



August 1, 2017

Mr. Nnamdi Madakor  
Senior Hydrogeologist  
Washington State Pollution Liability Insurance Agency  
PO Box 40930  
Olympia, Washington 98504-0930

**RE: Remedial Investigation/Feasibility Study Addendum & Opinion Letter Response**

*Kountry Korner*

27099 Miller Bay Road NE  
Kingston, Washington 98346-9473  
Ecology Facility/Site No.: 32193281  
Ecology VCP No.: NW2880

Dear Mr. Madakor:

Associated Environmental Group, LLC AEG has prepared this Remedial Investigation and Feasibility Study (RI/FS) Addendum for the purpose of responding to data gaps identified in the Pollution Liability Insurance Agency (PLIA) opinion letter, dated July 5, 2017, for the above-referenced address in Kingston, Washington (Site).

Data gaps identified by PLIA in the July 5, 2017 opinion letter included the following:

- The relationship between the multiple catch basins at the Site; sources of the hazardous materials detected in the catch basin sediments and the soil dynamics at the Site is not clear.
- The relationship between the multiple catch basins at the Site; sources of the hazardous materials detected in the catch basin sediments and shallow groundwater dynamics at the Site is not clear.
- Site investigations in 2016 and 2017 omitted constituents of concern, including total carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and total and dissolved arsenic.
- Further clarification is needed regarding complaints that have been filed with the Kitsap County Health District alleging oily discharge from the Site to road side ditches during storm events. The relationship to the constituents of concern detected at the Site catch basins, surface water run-offs, oil-water separator and other preferential pathways including oily discharge from the Site to the roadside ditches is not clear.

- The vertical extent of petroleum-contaminated soil (PCS) at the Site has not been defined at boring location B-7.
- The vapor inhalation exposure pathway is a concern at this Site.

## GROUNDWATER AND CATCH BASIN SEDIMENT SAMPLING

During a conference call with PLIA on July 19, 2017, PLIA suggested collecting any available catchbasin sediment in catch basins nearest the on-Site monitoring wells in conjunction with groundwater samples from MW-1 and MW-2 (wells nearest catch basins) to aid in determining whether there was any correlation. On July 21, 2017, AEG collected soil samples from catch basins CB-3 and CB-5, and groundwater samples from monitoring wells MW-1 and MW-2. CB-3 is located south of the dispenser islands. CB-5 is located north of the dispenser islands, in the NE State Highway 104 right-of-way. Catchbasin CB-2 (adjacent to MW-1) was not sampled as it did not contain any sediments. Sample locations and Site features can be seen in the attached Figure 1, *Site Map*. Photographs of catch basins located at the Site can be seen in the attached Appendix A, *Site Photographs*. Soil and groundwater samples were analyzed for constituents of concern including:

- Diesel- and heavy-oil range total petroleum hydrocarbons (TPH) by Method NWTPH-Dx Extended.
- Gasoline-range TPH and benzene, toluene, ethylbenzene, and total xylenes (BTEX) by Method NWTPH-Gx/8260.
- Polynuclear aromatic hydrocarbons (PAHs) by Method 8270.
- Arsenic in soil by Method 6020A/3050B.
- Total and dissolved arsenic in water by EPA Method 6020.

Heavy-oil range TPH was detected in soil above the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup level of 2,000 milligrams per kilogram (mg/kg) in catch basin CB-5 at a concentration of 8,500 mg/kg. No other constituents of concern were detected in the catch basin samples above laboratory detection limits. Table 1, *Summary of Soil Analytical Results* presents current and historical analytical results as compared to Ecology cleanup levels.

Gasoline-range TPH and benzene were detected in groundwater above their respective MTCA Method A cleanup levels in monitoring well MW-1. Toluene, ethylbenzene, and total xylenes were detected below their respective MTCA Method A cleanup levels in monitoring well MW-1.

Total and dissolved arsenic were detected in groundwater above their respective MTCA Method A cleanup levels of 5 micrograms per liter (µg/l) in MW-1 at 5.8 µg/l (total) and 13 µg/l (dissolved).

Total and dissolved arsenic were detected below the MTCA Method A cleanup level in MW-2 at 3.6 µg/l (total) and 4.0 µg/l (dissolved).

Table 2, *Summary of Groundwater Analytical Results* presents current and historical analytical results as compared to MTCA cleanup levels. Laboratory datasheets associated with this sampling event are presented in Appendix B, *Laboratory Datasheets*.

## KITSAP PUBLIC HEALTH DISTRICT COMPLAINT

On April 3, 2006, Kitsap Public Health District (KPHD) received a complaint to their Solid and Hazardous Waste Program for the Site alleging oily stormwater runoff from a dumpster. On April 3, 2016, KPHD visited the Site and found no leakage from dumpsters or grease containers, and no obvious signs of hydrocarbons in the ditch. A record of the KPHD complaint is included in Appendix C, *Kitsap Public Health District Complaint Actions*.

## CONCLUSIONS AND RECOMMENDATIONS

It is AEG's opinion that sampling of the catch basins and groundwater monitoring wells is sufficient to address PLIA comments regarding the relationship between catch basin sediments, soil, and groundwater at the Site. Catch basin CB-5 is located north and topographically upgradient of the Site, and receives runoff associated with NE State Highway 104.

As stated in the RI/FS, the catch basins discharge to an on-Site oil/water separator located north of the convenience store building. In December 2015, the property owner hired Sweetwater Septic & Grease Trap Pumping of Poulsbo, WA, and Marine Vacuum Service, Inc. of Seattle, WA, to pump out the catchbasins and oil/water separator, respectively. Impacted sediments were removed from the catch basins, and about 800 gallons of wastewater and sludge were removed from the oil/water separator.

The sampling performed by AEG was unable to replicate the 2015 data collected by Golder Associates (Golder) from the catch basins. It had likely been several years since the catch basins were last cleaned out when they were sampled by Golder, which would explain the numerous contaminants present from years of collecting runoff. The current catch basin data only indicated the presence of oil-range TPH (no cPAHs or gasoline constituents were detected). Gasoline-range TPH and BTEX compounds are still present in MW-1; however, no oil-range TPH or cPAHs were detected.

There no known sources of arsenic at the Site. Soil detections of arsenic in the Golder samples were below MTCA cleanup levels. The detections of arsenic in groundwater do not appear to be indicative of anthropogenic sources, and are likely naturally occurring. AEG proposes to continue to analyze all wells for arsenic to further support this assertion. There are few feasible options

(aside from institutional controls) to clean up arsenic in groundwater, if it is determined some action is necessary. As such, AEG proposes monitoring for arsenic as part of planned compliance monitoring following the cleanup of the gasoline release to determine any trends in concentrations that may warrant further action.

KPHD has resolved the complaint associated with oily discharge from the Site, and AEG recommends no further action regarding this issue.

Gasoline-range TPH in boring B-7 shows a decreasing trend between 10 and 15 feet below ground surface (bgs). Gasoline-range TPH in nearby boring B-6 exceeded cleanup levels at 9 feet bgs and was non-detect at 14 feet bgs. Likewise, gasoline-range TPH in nearby boring B-8 exceeded cleanup levels at 10 feet bgs and was non-detect at 15 feet bgs. This data suggests soil impacts in B-7 do not extend much deeper than 15 feet bgs in B-7. As such, AEG recommends addressing PLIA's comments regarding vertical extent of contamination at boring B-7 as part of the confirmation soil sampling portion of the Cleanup Action Plan to be prepared by AEG for the Site.

Likewise, given the lack of contaminants detected in the catch basins and the lack of a connection between the catch basin system and the surrounding soil and groundwater, AEG proposes assessing the vapor pathway as part of the Cleanup Action Plan for the Site as part of compliance monitoring.

## CLOSING

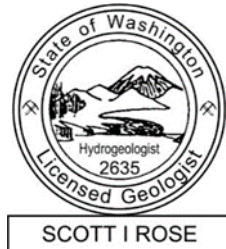
AEG has provided this RI/FS Addendum to provide a summary of the work completed to address PLIA comments. If you have comments or questions please contact our office at your convenience.

Sincerely,

**Associated Environmental Group, LLC**



Scott Rose, L.H.G.  
*Senior Hydrogeologist*



cc: Mr. Suh Jin

Attachments:

Figure 1 – *Site Map*

Table 1 – *Summary of Soil Analytical Results*

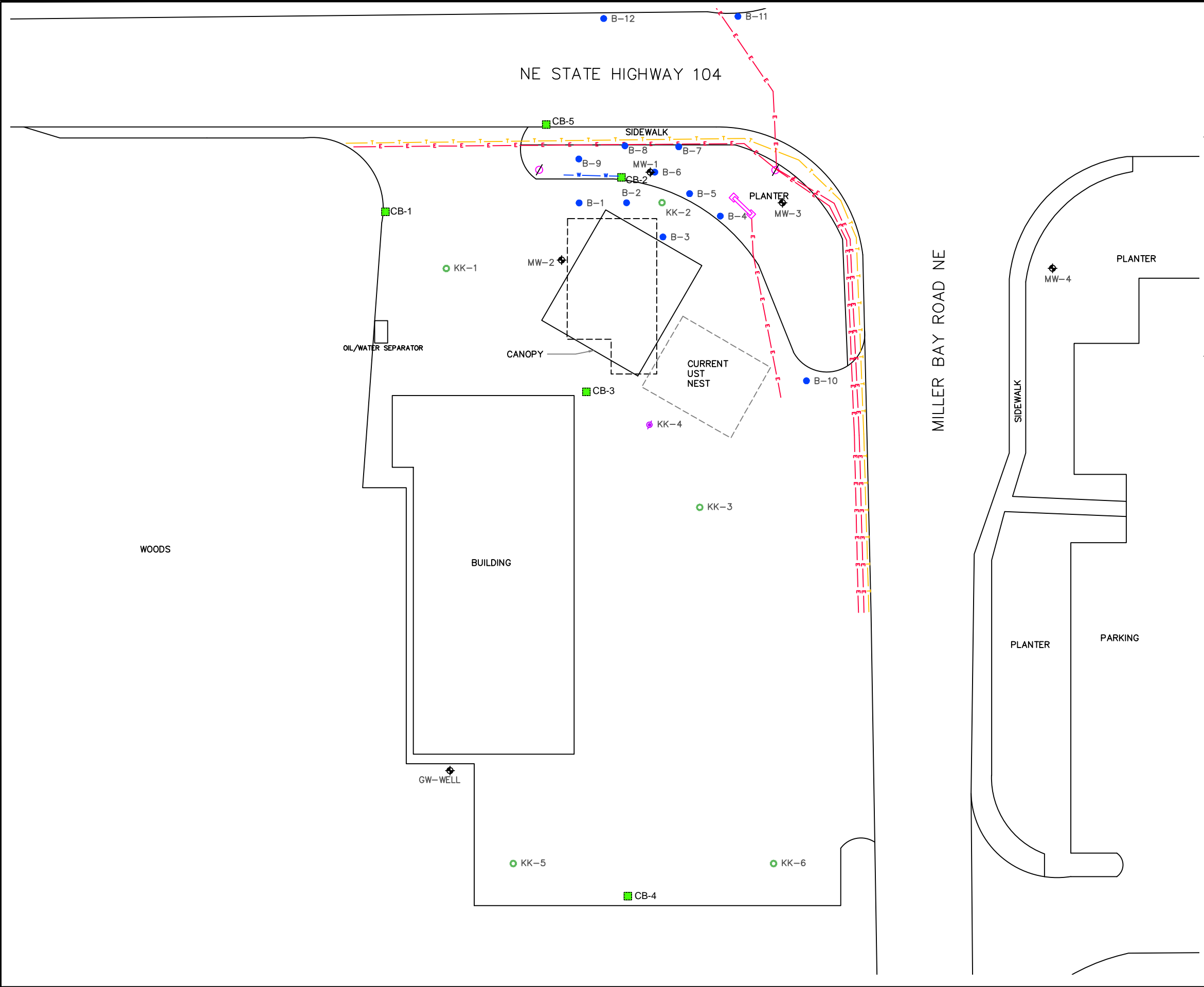
Table 2 – *Summary of Groundwater Analytical Results*

Appendix A – *Site Photographs*

Appendix B – *Laboratory Datasheets*

Appendix C – *Kitsap Public Health District Complaint Actions*

## **FIGURES**




**LEGEND**

MW-1	GROUNDWATER WELL
B-2	SOIL BORING LOCATION (AEG)
KK-5	BOREHOLE LOCATION (DRILLED)
KK-4	BOREHOLE LOCATION (NOT DRILLED)
- - -	1995 EXCAVATION BOUNDARY
[Symbol]	SIGN
- W -	WATER LINE
- T -	TELEPHONE LINE
- E -	ELECTRIC LINE
CB-1	STORM DRAIN/CATCH BASIN
[Symbol]	UTILITY POLE

**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.

 ASSOCIATED ENVIRONMENTAL GROUP, LLC
FIGURE 1
SITE MAP
KOUNTRY KORNER KINGSTON 27099 MILLER BAY ROAD NE KINGSTON, WASHINGTON

## **TABLES**

**Table 1 - Summary of Soil Analytical Results**  
Kountry Korner Kingston  
Kingston, Washington

Sample Number	Depth Collected (feet)	Date Collected	Gasoline	Diesel	Heavy Oil	Volatile Organic Compounds								cPAHs (TEF)	Total Naphthalenes	Total Lead	Arsenic
						Benzene	Toluene	Ethyl- benzene	Xylenes	MTBE	Hexane	EDC	EDB				
Golder Associates Inc. - Soil Borings																	
KK-1-6.5-7.0	7.0	11/18/2015	--	--	--	0.44 J	0.26 J	0.094 U	0.51 J	0.12 U	--	0.20 J	0.094 U	--	--	6.15	2.44
KK-2-6.5-7.5	7.5	11/18/2015	67	74	230 U	2.1 U	2.6 J	3.9 J	15.3 J	0.13 U	--	0.75 J	0.097 U	0.0012	41	3.28	2.10
KK-3-6.0-6.5	6.5	11/18/2015	--	--	--	0.11 J	0.15 U	0.094 U	0.231 J	0.12 U	--	0.27 J	0.094 U	--	--	1.46	0.171
KK-5-5.5-6.0	6.0	11/18/2015	--	31 U	130 U	0.14 J	0.19 J	0.11 U	0.213 U	0.14 U	--	0.08 U	0.11 U	0.0019	2.48	12.8	4.93
KK-6-7.5-8.0	8.0	11/18/2015	--	29 U	120 U	0.077 J	0.17 J	0.094 U	0.181 U	0.12 U	--	0.2 J	0.094 U	--	--	1.35	3.79
Golder Associates Inc. - Catch Basins																	
CB-1	--	11/18/2015	110	3,300	8,300	13	15	380	2.24	0.3 U	--	0.56 J	1.2 J	0.2768	1,620	43	3.11
CB-2	--	11/18/2015	--	7,400	7,700	0.40 J	3.2 J	0.91 J	5.3 J	2.2 J	--	0.57 J	0.27 U	0.1905	115	46.4	4.07
CB-3	--	11/18/2015	43	1,900	3,000	1.4 J	16	87	4.33 J	1.1 U	--	0.63 U	0.84 U	0.074	27	201	5.03
CB-4	--	11/18/2015	7.7 U	880	6,400	0.41 J	3.8 J	1.1 J	4.9 J	0.27 J	--	0.28 J	0.13 U	0.0539	26	28.5	2.13
Associated Environmental Group, LLC																	
B1-5	5.0	4/26/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
B1-10	10.0	4/26/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
B2-5	5.0	4/26/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
B2-10	10.0	4/26/2016	31	--	--	0.14	0.23	0.08	13	--	--	--	--	--	--	--	--
B3-5	5.0	4/26/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
B3-10	10.0	4/26/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
B4-5	5.0	4/26/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
B4-9	9.0	4/26/2016	21	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
B5-5	5.0	4/26/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
B5-11	11.0	4/26/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
B6-5	5.0	4/26/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
B6-9	9.0	4/26/2016	180	--	--	0.54	0.18	1.6	53	--	--	--	--	--	--	--	--
B6-14	14.0	4/26/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
B7-5	5.0	7/6/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
B7-10	10.0	7/6/2016	420	--	--	<0.02	<0.05	<0.05	0.59	--	--	--	--	--	--	--	--
B7-12	12.0	7/6/2016	53	--	--	<0.02	<0.05	<0.05	0.27	--	--	--	--	--	--	--	--
B7-15	15.0	7/6/2016	48	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
B8-10	10.0	7/6/2016	7,800	--	--	<0.02	0.09	9.1	30	<0.05	<0.05	<0.02	<0.005	--	2.37	30	--
B8-15	15.0	7/6/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
B9-10	10.0	7/6/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
B9-13	13.0	7/6/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
MW2-5	5.0	7/6/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
MW2-8	8.0	7/6/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
MW3-5	5.0	7/6/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
MW3-10	10.0	7/6/2016	420	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--
MW3-15	15.0	7/6/2016	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	--	--

**Table 1 - Summary of Soil Analytical Results**  
Kountry Korner Kingston  
Kingston, Washington

Sample Number	Depth Collected (feet)	Date Collected	Gasoline	Diesel	Heavy Oil	Volatile Organic Compounds								cPAHs (TEF)	Total Naphthalenes	Total Lead	Arsenic
						Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	Hexane	EDC	EDB				
B10-5	5.0	1/31/2017	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	<5.0	--
B10-10	10.0	1/31/2017	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	<5.0	--
B10-15	15.0	1/31/2017	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	<5.0	--
B11-5	5.0	1/31/2017	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	<b>6.8</b>	--
B11-10	10.0	1/31/2017	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	<5.0	--
B11-15	15.0	1/31/2017	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	<5.0	--
B12-5	5.0	1/31/2017	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	<b>340</b>	--
B12-10	10.0	1/31/2017	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	<b>9.7</b>	--
B12-15	15.0	1/31/2017	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	<5.0	--
MW4-5	5.0	1/31/2017	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	<5.0	--
MW4-10	10.0	1/31/2017	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	<5.0	--
MW4-15	15.0	1/31/2017	<10	--	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--	<5.0	--
<b>Associated Environmental Group, LLC - Catch Basins</b>																	
CB-3	--	7/21/2017	<10	<50	<100	<0.02	<0.05	<0.05	<0.15	--	--	--	--	<0.02	<0.02	--	<5.0
CB-5	--	7/21/2017	<10	<50	<b>8,500</b>	<0.02	<0.05	<0.05	<0.15	--	--	--	--	<0.02	<0.02	--	<5.0
PQL			10	50	100	0.02	0.05	0.05	0.15	0.05	0.05	0.02	0.005	0.02	0.02	5	5
MTCA Method A Cleanup Levels			30*	2000	2000	0.03	7	6	9	0.1	4,800**	11**	0.005	0.1	5	250	20

Notes:

All values reported in milligrams per kilogram (mg/kg)

-- = Not analyzed for constituent

< = Not detected at the listed laboratory detection limits

PQL = Practical Quantification Limit (laboratory detection limit)

**Red Bold** indicates the detected concentration exceeds Ecology MTCA Method A cleanup level

**Bold** indicates the detected concentration is below Ecology MTCA Method A cleanup levels

\* TPH-Gasoline Cleanup Level with the presence of Benzene anywhere at the Site

\*\* No MTCA Method A cleanup level established, Method B cleanup level used

U = Not detected at or above the listed method detection limit

J = Estimated value above the method detection limit and below the method reporting limit

MTBE = Methyl tert-butyl ether

EDC = 1,2-Dichloroethane

EDB = 1,2-Dibromoethane

cPAH = Carcinogenic polycyclic aromatic hydrocarbons

TEF = Toxicity Equivalency Factor; MTCA Table 708-2

**Table 2 - Summary of Groundwater Analytical Results**  
Kountry Korner Kingston  
Kingston, Washington

Sample Number	Date Collected	Gasoline	Diesel	Heavy Oil	Volatile Organic Compounds							Total Lead	Total Arsenic	Dissolved Arsenic	cPAHs (TEF)	Total Naphthalenes
					Benzene	Toluene	Ethylbenzene	Xylenes	EDC	MTBE	EDB					
Golder Associates Inc.																
KK-1-GW	11/18/2015	--	--	--	0.070 J	0.080 U	0.050 U	0.3 J	0.0036 U	--	0.003 U	1.690	48.7	--	--	0.088 U
KK-2-GW	11/18/2015	250 U	--	--	0.88	1.3	1.4	66.3 J	0.0036 U	--	0.003 U	4.500	4.2	--	--	0.66 J
KK-3-GW	11/18/2015	--	--	--	0.062 U	0.060 J	0.05 U	0.184 U	0.0036 U	--	0.003 U	1.680	2.5	--	--	0.21 J
KK-5-GW	11/18/2015	--	--	--	0.062 U	0.11 J	0.050 U	0.184 U	0.0036 U	--	0.003 U	0.0103	5.7	--	--	0.088 U
KK-6-GW	11/18/2015	--	--	--	0.14 J	0.16 J	0.050 U	0.184 U	0.0036 U	--	0.003 U	0.377	1.2	--	--	0.14 J
EB-1-GW	11/18/2015	--	--	--	0.062 U	0.054 U	0.050 U	0.184 U	0.0036 U	--	0.003 U	0.515	0.4 J	--	--	0.088 U
Well-GW	11/18/2015	--	--	--	0.062 U	0.054 U	0.050 U	0.184 U	0.0036 U	--	0.003 U	13.1	5.0	--	--	0.088 U
Associated Environmental Group, LLC																
B1-W	4/26/2016	<100	--	--	<1.0	<1.0	<1.0	<3.0	--	--	--	--	--	--	--	--
B2-W	4/26/2016	10,500	--	--	35	7	150	140	--	--	--	--	--	--	--	--
B3-W	4/26/2016	<100	--	--	<1.0	<1.0	<1.0	<3.0	--	--	--	--	--	--	--	--
B4-W	4/26/2016	<100	--	--	<1.0	<1.0	<1.0	<3.0	--	--	--	--	--	--	--	--
B5-W	4/26/2016	<100	--	--	<1.0	<1.0	<1.0	<3.0	--	--	--	--	--	--	--	--
B6-W	4/26/2016	14,500	--	--	7	25	480	2,600	--	--	--	--	--	--	--	--
B7-W	7/6/2016	<100	--	--	<1.0	<1.0	<1.0	5	--	--	--	--	--	--	--	--
B8-W	7/6/2016	8,600	--	--	5	2	130	400	--	--	--	--	--	--	--	--
B9-W	7/6/2016	<100	--	--	<1.0	<1.0	<1.0	<3.0	--	--	--	--	--	--	--	--
B-10	1/31/2017	<100	--	--	<1.0	1.8	<1.0	<3.0	--	--	--	<2.0	--	--	--	--
B-11	1/31/2017	<100	--	--	<1.0	1.0	<1.0	<3.0	--	--	--	7.7	--	--	--	--
B-12	1/31/2017	<100	--	--	<1.0	3.3	<1.0	3.0	--	--	--	<2.0	--	--	--	--
MW-1	7/14/2016	9,700	--	--	44	30	290	1,400	<1.0	<1.0	<0.03	<2.0	--	--	--	44.3
	3/21/2017	11,000	--	--	10	10	150	520	--	--	--	<2.0	--	--	--	--
	7/21/2017	15,000	<100	<250	12	15	180	710	--	--	--	--	5.8	13	<0.1	146
MW-2	7/14/2016	<100	--	--	<1.0	<1.0	<1.0	<3.0	--	--	--	--	--	--	--	--
	3/21/2017	<100	--	--	<1.0	<1.0	<1.0	<3.0	--	--	--	<2.0	--	--	--	--
	7/21/2017	<100	<100	<250	<1.0	<1.0	<1.0	<3.0	--	--	--	--	3.6	4.0	<0.1	<0.1
MW-3	7/14/2016	<100	--	--	<1.0	<1.0	<1.0	<3.0	--	--	--	--	--	--	--	--
	3/21/2017	<100	--	--	<1.0	<1.0	<1.0	<3.0	--	--	--	35	--	--	--	--
MW-4	3/21/2017	<100	--	--	<1.0	<1.0	<1.0	<3.0	--	--	--	<2.0	--	--	--	--
PQL		100	100	250	1.0	1.0	1.0	3.0	1.0	1.0	0.03	2.0	2.0	2.0	0.1	0.1
MTCA Method A Cleanup Levels		800*	500	500	5.0	1,000	700	1,000	5	20	0.01	15	5	5	0.1	160

Notes:

All values reported in micrograms per liter (µg/L)

-- = Not analyzed for constituent

< = Not detected at the listed laboratory detection limits

PQL = Practical Quantification Limit (laboratory detection limit)

**Red Bold** indicates the detected concentration exceeds Ecology MTCA Method A cleanup level

**Bold** indicates the detected concentration is below Ecology MTCA Method A cleanup levels

\* TPH-Gasoline Cleanup Level with the presence of Benzene anywhere at the Site

U = Not detected at or above the listed method detection limit

J = Estimated value above the method detection limit and below the method reporting limit

EDC = 1,2-Dichloroethane

EDB = 1,2-Dibromoethane

MTBE = Methyl tert-butyl ether

cPAHs = Carcinogenic polycyclic aromatic hydrocarbons

TEF = Toxicity Equivalency Factor; MTCA Table 708-2



## **APPENDIX A**

### Site Photographs

## SITE PHOTOGRAPHIC RECORD

Project No.: 16-132

Project Name: Kountry Korner Kingston

			
Photo #1:	Photo looking at CB-2.	Photo #2:	Photo looking at CB-5.
			
Photo #3:	Photo looking at CB-5.	Photo #4:	Photo looking at CB-3.
			
Photo #5:	Photo looking north from north edge of building.		

## **APPENDIX B**

### Laboratory Datasheets

# CHAIN-OF-CUSTODY RECORD

CLIENT: AEH DATE: 7/21/17 PAGE 1 OF 1  
 ADDRESS: 605 11th Ave SE, Suite 201, Olympia, WA PROJECT NAME: Kountry Korner Kingston  
 PHONE: 360 352 9835 FAX: 360 352 8164 LOCATION: 27099 Miller Bay Rd NE, Kingston, WA  
 CLIENT PROJECT #: 16-132 PROJECT MANAGER: Nicholas Pushkor COLLECTOR: Nicholas Pushkor DATE OF COLLECTION: 7/21/17

					ANALYSES																						
Sample Number	Depth	Time	Sample Type	Container Type	TPH - HClD		TPH - Diesel & Oil		BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8270	CL Pesticides 8082	RCRA 8 Metals	MTCA 5 Metals	Pb	Asbestos - PLM	GRO Suite	DRO Suite	WO Suite	Total Arsenic		NOTES	Total Number of Containers	Laboratory Note Number
					TPH	HClD	TPH	TPH - Gasoline															Total Arsenic	Diss Arsenic			
1. CB-3	—	1000	soil		X	X	X				X											X	X				
2. CB-5	—	945	soil		X	X	X				X											X	X				
3. NW-2	—	1105	water		X	X	X				X											X	X				
4. NW-1	—	1147	water		X	X	X				X											X	X				
5.																											
6.																											
7.																											
8.																											
9.																											
10.																											
11.																											
12.																											
13.																											
14.																											
15.																											
16.																											
17.																											
18.																											

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME	SAMPLE RECEIPT		LABORATORY NOTES:
<u>NM BN</u>	<u>7/21/17 20</u>	<u>Steph R</u>	<u>7-21-17 1710</u>	TOTAL NUMBER OF CONTAINERS		
				CHAIN OF CUSTODY SEALS Y/N/NA		
				SEALS INTACT? Y/N/NA		
				RECEIVED GOOD COND./COLD		
				NOTES:		

## ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group  
PROJECT KOUNTRY KORNER KINGSTON  
PROJECT #16-132  
Kingston, Washington

ESN Northwest  
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lab@esnsw.com

### Analysis of Diesel Range Organics & Lube Oil Range Organics in Soil by Method NWTPH-Dx Extended

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Diesel Range Organics (mg/kg)	Lube Oil Range Organics (mg/kg)
Method Blank	7/25/2017	7/25/2017	87	nd	nd
LCS	7/25/2017	7/25/2017	93	137%	---
CB-3	7/25/2017	7/25/2017	96	nd	nd
CB-5	7/25/2017	7/25/2017	101	nd	<b>8500</b>
Reporting Limits				50	100

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

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lab@esnnw.com

### Analysis of Diesel Range Organics & Lube Oil Range Organics in Water by Method NWTPH-Dx Extended

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Diesel Range Organics (ug/L)	Lube Oil Range Organics (ug/L)
Method Blank	7/26/2017	7/26/2017	93	nd	nd
LCS	7/26/2017	7/26/2017	98	109%	---
MW-2	7/26/2017	7/26/2017	97	nd	nd
MW-1	7/26/2017	7/26/2017	108	nd	nd
Reporting Limits				100	250

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

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### Analysis of Gasoline Range Organics & BTEX in Soil by Method NWTPH-Gx/8260

Sample Number	Date Prepared	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline Range Organics (mg/kg)	Surrogate Recovery (%)
Method Blank	7/21/2017	7/27/2017	nd	nd	nd	nd	nd	127
LCS	7/21/2017	7/27/2017	99%	81%	81%	74%	90%	104
LCSD	7/21/2017	7/27/2017	108%	96%	92%	85%	---	116
CB-3	7/21/2017	7/27/2017	nd	nd	nd	nd	nd	121
CB-5	7/21/2017	7/27/2017	nd	nd	nd	nd	nd	134
Reporting Limits			0.02	0.05	0.05	0.15	10	

"---" Indicates not tested for component.

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Bromofluorobenzene) & LCS : 65% TO 135%

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### Analysis of Gasoline Range Organics & BTEX in Water by Method NWTPH-Gx/8260

Sample Number	Date Analyzed	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	Gasoline Range Organics (ug/L)	Surrogate Recovery (%)
Method Blank	7/26/2017	nd	nd	nd	nd	nd	112
LCS	7/26/2017	93%	101%	106%	112%	150%	97
LCSD	7/26/2017	90%	96%	101%	104%	---	100
MW-2	7/26/2017	nd	nd	nd	nd	nd	111
MW-2 Duplicate	7/26/2017	nd	nd	nd	nd	nd	108
MW-1	7/25/2017	12	15	180	710	15,000	115
Reporting Limits		1.0	1.0	1.0	3.0	100	

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Bromofluorobenzene) & LCS: 65% TO 135%

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## Analysis of Polynuclear Aromatic Hydrocarbons in Soil by Method 8270

### Analytical Results

		MTH BLK	LCS	CB-3	CB-5
Date extracted	Reporting	07/25/17	07/25/17	07/25/17	07/25/17
Date analyzed	Limits	07/25/17	07/25/17	07/25/17	07/25/17
Moisture, %	(mg/kg)			39%	54%
Naphthalene	0.02	nd	103%	nd	nd
2-Methylnaphthalene	0.02	nd	93%	nd	nd
1-Methylnaphthalene	0.02	nd	ns	nd	nd
Acenaphthylene	0.02	nd	95%	nd	nd
Acenaphthene	0.02	nd	96%	nd	nd
Fluorene	0.02	nd	91%	nd	nd
Phenanthrene	0.02	nd	91%	nd	nd
Anthracene	0.02	nd	85%	nd	nd
Fluoranthene	0.02	nd	86%	nd	<b>0.4</b>
Pyrene	0.02	nd	80%	nd	<b>0.7</b>
Benzo(a)anthracene*	0.02	nd	40%	nd	nd
Chrysene*	0.02	nd	106%	nd	nd
Benzo(b)fluoranthene*	0.02	nd	54%	nd	nd
Benzo(k)fluoranthene*	0.02	nd	73%	nd	nd
Benzo(a)pyrene*	0.02	nd	55%	nd	nd
Indeno(1,2,3-cd)pyrene*	0.02	nd	80%	nd	nd
Dibenzo(a,h)anthracene*	0.02	nd	105%	nd	nd
Benzo(ghi)perylene	0.02	nd	98%	nd	nd
Total Carcinogens				nd	nd
Surrogate recoveries:					
2-Fluorobiphenyl		81%	101%	83%	71%
p-Terphenyl-d14		64%	86%	71%	73%

### Data Qualifiers and Analytical Comments

\* - Carcinogenic Analyte

nd - not detected at listed reporting limits

ns - not spiked

Results reported on dry-weight basis

Acceptable Recovery limits: 50% TO 150%

Acceptable RPD limit: 35%



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**Analysis of Total Arsenic in Soil by Method 6020A/3050B**

Sample Number	Date Prepared	Date Analyzed	Arsenic (As) (mg/kg)
Method Blank	7/21/2017	7/28/2017	nd
CB-3	7/21/2017	7/28/2017	nd
CB-5	7/21/2017	7/28/2017	nd
Reporting Limit			5.0

"nd" Indicates not detected at listed detection limits.

**QA/QC Data - Analysis of Total Metals in Soil by Method 6020A/3050B**

Sample Number: QC Batch							
Laboratory Control Sample				Laboratory Control Sample Duplicate			RPD
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	(%)
Arsenic (As)	100	102	102	100	104	104	1.94

ACCEPTABLE RECOVERY LIMITS FOR LABORATORY CONTROL SAMPLES: 80%-120%  
ACCEPTABLE RPD IS 20%

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### Total Metals in Water by EPA-6020 Method

Sample Number	Date Analyzed	Arsenic (As) (ug/L)
Method Blank	7/28/2017	nd
MW-2	7/28/2017	3.6
MW-2 Duplicate	7/28/2017	3.6
MW-1	7/28/2017	5.8

Reporting Limits	2.0
------------------	-----

"nd" Indicates not detected at listed detection limits.

### QA/QC Data - Total Metals EPA-6020

Laboratory Control Sample				Laboratory Control Sample Duplicate			RPD
Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)		Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)	
Arsenic (As)	20.0	21.6	108	20.0	20.6	103	4.74

ACCEPTABLE RECOVERY LIMITS FOR LABORATORY CONTROL SAMPLES: 80%-120%  
ACCEPTABLE RPD IS 20%

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### Dissolved Metals in Water by EPA-6020 Method

Sample Number	Date Analyzed	Arsenic (As) (ug/L)
Method Blank	7/28/2017	nd
MW-2	7/28/2017	4.0
MW-1	7/28/2017	13
Reporting Limits		2.0

"nd" Indicates not detected at listed detection limits.

### QA/QC Data - Dissolved Metals EPA-6020

Laboratory Control Sample				Laboratory Control Sample Duplicate			RPD
Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)		Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)	
Arsenic (As)	20	21.6	108	20.0	20.6	103	4.74

ACCEPTABLE RECOVERY LIMITS FOR LABORATORY CONTROL SAMPLES: 80%-120%  
ACCEPTABLE RPD IS 20%

## **APPENDIX C**

### **Kitsap Public Health District Complaint Actions**

Solid and Hazardous Waste Program -- Complaint Actions

Parcel Tax ID:	282702-1-005-2004		
Site Address:	27099 MILLER BAY RD NE		
Taxpayer Info:	SABUJA LLC	Phone:	(360) 710-7717
	Mailing Address:	12415 61ST AVE W	
		MUKILTEO, WA 98275	
Complaint Date:	4/3/2006		
Complaint:	Oily stormwater runoff from dumpster?		
	4/3/2006	Visited site	GRANT HOLDCROFT
		No leakage from dumpster or grease container. Draingae from entire gas station parking lot. No obvious signs of hydrocarbons in ditch. Forward to DCD DE.	
	4/12/2006	Abated: Forwarded	GRANT HOLDCROFT