SITE HAZARD ASSESSMENT
Worksheet 1
Summary Score Sheet

SITE INFORMATION:

Cleanup Site ID: 567

Boathouse Inc. Renton Skyway

Facility/Site ID: 56652786

12548 Renton Avenue S

Seattle, King County, WA 98118

Section:	12	Latitude:	47.49204
Township:	23N	Longitude:	-122.23987
Range:	4E	Tax/Parcel ID:	0231000012

Site Scored/ranked for the August 2014 Hazardous Sites List Publication

SITE DESCRIPTION:

The Boathouse Inc. Renton Skyway site (Site) is a former retail store and drycleaning facility (Ken's Skyway Cleaners) located in Seattle, King County, Washington. The 0.48-acre property is located approximately 5,700 feet from the Duwamish River, and zoned for community business (CBSO) use.

Adjacent properties include a grocery store to the south, and vacant property to the north and east. To the west, across Renton Avenue South, are two office buildings, a vacant lot, and an apartment building.

The Site is currently operated as Anna's Nail Salon and Skyway Mini-mart (as of an August 2011 Google image) by LD II, LLC.

Current activities at the Site in August of 2011 include retail sales and a nail salon.

The Site is located on the east side of Renton Avenue South, north of 126th Street. The property has three separate addresses, which correspond to separate businesses within the one building on the property. These addresses are 12548 Renton Avenue South, 12540 Renton Avenue South, and 12536 Renton Avenue South. The former drycleaning facility was located at the southern end of the building.

SITE BACKGROUND:

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

From	To	Operator/Tenant	Activity
		Ken's Skyway Cleaners	Drycleaning business
		Limantzakis Properties/The Boat House Inc.	
2011		Skyway Mini-mart and Anna Nail Salon	Convenience store and nail salon

SITE CONTAMINATION:

In 1999 the Boathouse Inc. Renton Skyway site was reported to Washington State Department of Ecology (Ecology) and placed on the Voluntary Cleanup Program (VCP) list with ID number NW0926.

Ecology was originally notified of a release on the Site in June 1999, and an initial investigation was completed in July of 1999.

An environmental site charaterization was completed in 1999 by Landau Associates, though this document was not available for review.

PAST REMEDIATION ACTIVITIES:

In 2001, as part of a remedial investigation, subsurface soil was sampled from six locations at the Site. The remedial investigation report describes the Site soils from 0 to 11 feet depth as medium dense silty sand

containing gravel, wood, and brick debris. Below 11 feet, soils are very dense gray silty sand with occasional peat layers. The material below 11 feet is characteristic of glacial till, and may be native soil. Moist conditions were encountered at 3 to 5 feet below ground surface (bgs). Soil borings were advanced to approximately 11 feet bgs, when till-like soils were encountered. Four groundwater monitoring wells were installed on the property, three above the till and one to a depth of 30 feet below ground surface, to investigate impacts to deeper soil and groundwater. One other probe was advanced to a depth of 6 feet below the floor slab of the drycleaning facility. A large crack was present in the floor near the likely location of a former drycleaning machine.

Tetrachloroethylene (PCE) was identified in shallow groundwater and soils above Model Toxic Control Act (MTCA) Method A cleanup levels. Concentrations of PCE in groundwater ranged from 3,300 to 9,100 micrograms per liter (µg/L) in samples collected from the four monitoring wells, and from 54 to 52,000 µg/L in soil samples. The concentration of PCE (1.6 µg/L) detected in the deep groundwater well (30 feet bgs) was below the MTCA Method A groundwater cleanup level. Trichloroethylene (TCE) was present in groundwater samples collected from monitoring wells at concentrations ranging from 9.1 to 42 µg/L, which is above the corresponding MTCA Method A cleanup value for groundwater. The highest detected concentration of 1,2-Dichloroethylene (1,2-DCE) in groundwater samples was 1,600 µg/L, which is also above the MTCA Method A cleanup level. Chlorinated solvent-impacted soil was reportedly present in the southeast corner of the property, extending underneath the existing building, and possibly beyond the southern property boundary. The preliminary Remedial Investigation report suggested that groundwater contamination extends beneath the full extent of the property.

As of 2006, soil vapor extraction and air sparging (SVE/AS) was being used at the Site. No remedial excavation of soils has been reported at the Site, however, impacted soils are reportedly present beneath the existing building. No groundwater monitoring data is available at the Site since the 2001 Remedial Investigation.

The Site joined the VCP in 2002, and was terminated from the program in 2007 due to inactivity.

CURRENT SITE CONDITIONS:

Groundwater and soil contamination was identified at the Site during a 2001 Preliminary Remedial Investigation. Impacted soil was detected in the southeast section of the property, possibly extending beyond the southern property boundary, and underneath the existing building.

No groundwater monitoring data are available at the Site since the 2001 Remedial Investigation. No soil excavation has occurred at the Site, and no soil samples have been collected since 2001. Letters from 2006 indicate that air sparging was being used to remediate subsurface soil contamination, but no further information is known regarding the location or duration of the remediation. The Site was terminated from VCP in 2007 due to inactivity.

PCE, TCE & 1,2-DCE were detected at concentrations above the corresponding MTCA Method A cleanup levels in groundwater in 2001. PCE was detected at a concentration above the MTCA Method A cleanup level in soil.

The approximate depth to groundwater is 5 feet below ground surface, with groundwater flowing to the southwest (based on groundwater elevations). Subsurface soils are silty sand (based on soil borings).

SPECIAL CONSIDERATIONS:

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

☐ **Surface Water**

Release to subsurface soil.

☑ **Air**

Release of volatile compounds occurred in the subsurface. An existing building is located over a section of the likely release area.

☑ **Groundwater**

Tetrachloroethylene, trichloroethylene, and 1,2-dichloroethylene were detected in groundwater at concentrations above MTCA Method A cleanup levels.

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Summary Score Sheet

The Integrated Site Information System (ISIS) report for this Site suggests that groundwater concentrations of metals may be high, though document review of Ecology records do not include lab results for any metals. This information may be included in a previous report (Landau Associates, 1999, Environmental Site Characterization, Limantzakis Property, 12536 Renton Avenue South. March 30, 1999.) that was not available for review. As data from this report was not available for review, metals were not considered in route scoring for this Site.

In 2006, an AS/SVE system was operating at the Site, and scoring of the air route on Worksheet 5 assumes the system is still operating.

Municipal groundwater wells for the Skyway Water District (approximately 9,890 users) and the City of Renton (approximately 62,100 users) are located within 2 miles of the Site. Solvent-impacted groundwater has been confirmed at the Site, but has not been confirmed to affect municipal groundwater supplies. The populations served by these 2 water systems is accounted for in Worksheet 6.

ROUTE SCORES:

Surface Water/ Human Health:		Surface Water/ Environment:	
Air/ Human Health:	7.8	Air/ Environment:	0.6
Groundwater/ Human Health:	63.0		

Overall Rank: 3

REFERENCES:

1 Aspect Consulting, 2002, Voluntary Cleanup Program Request for Assistance/Review Form. July 2002.

2 Cruz, Jerome, 2006, Email: NW0926- Skyway Cleaners. November 13, 2006.

3 Davis, Tara, 2006, Email: NW0926- Skyway Cleaners. November 8, 2006.

4 Ecology Water Resources Explorer, accessed February 2014. https://fortress.wa.gov/ecy/waterresources/map/WaterResourcesExplorer.aspx

5 Google Maps Imagery from Digital Globe, U.S. Geological Service, and USDA Farm Service Agency, Imagery Date August 2011. Accessed February 2014.

6 Hart Crowser, 2001, Preliminary Remedial Investigation, 12536 Renton Avenue South, Renton, WA. March 23, 2001.

7 King County GIS Center iMAP application, Property Information, Groundwater Program, and Sensitive Areas mapsets. Accessed January 2013. http://www.kingcounty.gov/operations/GIS/Maps/iMAP.aspx

8 Missouri Census Data Center, Circular Area Profiles - 2010 census data around a point location. http://mcdc.missouri.edu/websas/caps10c.html. Accessed January 2013.

9 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

10 WARM Scoring Manual

11 WARM Toxicological Database

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

SITE HAZARD ASSESSMENT
Worksheet 2
Route Documentation

Cleanup Site ID: 567 Boathouse Inc. Renton Skyway

Facility/Site ID: 56652786

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:

Tetrachloroethylene, trichloroethylene, 1,2-dichloroethylene (assumes cis-1,2-dichloroethylene for the purposes of scoring)

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

Presence in groundwater above MTCA Method A cleanup levels, confirmed presence of tetrachloroethene in shallow soil

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:

Tetrachloroethylene, trichloroethylene, 1,2-dichloroethylene (assumes cis-1,2-dichloroethylene for the purposes of scoring)

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

Presence detected in groundwater

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 at above MTCA Method A cleanup levels

Worksheet 5

Air Route

CSID: 567 **Site Name:** Boathouse Inc. Renton Skyway

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
Tetracholoroethylene	9	5	X	X
Trichloroethylene	10	3	X	4
1,2-Dichloroethylene	1	3	X	X

Highest Value 10

Bonus Points? 2

Toxicity Value 12

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** 24

1.5 Environmental Toxicity/Mobility

Substance	Non-human Mammalian Inhalation Toxicity (mg/m3)	Acute Value	Mobility Value	Table A-7 Matrix Value
Tetracholoroethylene	4000	5	4	10
Trichloroethylene	15583	3	4	6
1,2-Dichloroethylene	65000	3	4	6

Env. Final Matrix Value 10

1.6 Substance Quantity

Amount: 1,900 square feet

Basis: area of contaminated soil based on 2001 estimates

Substance Quantity Value 4

Worksheet 5

Air Route

CSID: 567 **Site Name:** Boathouse Inc. Renton Skyway

2.0 Migration Potential

2.1 Containment Containment Value 0

Explain Basis: More than 2 feet of soil cover; score assumes an AS/SVE system from 2006 is still in operation

3.0 Targets

3.1 Nearest Population Population Distance Value 10

Approximately 250 feet to the nearest dwelling

3.2 Distance to and name of nearest sensitive environments Sensitive Environment Value 10

Approximately 800 feet to Skyway Park, a municipal park

3.3 Population within 0.5 miles Population Value 65

4,283 population

4.0 Release Release to Air Value 0

Explain basis for scoring a release to air:

No confirmed release to ambient 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}	33
REL_A = Release to Air	REL_A	0
TAR_{AH} = Nearest Population + Population within 1/2 mile	TAR_{AH}	75
	AIR_H	7.8

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}	19
REL_A = Release to Air	REL_A	0
TAR_{AE} = Nearest Sensitive Environment	TAR_{AE}	10
	AIR_E	0.6

Worksheet 6

Groundwater Route

CSID: 567 **Site Name:** Boathouse Inc. Renton Skyway

1.0 Substance Characteristics

1.1 Human Toxicity

Substance	Drinking Water Standard Value	Acute Toxicity Value	Chronic Toxicity Value	Carcinogenicity Value
Tetracholoroethylene	8	5	3	4
Trichloroethylene	8	3	X	4
1,2-Dichloroethylene	6	X	3	X

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: 250 cubic yards

Basis: Volume of contaminated soil based on 2001 estimates

Substance Quantity Value 3

2.0 Migration Potential

2.1 Containment Containment Value 10

Explain Basis: Contaminated soil

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

2.3 Subsurface Hydraulic Conductivity Conductivity Value 3

silty sand

2.4 Vertical Depth to Groundwater 0 to 25 feet

Confirmed release: Yes Depth to Aquifer Value 8

3.0 Targets

3.1 Groundwater Usage Aquifer Use Value 4

Public and private supply, but alternate sources are available with minimum hookup requirements

3.2 Distance to Nearest Drinking Water Well 2,500 feet

Well Distance Value 3

3.3 Population Served within 2 Miles Population Served Value 100

>10,000 people

Worksheet 6

Groundwater Route

CSID: 567 **Site Name:** Boathouse Inc. Renton Skyway

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

9 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}	109.3
	GW_H	63.1

Washington Ranking Method

Route Scores Summary and Ranking Calculation Sheet

Site Name: Boathouse Inc. Renton Skyway **CSID:** 567

Site Address: 12548 Renton Avenue South Seattle WA 98118 **FSID:** 56652786

HUMAN HEALTH ROUTE SCORES

Enter Human Health Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	ns	0
Air	7.8	1
Groundwater	63.1	5

H=	5
M=	1
L=	0

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

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	0.6	1

H=	1
L=	0

$$\frac{H^2 + 2L}{7} = \frac{1 + 0}{7}$$

Environment Priority Bin Score: **1**

rounded up to next whole number

Comments/Notes:

FINAL MATRIX RANKING **3**

FOR REFERENCE:

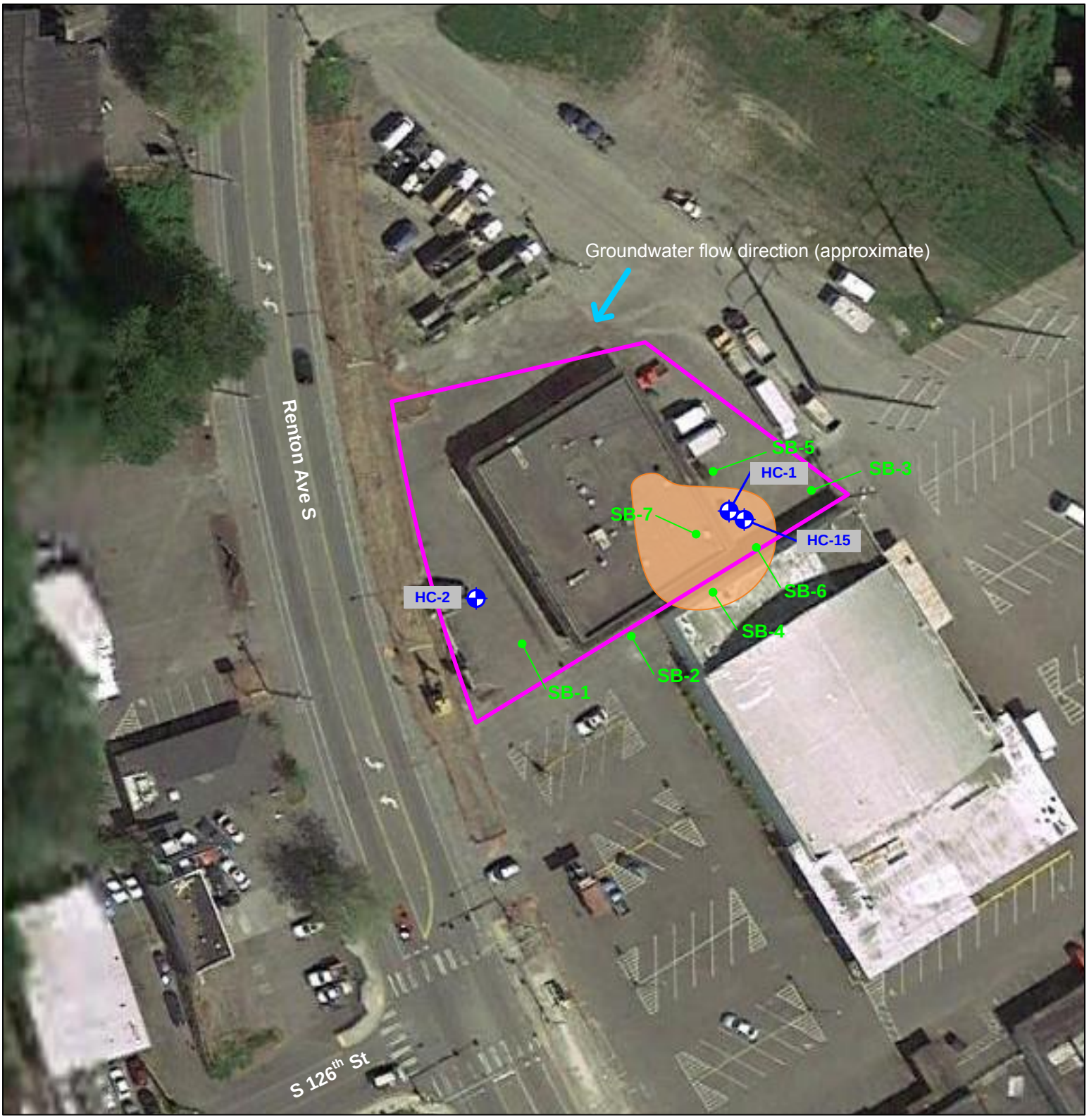
Final WARM Bin Ranking Matrix

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 - August 2014 Values

Quintile	Human Health Surface Water	Air	Ground Water	Environment Surface Water	Air
5	>= 30.7	>= 37.3	>= 51.9	>= 49.8	>= 30.3
4	>= 22.5	>= 23.0	>= 41.0	>= 30.9	>= 23.0
3	>= 13.0	>= 14.5	>= 33.1	>= 23.2	>= 14.1
2	>= 6.8	>= 8.1	>= 23.5	>= 10.7	>= 1.6
1	<= 6.7	< 8.1	<= 23.4	<= 10.6	<= 1.5

Quintile value associated with each route score entered above



Legend:

- Property location (approximate)
- 2001 extent of soil contamination (approximate)
- Monitoring well (approximate)
- Soil sample (approximate)

Notes:

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

N

Boathouse Inc. Renton Skyway
12548 Renton Avenue South
Seattle, WA 98118

DEPARTMENT OF ECOLOGY
State of Washington

Site Overview Map

CSID 567
CSID567.vsd