STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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Electronic Copy

May 17, 2017

Mr. Craig Angelo
Al Angelo Co.
400 E Mill Plain Blvd, Suite 500
Vancouver, WA 98660-3492

Re: No Further Action at the following Site:

- **Site Name:** 400 E MILL PLAIN DRYWELLS
- **Site Address:** 400 E Mill Plain Blvd, Vancouver, 98666
- **Facility/Site No.:** 8223776
- **Cleanup Site No.:** 4699
- **VCP Project No.:** SW1487

Dear Mr. Angelo:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the 400 E MILL PLAIN DRYWELLS facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

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

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

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

Description of the Site

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

- Total Petroleum Hydrocarbons and related constituents into soil.
- Metals into soil.

Enclosure A includes diagrams of the Site, as currently known to Ecology.

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. Geocon Northwest, Inc. (Geocon), *Subject: 400 E Mill Plain Drywell Decommissioning*, September 18, 2008.
2. Ecology, *Environmental Report Tracking System Initial Report #608624*, September 29, 2008.
3. Ecology, *RE: Early Notice Letter Regarding the Release of Hazardous Substances at the 400 E Mill Plain Drywells*, March 17, 2009.
4. Ecology, *Site Hazard Assessment*, 400 E Mill Plain Drywells, May 4, 2010.
5. Coles Environmental Consulting, Inc. (CEC), *SUBJECT: Site Closure Report for the UICs at 400 E Mill Plain Boulevard, Vancouver, Washington*, October 4, 2016.

These documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. You can make an appointment by calling the SWRO resource contact at 360.407.6365.

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

Analysis of the Cleanup

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

1. **Characterization of the Site.**

   Ecology has determined that characterization of the Site is sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.**

   The Site is located within a 0.7-acre property at 400 East Mill Plain Boulevard, Clark County, Vancouver, Washington (Clark County Property Parcel Number 40000000, the Property, Figure 1). The Property is zoned commercial mixed-use, and is occupied by a five-story office building, a permeable paver- and cement-covered parking lot, and landscaping (Figure 2).

   In January, 2005 and March, 2007, geotechnical investigations were conducted at the Property, prior to construction of the current office building in 2008 (Figure 3). For the first geotechnical investigation, five soil borings were installed (B-1 through B-5). For the second geotechnical investigation, two soil borings were installed (B-1 and B-2). Soils encountered included sandy gravel fill from between 8 to 14 feet BGS, that CEC hypothesizes is associated with basement backfill from the former residences. Silty clay to clayey silts are reported from between 5 to 14 feet bgs, underlain by silty sand to between 21 to 34 feet bgs. The silty sands are underlain by dense to very dense sand to the maximum depths drilled, up to 50 feet bgs (Figure 4).

   In August, 2008, during excavation for construction of the current office building, Geocon encountered three brick-lined drywells beneath the location of a former restaurant at the Site (Figure 2). The restaurant is reported to have operated from 1976 to 2008. The drywells may have been used for surface water drainage from the former restaurant. However, because the drywells were located buried beneath the footprint of the former restaurant, the drywells likely predated the restaurant, and were more likely associated with drainage from residences that are reported to have occupied the location from approximately 1911 to 1968 (Figure 5).

   The approximately 4 foot diameter drywells were covered with domed lids and were located below between one and four feet of soil. Each drywell extended to between 13-20 feet below ground surface (bgs) (Figure 4). Geocon observed lateral drain tiles in one drywell, leading to the assumption of a connection to a former surface drainage system.

Groundwater was not observed in any of the three drywells. No historical records have been identified or provided regarding the age or use of the drywells. The drywells were likely used as underground structures to infiltrate surface water from a lateral drainage system sometime between 1911 and 1968.

Geocon sampled sediment from each drywell, and analyzed one sample from each of the three drywells. Three sediment samples were analyzed using the following analytical methods:

- Total petroleum hydrocarbons as gasoline (TPH-Gx)
- Total petroleum hydrocarbons as diesel (TPH-Dx)
- Total petroleum hydrocarbons as heavy oil (TPH-HO)
- Volatile organic carbons (VOCs) by US EPA Method 8260b
- Total metals by US EPA 6000/7000 series
- Toxicity characteristic leaching procedure (TCLP) by US EPA Method 6000/7000

Analytical results from sediment samples obtained for this investigation detected diesel and heavy oil, arsenic, barium, cadmium, chromium, lead, mercury and silver in the three sediment samples (Table 1).

Drywell decommissioning is reported to have been carried out by backfilling each drywell with controlled density fill to 3 feet bgs, and placing crushed and compacted rock between the drywells and the buildings foundation. A five-story office building was then constructed above the location of the former drywells.

In 2016, to further investigate groundwater occurrence and the groundwater pathway at the Property, CEC evaluated an Environmental Data Resources (EDR) report, groundwater monitoring well logs, environmental and geotechnical borehole logs, and potable water well logs located within the same township, range and section as the Property. CEC also analyzed State, County and local records and determined that groundwater elevations in the area are likely below 30 feet above mean sea level (amsl, Figure 4).

Establishment of cleanup standards.

The following cleanup levels and points of compliance are appropriate for use at this Site. Because no terrestrial ecological evaluation was submitted for the investigation, the most conservative cleanup levels for ecological risk are used.

a) **Cleanup levels applicable to this Site:**

Soil- Direct Contact[1]:

- TPH-Dx/TPH-HO 2,000 mg/kg[2]
- Arsenic 20 mg/kg
- Cadmium 2 mg/kg
- Chromium
  - Chromium VI 19 mg/kg
  - Chromium III 2,000 mg/kg
- Lead 250 mg/kg
- Mercury (inorganic) 2 mg/kg
- Silver 400 mg/kg[3]

Unsaturated Soil- Protection of Groundwater[3]:

- TPH-Dx/TPH-HO 2,000 mg/kg[4]
- Arsenic 2.92 mg/kg
- Barium 1648 mg/kg
- Cadmium 0.69 mg/kg
- Chromium
  - Chromium VI 18.4 mg/kg
  - Chromium III 480,096 mg/kg
- Lead 3,000 mg/kg
- Mercury (inorganic) 2.09 mg/kg
- Silver 13.6 mg/kg

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[1] MTCA Method A, WAC 173-340-900, Table 740-1

[2] TPH-Dx TPH-Ho combined per Ecology Implementation Memorandum #4, *Determining Compliance with Method A Cleanup Levels for Diesel and Heavy Oil,* Publication number 04-09-086, June 2004.

[3] MTCA Standard Method B, WAC 173-340-740(3)(b)(iii)(A)

[4] TPH-Dx TPH-Ho per Ecology Implementation Memorandum #4, *Determining Compliance with Method A Cleanup Levels for Diesel and Heavy Oil,* Publication number 04-09-086, June 2004.

Soil - Protection of Plants, Soil Biota and Wildlife[5]:

	Plants	Soil Biota	Wildlife
• TPH-Dx		200 mg/kg	6000 mg/kg
• Arsenic III			7 mg/kg
• Arsenic V	10 mg/kg	60 mg/kg	132 mg/kg
• Barium	500 mg/kg		102 mg/kg
• Cadmium	4 mg/kg	20 mg/kg	14 mg/kg
• Chromium (total)	42 mg/kg	42 mg/kg	67 mg/kg
• Lead	50 mg/kg	500 mg/kg	18 mg/kg
• Mercury, inorganic	0.3 mg/kg	0.1 mg/kg	5.5 mg/kg
• Mercury, organic			0.4 mg/kg
• Silver	2 mg/kg		

b) **Points of Compliance**

The following points of compliance are applicable to this Site:

- **Soil-Direct Contact (WAC 173-340-740(6) (d)):** Based on exposure via direct contact, the point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface.
- **Soil- Protection of Groundwater (WAC 173-340-747):** Based on the protection of groundwater, the point of compliance is throughout the Site.
- **Soil-Protection of Plants, Soil Biota and Wildlife (WAC 173-340-7490(4) (b)):** Based on ecological protection, the point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface.

2. Cleanup.

Ecology has determined the cleanup you performed meets the cleanup standards established for the Site. The cleanup performed included the following:

1. Remedial investigation of contamination present.
2. Evaluation of contamination exposure pathways.
3. Evaluation of likely groundwater elevations and offsets to contamination.
4. UIC Closure[6].

[5] WAC 173-340-900, Table 749-3

[6] The Site's Underground Injection Control (UIC) Program Site number is 30451. The UIC program protects groundwater by regulating discharges from UIC wells. The UIC Closure Report prepared by Coles Environmental Consulting, Inc. explained that the type of contaminant, the site geology, and the depth of groundwater in relation to the drywell depth eliminates leaching to groundwater as an exposure pathway, thus protecting groundwater.

The remedial investigation provided for review is sufficient for Ecology to determine that completed exposure pathways are not likely present at the Site. Engineered controls covering the contamination include 13-20 feet of controlled density fill, overlain by a building foundation and office building. The estimate of vertical offset from contamination to groundwater is 45 feet below the lowest level of the deepest drywell at the Site. Ecology concurs that at this Site, pathways for direct contact and the protection of groundwater are most likely incomplete. Contamination at the Site is also at lower elevations than points of compliance for the protection of human health, plants, soil biota and wildlife. The reported contamination profile is not expected to cause impacts to ambient or indoor air quality.

Listing of the Site

Based on this opinion, Ecology will initiate the process of removing the Site from our lists of hazardous waste sites, including:

- Hazardous Sites List.
- Confirmed and Suspected Contaminated Sites List.

That process includes public notice and opportunity to comment. Based on the comments received, Ecology will either remove the Site from the applicable lists or withdraw this opinion.

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 performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. State is immune from liability.

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

Termination of Agreement

Thank you for cleaning up the Site under the Voluntary Cleanup Program (VCP). This opinion terminates the VCP Agreement governing this project (#SW1487).

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 or the termination of the Agreement, please contact me by phone at (360) 407-6528 or e-mail at Adam.Harris@ecy.way.gov.

Sincerely,

Adam Harris, LHG
SWRO Toxics Cleanup Program

ah: kb

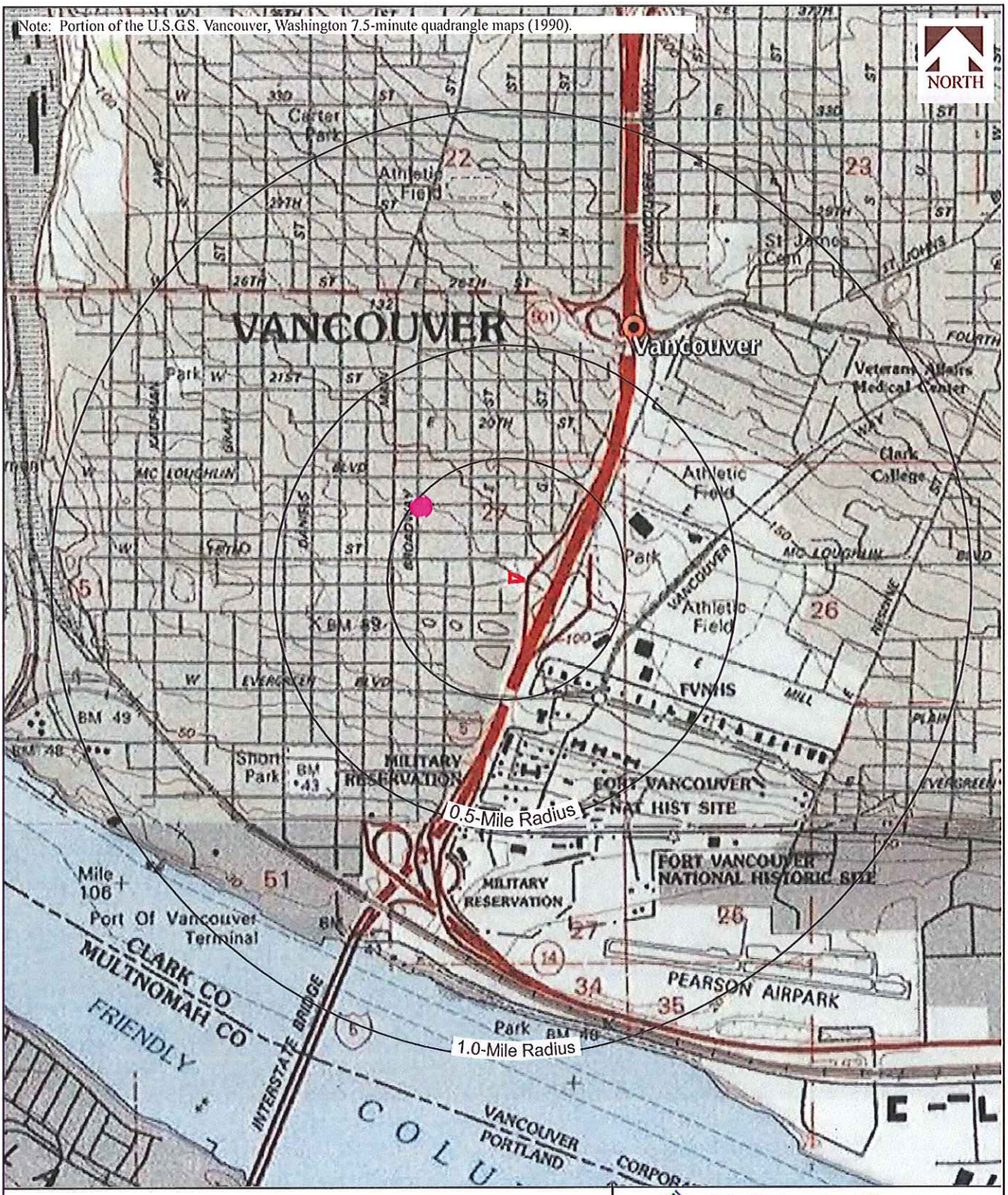
Enclosures (1): A –Diagrams of the Site

By Certified Mail: [91 7199 9991 7037 0221 7829]

cc: David Coles, Coles Environmental Consulting
Jill Betts, Coles Environmental Consulting
Matthew Alexander, Ecology
Nicholas Acklam, Ecology
Stacy Galleher, Ecology

Enclosure A

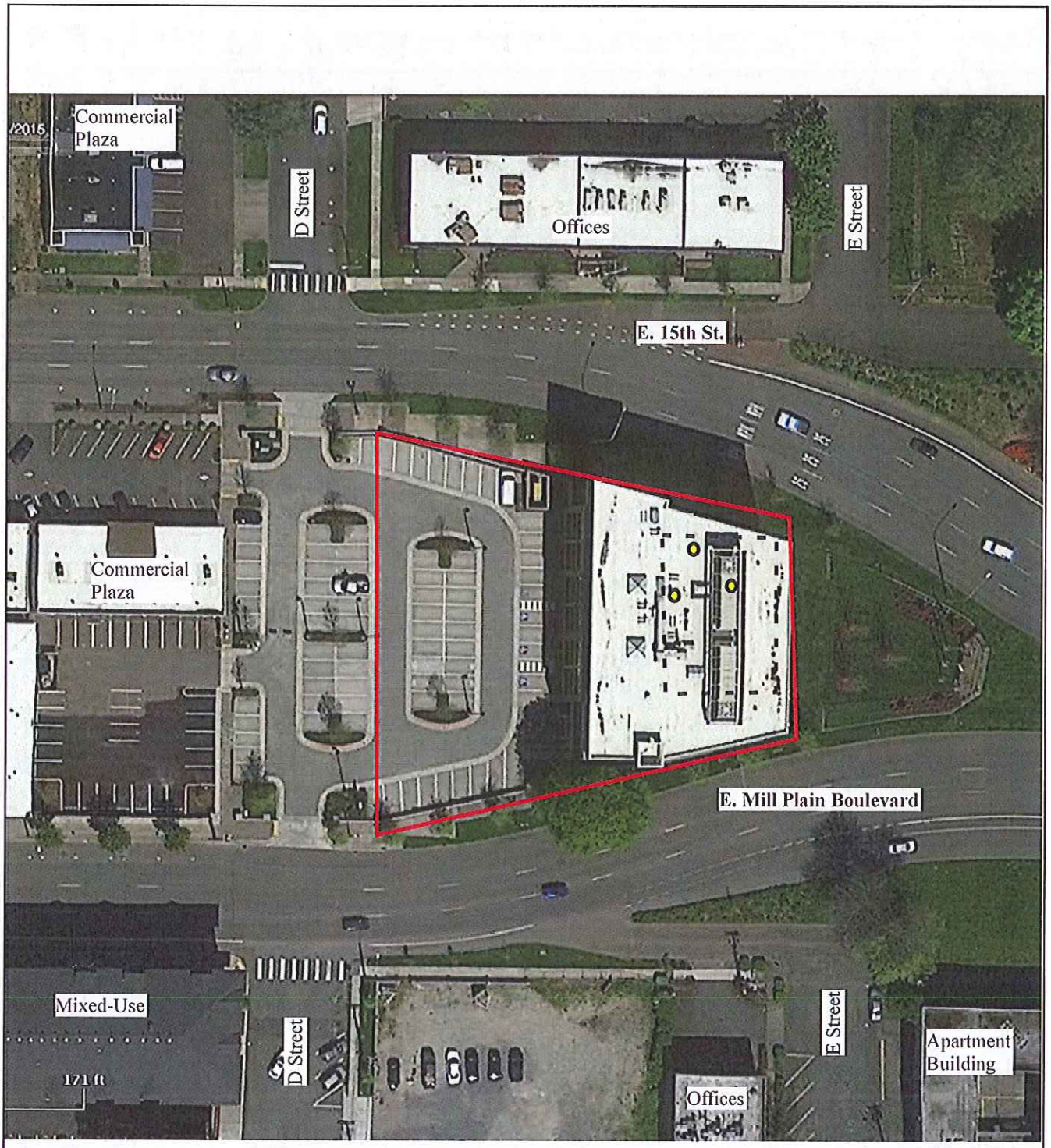
Diagrams of the Site



Coles Environmental Consulting, Inc.
750 S. Rosemont Rd. West Linn, OR
(503) 636-3102, fax (503) 699-1980

Approx. Scale: 1" = 2000'	Approved By	Date/Revision
		6/4/16 Rev. 0

Figure 1. Topographic map showing the location of the Site, and nearby cleanup site, Vancouver, WA



Approximate Property Boundary

Approximate Location of Former Building

Approximate Location of UIC

Note: Aerial Photo is dated 2015 from Google Earth

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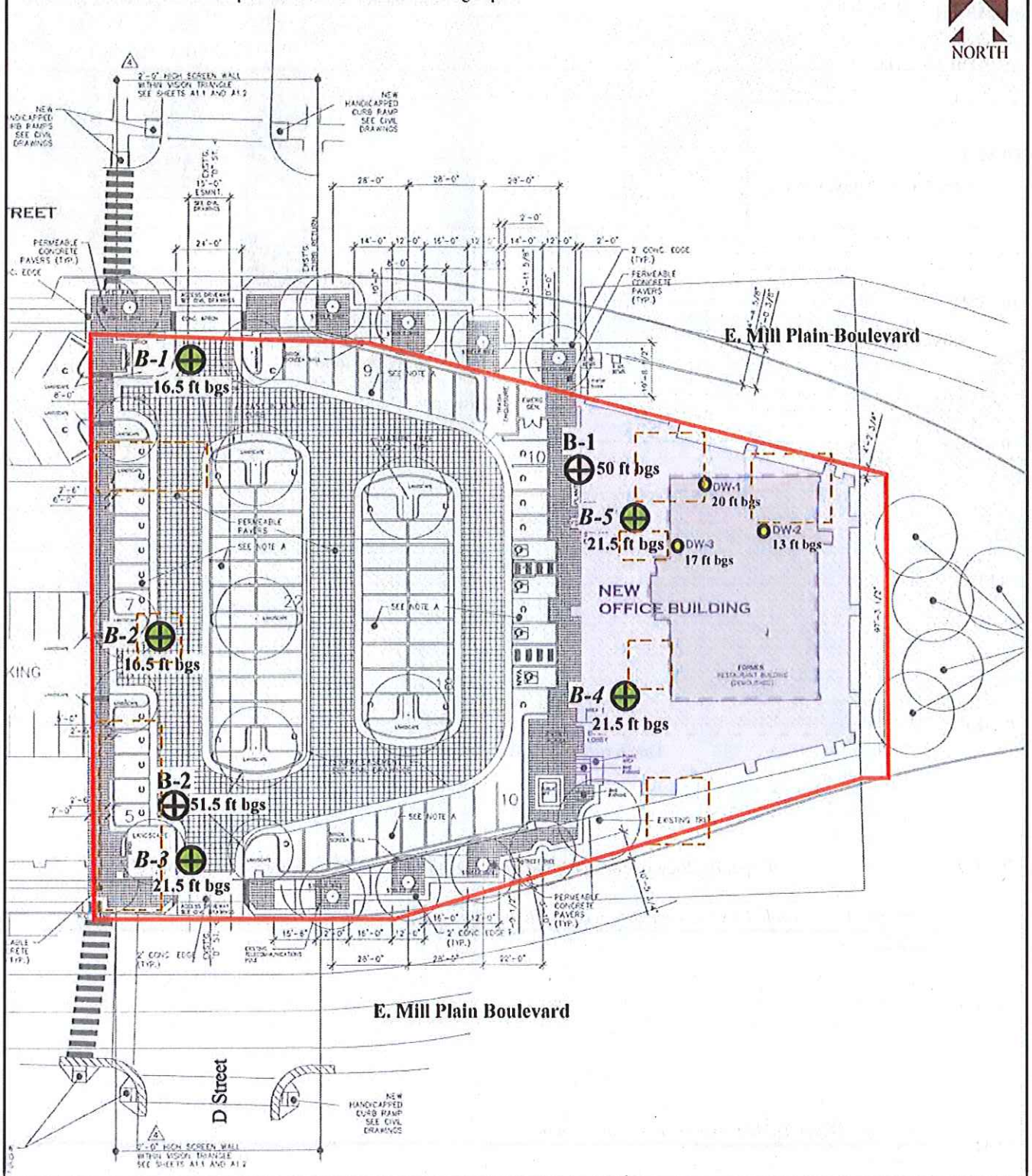
Figure 2. Property and Surrounding Use Map.

Note: Site Plan from Geocon's September 2008 UIC Decommissioning Report.



Approximate Site Boundary Former, Decommissioned UIC

B-2 Approximate Geotechnical Boring Location, March 2007

Former Restaurant Building New Office Building Former Residence

B-2 Approximate Geotechnical Boring Location, Jan. 2005

51.5 ft bgs Depth Drilled in feet below ground surface (bgs), or UIC depth

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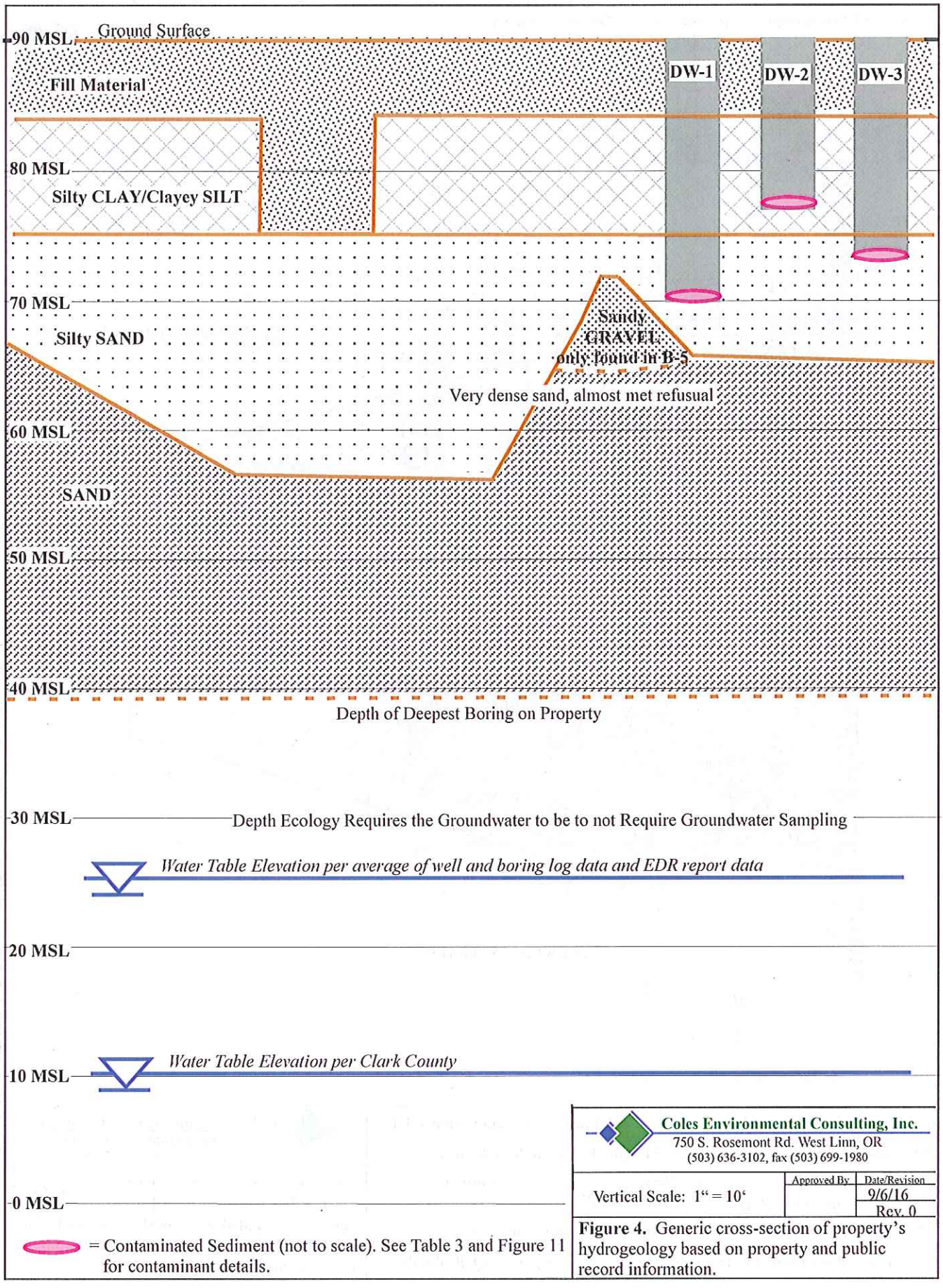
Approx. Scale: 1' = 2000' or 1" = 166'	Approved By	Date/Revision
		9/5/16
		Rev. 0

Figure 3. Detailed site map showing the location of the UICs on the Property relative to buildings and geotechnical borings.



Coles Environmental Consulting, Inc.
750 S. Rosemont Rd. West Linn, OR
(503) 636-3102, fax (503) 699-1980

Vertical Scale: 1" = 10'	Approved By	Date/Revision
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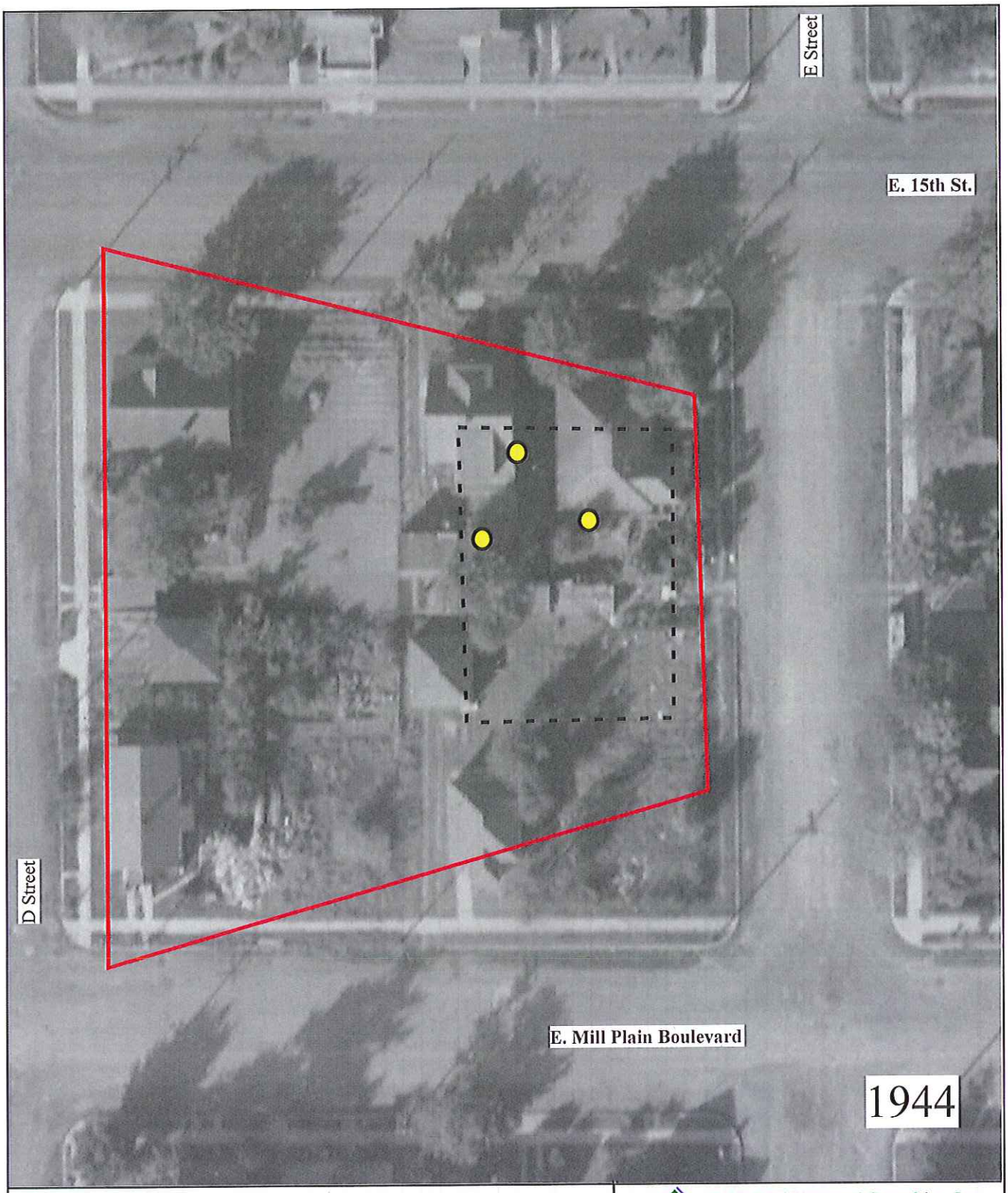
Figure 4. Generic cross-section of property's hydrogeology based on property and public record information.



Approximate Property Boundary

Approximate Location of Former Building

Approximate Location of UIC

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Figure 7.5 Historical Aerial Photograph. Year of photograph indicated above.

Table 1. Summary of UIC Sediment Data

	output unit	MTCA Method A for Unrestricted Land Use	EPA Regional Screening Level for Residentiial Soiil (RSL)	Washington Background Metal Concentrations for Clark County	8/19/08 DW-1		9/2/08 DW-2		9/2/08 DW-3	
NWTPH-Dx with Silica Gel Cleanup										
Diesel-Range Organics	mg/kg	2,000	-	-	<32		<28.9		**147**	F-03
Oil-Range Organics	mg/kg	2,000	-	-	**70.6**	F-03	**58.7**	F-03	**393**	F-03
NWTPH-Gx										
Gasoline-Range Organics	mg/kg	30	-	-	<4.93	V-06	<6.24	F-03	<9.56	F-03
Volatlie Organic Compounds (VOCs)										
Total VOCs	mg/kg	-	-	-	ND	V-06	ND	V-06	ND	V-06
Total Metals (6000/7000)										
Arsenic	mg/kg	20	0.67	6	**4.03**		**5.89**		**7.99**	
Barium	mg/kg	-	1,500	-	**135**		**111**		**233**	
Cadmuim	mg/kg	2	7	1	**2**		<1.39		<1.59	
Chromium										
Chromium VI	mg/kg	19	12000	27	**16.5**		**20.5**		**30.3**	
Chromium III	mg/kg	2,000	12000	27	**16.5**		**20.5**		**30.3**	
Lead	mg/kg	250	400	17	**25.7**		**86.7**		**432**	
Mercury	mg/kg	2	0.94	0.04	**0.206**		**5.82**		**10.4**	
Selenium	mg/kg	-	39	-	<1.14		<1.39		<1.59	
Silver	mg/kg	-	39	0.04	<2.28		<2.77		**7.09**	
TCLP Metals (6000/7000)										
Arsenic	mg/kg	20	0.67	6	<0.1		<0.1		<0.1	
Barium	mg/kg	-	1,500	-	<1.25		<1.25		<1.25	
Cadmuim	mg/kg	2	7	1	<0.05		<0.05		<0.05	
Chromium	mg/kg	2,000	12000	27	<0.1		<0.1		<0.1	
Lead	mg/kg	250	400	17	<0.05		<0.05		**0.478**	
Mercury	mg/kg	2	0.94	0.04	<0.004		<0.004		<0.004	
Selenium	mg/kg	-	39	-	<0.05		<0.05		<0.05	
Silver	mg/kg	-	39	0.04	<0.1		<0.1		<0.1	

Lab Qualifiers

F-03 The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported.

V-06 The sample aliquot was subsampled from a soil jar without significant headspace, and was preserved in methanol within 48 hours of sampling.

NOTES:

mg/kg = milligrams per kilogram

TCLP results are in mg/L.

Bold denotes concentration above laboratory method reporting limit.

Color denotes detected concentration at or exceeding the cleanup level.

U.S. Environmental Protection Agency Regional Screening Level (RSL), January 2015

Washington Model Toxics Control Act (MTCA) Level A Cleanup Levels for Unrestricted Land Use from Regulation Chapter 173-340 WAC

Natural Background Soil Metals Concentrations in Washington State, Ecology, October, 1994

The UIC sediment samples were not analyzed for hexavalent chormium, but both Chromium III and Chromium VI cleanup or screening levels are indicated above.

Chromium VI MTCA Cleanup Level is based on protection of groundwater for drinking water use. Chromium VI must also be tested for and the cleanup level met when present at a site.

Chrimium III MTCA Cleanup level based on protection of groundwater for drinking water use.

Samples analyzed by Apex Laboratories of Tigard, Oregon.

Table 2. Summary of UIC Sediment Data Above MTCA Method A Soil Cleanup Levels for Unrestricted Land Use

	output unit	MTCA Method A for Unrestricted Land Use	EPA Regional Screening Level for Residentiial Soiil (RSL)	Washington Background Metal Concentrations for Clark County	8/19/08 DW-1		9/2/08 DW-2		9/2/08 DW-3	
Total Metals (6000/7000)										
Cadmuim	mg/kg	2	7	1	**2**		<1.39		<1.59	
Chromium										
Chromium VI	mg/kg	19	12000	27	**16.5**		**20.5**		**30.3**	
Chromium III	mg/kg	2,000	12000	27	**16.5**		**20.5**		**30.3**	
Lead	mg/kg	250	400	17	**25.7**		**86.7**		**432**	
Mercury	mg/kg	2	0.94	0.04	**0.206**		**5.82**		**10.4**	

NOTES:
mg/kg = milligrams per kilogram
Bold denotes concentration above laboratory method reporting limit.
Color denotes detected concentration at or exceeding the cleanup level.
U.S. Environmental Protection Agency Regional Screening Level (RSL), January 2015
Washington Model Toxics Control Act (MTCA) Level A Cleanup Levels for Unrestricted Land Use from Regulation Chapter 173-340 WAC
Natural Background Soil Metals Concentrations in Washington State, Ecology, October, 1994
The UIC sediment samples were not analyzed for hexavalent chormium, but both Chromium III and Chromium VI cleanup or screening levels are indicated above.
Chromium VI MTCA Cleanup Level is based on protection of groundwater for drinking water use. Chromium VI must also be tested for and the cleanup level met when present at a site.
Chrimium III MTCA Cleanup level based on protection of groundwater for drinking water use.
Samples analyzed by Apex Laboratories of Tigard, Oregon.