

SITE HAZARD ASSESSMENT

Worksheet 1

Summary Score Sheet

SITE INFORMATION:

Midas Muffler Fauntleroy
4457 Fauntleroy Ave SW
Seattle, King County, WA 98126

Cleanup Site ID: 10302
Facility/Site ID: 72998672

Section:	14	Latitude:	47.56323
Township:	24N	Longitude:	-122.37908
Range:	3E	Tax/Parcel ID:	0952004790

Site scored/ranked for the Hazardous Sites List Publication: February 2018

SITE DESCRIPTION:

The Midas Muffler Fauntleroy site (Site) is a former gasoline service station located in Seattle, King County, Washington. The 0.26-acre property is located approximately 3,100 feet from Longfellow Creek, and zoned for commercial (NC3-65) use.

Adjacent properties include single family and multi-family residential housing to the north and west of the Site, and a public park and commercial businesses to the south and east of the Site. The Site is located along the north side of Fauntleroy Way SW, in a commercial area of the West Seattle neighborhood of Seattle.

The Site is currently operated as a Midas automobile service facility by Midas International Corp.

Current activities at the Site include various types of automobile repair and service, including fluid changes, parts replacements, and general maintenance of cars and small trucks.

Based on a property title search, the Site has changed ownership many times since the first recorded deed in 1943. The early use of the Site is not known, however, the area along Fauntleroy Way Southwest appeared to have been used for commercial purposes by 1936. Several small structures are visible in historic aerial photos of the Site dating from 1936 to 1959. The Site was sold to Shell Oil Company in 1961. King County Assessor's Office records indicate the current building was constructed in 1965, and aerial images from 1965 show the building with what appears to be a large canopy structure out front. The canopy is visible in aerial images from 1970, but appears to have been removed in aerial images from 1978. Shell sold the Site to Midas Realty Corporation in 1976.

According to Ecology's Underground Storage Tank (UST) database, two tanks were installed at the Site in 1968, and were removed in 1996. These tanks were reportedly a 500-gallon used oil UST and a 500-gallon heating oil UST.

SITE BACKGROUND:

A summary of prior operations/tenants at the subject property is presented below.

<u>From</u>	<u>To</u>	<u>Operator/Tenant</u>	<u>Activity</u>
1989		IC Leasing Inc	
1943	1961	Various private owners	Unknown
1961	1989	Shell Oil Company/J.S. & Mildred Whiting	Likely automotive fueling station
1989	2017	Midas Properties/Midas International	Automobile repair facility

SITE CONTAMINATION:

In 1996 the Midas Muffler Fauntleroy site was reported to Washington State Department of Ecology (Ecology)

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and placed on the Confirmed and Suspected Contaminated Sites List (CSCSL).

An Ecology Environmental Tracking Report dated November 1996 notes there were two 500 gallon USTs on the Site. One was reportedly used for heating oil and the other for waste oil. Hand written notes from Ecology's initial investigation visit indicate both USTs were closed in place prior to the November 1996 release report. The notes indicate that "soil sample bore holes" were visible during the Site visit, but no evidence was visible indicating the tanks had been removed (no signs of recent excavation or new asphalt). The notes go on to indicate petroleum (type not specified) was detected in soil samples analyzed by Method 418.1 at concentrations up to 1,200 parts per million (ppm). Gasoline was also reportedly detected in soil at a concentration of 2,600 ppm, and xylenes at 60 ppm. The gasoline and xylenes data noted in Ecology's files suggest there may have been another source of contamination besides the known heating oil and waste oil USTs. No additional information about this investigation, including any possible excavation or groundwater samples, was available for review in Ecology's files.

In 2017, additional Site characterization activities were conducted at the Site. Six soil borings (B-01 through B-06) were advanced in the western portion of the Site, and a total of eleven soil samples were collected for laboratory analysis from borings B-01 through B-05. Soil samples were not collected from boring B-06 due to low recovery. Gasoline-range organics (GRO) were detected in two soil samples at concentrations greater than the Model Toxics Control Act (MTCA) Method A soil cleanup level (CUL) of 30 milligrams per kilogram (mg/kg). GRO were detected at concentrations of 13,800 mg/kg and 289 mg/kg in samples B-03 (6.0-7.0 feet) and B-4 (6.0-7.0 feet), respectively. Diesel-range organics (DRO) were not detected in any soil samples at a concentration greater than the MTCA Method A soil CUL. DRO were only detected in two samples at a concentration greater than the laboratory reporting limit, and the highest concentration was 166 mg/kg at location B-03.

Several semivolatile organic compounds (SVOCs) were detected in soil samples from borings B-03, B-04, and B-05 at concentrations greater than the laboratory reporting limit. However, naphthalene was the only compound detected at a concentration greater than the soil CUL from B-03 from 6.0-7.0 feet bgs, at a reported concentration of 12.6 mg/kg. Naphthalene was also analyzed as a volatile organic compound (VOC) as part of Method 8260C, and a higher concentration of 45.9 mg/kg was reported using this method. Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) were not detected at a concentration greater than the laboratory reporting limit for any sample.

VOCs were detected at concentrations above soil CULs in one sample, B-03 from 6.0-7.0 feet bgs. The compounds detected above CULs were benzene (3.48 mg/kg), ethylbenzene (177 mg/kg), naphthalene (45.9 mg/kg), toluene (19.7 mg/kg), and xylenes (938 mg/kg). The presence of these compounds at concentrations greater than the soil CULs is indicative of a gasoline release at the Site. Due to sample dilution by the laboratory, several compounds in the VOC analysis list had laboratory reporting limits which were higher than the respective CULs. As a result, it is unknown if these compounds are present in Site soils at concentrations above the soil CULs.

None of the metals analyzed (arsenic, barium, cadmium, chromium, lead, mercury, selenium, or silver) were detected in soil samples at a concentration greater than their respective MTCA soil CULs.

Polychlorinated biphenyls (PCBs) were analyzed in samples B-03 (6.0-7.0) and B-04 (6.0-7.0) and were not detected at a concentration greater than the laboratory reporting limit.

Reconnaissance groundwater samples were collected from borings B-01 and B-05, and a field duplicate sample was collected from boring B-05. When referring to groundwater analytical results from boring B-05, the higher concentration between the parent sample (B-05) and duplicate sample (Dup-1-GW) is described here. In discussion of reconnaissance groundwater sample results, it is acknowledged that contaminant concentrations have a tendency to be biased high due to excessive turbidity in the sample which is characteristic of reconnaissance groundwater samples. GRO and DRO were detected in reconnaissance groundwater samples from both B-01 and B-05 at a concentration greater than the MTCA Method A groundwater CUL. GRO was detected at a concentration of 2,440 micrograms per liter (µg/L) and 6,120 µg/L, respectively, which is greater than the MTCA Method A groundwater CUL of 800 µg/L. DRO was detected at a concentration of 599 µg/L and 771 µg/L, respectively, which is greater than the MTCA Method A groundwater CUL of 500 µg/L.

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Two SVOCs, 1-methylnaphthalene and 2-methylnaphthalene, were detected in groundwater at concentrations greater than their respective MTCA Method B groundwater CULs. 1-methylnaphthalene was detected at a concentration of 32.0 µg/L and 40.2 µg/L from borings B-01 and B-05, respectively. 2-methylnaphthalene was detected at a concentration of 46.7 µg/L and 60.8 µg/L from borings B-01 and B-05, respectively.

Several VOCs were detected in groundwater samples at concentrations greater than the respective groundwater CULs. 1,3,5-trimethylbenzene was detected in the sample from B-05 at a concentration of 181 µg/L, greater than the MTCA Method B groundwater CUL of 80 µg/L. Benzene was detected at concentrations of 27.3 µg/L and 5.40 µg/L in samples from borings B-01 and B-05, respectively, greater than the MTCA Method A groundwater CUL of 5 µg/L. Chloroform was detected at a concentration of 7.06 µg/L in the sample from boring B-01, greater than the MTCA Method B groundwater CUL of 1.41 µg/L.

Dissolved arsenic, cadmium, chromium, lead, mercury, selenium, and silver were not detected at concentrations greater than the laboratory reporting limit or method detection limits in samples from either B-01 or B-05. Dissolved phase barium was detected in both samples at concentrations less than the MTCA Method B groundwater CUL.

REMEDIATION ACTIVITIES:

No record of remedial activities at the Site are on file at Ecology.

During field activities in February and March 2017, an asphalt patch was observed in the parking area where two former USTs were believed to have been installed, suggesting the USTs may have been removed. However, no report was available documenting this removal. A ground penetrating radar (GPR) survey did not detect any evidence of USTs remaining onsite.

CURRENT SITE CONDITIONS:

Site soil was confirmed to be impacted by GRO, benzene, toluene, ethylbenzene, xylenes (BTEX), and naphthalene at concentrations greater than MTCA soil CULs in borings B-03 and B-04 from 6 to 7 feet bgs. These two borings are located north and northwest of an asphalt patch surrounding boring B-06 that may represent the former location of one or more former USTs.

Site soil was not investigated beyond the southwest corner of the parking lot. If the site was used as a retail fueling facility during Shell's ownership, potential areas of investigation may include former fueling tanks, fueling islands, and associated piping. This would potentially include all areas of the Site not investigated during drilling in 2017. 2017 drilling locations at the site were limited due to restrictions on property access from the property owner.

Groundwater was confirmed to be impacted by GRO, DRO, benzene, 1-methylnaphthalene, 2-methylnaphthalene, 1,3,5-trimethylbenzene, and chloroform at concentrations greater than MTCA Method A or B CULs, as detected in groundwater samples from borings B-01 and B-05. Groundwater was not present in other borings, so it is possible that groundwater in borings B-01 and B-05 represents perched groundwater conditions rather than an area-wide shallow unconfined aquifer.

The approximate depth to groundwater is 15 feet below ground surface, with groundwater flowing to the east (estimated based on surface topography). Subsurface soils are silty sands, sands with silt, and silt, clay, and gravel mixtures.

SPECIAL CONSIDERATIONS:

Checked boxes indicate routes applicable for Washington Ranking Method (WARM) scoring

☐ **Surface Water**

The release likely occurred in the subsurface, and surface water receptors are not expected to be impacted.

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☒ **Air**

GRO, naphthalenes, and BTEX constituents were detected in groundwater and/or soil at concentrations above MTCA Method A cleanup levels.

☒ **Groundwater**

GRO, DRO, benzene, and naphthalenes were detected in Site groundwater at concentrations above MTCA Method A cleanup levels.

The Site was formerly owned by Shell, and it is possible that USTs were installed to store products other than the reported heating oil and waste oil tanks described in Ecology notes. This is further supported by the presence of GRO and BTEX compounds in Site soil and groundwater. The location of any tanks (if present) during Shell's ownership are unknown.

The use of the Site as an automotive repair facility also presents additional potential sources of contamination. These may include chemicals used in the garage as part of current or former operations, or USTs located in the garage. For example, automotive lifts used in the garage bays may have hydraulic fluid reservoirs below grade. No inspection was conducted inside the building during site visits in 2017, so it is unknown to what extent (if any) current or past operations pose to environmental risk.

ROUTE SCORES:

Surface Water/ Human Health:

Surface Water/ Environment:

Air/ Human Health: 47.3

Air/ Environment: 1.5

Groundwater/ Human Health: 32.1

Overall Rank: 3

REFERENCES:

- 1 Kennedy/Jenks, 2017. Draft - Lower Duwamish Waterway – Site Hazard Assessment and Limited Investigation Sampling and Analysis Plan/Quality Assurance Project Plan. 9 February 2017.
- 2 King County Assessor's Office, 2017. Property Detail Report. <http://blue.kingcounty.com/Assessor/eRealProperty/Dashboard.aspx?ParcelNbr=0952004790>. Accessed at 26 April.
- 3 King County GIS Center iMAP application, Property Information, Groundwater Program, and Sensitive Areas mapsets. Accessed March 2014. <http://www.kingcounty.gov/operations/GIS/Maps/iMAP.aspx>
- 4 Missouri Census Data Center, Circular Area Profiles - 2010 census data around a point location. <http://mcdc.missouri.edu/websas/caps10c.html>. Accessed June 2017.
- 5 National Climatic Data Center 2011 Local Climatological Data for Seattle, Seattle Tacoma Airport. <http://www1.ncdc.noaa.gov/pub/orders/IPS-90B1F39F-6CFA-4A6B-AA82-5ED1FF897CCC.pdf>
- 6 WARM Scoring Manual
- 7 WARM Toxicological Database
- 8 Washington Department of Transportation 24-hour Isopleth Maps, January 2006 update. <http://www.wsdot.wa.gov/publications/fulltext/Hydraulics/Wa24hrIsopleths.pdf>
- 9 Washington State Department of Ecology. 1996. Environmental Report Tracking System Referral, Incident ID: N25406. November.

SITE HAZARD ASSESSMENT

Worksheet 2

Route Documentation

Cleanup Site ID: 10302

Midas Muffler Fauntleroy

Facility/Site ID: 72998672

1. SURFACE WATER ROUTE

List those substances to be considered for scoring:

Not applicable

Explain the basis for choice of substances to be used in scoring:

List those management units to be considered for scoring:

Explain basis for choice of unit to be used in scoring:

2. AIR ROUTE

List those substances to be considered for scoring:

gasoline-range hydrocarbons, naphthalene, benzene, toluene, ethylbenzene, xylenes, chloroform

Explain the basis for choice of substances to be used in scoring:

Prior detection in site soil and/or groundwater at concentrations above MTCA Method A or B cleanup levels

List those management units to be considered for scoring:

Soil

Explain basis for choice of unit to be used in scoring:

Potential for transport to soil vapor

3. GROUNDWATER ROUTE

List those substances to be considered for scoring:

gasoline-range hydrocarbons, diesel-range hydrocarbons, benzene, 1-methylnaphthalene, 2-methylnaphthalene, 1,3,5-trimethylbenzene, and chloroform

Explain the basis for choice of substances to be used in scoring:

Prior detection in Site groundwater at concentrations above MTCA Method A or B cleanup levels

List those management units to be considered for scoring:

Groundwater

Explain basis for choice of unit to be used in scoring:

Prior detection in groundwater

Worksheet 5**Air Route**

CSID: 10302

Site Name: Midas Muffler Fauntleroy

1.0 Substance Characteristics**1.1 Introduction (WARM Scoring Manual) - Please Review before scoring****1.2 Human Toxicity**

Substance	Ambient Air Standard Value	Acute Toxicity Value	Chronic Toxicity Value	Carcinogenicity Value
Gasoline (benzene)	10	3	8	5
Toluene	1	X	3	X
Ethylbenzene	10	X	3	X
Xylenes	X	3	5	X
Naphthalene (diesel)	10	X	10	5
Chloroform	10	3	5	5

Highest Value 10

Bonus Points? 2

Toxicity Value **1.3 Mobility**

Gaseous Mobility	Max Value:	4
Particulate Mobility	Soil Type:	
	Erodibility:	
	Climatic Factor:	

Mobility Value **1.4 Final Human Health Toxicity/Mobility Matrix Value**HH Final Matrix Value **1.5 Environmental Toxicity/Mobility**

Substance	Non-human Mammalian Inhalation Toxicity (mg/m3)	Acute Value	Mobility Value	Table A-7 Matrix Value
Gasoline (benzene)	31947	3	4	6
Toluene	X	X	4	X
Ethylbenzene	X	X	3	X
Xylenes	21714	3	3	5
Naphthalene (diesel)	X	X	3	X
Chloroform	47702	3	4	6

Env. Final Matrix Value **1.6 Substance Quantity**

Amount: Approximately 2,500 square feet

Basis: Estimated aerial extent of impacted soil

Substance Quantity Value

Worksheet 5

Air Route

CSID: 10302

Site Name: Midas Muffler Fauntleroy

2.0 Migration Potential

2.1 Containment

Containment Value

Explain Basis: Spill in the subsurface with no vapor collection system

3.0 Targets

3.1 Nearest Population

Population Distance Value

<1,000 feet to the nearest residence

3.2 Distance to and name of nearest sensitive environments

Sensitive Environment Value

Fauntleroy Park approximately 230 feet away

3.3 Population within 0.5 miles

Population Value

6404 population

4.0 Release

Release to Air Value

Explain basis for scoring a release to air:

No confirmed release to air

Pathway Scoring - Air Route, Human Health Pathway

$$AIR_H = (SUB_{AH} * 60/329) * [REL_A + (TAR_{AH} * 35/85)] / 24$$

Where:

$SUB_{AH} = (\text{Human toxicity} + 5) * (\text{Containment} + 1) + \text{Substance Qty}$

$REL_A = \text{Release to Air}$

$TAR_{AH} = \text{Nearest Population} + \text{Population within 1/2 mile}$

SUB_{AH}	178
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REL_A	0
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TAR_{AH}	85.0
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AIR_H	47.3
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Pathway Scoring - Air Route, Environmental Pathway

$$AIR_E = (SUB_{AE} * 60/329) * [REL_A + (TAR_{AE} * 35/85)] / 24$$

Where:

$SUB_{AE} = (\text{Environmental Toxicity Value} + 5) * (\text{Containment} + 1) + \text{Substance Qty}$

$REL_A = \text{Release to Air}$

$TAR_{AE} = \text{Nearest Sensitive Environment}$

SUB_{AE}	70
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REL_A	0
---------	---

TAR_{AE}	7.0
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AIR_E	1.5
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Worksheet 6
Groundwater Route

CSID: 10302

Site Name: Midas Muffler Fauntleroy

1.0 Substance Characteristics

1.1 Human Toxicity

Substance	Drinking Water Standard Value	Acute Toxicity Value	Chronic Toxicity Value	Carcinogenicity Value
Gasoline (benzene)	8	3	3	5
Diesel	X	5	1	X
1-Methylnaphthalene	X	3	1	X
2-Methylnaphthalene	X	3	3	X
1,3,5-trimethylbenzene	X	1	3	X
Chloroform	X	5	1	5

Highest Value 8

Bonus Points? 0

Toxicity Value

1.2 Mobility

Cations/Anions Max Value:

Solubility Max Value: 3

Mobility Value

1.3 Substance Quantity

Amount: Approximately 280 cubic yards

Basis: Estimated extent of impacted soil based on

estimated aerial extent and 3 foot vertical extent Substance Quantity Value

2.0 Migration Potential

2.1 Containment

Containment Value

Explain Basis: Suspected spill/discharge (leaking UST)
and concentrations above CUL in groundwater

2.2 Net Precipitation 10-20 inches

Net Precipitation Value

2.3 Subsurface Hydraulic Conductivity

Conductivity Value

Sandy silt or silty sand

2.4 Vertical Depth to Groundwater 15 feet

Confirmed release: Yes Depth to Aquifer Value

3.0 Targets

3.1 Groundwater Usage

Aquifer Use Value

Private supply, but alternate sources available with minimum hookup requirements

3.2 Distance to Nearest Drinking Water Well 7,500 feet

Well Distance Value

3.3 Population Served within 2 Miles

Population Served Value

3 people

Worksheet 6
Groundwater Route

CSID: 10302

Site Name: Midas Muffler Fauntleroy

3.4 Area Irrigated by GW Wells within 2 miles

Area Irrigated Value 1

2 acres

4.0 Release

Release to Groundwater Value 5

Explain basis for scoring a release to groundwater:

Confirmed release to groundwater (reconnaissance groundwater sample)

Pathway Scoring - Groundwater Route, Human Health Pathway

$$GW_H = (SUB_{GH} * 40 / 208) * [(MIG_G * 25 / 17) + REL_G + (TAR_{GH} * 30 / 165)] / 24$$

Where:

$SUB_{GH} = (\text{Human toxicity} + \text{mobility} + 3) * (\text{Containment} + 1) + \text{Substance Qty}$

$MIG_G = \text{Depth to Aquifer} + \text{Net Precip} + \text{Hydraulic Conductivity}$

$REL_G = \text{Release to Groundwater}$

$TAR_{GH} = \text{Aquifer Use} + \text{Well Distance} + \text{Population Served} + \text{Area Irrigated}$

SUB_{GH}	157
MIG_G	13
REL_G	5
TAR_{GH}	7.8
GW_H	32.1

Washington Ranking Method

Route Scores Summary and Ranking Calculation Sheet

Site Name: Midas Muffler Fauntleroy

CSID: 10302

Site Address: 4457 Fauntleroy Ave SW

FSID: 72998672

HUMAN HEALTH ROUTE SCORES

Enter Human Health Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	ns	0
Air	47.3	5
Groundwater	32.1	2

H=	5
M=	2
L=	0

$$\begin{array}{c}
 H^2 \quad + \quad 2M \quad + \quad L \\
 \hline
 25 \quad + \quad 4 \quad + \quad 0 \\
 \hline
 8
 \end{array}$$

**Human Health
Priority Bin Score:**
4
 rounded up to next
 whole number

ENVIRONMENT ROUTE SCORES

Enter Environment Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	ns	0
Air	1.5	2

H=	2
L=	0

$$\begin{array}{c}
 H^2 \quad + \quad 2L \\
 \hline
 4 \quad + \quad 0 \\
 \hline
 7
 \end{array}$$

**Environment
Priority Bin Score:**
1
 rounded up to next
 whole number

Comments/Notes:

**FINAL MATRIX
RANKING**

3

FOR REFERENCE:

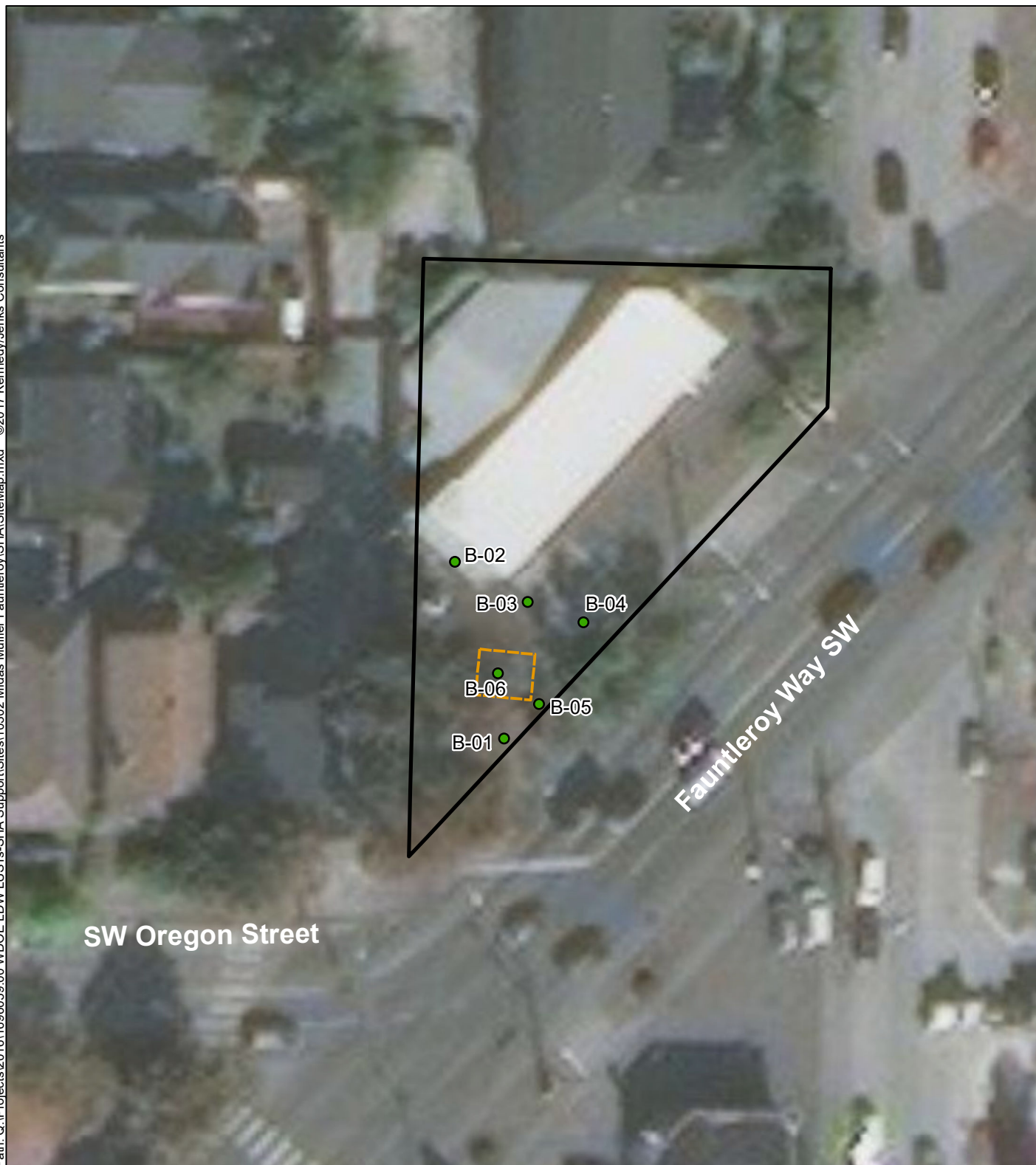
Final WARM Bin Ranking Matrix

Human Health Priority	Environment Priority					
	5	4	3	2	1	N/A
5	1	1	1	1	1	1
4	1	2	2	2	3	2
3	1	2	3	4	4	3
2	2	3	4	4	5	3
1	2	3	4	5	5	5
N/A	3	4	5	5	5	NFA

Quintile Values for Route Scores - August 2017 Values

Quintile	Human Health			Environment	
	Surface Water	Air	Ground Water	Surface Water	Air
5	>= 29.8	>= 39.1	>= 50.3	>= 49.7	>= 27.8
4	>= 21.4	>= 25.0	>= 40.3	>= 32.1	>= 15.3
3	>= 15.5	>= 15.8	>= 33.1	>= 24.2	>= 1.6
2	>= 8.0	>= 8.4	>= 24.0	>= 11.6	>= 1.3
1	<= 7.9	<= 8.3	<= 23.9	<= 11.5	<= 1.2

Quintile value associated with each route score entered above



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- 2017 Soil Borings
- ▭ Suspected Location of USTs
- ▭ Parcel

Notes:

1. All locations are approximate.

