SITE HAZARD ASSESSMENT
Worksheet 1
Summary Score Sheet

SITE INFORMATION:

Cleanup Site ID: 12408

Facility/Site ID: 4321

Morningside Acres Tracts South

5021 Rainier Ave S

Seattle, King County, WA 98118

Section:	22	Latitude:	47.55642
Township:	24N	Longitude:	-122.28454
Range:	4E	Tax/Parcel ID:	5649600130, 5649600133

Site scored/ranked for the Hazardous Sites List Publication: August 2015

SITE DESCRIPTION:

The Morningside Acres Tracts South site (Site) is a former Wash's Auto Repair located in Seattle, King County, Washington. The 0.34-acre property is located approximately 4,700 feet from Lake Washington, and zoned for commercial (C2-65) use.

Adjacent properties include a parking lot, pet training facility, and gymnastics center to the west, a parking lot to the north [Cleanup Site ID (CSID) 12406], and a parking lot and building with a variety of retail stores and restaurants to the south. The Site is bordered on the east by Rainier Avenue South, with retail stores and restaurants on the opposite side of the street. A former dry cleaning business was reportedly located to the southeast of the Site; however, the exact location is unknown. The dry cleaning business operated until at least the 1990's.

The Site is currently operated as Lems Bookstore and Busy Bee convenience store by Washin Murakami.

The Site is located in the Columbia City neighborhood of Seattle.

Previous investigations at this Site have also included the property north of these tax parcels. The northern property is now listed on the Confirmed and Suspected Contamined Sites List (CSCSL) under Cleanup Site ID (CSID) 12406, Morningside Acres Tracts North. The two sites were listed individually as they are expected to be two separate releases.

SITE BACKGROUND:

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

From	To	Operator/Tenant	Activity
1924		Unknown	Lumber company, automobile sales lot, and plumbing supplies store
	2005	Unknown; Wash's Auto Repair	Grocery store, fitness center, parking lot, automotive repair shop
	2015	Washin Murakami	Lems Bookstore and Busy Bee

SITE CONTAMINATION:

In 2013 the Morningside Acres Tracts South site was reported to Washington State Department of Ecology (Ecology) and placed on the CSCSL list with ID number 12408.

In 2005, a Phase I Environmental Site Assessment (ESA) was conducted at this and the northern-adjacent Morningside Acres Tracts North site by Wolfe Environmental Consulting, Inc. This report was not available for review in Ecology's files; however, a summary was available in an subsequent report. In 2005, the businesses operating on these three tax parcels were reported to be a fitness center, automotive repair shop, grocery store, and several small parking lots; however, it is unclear which business operated on which parcel.

In 2006, a Limited Phase II ESA and a Supplemental Phase II were completed at this and the northern-adjacent

site by Kleinfelder, Inc.. A Phase II ESA was completed at the Site in 2007 by G-Logics, Inc. According to a summary of these investigations in a subsequent report, four soil borings (SB-1 through SB-4), and five test probes (GP-1 through GP-5) were advanced at the Site in 2006, and eighteen test probes (GLI-01 through GLI-18) were advanced at the Site in 2007. The locations of the soil borings and test probes were not available, and the summary provided in a subsequent report did not include analytical results of soil samples that may have been collected from these locations. It is unclear from the documentation provided whether these boring locations were on this property, or the northern-adjacent Morningside Acres site. Some VOCs were detected in soil samples at concentrations above MTCA Method A or B cleanup levels, including vinyl chloride (VC), trichloroethene (TCE), styrene, and 1,4-dichlorobenzene.

In 2006 and 2007, eighteen monitoring wells (MW-1 through MW-18) were installed on this Site and on the Morningside Acres Tracts North site. Wells MW-3, MW-4, MW-5, MW-7, MW-8, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16 and MW-17 are located on the Morningside Acres Tracts South site.

Groundwater samples were reportedly collected from wells MW-1 and MW-4 in May 2006. The groundwater sample from well MW-4 contained VC at a concentration greater than the Model Toxics Control Act (MTCA) Method A cleanup level. In June and/or August 2006, wells MW-1, and MW-3 through MW-8 were sampled, and groundwater was analyzed for volatile organic compounds (VOCs). VC; 1,1-dichloroethene (1,1-DCE); cis-1,2-dichloroethene (cis-1,2-DCE); 1,2-dichloroethane; TCE; and/or 1,2-dichloropropane were detected at concentrations greater than their respective MTCA Method A or B cleanup levels. Groundwater samples collected in 2007 from wells MW-3, MW-4, MW-5, MW-7, MW-8, MW-11, MW-12, MW-16, and MW-17 reportedly contained concentrations of VC, 1,1-DCE, cis-1,2-DCE, 1,2-dichloroethane, TCE, and/or 1,2-dichloropropane at concentrations above MTCA Method A or B cleanup levels.

Groundwater samples collected from five onsite wells (MW-4, MW-7, MW-12, MW-16, and MW-17) in February 2013 contained concentrations of VOCs greater than MTCA Method A (or Method B for cis-1,2-DCE) cleanup levels. VOCs detected above MTCA cleanup levels included TCE (MW-7, MW-12, and MW-17), 1,2-dichloroethane (MW-7), cis-1,2-DCE (MW-7 and MW-17), and VC (MW-4, MW-7, MW-12, MW-16, and MW-17). 1,1-DCE was detected in groundwater in 2013; however, the reported concentrations were below the MTCA Method B cleanup level. In 2013 and 2007, 1,1-DCE was detected in groundwater samples from MW-7 and MW-17 at concentrations below the MTCA Method B cleanup level, and was detected above the MTCA Method B cleanup level in the MW-17 sample collected in 2007. While concentrations of 1,1-DCE were below the MTCA Method B cleanup level during the most recent quarter of groundwater monitoring, four consecutive quarters of groundwater monitoring have not been conducted at the Site.

PAST REMEDIATION ACTIVITIES:

No reports regarding remedial actions conducted at the Site were available for review in Ecology's files.

CURRENT SITE CONDITIONS:

TCE, 1,2-dichloroethane, cis-1,2-DCE, and VC were present in Site groundwater in 2013 at concentrations above MTCA Method A or B cleanup levels.

The approximate depth to groundwater is 2 to 10 feet below ground surface, with groundwater flowing to the north (based on groundwater elevations in monitoring wells). Subsurface soils are expected to be sand and silt.

SPECIAL CONSIDERATIONS:

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

☐ **Surface Water**

Release likely occurred in the subsurface.

☑ **Air**

Volatile compounds are present in Site soil and groundwater, and may be available for transport via the air route.

☑ **Groundwater**

SITE HAZARD ASSESSMENT
Worksheet 1
Summary Score Sheet

VOC-impacted groundwater was present at the Site in 2013.

ROUTE SCORES:

Surface Water/ Human Health:		Surface Water/ Environment:	
Air/ Human Health:	41.2	Air/ Environment:	2.1
Groundwater/ Human Health:	36.5		

Overall Rank: 3

REFERENCES:

1 Ecology Water Resources Explorer, accessed July 2015. https://fortress.wa.gov/ecy/waterresources/map/WaterResourcesExplorer.aspx

2 King County GIS Center iMAP application, Property Information, Groundwater Program, and Sensitive Areas mapsets. Accessed April 2015. http://www.kingcounty.gov/operations/GIS/Maps/iMAP.aspx

3 Missouri Census Data Center, Circular Area Profiles - 2010 census data around a point location. http://mcdc.missouri.edu/websas/caps10c.html. Accessed April 2015.

4 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

5 The Riley Group, Inc., 2013, First Quarter 2013 Groundwater Sampling Report, Morningside Acres Tracts, 5001, 5015, and 5021 Rainier Avenue South, Seattle, Washington 98118. Prepared for Washin Murakami. April 19.

6 WARM Scoring Manual

7 WARM Toxicological Database

8 Washington Department of Transportation 24-hour Isopluvial Maps, January 2006 update. http://www.wsdot.wa.gov/publications/fulltext/Hydraulics/Wa24hrIspoluvials.pdf

9 Washington State Department of Ecology, 2013, Initial Investigation Field Report, Morning Acre Tract South. October 31.

SITE HAZARD ASSESSMENT
Worksheet 2
Route Documentation

Cleanup Site ID: 12408 Morningside Acres Tracts South

Facility/Site ID: 4321

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:

Trichloroethene, 1,2-dichloroethane, cis-1,2-dichloroethene, vinyl chloride, 1,1-dichloroethene

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 vapor

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

Potential for vapor transport

3. GROUNDWATER ROUTE

List those substances to be considered for scoring:

Trichloroethene, 1,2-dichloroethane, cis-1,2-dichloroethene, vinyl chloride, 1,1-dichloroethene

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

Prior detection in Site soil and/or groundwater at concentrations above MTCA

List those management units to be considered for scoring:

Groundwater

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

Presence in groundwater in 2013

Worksheet 5

Air Route

CSID: 12408 **Site Name:** Morningside Acres Tracts South

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
Trichloroethene	8	3	X	4
1,2-Dichloroethane	X	5	1	3
Cis-1,2-dichloroethene	6	X	3	X
Vinyl chloride	8	5	X	7
1,1-Dichloroethene	8	5	3	3

Highest Value 8

Bonus Points? 2

Toxicity Value 10

1.3 Mobility

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

Mobility Value 4

1.4 Final Human Health Toxicity/Mobility Matrix Value **HH Final Matrix Value** 20

1.5 Environmental Toxicity/Mobility

Substance	Non-human Mammalian Inhalation Toxicity (mg/m3)	Acute Value	Mobility Value	Table A-7 Matrix Value
Trichloroethene	15,583	3	4	6
1,2-Dichloroethane	4,047	5	4	10
Cis-1,2-dichloroethene	65,000	3	4	6
Vinyl chloride	460,123	1	4	2
1,1-Dichloroethene	25,177	3	4	6

Env. Final Matrix Value 10

1.6 Substance Quantity

Amount: Approximately 3,600 square feet

Basis: Estimated extent of impacted soil and groundwater

Substance Quantity Value 5

Worksheet 5

Air Route

CSID: 12408 **Site Name:** Morningside Acres Tracts South

2.0 Migration Potential

2.1 Containment Containment Value: 5

Explain Basis: At least 2 feet of soil cover but no vapor collection system present

3.0 Targets

3.1 Nearest Population Population Distance Value: 10

Approximately 350 feet to the nearest dwelling

3.2 Distance to and name of nearest sensitive environments Sensitive Environment Value: 7

Approximately 600 feet to Hitt's Hill Park

3.3 Population within 0.5 miles Population Value: 75

6,600 population

4.0 Release Release to Air Value: 0

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} =(Human toxicity + 5) * (Containment + 1) + Substance Qty	SUB_{AH}	155
REL_A = Release to Air	REL_A	0
TAR_{AH} = Nearest Population + Population within 1/2 mile	TAR_{AH}	85.0
	AIR_H	41.2

Pathway Scoring - Air Route, Environmental Pathway

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

Where:

SUB_{AE} =(Environmental Toxicity Value +5)*(Containment +1) +Substance Qty	SUB_{AE}	95
REL_A = Release to Air	REL_A	0
TAR_{AE} = Nearest Sensitive Environment	TAR_{AE}	7.0
	AIR_E	2.1

Worksheet 6

Groundwater Route

CSID: 12406 **Site Name:** Morningside Acres Tracts South

1.0 Substance Characteristics

1.1 Human Toxicity

Substance	Drinking Water Standard Value	Acute Toxicity Value	Chronic Toxicity Value	Carcinogenicity Value
Trichloroethene	8	3	X	4
1,2-Dichloroethane	8	5	X	4
Cis-1,2-dichloroethene	6	X	3	X
Vinyl chloride	8	5	X	7
1,1-Dichloroethene	8	5	3	3

Highest Value 8

Bonus Points? 2

Toxicity Value 10

1.2 Mobility

Cations/Anions Max Value:

Solubility Max Value: 3 Mobility Value 3

1.3 Substance Quantity

Amount: Approximately 400 cubic yards

Basis: Estimated volume of impacted soil

Substance Quantity Value 3

2.0 Migration Potential

2.1 Containment Containment Value 10

Explain Basis: Release/spill and contaminated soil

2.2 Net Precipitation >10 to 20 inches Net Precipitation Value 2

2.3 Subsurface Hydraulic Conductivity Conductivity Value 3

Sand and silt

2.4 Vertical Depth to Groundwater 2 feet

Confirmed release: Yes Depth to Aquifer Value 8

3.0 Targets

3.1 Groundwater Usage Aquifer Use Value 4

Private supply but alternate sources available with minimum hookup requirements

3.2 Distance to Nearest Drinking Water Well 6,600 feet

Well Distance Value 1

3.3 Population Served within 2 Miles Population Served Value 2

3 people

Worksheet 6

Groundwater Route

CSID: 12406 **Site Name:** Morningside Acres Tracts South

3.4 Area Irrigated by GW Wells within 2 miles Area Irrigated Value 1

1 acres

4.0 Release Release to Groundwater Value 5

Explain basis for scoring a release to groundwater:

Confirmed release to groundwater

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} =(Human toxicity + mobility + 3) * (Containment + 1) + Substance Qty	SUB_{GH}	179
MIG_G=Depth to Aquifer+Net Precip + Hydraulic Conductivity	MIG_G	13
REL_G = Release to Groundwater	REL_G	5
TAR_{GH} = Aquifer Use + Well Distance + Population Served + Area Irrigated	TAR_{GH}	7.5
	GW_H	36.5

Washington Ranking Method

Route Scores Summary and Ranking Calculation Sheet

Site Name: Morningside Acres Tracts South **CSID:** 12408

Site Address: 5021 Rainier Avenue South **FSID:** 4321

HUMAN HEALTH ROUTE SCORES

Enter Human Health Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	ns	0
Air	41.2	5
Groundwater	36.5	3

H= 5
M= 3
L= 0

$$\frac{H^2 + 2M + L}{8} = \frac{25 + 6 + 0}{8}$$

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	2.1	2

H= 2
L= 0

$$\frac{H^2 + 2L}{7} = \frac{4 + 0}{7}$$

Environment Priority Bin Score: 1

rounded up to next whole number

Comments/Notes:

FINAL MATRIX RANKING **3**

FOR REFERENCE:

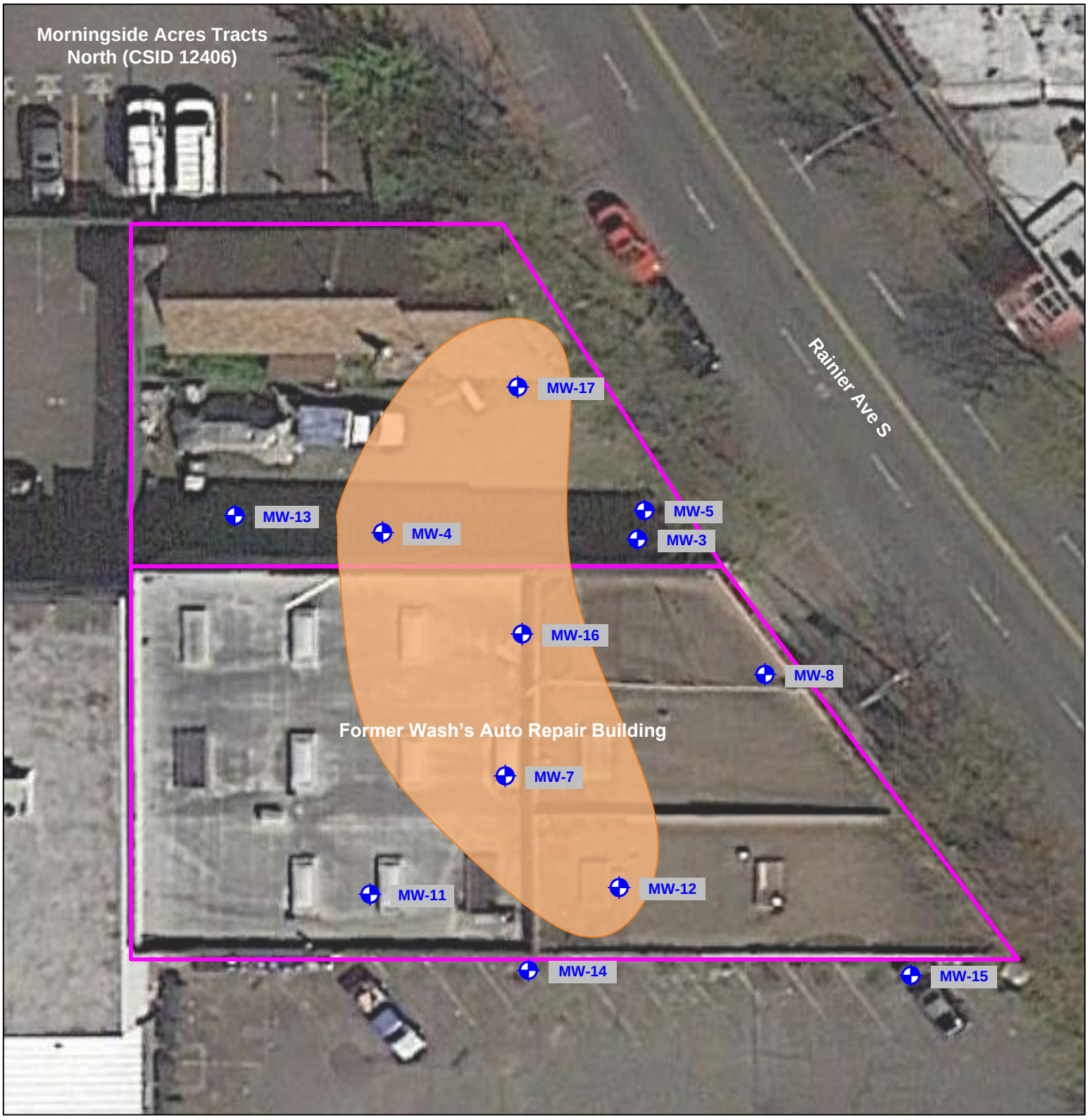
Final WARM Bin Ranking Matrix

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 - February 2015 Values

Quintile	Human Health Surface Water	Human Health Air	Human Health Ground Water	Environment Surface Water	Environment Air
5	>= 30.7	>= 37.6	>= 51.6	>= 50.9	>= 29.9
4	>= 23.1	>= 23.8	>= 40.9	>= 31.2	>= 22.5
3	>= 14.1	>= 15.5	>= 33.2	>= 23.6	>= 14.0
2	>= 7.0	>= 8.5	>= 23.5	>= 11.0	>= 1.6
1	<= 6.9	<= 8.4	<= 23.4	<= 10.9	<= 1.5

Quintile value associated with each route score entered above



Legend:

- Property line (approximate)
- Remaining groundwater contamination (approximate)
- Monitoring well (approximate)

Notes:

1. All locations are approximate, and not to scale.

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Morningside Acres Tracts South
5021 Rainier Avenue South
Seattle, WA 98118

DEPARTMENT OF ECOLOGY
State of Washington

Site Overview Map

CSID 12408
CSID12408.vsd