b>0.12 mg/kg</b>
	TCE	0.0017 mg/kg
Soil @ 12.0 ft	PCE	0.0210 mg/kg

Matrix	Analyte	Concentration
Soil @ 8.0 ft	PCE	0.0026 mg/kg
	DCE	0.0046 mg/kg
Soil @ 23.0 ft	PCE	<b>0.069 mg/kg</b>
	TCE	0.0047 mg/kg
	DCE	0.0034 mg/kg
Soil @ 23.0 ft (ZZA 2001)	PCE	0.046 mg/kg

Matrix	Analyte	Concentration
Soil @ 4.0 ft	PCE	<b>0.061 mg/kg</b>
Soil @ 8.0 ft	PCE	0.0039 mg/kg

Matrix	Analyte	Concentration
Soil @ 4.0 ft	PCE	<b>0.16 mg/kg</b>
	TCE	0.0023 mg/kg
Soil @ 20.0 ft	PCE	0.0075 mg/kg
Soil @ 25.0 ft	PCE	0.0091 mg/kg

Matrix	Analyte	Concentration
Soil @ 4.0 ft	TCE	<b>0.74 mg/kg</b>
Soil @ 15.0 ft	TCE	0.0012 mg/kg
	PCE	0.02 mg/kg

Matrix	Analyte	Concentration
Soil @ 2.0 ft	PCE	0.015 mg/kg

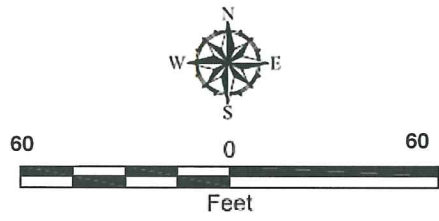
Matrix	Analyte	Concentration
Soil @ 6.0 ft	PCE	0.0075 mg/kg

**LEGEND:**

- No dry cleaning solvents detected
- Detected concentration greater than MTCA cleanup level
- Detected concentration less than the MTCA cleanup level
- No soil sample tested
- Estimated footprint of Former Dry Cleaner
- Parcel Line
- ft feet below ground surface
- DP-1 Boring Identification
- mg/kg milligrams per kilogram

\* Sample (B-4, S-6) by Zipper Zeman Associates (ZZA) from former boring B-4/MW-4 in Dec 2001.

Matrix	Analyte	MTCA Method A or B Cleanup Level (mg/kg)
Soil		
	Tetrachloroethene (PCE)	0.05
	Trichloroethene (TCE)	0.03
	(cis) 1, 2-Dichloroethene (DCE)	160
	(trans) 1, 2-DCE	1600



**NOTES:**

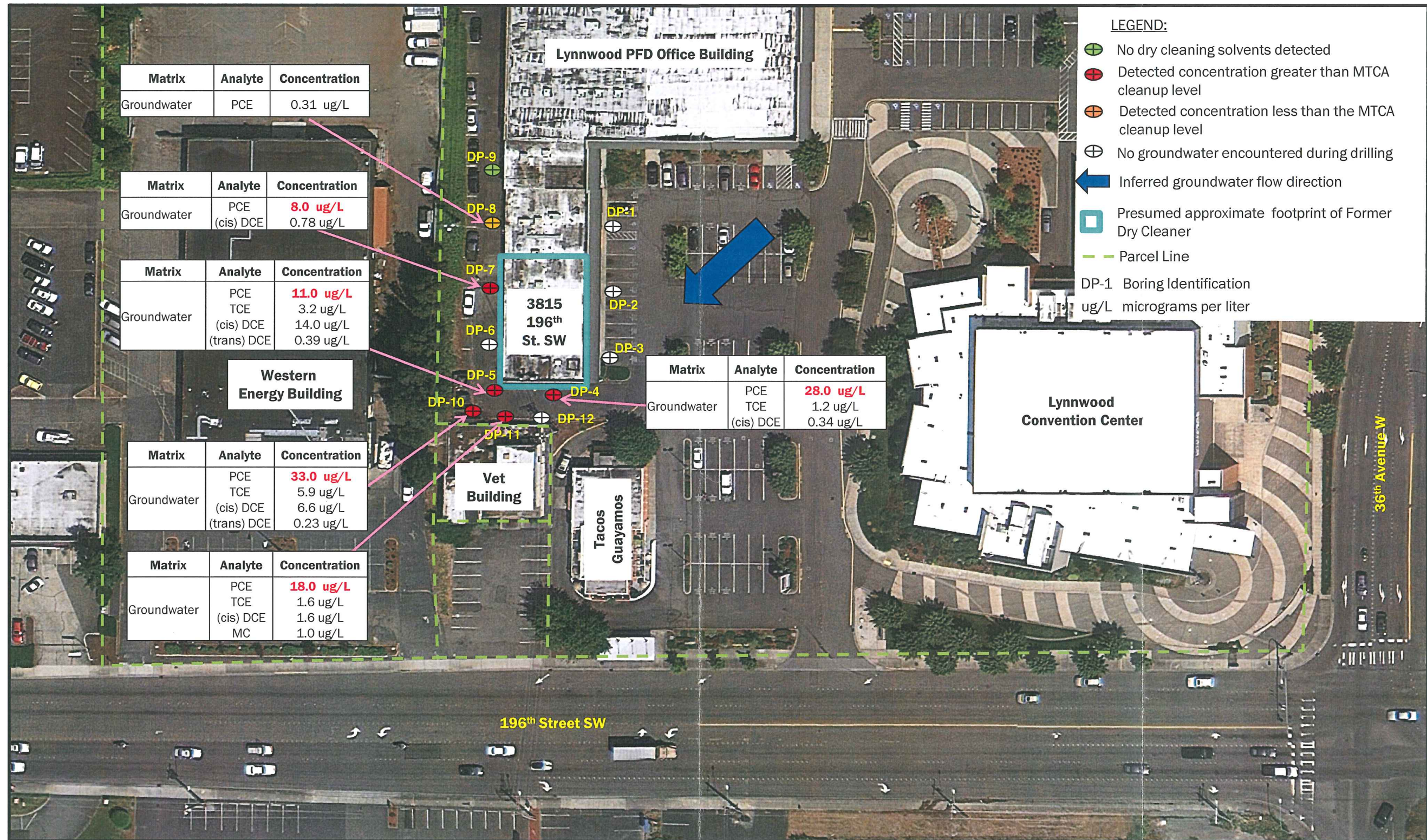
- The locations of all features shown are approximate.
- This drawing is only for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

**Dry Cleaning Solvent Detections in Soil**

**Former Dry Cleaner**  
**3815 196<sup>th</sup> Street SW, Lynnwood, Washington**

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**Figure 3**



**LEGEND:**

- No dry cleaning solvents detected
- Detected concentration greater than MTCA cleanup level
- Detected concentration less than the MTCA cleanup level
- ⊕ No groundwater encountered during drilling
- ➔ Inferred groundwater flow direction
- Presumed approximate footprint of Former Dry Cleaner
- Parcel Line
- DP-1 Boring Identification
- ug/L micrograms per liter

Matrix	Analyte	Concentration
Groundwater	PCE	0.31 ug/L

Matrix	Analyte	Concentration
Groundwater	PCE	<b>8.0 ug/L</b>
	(cis) DCE	0.78 ug/L

Matrix	Analyte	Concentration
Groundwater	PCE	<b>11.0 ug/L</b>
	TCE	3.2 ug/L
	(cis) DCE	14.0 ug/L
	(trans) DCE	0.39 ug/L

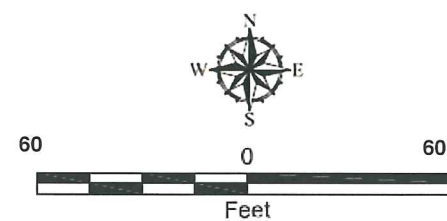
**Western Energy Building**

Matrix	Analyte	Concentration
Groundwater	PCE	<b>33.0 ug/L</b>
	TCE	5.9 ug/L
	(cis) DCE	6.6 ug/L
	(trans) DCE	0.23 ug/L

Matrix	Analyte	Concentration
Groundwater	PCE	<b>18.0 ug/L</b>
	TCE	1.6 ug/L
	(cis) DCE	1.6 ug/L
	MC	1.0 ug/L

Matrix	Analyte	Concentration
Groundwater	PCE	<b>28.0 ug/L</b>
	TCE	1.2 ug/L
	(cis) DCE	0.34 ug/L

Matrix	Analyte	MTCA Method A or B Cleanup Level (ug/L)
Groundwater		
	Tetrachloroethene (PCE)	5.0
	Trichloroethene (TCE)	5.0
	Methylene Chloride (MC)	5.0
	(cis) 1, 2-Dichloroethene (DCE)	16.0
	(trans) 1, 2-DCE	160.0



**NOTES:**

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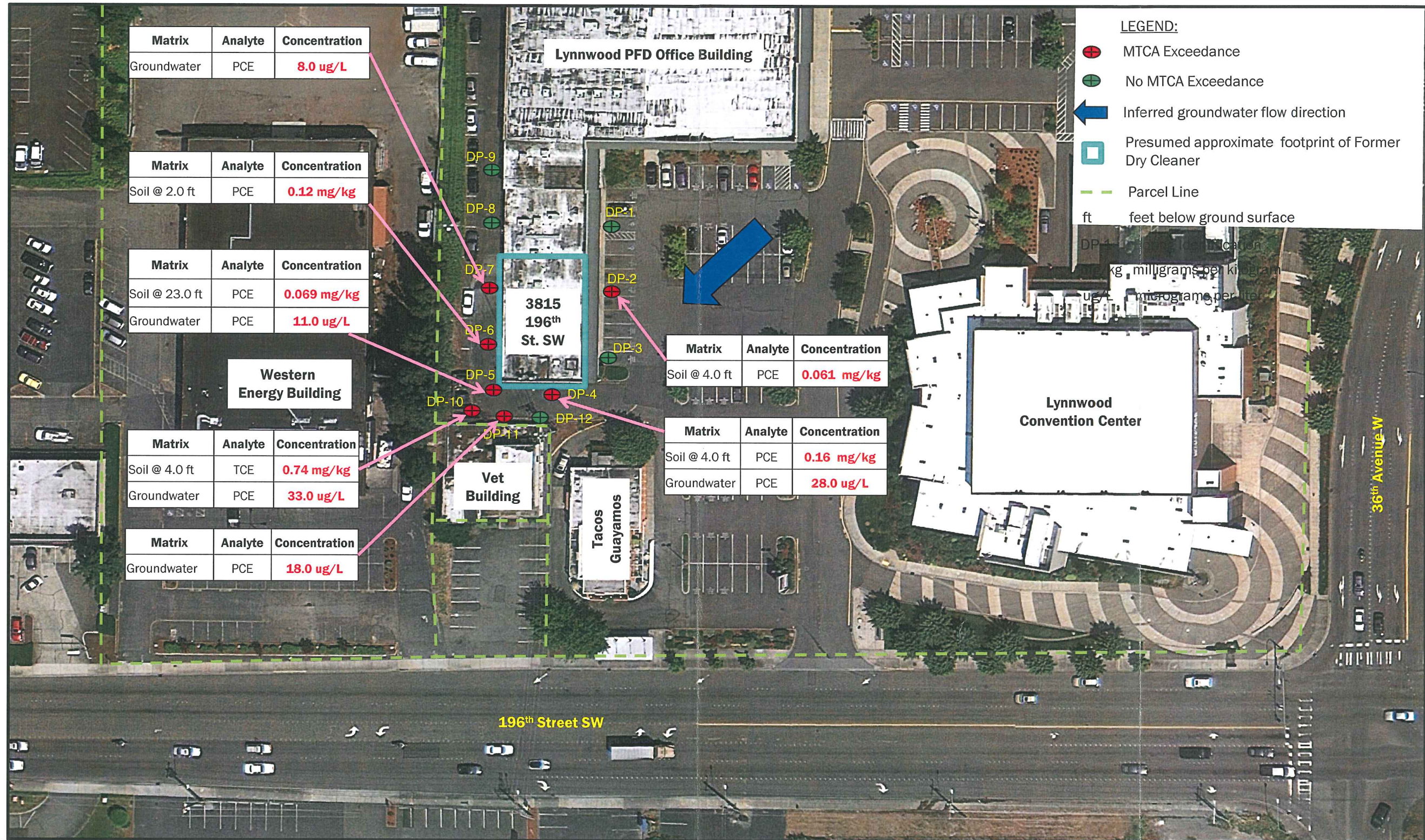
**Dry Cleaning Solvent Detections in Groundwater**

**Former Dry Cleaner**  
**3816 196<sup>th</sup> Street SW, Lynnwood, Washington**

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**Figure 4**





Matrix	Analyte	Concentration
Groundwater	PCE	8.0 ug/L

Matrix	Analyte	Concentration
Soil @ 2.0 ft	PCE	0.12 mg/kg

Matrix	Analyte	Concentration
Soil @ 23.0 ft	PCE	0.069 mg/kg
Groundwater	PCE	11.0 ug/L

**Western Energy Building**

Matrix	Analyte	Concentration
Soil @ 4.0 ft	TCE	0.74 mg/kg
Groundwater	PCE	33.0 ug/L

Matrix	Analyte	Concentration
Groundwater	PCE	18.0 ug/L

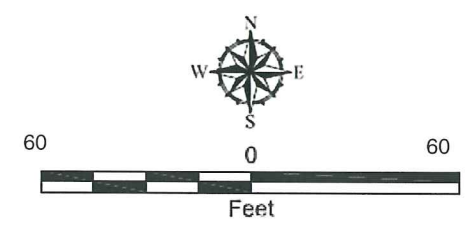
Matrix	Analyte	Concentration
Soil @ 4.0 ft	PCE	0.061 mg/kg

Matrix	Analyte	Concentration
Soil @ 4.0 ft	PCE	0.16 mg/kg
Groundwater	PCE	28.0 ug/L

**LEGEND:**

- MTCA Exceedance
- No MTCA Exceedance
- ➔ Inferred groundwater flow direction
- Presumed approximate footprint of Former Dry Cleaner
- Parcel Line
- ft feet below ground surface

Matrix	Analyte	MTCA Method A or B Cleanup Level
Soil (mg/kg)		
	Tetrachloroethene (PCE)	0.05
	Trichloroethene (TCE)	0.03
Groundwater (ug/L)		
	Tetrachloroethene (PCE)	5
	Trichloroethene (TCE)	5



**NOTES:**

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**MTCA Exceedances in Soil and Groundwater**

**Former Dry Cleaner**  
**3816 196<sup>th</sup> Street SW, Lynnwood, Washington**

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**Figure 5**