Appendix E

TSP Remediation Documents

Appendix E-1

TSP Cleanup Action Plan/Phase II Environmental Assessment

TSP Cleanup Action Plan/
Phase II Environmental Assessment

Lacey Gateway Parcels A and B
Lacey, Washington

Project No. T-6537-1

Terra Associates, Inc.

Prepared for:

Wig Properties, LLC
Bellevue, Washington

September 21, 2012

TERRA ASSOCIATES, Inc.

Consultants in Geotechnical Engineering, Geology
and
Environmental Earth Sciences

September 21, 2012
Project No. T-6537-1

Ms. Leshya Wig
Wig Properties, LLC
VP-RE Development
4811 – 134th Place SE
Bellevue, Washington 98006

Subject: TSP Cleanup Action Plan/Phase II Environmental Site Assessment
Lacey Gateway Parcels A and B
Lacey, Washington

Dear Ms. Wig:

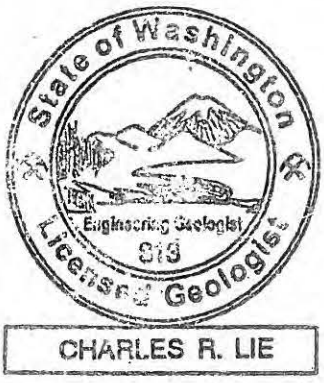
As requested, this report summarizes our supplemental site sampling and a cleanup action plan for Parcels A and B of the Lacey Gateway project.

We trust the information presented is sufficient for your current needs. If you have any questions or require additional information, please call.

Respectfully submitted,
TERRA ASSOCIATES, INC.

Charles R. Lie, L.H.G.
Project Manager

cc : Ms. Elizabeth Weldin, Washington State Department of Ecology



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TSP Cleanup Action Plan/
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Lacey Gateway Parcels A and B
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1.0 EXECUTIVE SUMMARY

The following report presents the results of our supplemental sampling and a cleanup action plan to address the area wide contamination from the Tacoma Smelter Plume (TSP). This document has been prepared in general accordance with the Model Remedies in Appendix C of the Tacoma Smelter Plume-Interim Action Plan dated 2012 prepared by Ecology. The TSP Interim Action Plan provides the Feasibility Study element of this project. This report summarizes the results of current and previous sampling on the properties and model remedies.

Parcel A covers 212 acres of undeveloped land in Lacey, Washington. Parcel B covers 2.44 acres of undeveloped land on the north side of Britton Parkway from Parcel A. These properties are relatively level and forested.

The current plan is to develop Parcel A and Parcel B over the next 20 years. No specific building plans or property layout have been developed. The final property layout, building configuration, and land uses will be based on current and future zoning and market demands. We understand that from a conceptual point of view, there may be some multi-family residential structures amongst commercial office and retail developments. Grading on-property is expected to consist of cuts and fills of ten feet on Parcel A and less than five feet on Parcel B.

The results of our study are discussed in more detail later in this report.

2.0 SCOPE OF WORK

Our scope of work for this supplemental report consisted of the following:

- Review of our prior work on-property.
- Review of the current Ecology guidance on the Tacoma Smelter Plume impact zone.
- Attendance at a meeting with Ecology to discuss this project.
- Sampling on-property in addition to the locations sampled for the prior testing.
- Subcontracted analysis of all samples for lead and arsenic.
- Preparation of this report.

3.0 CONDITION OF PROPERTIES/HISTORY/PLANNED DEVELOPMENT

3.1 Surface

The Parcel A and Parcel B are located along the south and north side of Britton Parkway NE west of Marvin Road in Lacey, Washington. The location of the properties and vicinity are shown on Figure 1. Topographic conditions in the vicinity of the properties are presented on Figure 2. Figure 3 shows the existing condition of the properties.

3.1.1 Parcel A

Parcel A covers 212.14 acres. The parcel is bordered by I-5 to the south, a gravel pit and forest to the west, Britton Parkway NE to the north, and vacant land to the east. The parcel surrounds a Cabela's retail sporting goods store and parking. In general, the parcel slopes gently to the south. In the central portion of the parcel, ground cover consists primarily of Scot's broom, grass, and moss. The northern third and the extreme southern section of the parcel are primarily forest consisting of fir trees. Several existing dirt/gravel roads wind across the parcel.

The parcel has a low hill located in the center of the eastern half of the property. The hill rises gently with overall relief of about 30 feet. No evidence of prior structures or development was noted on the property. Some limited clearing appears to have occurred primarily along projected road alignments. No evidence of significant prior grading such as cuts and fills or stockpiled topsoil is present on-property.

3.1.2 Parcel B

The parcel covers 2.44 acres and is generally flat. The parcel is bordered by Britton Parkway NE to the south and partially developed vacant land and forest to the north. Ground cover consists of young to medium growth forest with thick understory growth of salmon berry, blackberry, ferns, and various low lying brush. The property is bisected by a driveway that provides access to a new project north of Parcel B. This parcel has a maximum depth of 90 feet and tapers to a point at both the east and west ends of the parcel.

3.2 History

We reviewed historical aerial photographs of the Parcel A and Parcel Band vicinity on-line at Terraserver, Thurston County GIS, at the Suzallo Library, Terra Server, and Google Earth. The aerial photos are vertical photos that show the footprints of the buildings and other details visible from that point of view. Dense forest cover can obscure small buildings such as houses and small outbuildings. The actual use of the buildings is usually not ascertainable from the photographs alone. Conclusions of the use of the buildings contained in the following description are based on research from other sources. Figure 3 attached to this report is a 2009 photo from Terra Server.

1944 The properties and surrounding properties appear as undeveloped forest and grass prairie. Interstate 5 is not yet present.

1969 The properties and surrounding properties appear similar to 1944. Interstate 5 is present.

1972 The properties and surrounding properties appear relatively unchanged from 1969. Dirt roads and pathways spider web across Parcel A.

1980 The properties remain undeveloped forest and grass prairie similar to 1972.

1997 The properties remain undeveloped.

2002 The properties remain undeveloped. Britton Lane is present. Surrounding properties appear similar to 1997.

2007 The properties remain undeveloped. The Cabela's building is present on the parcel located in the middle of the southern portion of Parcel A. Cabela's parking lot is under construction.

2009 The properties appear similar to present. This photo is used for Figure 3.

2010 The properties appear similar to present as undeveloped forest and grass prairie that has been overgrown with scots broom. Surrounding properties appear similar to 2009.

Based on our review, no significant grading has occurred on the Parcel A and Parcel B. Near-surface soils have been disturbed in areas transacted by vehicle paths and trails. Clearing of vegetation appears to have occurred in the western margin of the Parcel A and in projected road alignments. The area was historically forested and partially prairie land. The prairie areas of the Parcel A are currently covered by scots broom, an invasive species. No buildings are believed to have been present on the Parcel A and Parcel B.

3.4 Subsurface Soil Conditions

Published geologic information shows that most of the Parcel A and Parcel B are underlain at shallow depths by dense till soils. There is an area mapped with recessional outwash along the northern margin of Parcel A. The outwash soils are expected to be underlain by dense till soils. There are likely local shallow pockets of recessional outwash that blanket the till in other areas of the properties. A portion of the 2003 geologic map that shows the properties are on Figure 4.

3.5 Groundwater

For the purpose of this study, it is reasonable to assume that near-surface groundwater gradients are strongly controlled by topography and/or surface features. A seasonal perched groundwater body may develop above the dense undisturbed till soils and/or within sandy zones within the till soils. In general, the till soils have a low permeability. Based on the topographic location of the Parcel A and Parcel B, the geologic conditions, and our field observations, it appears that the direction of near-surface groundwater flow beneath the subject properties is generally to the northwest. The local perched groundwater tables are likely not continuous beneath the properties or in the vicinity of the properties.

There will be a deeper aquifer within Advance outwash sands beneath the till. The Hydrology and Quality of Groundwater in Northern Thurston County, 1998, indicates that groundwater flow within the Advance sand outwash is radially towards the north, northwest, and northeast beneath Parcel A and Parcel B. The depth to groundwater is shown as being about 150 to 170 feet deep below site grades in well logs for nearby wells.

3.6 Planned Development

The Lacey Gateway Parcels A and B are located in the Hawks Prairie Business District (HPBD). The HPBD is comprised of two sub-zones: Hawks Prairie Business District – Commercial (HPBD – C) and Hawks Prairie Business District – Business/Commercial (HPBD – BC). Most of the Lacey Gateway parcels are zoned Hawks Prairie Business District Business Commercial (HPBD-BC) with the far eastern portion Hawks Prairie Business District Commercial (HPBD-C). The development guidelines are found in Lacey Municipal Code Chapter 16.37. The primary difference between the two designations is that the commercial area is focused on strictly retail uses while the BC portion allows for mixed-use residential. Permitted uses include retail, office, hotel, medical, and high-density residential up to 20 units per acre located within mixed-use buildings with the first floor dedicated for commercial. However, there may be some willingness on the part of the City to allow first and second floor residential.

The developer expects to develop the Lacey Gateway property in phases over the next 10 to 20 years. Most likely there will be many different types of uses (which could include but are not limited to retail, entertainment, hotel, civic uses, office including medical office, housing or apartments, public plazas, parks, etc.). It will not be known for many years whether all of the above uses will be included in the final Lacey Gateway development or not, and if they are included, where those uses would be located or how dense those uses might be. The developer will follow Ecology's clean-up guidelines for each particular use that is developed.

4.0 FIELD SAMPLING

Both Parcel A and Parcel B are undeveloped land. There are no existing structures on the properties. For the purpose of this study, Parcel A and Parcel B were considered to be separate decision units. Sampling was done in accordance with the number of sample guidance outlined in Table 11.2 of the interim action plan for properties that are or will be residential, parks, commercial, and with arsenic in the 20 to 100 ppm range. Field sample locations on Parcel A are shown on Figure 5 attached to this report. Field sample locations for Parcel B are shown on Figure 6.

On Parcel A samples were taken at 114 locations. At 24 of the locations additional samples were taken at a depth of 12 inches. In addition, where present in a thickness of more than about two inches, duff samples were taken. The total number of samples includes the samples taken by Terra Associates in 2011.

On Parcel B, samples were taken at 24 locations. At 6 of the locations additional samples were taken at a depth of 12 inches. In addition, a duff sample was collected at selected sample locations. The total number of sample locations includes the samples taken by Terra Associates in 2011.

5.0 LABORATORY TESTING

The prior and current laboratory reports are attached as Appendix B. The analysis testing is discussed in more detail in Appendix B.

The results of analytical testing for lead and arsenic are summarized in Tables 1 through 6.

Table 1
Analytical Test Result – Parcel A
2012 Soil Samples

Sample	Location	Sample Depth (inches)	Arsenic	Lead	Duff Sample
7-31-1	1	6	5.6	27	No
7-31-2	2	6	25	240	No
7-31-3	3	6	16	23	No
7-31-4	4	6	10	15	No
		12	6.0	10	No
7-31-5	5	6	19	36	No

Table 1 (continued)
Analytical Test Result – Parcel A
2012 Soil Samples

Sample	Location	Sample Depth (inches)	Arsenic	Lead	Duff Sample
7-31-6	6	6	9.6	41	No
7-31-7	7	6	14	33	No
7-31-8	8	6	10	20	No
		12	9.5	22	No
7-31-9	9	6	6.1	15	No
7-31-10	10	6	3.6	9.0	No
7-31-11	11	6	7.7	16	No
7-31-12	12	6	10	26	No
		12	9.5	22	No
7-31-13	13	6	30	46	No
7-31-14	14	6	11	21	No
7-31-15	15	6	9.6	23	No
7-31-16	16	6	23	64	No
		12	9.2	18	No
7-31-17	17	6	3.3	5.7	No
7-31-18	18	6	3.8	6.9	No
7-31-19	19	6	2.9	5.6U	No
7-31-20	20	6	3.4	8.4	No
		12	2.8	6.1	No
7-31-21	21	6	15	25	No
7-31-22	22	6	4.4	12	No
7-31-23	23	6	27	72	No
7-31-24	24	6	6.2	14	No
		12	4.6	9.9	No
7-31-25	25	6	9.3	20	No
7-31-26	26	6	37	54	No
8-2-27	27	6	10	25	No
8-2-28	28	6	5.1	7.8	No
8-2-29	29	6	5.0	9.8	No
8-2-30	30	6	8.9	50	No
8-2-31	31	6	16	38	No
8-2-32	32	6	6.9	15	No
8-2-33	33	6	23	73	No
8-2-34	34	6	20	91	No
8-2-35	35	6	6.8	16	Yes
8-2-36	36	6	6.4	14	No
8-2-37	37	6	8.8	21	No
8-2-38	38	6	3.1	8.3	No
8-2-39	39	6	3.2	5.5U	Yes
8-2-40	40	6	25	76	No

Table 1 (continued)
Analytical Test Result – Parcel A
2012 Soil Samples

Sample	Location	Sample Depth (inches)	Arsenic	Lead	Duff Sample
8-2-41	41	6	5.6	9.5	Yes
8-2-42	42	6	9.9	25	No
8-2-43	43	6	15	44	No
8-2-44	44	6	17	34	No
8-2-45	45	6	9	21	Yes
8-2-46	46	6	8.4	9.4	No
8-2-47	47	6	3.7	7.4	No
8-2-48	48	6	23	44	Yes
8-2-49	49	6	10	18	No
8-2-50	50	6	5.2	5.8U	No
8-2-51	51	6	12	33	No
8-6-52	52	6	18	50	No
8-2-53	53	6	7.6	23	Yes
8-2-54	54	6	9.8	25	No
8-2-55	55	6	11	18	No
8-2-56	56	6	12	27	Yes
8-2-57	57	6	2.0	5.2U	No
8-2-58	58	6	13	37	Yes
8-2-59	59	6	10	21	No
8-2-60	60	6	9.8	18	Yes
8-2-61	61	6	4.9	9.5	Yes
8-2-62	62	6	19	18	No
8-3-63	63	6	15	21	Yes
8-3-64	64	6	34	22	Yes
8-6-65	65	6	16	22	No
8-3-66	66	6	3.3	6.2	No
8-3-67	67	6	17	44	Yes
8-3-68	68	6	16	21	Yes
8-3-69	69	6	15	13	Yes
8-3-70	70	6	3.7	8.1	No
8-2-71	71	6	10	13	No
		12	4.9	9.5	No
8-2-72	72	6	11	15	Yes
8-3-73	73	6	23	34	Yes
8-3-74	74	6	27	30	Yes
8-3-75	75	6	12	15	Yes
8-6-76	76	6	7.6	12	No
8-6-77	77	6	17	25	No
8-3-78	78	6	8.3	11	Yes
8-6-79	79	6	19	39	Yes
8-6-80	80	6	29	170	Yes

Table 1 (continued)
Analytical Test Result – Parcel A
2012 Soil Samples

Sample	Location	Sample Depth (inches)	Arsenic	Lead	Duff Sample
8-6-81	81	6	13	74	Yes
8-6-82	82	6	13	32	Yes
8-6-83	83	6	8.5	13	Yes
8-6-84	84	6	17	37	No
8-6-85	85	6	16	48	Yes
8-6-86	86	6	13	18	No
8-6-87	87	6	13	24	No
8-6-88	88	6	4.4	5.9U	No
8-6-89	89	6	5.7	21	No
8-6-90	90	6	23	68	No
8-6-91	91	6	6.9	10	No
8-6-92	92	6	18	29	No
8-6-93	93	6	5.6	16	No
8-6-94	94	6	29	34	No
8-6-95	95	6	16	28	No
8-6-96	96	6	5.9	36	Yes
8-6-97	97	6	9.6	30	Yes
MTCA Method A			20	250	N/A
Background (a)			7	24	--
Background (b)			13	18	--

Table 2
Analytical Test Results – Parcel A
Composite Duff Samples 2012

Sample Locations Used For Composite	Arsenic	Lead
35, 39, 41, 45, 48	14	44
53, 56, 58, 60, 61, 72	14	51
79, 80, 81, 82, 83, 96, 97	34	280
85, 86, 87, 88, 90, 91	23	54
73, 74, 75, 78	37	150
69,68, 67, 64, 63	29	120
MTCA	**20**	**250**

Table 3
Analytical Test Result Summary – Parcel A
Soil Samples 2011

Sample Location	Sample Depth (inches)	Arsenic	Lead
TP-13	6	14U	7.7
	12	14U	13
TP-14	6	16U	9.3
	12	15U	8.8
TP-15	6	37	48
	12	17	17
TP-16	6	11U	5.3U
	12	11U	5.3U
TP-17	6	23	25
	12	14U	12
TP-18	6	38	21
	12	14U	6.9U
TP-19	6	36	42
	12	14U	17
TP-20	6	13U	15
	12	13U	14
TP-21	6	16U	19
	12	15U	17
TP-22	6	15U	13
	12	15U	9.8
TP-23	6	14U	12
	12	14U	6.8U
TP-24	6	26	48
	12	14U	17
TP-25	6	11U	5.6U
	12	11U	5.6U

Table 3 (continued)
Analytical Test Result Summary

Sample Location	Sample Depth (inches)	Arsenic	Lead
TP-26	6	30	30
	12	15U	14
TP-27	6	20	55
	12	23	34
TP-28	6	18	32
	12	13U	31
TP-29	6	20	19
	12	14U	7.2U
MTCA Method A		20	250
Background (a)		7	24
Background (b)		13	18

Notes: All units are parts per million (ppm).
U modifier indicates that the metal was not present at the stated Practical Quantification Level (PQL).
PQL varies with moisture content; final results are based on dry weights.
MTCA Cleanup values shown are MTCA Method A for unrestricted land use.
Shaded cell exceeds MTCA Method A cleanup value.
Background (a) values are from Ecology Publication 9415.
Background (b) values are from USGS WRI Report 95-4018 Table 4.

Table 4
Analytical Test Result – Parcel B
2012 Soil Samples

Sample	Location	Sample Depth (inches)	Arsenic	Lead	Duff
B-1	B-1	6	16	27	Yes
		12	11	22	No
B-2	B-2	6	12	27	No
B-3	B-3	6	22	54	No
B-4	B-4	6	11	29	No
B-5	B-5	6	28	82	Yes
		12	21	57	No
B-6	B-6	6	37	42	No
B-7	B-7	6	14	32	No
B-8	B-8	6	17	39	No
B-9	B-9	6	31	69	Yes
		12	17	44	No

Table 4 (continued)
Analytical Test Result – Parcel B
2012 Soil Samples

Sample	Location	Sample Depth (inches)	Arsenic	Lead	Duff
B-10	B-10	6	19	37	No
B-11	B-11	6	19	37	No
B-12	B-12	6	16	33	No
B-13	B-13	6	19	40	Yes
		12	22	38	No
B-14	B-14	6	20	39	No
B-15	B-15	6	11	18	No
B-16	B-16	6	16	27	No
B-17	B-17	6	16	25	Yes
		12	21	36	No
B-18	B-18	6	21	34	No
B-19	B-19	6	15	23	No
B-20	B-20	6	11	19	No
B-21	B-21	6	16	25	Yes
		12	22	36	No
B-22	B-22	6	18	29	No
B-23	B-23	6	15	24	No
B-24	B-24	6	16	26	No
MTCA Method A			20	250	N/A
Background (a)			7	24	--
Background (b)			13	18	--

Table 5
Analytical Test Results – Parcel B
Composite Duff Samples 2012

Sample Locations Used For Composite	Arsenic	Lead
B-1,B-5, B-9, B-13, B-17, B-21	13	88
MTCA	**20**	**250**

Table 6
Analytical Test Result Summary – Parcel B

Sample Location	Sample Depth (inches)	Arsenic	Lead
TP-30	6	76	180
	12	34	48
MTCA Method A		20	250
Background (a)		7	24
Background (b)		13	18

Notes: All units are parts per million (ppm).
U modifier indicates that the metal was not present at the stated Practical Quantification Level (PQL).
PQL varies with moisture content; final results are based on dry weights.
MTCA Cleanup values shown are MTCA Method A for unrestricted land use.
Shaded cell exceeds MTCA Method A cleanup value.
Background (a) values are from Ecology Publication 9415.
Background (b) values are from USGS WRI Report 95-4018 Table 4.

6.0 DISCUSSION

6.1 Parcel A

6.1.1 Soils

A total of 137 individual soil samples were analyzed for lead and arsenic. Where the value was below the practical quantitation limit, a value of one-half of the PQL was used in the calculation of arithmetic means. The arithmetic mean of the samples for arsenic and lead are 12.8 ppm and 24.8 ppm, respectively. The maximum sample value for arsenic and lead was 37 ppm and 240 ppm, respectively. Based on these results of the sampling for the project, the property meets the cleanup levels.

The values are consistent with the expected levels of lead and arsenic with one exception. This is sample 2 taken along the eastern margin of the property. The level of lead in this sample was 240 ppm, well above the levels of lead found in other locations. The adjacent parcel east of the property was a former trap and skeet shooting range. Sample 2 falls within the area of suspected shot impact from the operation of the shooting range. The adjacent samples that were also in the suspected shot impact zone did not exhibit unusual levels of lead.

6.1.2 Duff

The duff samples in two zones of the property exceed the cleanup value for arsenic. The value for duff in the composite sample of 79 through 83, 96, and 97 taken along the southern margin of Parcel A bordering Interstate I-5 exceeds the cleanup value for lead and appears to be impacted from past use of leaded gasoline. While leaded gasoline was phased out in 1995, Interstate I-5 has been present along the southern margin of the property since the 1960s. With a lack of disturbance the levels of lead appears to be additive between the two sources of the TSP and the highway. The duff in composite samples 79-83, 96, and 97 exceeds the 20 ppm threshold for arsenic.

The duff in composite of Samples 73 through 75 and 78 as well as the composite of Samples 63, 64, and 67 through 69 exceeds the 20 ppm threshold for arsenic.

It must be recognized that over the life of this project that the distribution/accumulation of duff may increase in undeveloped areas. The extent of duff discussed is this report is based on our current observations and opinions.

6.2 Parcel B

6.2.1 Soils

A total of 32 individual soil samples were analyzed for lead and arsenic. Where the value was below the practical quantitation limit, a value of one-half of the PQL was used in the calculation of arithmetic means. The arithmetic mean of the samples taken in 2012 for arsenic and lead are 18.3 ppm and 35.7 ppm, respectively. The maximum sample value for arsenic and lead was 37 ppm and 82 ppm, respectively for the 2012 samples. Based on the 2012 sampling results, Parcel B meets the cleanup levels. The sample results for TP-30 are not consistent with the samples taken in 2012 and are discussed in more detail in Section 7.1.3.

6.2.2 Duff

The value of the lead and arsenic in the duff in Parcel B is 88 and 13 ppm, respectively.

It must be recognized that over the life of this project that the distribution/accumulation of duff may increase in undeveloped areas. The extent of duff discussed in this report is based on our current observations and opinions.

7.0 REMEDIAL OPTIONS

7.1 Areas to be Cleared and Developed

7.1.1 Parcel A – Areas Where No Special Requirements Are Needed (Zone A-1)

In Zone A-1 shown on Figure 7, no remedial measures are needed. The arithmetic levels of arsenic and lead are below their respective cleanup levels and the composite duff samples are also below the cleanup levels of lead and arsenic. Incidental blending associated with grading activities will homogenize the soils. The end result is expected to provide soils that are lower in total arsenic and lead concentrations than exist at this time. This area is the prairie area in the center of the eastern parcel and the eastern half of the forested area west and northwest of the Cabela's parking lot.

7.1.2 Parcel A – Areas Where Mixing is Needed (Zones A-2, A-3, and A-4)

In Zones A-2, A-3, and A-4 shown on Figure 7, mixing of the upper 12 inches of soils is the preferred option. Confirmation samples of the mixed soils and the subgrade will need to be done in accordance with the TSP Model Remedies Guidance. The number of confirmation samples will vary with the size of the area being developed. For geotechnical considerations, mixing may need to involve a thicker section of soil to adequately reduce the organic content of the surficial soils.

If the duff soils are exported from Zones A-2, A-3, and A-4, additional sampling and analysis will be needed to determine if the duff designates as dangerous waste. All duff exported from Zones A-2, A-3, and A-4 must be documented to verify it is appropriate for the chosen disposal site. If any duff composite samples are over 20 ppm arsenic or 250 ppm lead, the duff will be disposed of at an appropriate disposal facility. For information about waste disposal, contact Thurston County Health Department.

7.1.3 Parcel B

For Parcel B, no remedial measures are needed. In 2011, soil was collected at one location, TP-30. The soil sample collected at 0 to 6 inches had an arsenic concentration of 76 mg/kg. The soil sample collected at 6 to 12 inches had an arsenic concentration of 34 mg/kg. The soil samples did not have elevated levels of lead. In 2012, a more robust duff and soil sampling effort was done for Parcel B. Soil samples were collected near the 2011 sampling location TP-30. The average and maximum of the duff and soil samples collected in 2012 met the cleanup levels of the MTCA and Tacoma Smelter Plume Interim Action Plan for arsenic and lead. Because, the more extensive sampling effort did not confirm the elevated levels of arsenic near TP-30, Ecology decided that the one 2011 sampling location was not representative of Parcel B and results collected from that one location could be disregarded.

7.2 Confirmation Sampling

7.2.1 Compliance Sampling

Compliance sampling is needed to meet the MTCA requirement of performance monitoring. It is used to confirm that cleanup standards or other performance standards have been met. Compliance sampling is used to show whether a decision unit meets Tacoma Smelter Plume cleanup standards after remediation. Parcel A is going to be divided into separate lots with new parcel numbers. The lots may range from 1 to 50 acres or more. If a lot is partially in Zone A-2, A-3, or A-4, only the portion of the lot in A-2, A-3, or A-4 will need to be sampled. At all the sampling locations, samples should be taken 0 to 6 inches. At every fourth location, soil samples should be taken at 6 to 12 inches. All compliance sampling will follow Ecology's Tacoma Smelter Plume Model Remedies Guidance. Samples must be discrete. Samples must be analyzed for lead and arsenic. The lab must use methods 6010, 6020, 6200, or 7060 for arsenic and Methods 6010, 6020, 6200, or 7421 for lead.

The minimum number of sample locations per decision unit depends on its size. Sample locations should be laid out in a grid with maximum coverage of the decision unit. Table 4 shows the minimum number of compliance sampling locations based on Decision Unit size.

If the duff soils are exported from Zones A-2, A-3, or A-4, additional sampling and analysis will be needed to determine if the duff designates as dangerous waste. If any duff composite samples are over 20 ppm arsenic or 250 ppm lead, the duff will be disposed at an appropriate disposal facility. For information about waste disposal, contact Thurston County Health Department.

Table 4
Minimum Number of Compliance Sample Locations per Decision Unit
Based on Less than 100 ppm Arsenic

Sampling Area (DU) Size (acres)	Sample Locations Needed
0.25	**8**
1	**16**
5	**32**
10	**48**
20	**64**
100	**90**
>100	**90+1 per 10 acres**

A two part rule is used to determine whether arsenic or lead meet cleanup levels for a decision unit:

1. The average of all samples for the decision unit is at or below 20 ppm for arsenic and 250 ppm for lead.

2. The maximum of all samples for the decision unit is at or below 40 ppm for arsenic and 500 ppm for lead.

Decision units failing either of these criteria will require further remediation. Further excavation or mixing will require a second round of compliance sampling.

The Tacoma Smelter Plume Model Remedies Guidance does not require calculating the 95 percent upper confidence limit (UCL) on the mean.

Compliance testing can be done with an XRF device to expedite the process. The results of the XRF device will need to be verified with laboratory testing with soils on the properties.

7.2.2 Stockpile Sampling

Stockpile sampling will be done on soils excavated for disposal or reuse on a property. Stockpile sampling will follow the Tacoma Smelter Plume Model Remedies Guidance. A Waste Disposal Authorization may be required for off-property disposal. Stockpile sampling uses composite sampling. All composite samples should have six subsamples.

Table 5
Number of Composite Samples per Stockpile

Stockpile Volume (Cubic yards)	Number of Composites
<500	2

Table 5 (continued)
Number of Composite Samples per Stockpile

Stockpile Volume (Cubic yards)	Number of Composites
500-999	4
1,000-4,999	6
5,000-9,999	10
10,000-19,999	14
>20,000	14+1 per 5,000 cubic yards

Stockpiles should be divided evenly into segments, with one composite sample per segment. Subsamples within each composite should be divided evenly among surface, mid-depth, and deep soils. Samples will be analyzed for arsenic and lead. Accredited labs should use Methods 6010, 6020, 6200, or 7060 for arsenic and Methods 6010, 6020, 6200, or 7421 for lead. They should be able to screen the sample to two millimeters, report results on a dry weight basis, and provide a quality review of the data and a summary of the quality control results.

Each composite result for each stockpile segment should be compared directly to the cleanup levels of 20 ppm for arsenic and 250 ppm for lead. Stockpiles or segments of stockpiles above the cleanup levels should be disposed of at an appropriate disposal facility. Contact the Thurston Health Department for appropriate disposal facilities. Off-property disposal facilities should be contacted for the number of TCLP samples required to verify designation of soils relative to the lead content.

If arsenic is at or below 40 ppm, contaminated stockpiles may be mixed with clean soils and retested to ensure that arsenic is at or below 20 ppm and that the final lead level is less than 250 ppm.

7.3 Areas To Be Left As Undisturbed Buffer/Native Forest

Model guidance for greenbelts areas is being developed by Ecology and is projected to be available in 2013. The developer will work with Ecology and the City of Lacey to comply with requirements for areas to be left at undisturbed native forest in Zones A-2, A-3, or A-4.

7.4 Park Areas

As discussed in Section 3.6, there may be parks that are developed as part of the final plan. As shown in the analytical lab data, it is believed that soil mixing will reduce the levels of arsenic and lead to below current unrestricted cleanup levels. Park areas in Zones A-2, A-3, and A-4 will be treated as independent decision units and will receive the appropriate level of compliance sampling for their size. Soils imported to park areas will be screened as discussed in Section 7.6.

7.5 Infiltration Facilities

If the City of Lacey requires the use of on-property infiltration facilities, the infiltration facilities should be located within native soils below the cleanup levels of 20 ppm for arsenic and 250 ppm for lead.

7.6 Imported Soils

All imported soil must be tested. Imported soil must be tested for arsenic and lead, and, depending on the source of imported soil, other potential contaminants such as petroleum products or pesticides.

For projects less than six months long, collect one set of data from the imported soil source. This should include three 6-point (six subsamples) composites. If the project is of longer duration, then collect a new set of three 6-point composites every six months. If the source of imported soil changes, then collect a new set of three 6-point composites. Each composite result should be compared directly to the cleanup levels of 20 ppm for arsenic and 250 ppm for lead. Other contaminants analyzed should be compared to MTCA cleanup levels to ensure that the imported soil is in fact clean.

This recommendation does not apply to manufactured materials such as screened and washed rock or sand used in drainage facilities or pipe bedding or crushed rock used for pavement subgrades. No testing of manufactured or processed aggregate materials imported to the properties will be needed.

Imported soil sampling will follow the Tacoma Smelter Plume Model Remedies Guidance for imported soil sampling.

7.7 Grading Considerations

During property grading actions, erosion control Best Management Practices (BMPs) required by the City of Lacey should mitigate any off-property transport of sediments from the properties. Dust control using water trucks during the dryer months is a common BMP exercised on local grading projects and will mitigate off-property transport of arsenic or lead impacted soils from dust. The City currently has a manual dated 2010 that has the erosion control requirements. Through the life of the project, the erosion control manual may be modified by the City of Lacey. The developer will follow the requirements of the manual that are in place at the time the projects are permitted.

All brush, trees, stumps, and major roots will need to be removed in the clearing operation. The use of brush rakes will assist in removal of brush and roots. As discussed in the following sections, following clearing operations, no topsoil stripping will occur. Following the clearing operation, soil mixing will occur.

The information contained in this report must be provided to the civil and geotechnical engineers that prepare property grading recommendations related to stormwater management facilities, foundations, and structural fill and pavement subgrades. This and any subsequent cleanup action reports should also be provided to the City of Lacey during project plan review processes. The incorporation of the existing topsoil layer into soils used as structural fill may require modifications to standard grading or pavement recommendations. Thicker mixing depths may be needed to blend the duff layer. We do not anticipate that mixing depths will exceed two feet. We anticipate that one-foot will generally accomplish the goals for both the TSP mitigation and dispersion of the organic materials.

We have considered the geotechnical impacts of mixing the thin surficial organic zone with the underlying mineral soil. Based on our observations on-property and our experience in the Puget Sound Area, it is our opinion that the soils blended as discussed in this report will provide soils that will be suitable for shallow foundations for typical commercial and multi-residential structures. In the event midrise buildings are built on-property, we anticipate that the foundations would need to extend down through any surficial disturbed soils regardless of their relative compaction.

7.8 Worker Safety

Workers involved in property grading activities will need to be informed of the risks of working with the levels of arsenic and lead present on-property. All work must comply with applicable WISHA regulations including Chapter 296-155 WAC regarding lead and Chapter 296-848, WAC for arsenic.

8.0 LIMITATIONS

This report is the copyrighted property of Terra Associates, Inc. and was prepared in accordance with generally accepted local geo-environmental engineering practices and within the limitations of time and budget. Analytical testing of samples was based on our understanding of past land uses documented in this report. In the event additional information regarding property history or current property uses is found, the information should be brought to our attention, as it may affect our conclusions.

This report is intended for specific application to the Lacey Gateway Parcels A and B project, and is for the exclusive use of Wig Properties, LLC and their authorized representatives. No other warranty, expressed or implied, is made. The analyses and recommendations presented in this report are based on data obtained from the explorations advanced on the properties, and selected analyses of soils and groundwater samples. The conclusions reached in this report are based on the existing explorations and analytical test data summarized in this report. The laboratory data represents the locations of the individual samples. The individual samples are believed to be representative of the condition of properties. Subsurface conditions may vary. Duff thickness and composition may vary over the life of the project in undeveloped areas.

It must be noted that as the project details are developed, changes in the remedial action approach may be proposed from the remedies discussed in this report. It is currently proposed that all remedies will be in accordance with the model remedies in the current guidance documents. Any changes in remedies that vary from the model guidance will need to be reviewed with Ecology prior to proceeding.

9.0 REFERENCES

Ames, Kenneth C, and Prych Edmonds A., Background Concentrations of Metals in selected regions of Washington State, USGS WRI Report 95-4018, dated 1995.

Logan, Robert, et. al, *Geologic Map of the Lacey 7.5-Minute Quadrangle, Thurston County, Washington*, WDNR 2003.

San Juan, Charles, Natural Background Soil Metal Concentrations in Washington State, WDOE Toxics Cleanup Report 94-115, dated October 1994.

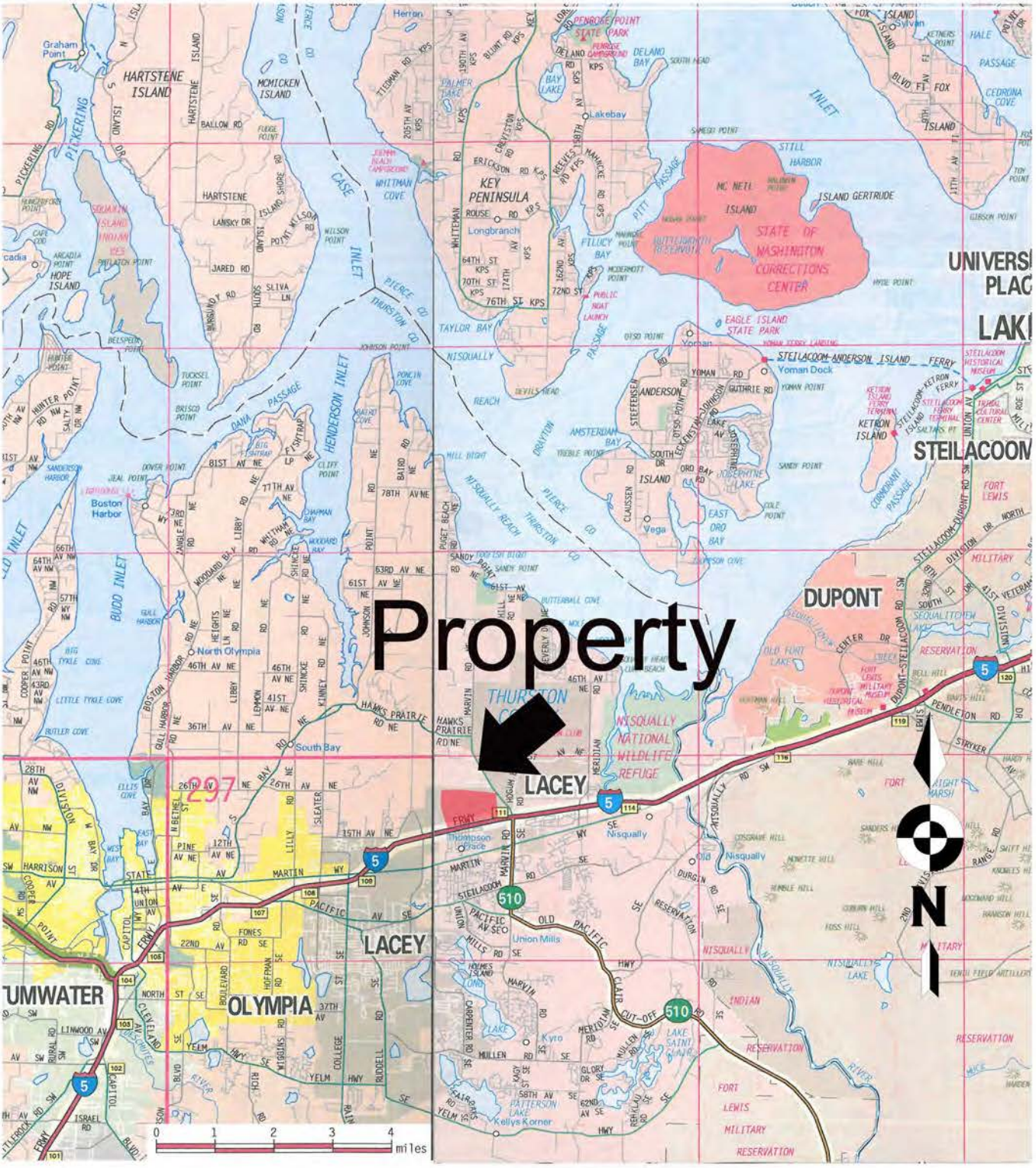
United States Geological Survey (USGS). 1998, Hydrology and Quality of Groundwater in Northern Thurston County, by B.W. Drost et al.

United States Geological Survey (USGS). 1959. 7.5-Minute Series Topographic Maps Lacey Quadrangle, Washington. Photo revised 1981.

Washington State Department of Ecology, Tacoma Smelter Plume Model Remedies Guidance, June 2012, Publication 12-09-086A.

Washington State Department of Ecology, Asarco Tacoma Smelter Site, Final Interim Action Plan for the Tacoma Smelter Plume, June 2012, Publication 12-09-086.

Washington State Department of Ecology, Chapter 173-340, the Model Toxics Control Act.



Reference: Thomas Bros Pacific Northwest Road Atlas.

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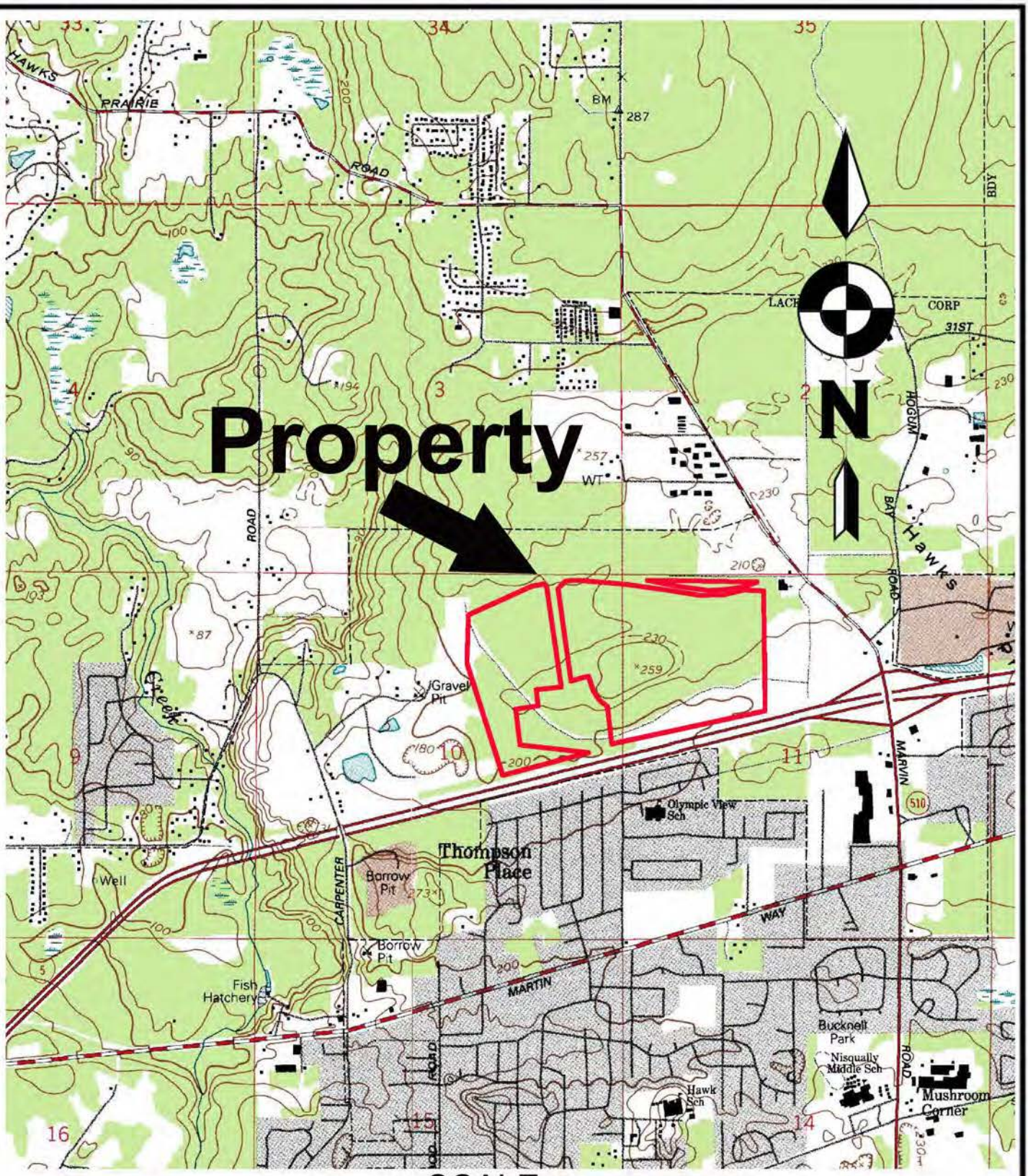
Vicinity Map
Lacey Gateway Parcels A and B
Lacey, Washington

Proj. No T-6537-1	Date Sept 2012	Figure 1



SCALE

1 0 1/2 1 MILE

Reference: Lacey USGS Quadrangle

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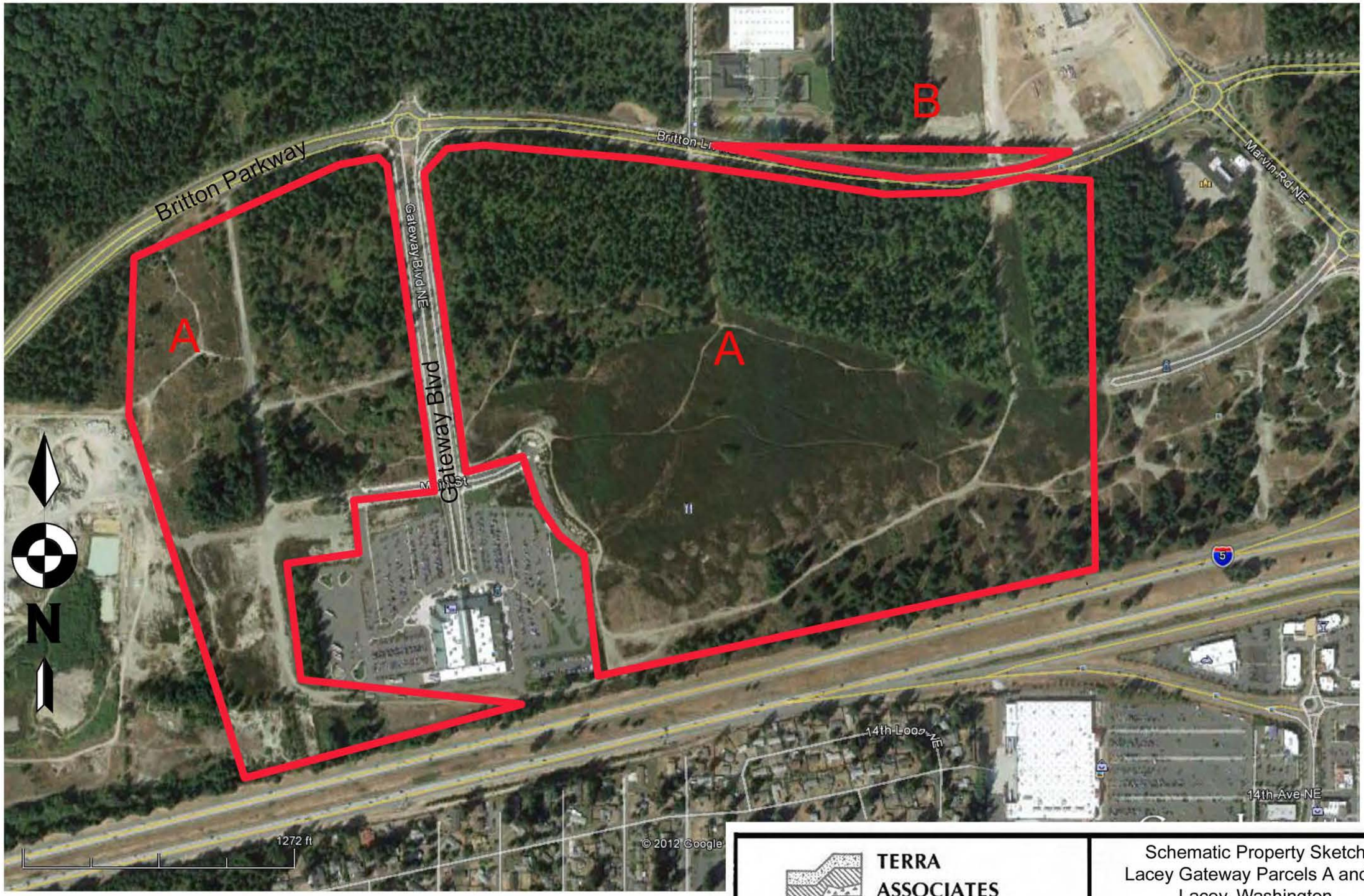
Geotechnical Consultants

Topographic Vicinity Map
Lacey Gateway Parcels A and B
Lacey, Washington

Proj. No T-6537-1	Date Sept 2012	Figure 2

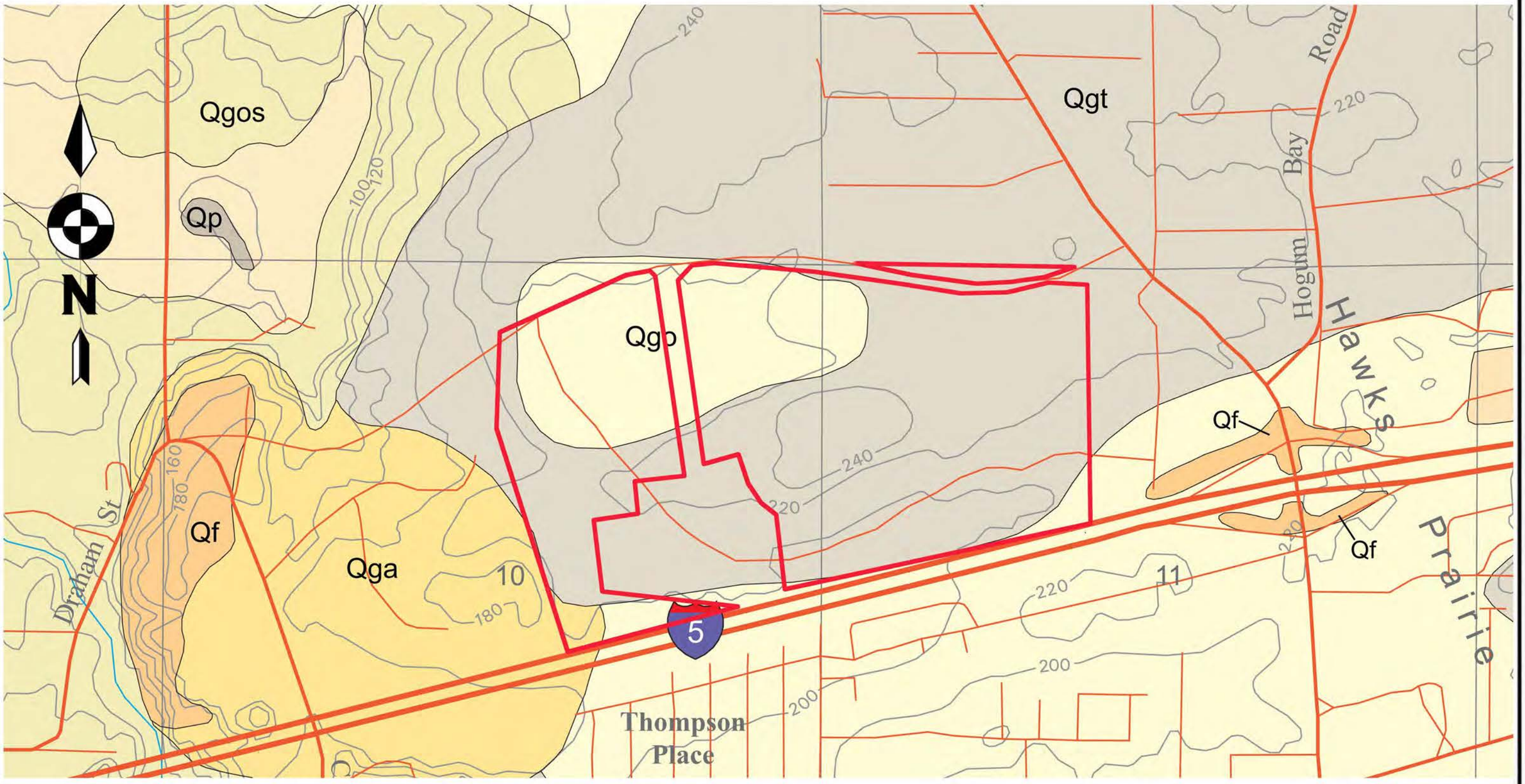


Reference: Google Earth copyright, image dated 2011

TERRA ASSOCIATES
Geotechnical Consultants

Schematic Property Sketch
Lacey Gateway Parcels A and B
Lacey, Washington

Proj. No. T-6537-1	Date Sept 2012	Figure 3



Legend
Qgo Reccesional Outwash
Qgt Vashon Till
Qga Advance Outwash
Qf Artificial Fill

Reference: Logan, Robert, et. al, Geologic Map of the Lacey 7.5 Minute Quadrangle, Thurston County, Washington, WDNR 2003

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Geotechnical Consultants

Geologic Map
Lacey Gateway Parcels A and B
Lacey, Washington

Proj. No. T-6537-1	Date Sept 2012	Figure 4

Britton Parkway

Marvin Road

Interstate I-5

TP-13 TP-14 TP-15 TP-16 TP-17 TP-18 TP-19 TP-20 TP-21 TP-22 TP-23 TP-24 TP-25 TP-26 TP-27 TP-28 TP-29

N

Legend

X Aproximate sample locations collected July and August 2012

X Approximate Sample locations collected in 2011

Approximate Scale (feet)

0 1000 2000

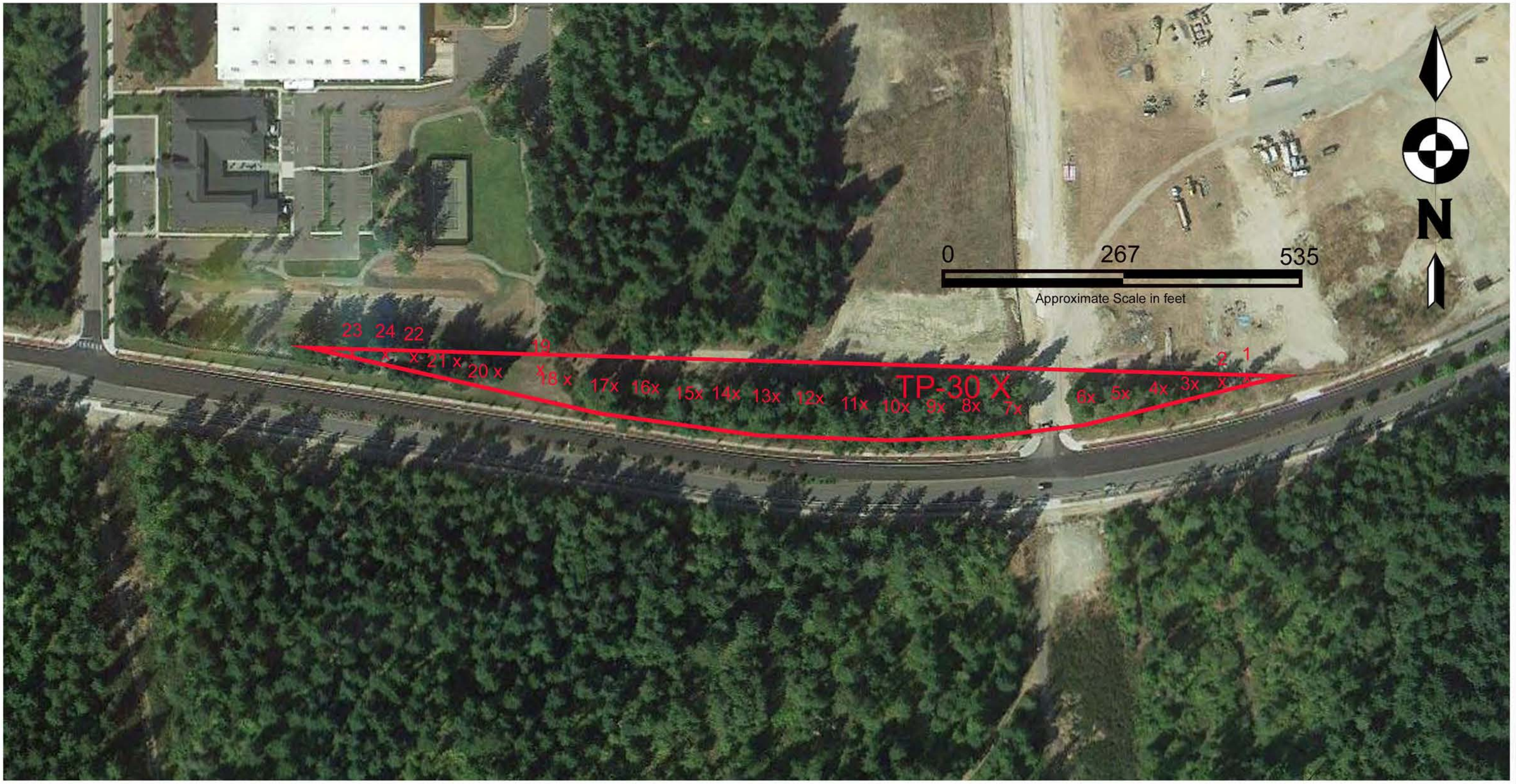
Reference: Terra Server -- photo from Digital Globe, dated 7-1-2009

TERRA ASSOCIATES

Geotechnical Consultants

Sample Location Sketch-Parcel A
Lacey Gateway Parcels A and B
Lacey, Washington

Proj. No. T-6537-1	Date Sept 2012	Figure 5



Reference: Google Earth copyright, image dated 2011

TERRA ASSOCIATES
Geotechnical Consultants

Sample Location Sketch Parcel B
Lacey Gateway Parcels A and B
Lacey, Washington

Proj. No. T-6537-1	Date Sept 2012	Figure 6

Britton Parkway

Marvin Road

Interstate I-5

Zone A-1

Zone A-2

Zone A-3

Zone A-4

TP-13

TP-14

TP-15

TP-16

TP-17

TP-18

TP-19

TP-20

TP-21

TP-22

TP-23

TP-24

TP-25

TP-26

TP-27

TP-28

TP-29

N

Legend

X Aproximate sample locations collected July and August 2012

X Approximate Sample locations collected in 2011

Approximate Scale (feet)

0 1000 2000

Reference: Terra Server -- photo from Digital Globe, dated 7-1-2009

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Geotechnical Consultants

Remediation Zones-Parcel A
Lacey Gateway Parcels A and B
Lacey, Washington

Proj. No. T-6537-1	Date Sept 2012	Figure 7

APPENDIX A
FIELD SAMPLING

Lacey Gateway Parcels A and B
Lacey, Washington

Hand excavated test holes were advanced on the properties in a grid to obtain samples for this project. The existing samples were collected in a manner consistent with the current sampling. Samples were collected from the upper six inches of the soil at each location. At one-fourth of the locations, a second sample was also taken from a depth of 12 inches. Duff samples of the leaf and vegetation litter were taken in locations where there was a duff layer that was clearly present. Not all locations had a duff layer present. Field sampling was done in accordance with the guidelines presented in the TSP Final Interim Action Plan. The sample grid for Parcel A was roughly 340 feet square. On Parcel B, sample locations were centered in the parcel on approximately 60-foot centers.

Samples recovered during exploration were logged by our representative and placed into laboratory-prepared glassware. All samples were refrigerated pending delivery to OnSite Environmental Inc. in Redmond, Washington. We followed chain of custody protocols for all samples.

APPENDIX B
ANALYTICAL TESTING

Lacey Gateway Parcels A and B
Lacey, Washington

All soil samples were placed into laboratory-prepared glassware. Duff samples were collected in new ZipLock ™ bags. Each sample was given unique sample identification. All samples were kept refrigerated pending delivery to OnSite Environmental Inc. in Redmond, Washington. Chain of custody protocols were followed for all samples. OnSite Environmental Inc. has accreditation from Ecology for all of the testing performed during this project. The samples collected in 2011 were tested using inductively coupled plasma-atomic emission spectrometry (ICP-AES) EPA 6010B Analysis. The samples collected for this study were analyzed using as inductively coupled plasma-mass spectrometry (ICP-MS), EPA Method 6020.

All samples for the 2011 and 2012 sampling events were analyzed based on the fraction of the sample that passes through the Number 10 sieve. The samples were sieved in the laboratory of OnSite Environmental.

All testing was performed within the designated holding times. At the laboratory, standard quality control procedures were followed. The procedures consisted of sample blanks, duplicates, and matrix spikes. All testing was within normal standards.

Based on our review of the laboratory data, it is our opinion that the results are acceptable for current use.

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

August 9, 2012

Chuck Lie
Terra Associates, Inc.
12525 Willows Road, Suite 101
Kirkland, WA 98034

Re: Analytical Data for Project 6537-1
Laboratory Reference No. 1208-026

Dear Chuck:

Enclosed are the analytical results and associated quality control data for samples submitted on August 3, 2012.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-026
Project: 6537-1

Case Narrative

Samples were collected on August 3, 2012 and received by the laboratory on August 3, 2012. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Total Metals EPA 6020 Analysis

Samples have been sieved through a #10 (2 mm) sieve prior to preparation.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-026
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-026-01					
Client ID:	**8-3-73**					
Arsenic	**23**	0.60	6020	8-4-12	8-4-12	
Lead	**34**	6.0	6020	8-4-12	8-4-12	
Lab ID:	08-026-02					
Client ID:	**8-3-74**					
Arsenic	**27**	0.59	6020	8-4-12	8-4-12	
Lead	**30**	5.9	6020	8-4-12	8-4-12	
Lab ID:	08-026-03					
Client ID:	**8-3-75**					
Arsenic	**12**	0.57	6020	8-4-12	8-4-12	
Lead	**15**	5.7	6020	8-4-12	8-4-12	
Lab ID:	08-026-04					
Client ID:	**8-3-78**					
Arsenic	**8.3**	0.56	6020	8-4-12	8-4-12	
Lead	**11**	5.6	6020	8-4-12	8-4-12	
Lab ID:	08-026-05					
Client ID:	**8-3-70**					
Arsenic	**3.7**	0.54	6020	8-4-12	8-4-12	
Lead	**8.1**	5.4	6020	8-4-12	8-4-12	
Lab ID:	08-026-06					
Client ID:	**8-3-69**					
Arsenic	**15**	0.60	6020	8-4-12	8-4-12	
Lead	**13**	6.0	6020	8-4-12	8-4-12	

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-026
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-026-07					
Client ID:	**8-3-68**					
Arsenic	**16**	0.58	6020	8-4-12	8-4-12	
Lead	**21**	5.8	6020	8-4-12	8-4-12	
Lab ID:	08-026-08					
Client ID:	**8-3-67**					
Arsenic	**17**	0.63	6020	8-4-12	8-4-12	
Lead	**44**	6.3	6020	8-4-12	8-4-12	
Lab ID:	08-026-09					
Client ID:	**8-3-66**					
Arsenic	**3.3**	0.52	6020	8-4-12	8-4-12	
Lead	**6.2**	5.2	6020	8-4-12	8-4-12	
Lab ID:	08-026-10					
Client ID:	**8-3-64**					
Arsenic	**34**	0.59	6020	8-4-12	8-4-12	
Lead	**22**	5.9	6020	8-4-12	8-4-12	
Lab ID:	08-026-11					
Client ID:	**8-3-63**					
Arsenic	**15**	0.59	6020	8-4-12	8-4-12	
Lead	**21**	5.9	6020	8-4-12	8-4-12	

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-026
Project: 6537-1

TOTAL METALS
EPA 6020
METHOD BLANK QUALITY CONTROL

Date Extracted:	8-4-12
Date Analyzed:	8-4-12
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0804SM2

Analyte	Method	Result	PQL
Arsenic	6020	**ND**	0.50
Lead	6020	**ND**	5.0

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-026
Project: 6537-1

TOTAL METALS
EPA 6020
DUPLICATE QUALITY CONTROL

Date Extracted: 8-4-12
Date Analyzed: 8-4-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-025-32

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**6.18**	**6.27**	1	0.50	
Lead	**11.2**	**11.3**	0	5.0	

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-026
Project: 6537-1

TOTAL METALS
EPA 6020
MS/MSD QUALITY CONTROL

Date Extracted: 8-4-12
Date Analyzed: 8-4-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-025-32

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**97.3**	91	**100**	94	3	
Lead	250	**272**	104	**269**	103	1	

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-026
Project: 6537-1

% MOISTURE

Date Analyzed: 8-6-12

Client ID	Lab ID	% Moisture
8-3-73	08-026-01	17
8-3-74	08-026-02	16
8-3-75	08-026-03	13
8-3-78	08-026-04	10
8-3-70	08-026-05	8
8-3-69	08-026-06	16
8-3-68	08-026-07	14
8-3-67	08-026-08	21
8-3-66	08-026-09	4
8-3-64	08-026-10	15
8-3-63	08-026-11	16

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Terra Associates
Project Number: 6537-1
Project Name: —
Project Manager: Chuck Lia
Sampled by: Nicolas Hoffman

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Days
- ☐ 3 Days
- ☒ Standard (7 Days) (TPH analysis 5 Days)
- ☐ _____ (other)

Laboratory Number: 08-026

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	No. of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664	KING COUNTY Pb, As				% Moisture
1	S-3-73	8/3/12	7:33	Soil	2															A		X				X
2	S-3-74		7:42		2															A						
3	S-3-75		7:52		2															A						
4	S-3-78		8:00		2															A						
5	S-3-70		8:10		1																					
6	S-3-69		8:22		2															B						
7	S-3-68		8:40		2															B						
8	S-3-67		8:50		2															B						
9	S-3-66		8:55		1																					
10	S-3-64		9:05		2															B						

	Signature	Company	Date	Time
Relinquished		TAI	8/3/12	11:20
Received			8/3/12	1120
Relinquished				
Received				
Relinquished				
Received				

Comments/Special Instructions

Hold for Chuck
A, B - Composite

Reviewed/Date

Reviewed/Date

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Laboratory Number: 08-026

Company: Terra Associates
Project Number: 6537-1
Project Name: —
Project Manager: Chuck Lie
Sampled by: Nicolas Hoffman

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Days
- ☐ 3 Days
- ☒ Standard (7 Days) (TPH analysis 5 Days)
- ☐ _____ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	No. of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	~~TCLP Metals~~	HEM (oil and grease) 1664	KING COUNTY Pb, As				% Moisture
11	S-3-63	8/3/12	9:15	Soil	2															B		X				X

	Signature	Company	Date	Time
Relinquished	[signature]	TAI	8/3/12	11:20
Received	[signature]	OSE	8/3/12	1120
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

~~Hold for Chuck~~

A, B - Composite

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

August 10, 2012

Chuck Lie
Terra Associates, Inc.
12525 Willows Road, Suite 101
Kirkland, WA 98034

Re: Analytical Data for Project 6537-1
Laboratory Reference No. 1208-026B

Dear Chuck:

Enclosed are the analytical results and associated quality control data for samples submitted on August 3, 2012.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: August 10, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-026B
Project: 6537-1

Case Narrative

Samples were collected on August 3, 2012 and received by the laboratory on August 3, 2012. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Total Metals EPA 6020 Analysis

Samples have been sieved through a US Standard #10 sieve (2 mm) prior to preparation.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: August 10, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-026B
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-026-01,02,03,04 Comp.					
Client ID:	**8-3-73,74,75,78 Comp.**					
Arsenic	**37**	0.63	6020	8-8-12	8-8-12	
Lead	**150**	6.3	6020	8-8-12	8-8-12	
Lab ID:	08-026-06,07,08,10,11 Comp.					
Client ID:	**8-3-69,68,67,64,63 Comp.**					
Arsenic	**29**	0.65	6020	8-8-12	8-8-12	
Lead	**120**	6.5	6020	8-8-12	8-8-12	

Date of Report: August 10, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-026B
Project: 6537-1

TOTAL METALS
EPA 6020
METHOD BLANK QUALITY CONTROL

Date Extracted:	8-8-12
Date Analyzed:	8-8-12
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0808SM1

Analyte	Method	Result	PQL
Arsenic	6020	**ND**	0.50
Lead	6020	**ND**	5.0

Date of Report: August 10, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-026B
Project: 6537-1

TOTAL METALS
EPA 6020
DUPLICATE QUALITY CONTROL

Date Extracted: 8-8-12
Date Analyzed: 8-8-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-044-20

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**9.71**	**10.5**	7	0.50	
Lead	**16.1**	**17.8**	10	5.0	

Date of Report: August 10, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-026B
Project: 6537-1

TOTAL METALS
EPA 6020
MS/MSD QUALITY CONTROL

Date Extracted: 8-8-12
Date Analyzed: 8-8-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-044-20

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**105**	96	**110**	101	5	
Lead	250	**280**	105	**283**	107	1	

Date of Report: August 10, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-026B
Project: 6537-1

% MOISTURE

Date Analyzed: 8-6-12

Client ID	Lab ID	% Moisture
8-3-73,74,75,78 Comp.	08-026-01,02,03,04 Comp.	21
8-3-69,68,67,64,63 Comp.	08-026-06,07,08,10,11 Comp.	23

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

August 9, 2012

Chuck Lie
Terra Associates, Inc.
12525 Willows Road, Suite 101
Kirkland, WA 98034

Re: Analytical Data for Project 6537-1
Laboratory Reference No. 1208-005

Dear Chuck:

Enclosed are the analytical results and associated quality control data for samples submitted on August 1, 2012.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: August 9, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005
Project: 6537-1

Case Narrative

Samples were collected on July 31, 2012 and received by the laboratory on August 1, 2012. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Total Metals EPA 6020 Analysis

Samples have been sieved through a #10 (2 mm) sieve prior to preparation.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: August 9, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-005-01					
Client ID:	**7-31-1**					
Arsenic	**5.6**	0.62	6020	8-2-12	8-4-12	
Lead	**27**	6.2	6020	8-2-12	8-4-12	
Lab ID:	08-005-02					
Client ID:	**7-31-2**					
Arsenic	**25**	0.65	6020	8-2-12	8-4-12	
Lead	**240**	6.5	6020	8-2-12	8-4-12	
Lab ID:	08-005-03					
Client ID:	**7-31-3**					
Arsenic	**16**	0.60	6020	8-2-12	8-4-12	
Lead	**23**	6.0	6020	8-2-12	8-4-12	
Lab ID:	08-005-04					
Client ID:	**7-31-4 0-6"**					
Arsenic	**10**	0.66	6020	8-2-12	8-4-12	
Lead	**15**	6.6	6020	8-2-12	8-4-12	
Lab ID:	08-005-05					
Client ID:	**7-31-5**					
Arsenic	**19**	0.59	6020	8-2-12	8-4-12	
Lead	**36**	5.9	6020	8-2-12	8-4-12	
Lab ID:	08-005-06					
Client ID:	**7-31-6**					
Arsenic	**9.6**	0.59	6020	8-2-12	8-4-12	
Lead	**41**	5.9	6020	8-2-12	8-4-12	

Date of Report: August 9, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-005-07					
Client ID:	**7-31-7**					
Arsenic	**14**	0.59	6020	8-2-12	8-4-12	
Lead	**33**	5.9	6020	8-2-12	8-4-12	
Lab ID:	08-005-08					
Client ID:	**7-31-8 12"**					
Arsenic	**5.5**	0.58	6020	8-2-12	8-4-12	
Lead	**11**	5.8	6020	8-2-12	8-4-12	
Lab ID:	08-005-09					
Client ID:	**7-31-9**					
Arsenic	**6.1**	0.54	6020	8-2-12	8-4-12	
Lead	**15**	5.4	6020	8-2-12	8-4-12	
Lab ID:	08-005-10					
Client ID:	**7-31-10**					
Arsenic	**3.6**	0.53	6020	8-2-12	8-4-12	
Lead	**9.0**	5.3	6020	8-2-12	8-4-12	
Lab ID:	08-005-11					
Client ID:	**7-31-11**					
Arsenic	**7.7**	0.56	6020	8-2-12	8-4-12	
Lead	**16**	5.6	6020	8-2-12	8-4-12	
Lab ID:	08-005-12					
Client ID:	**7-31-12 12"**					
Arsenic	**9.5**	0.58	6020	8-2-12	8-4-12	
Lead	**22**	5.8	6020	8-2-12	8-4-12	

Date of Report: August 9, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-005-13					
Client ID:	**7-31-13**					
Arsenic	**30**	0.59	6020	8-2-12	8-4-12	
Lead	**46**	5.9	6020	8-2-12	8-4-12	
Lab ID:	08-005-14					
Client ID:	**7-31-14**					
Arsenic	**11**	0.60	6020	8-2-12	8-4-12	
Lead	**21**	6.0	6020	8-2-12	8-4-12	
Lab ID:	08-005-15					
Client ID:	**7-31-15**					
Arsenic	**9.6**	0.57	6020	8-2-12	8-4-12	
Lead	**23**	5.7	6020	8-2-12	8-4-12	
Lab ID:	08-005-16					
Client ID:	**7-31-16 0-6"**					
Arsenic	**23**	0.56	6020	8-2-12	8-4-12	
Lead	**64**	5.6	6020	8-2-12	8-4-12	
Lab ID:	08-005-17					
Client ID:	**7-31-17**					
Arsenic	**3.3**	0.53	6020	8-2-12	8-4-12	
Lead	**5.7**	5.3	6020	8-2-12	8-4-12	
Lab ID:	08-005-18					
Client ID:	**7-31-18**					
Arsenic	**3.8**	0.53	6020	8-2-12	8-4-12	
Lead	**6.9**	5.3	6020	8-2-12	8-4-12	

Date of Report: August 9, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-005-19					
Client ID:	**7-31-19**					
Arsenic	**2.9**	0.56	6020	8-2-12	8-4-12	
Lead	**ND**	5.6	6020	8-2-12	8-4-12	
Lab ID:	08-005-20					
Client ID:	**7-31-20 0-6"**					
Arsenic	**3.4**	0.55	6020	8-3-12	8-4-12	
Lead	**8.4**	5.5	6020	8-3-12	8-4-12	
Lab ID:	08-005-21					
Client ID:	**7-31-21**					
Arsenic	**15**	0.57	6020	8-3-12	8-4-12	
Lead	**25**	5.7	6020	8-3-12	8-4-12	
Lab ID:	08-005-22					
Client ID:	**7-31-22**					
Arsenic	**4.4**	0.54	6020	8-3-12	8-4-12	
Lead	**12**	5.4	6020	8-3-12	8-4-12	
Lab ID:	08-005-23					
Client ID:	**7-31-23**					
Arsenic	**27**	0.70	6020	8-3-12	8-4-12	
Lead	**72**	7.0	6020	8-3-12	8-4-12	
Lab ID:	08-005-24					
Client ID:	**7-31-24 12"**					
Arsenic	**4.6**	0.53	6020	8-3-12	8-4-12	
Lead	**9.9**	5.3	6020	8-3-12	8-4-12	

Date of Report: August 9, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-005-25					
Client ID:	**7-31-25**					
Arsenic	**9.3**	0.55	6020	8-3-12	8-4-12	
Lead	**20**	5.5	6020	8-3-12	8-4-12	
Lab ID:	08-005-26					
Client ID:	**7-31-26**					
Arsenic	**37**	0.61	6020	8-3-12	8-4-12	
Lead	**54**	6.1	6020	8-3-12	8-4-12	

Date of Report: August 9, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005
Project: 6537-1

TOTAL METALS
EPA 6020
METHOD BLANK QUALITY CONTROL

Date Extracted:	8-2-12
Date Analyzed:	8-4-12
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0802SM3

Analyte	Method	Result	PQL
Arsenic	6020	**ND**	0.50
Lead	6020	**ND**	5.0

Date of Report: August 9, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005
Project: 6537-1

TOTAL METALS
EPA 6020
METHOD BLANK QUALITY CONTROL

Date Extracted:	8-2-12
Date Analyzed:	8-4-12
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0803SM1

Analyte	Method	Result	PQL
Arsenic	6020	**ND**	0.50
Lead	6020	**ND**	5.0

Date of Report: August 9, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005
Project: 6537-1

TOTAL METALS
EPA 6020
DUPLICATE QUALITY CONTROL

Date Extracted: 8-2-12
Date Analyzed: 8-4-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-005-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**4.52**	**4.66**	3	0.50	
Lead	**21.3**	**21.9**	3	5.0	

Date of Report: August 9, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005
Project: 6537-1

TOTAL METALS
EPA 6020
DUPLICATE QUALITY CONTROL

Date Extracted: 8-2-12
Date Analyzed: 8-4-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-005-20

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**3.16**	**3.27**	3	0.50	
Lead	**7.71**	**8.26**	7	5.0	

Date of Report: August 9, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005
Project: 6537-1

TOTAL METALS
EPA 6020
MS/MSD QUALITY CONTROL

Date Extracted: 8-2-12
Date Analyzed: 8-4-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-005-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**98.4**	94	**98.4**	94	0	
Lead	350	**362**	97	**364**	98	1	

Date of Report: August 9, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005
Project: 6537-1

TOTAL METALS
EPA 6020
MS/MSD QUALITY CONTROL

Date Extracted: 8-2-12
Date Analyzed: 8-4-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-005-20

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**93.6**	90	**95.5**	92	2	
Lead	250	**261**	101	**260**	101	0	

Date of Report: August 9, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005
Project: 6537-1

% MOISTURE

Date Analyzed: 8-2-12

Client ID	Lab ID	% Moisture
7-31-1	08-005-01	20
7-31-2	08-005-02	23
7-31-3	08-005-03	17
7-31-4 0-6"	08-005-04	24
7-31-5	08-005-05	16
7-31-6	08-005-06	15
7-31-7	08-005-07	15
7-31-8 12"	08-005-08	14
7-31-9	08-005-09	8
7-31-10	08-005-10	6
7-31-11	08-005-11	10
7-31-12 12"	08-005-12	14
7-31-13	08-005-13	16
7-31-14	08-005-14	17
7-31-15	08-005-15	12
7-31-16 0-6"	08-005-16	11
7-31-17	08-005-17	6
7-31-18	08-005-18	6
7-31-19	08-005-19	11
7-31-20 0-6"	08-005-20	8
7-31-21	08-005-21	12
7-31-22	08-005-22	8
7-31-23	08-005-23	29
7-31-24 12"	08-005-24	6
7-31-25	08-005-25	9
7-31-26	08-005-26	18

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Page 1 of 3

Company: Terra Associates
Project Number: 6537-1
Project Name: ——
Project Manager: Chuck Lie
Sampled by: Nicolas R. Hoffman

Turnaround Request (in working days)

(Check One)

- ☐ Same Day ☐ 1 Day
- ☐ 2 Day ☐ 3 Day
- ☑ Standard (7 working days) (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 08-005

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	King County Lead & Arsenic						% Moisture
1	7-31-1	7/31/12	9:10	Soil	1														X						
2	7-31-2		9:20		1														X						
3	7-31-3		9:30		1														X						
4	7-31-4 0-6"		9:45		2														X						
5	7-31-5		10:00		1														X						
6	7-31-6		10:15		1														X						
7	7-31-7		10:25		1														X						
8	7-31-8 12"		10:35		2														X						
9	7-31-9		10:45		1														X						
10	7-31-10		10:53		1														X						

	Signature	Company	Date	Time
Relinquished by		TAI	7/31/12	17:45
Received by		TAI	"	"
Relinquished by		TAI	8/1/12	10:50
Received by		TAI	8/1/12	1050
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:
Hold for second shipment

Chromatograms with final report ☐

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Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Terra Associates
Project Number: 6537-1
Project Name: ——
Project Manager: Chuck Lia
Sampled by: Nicolas R. Hoffman

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ Standard (7 working days) (TPH analysis 5 working days)
- ☐ ____ (other)

Laboratory Number: 08-005

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	King County lead & Arsenic	% Moisture
11	7-31-11	7/31/12	11:35	Soil	1														X	
12	7-31-12 12"		11:52		2														X	
13	7-31-13		12:41		1														X	
14	7-31-14		12:55		1														X	
15	7-31-15		13:27		1														X	
16	7-31-16 0-6"		13:40		2														X	
17	7-31-17		13:50		1														X	
18	7-31-18		14:10		1														X	
19	7-31-19		14:16		1														X	
20	7-31-20 0-6"	↓	14:25	↓	2														X	

	Signature	Company	Date	Time
Relinquished by		TAI	7/31/12	17:45
Received by		"	"	"
Relinquished by		"	8-1	1055
Received by		OSE	8/1/12	1050
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

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Chain of Custody

OnSite Environmental Inc.
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Phone: (425) 883-3881 • www.onsite-env.com

Company: Terra Associates
Project Number: 6537-1
Project Name: ———
Project Manager: Chuck Lie
Sampled by: Nicolas R. Hoffman

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ Standard (7 working days)
  (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 08-005

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	(King County Lead & Arsenic)						% Moisture
21	7-31-21	7/31/12	14:35	Soil	1														X						
22	7-31-22		14:45		1														X						
23	7-31-23		14:55		1														X						
24	7-31-24 12"		15:05		2 1														X						
25	7-31-25		15:15		1														X						
26	7-31-26		15:25		1														X						
27	7-31-4 12"	7/31/12		Soil	1														X						X
28	7-31-8 0-6"																		X						X
29	7-31-16 12"																		X						X
30	7-31-12 0-6"																		X						X
31	7-31-20 12"																		X						X
32	7-31-24 0-6"																		X						X

	Signature	Company	Date	Time
Relinquished by	[signature]	TAI	7/31/12	17:45
Received by	[signature]	"	"	"
Relinquished by	[signature]	"	"	1050
Received by	[signature]	OSE	8/1/12	1050
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

Chromatograms with final report ☐

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OnSite Environmental Inc.
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August 10, 2012

Chuck Lie
Terra Associates, Inc.
12525 Willows Road, Suite 101
Kirkland, WA 98034

Re: Analytical Data for Project 6537-1
Laboratory Reference No. 1208-005B

Dear Chuck:

Enclosed are the analytical results and associated quality control data for samples submitted on August 1, 2012.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: August 10, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005B
Project: 6537-1

Case Narrative

Samples were collected on July 31, 2012 and received by the laboratory on August 1, 2012. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Total Metals EPA 6020 Analysis

Samples have been sieved through a US Standard #10 sieve (2 mm) prior to preparation.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: August 10, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005B
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-005-27					
Client ID:	**7-31-4 12"**					
Arsenic	**6.0**	0.67	6020	8-8-12	8-8-12	
Lead	**10**	6.7	6020	8-8-12	8-8-12	
Lab ID:	08-005-28					
Client ID:	**7-31-8 0-6"**					
Arsenic	**10**	0.60	6020	8-8-12	8-8-12	
Lead	**20**	6.0	6020	8-8-12	8-8-12	
Lab ID:	08-005-29					
Client ID:	**7-31-16 12"**					
Arsenic	**9.2**	0.55	6020	8-8-12	8-8-12	
Lead	**18**	5.5	6020	8-8-12	8-8-12	
Lab ID:	08-005-30					
Client ID:	**7-31-12 0-6"**					
Arsenic	**10**	0.56	6020	8-8-12	8-8-12	
Lead	**26**	5.6	6020	8-8-12	8-8-12	
Lab ID:	08-005-31					
Client ID:	**7-31-20 12"**					
Arsenic	**2.8**	0.53	6020	8-8-12	8-8-12	
Lead	**6.1**	5.3	6020	8-8-12	8-8-12	
Lab ID:	08-005-32					
Client ID:	**7-31-24 0-6"**					
Arsenic	**6.2**	0.55	6020	8-8-12	8-8-12	
Lead	**14**	5.5	6020	8-8-12	8-8-12	

Date of Report: August 10, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005B
Project: 6537-1

TOTAL METALS
EPA 6020
METHOD BLANK QUALITY CONTROL

Date Extracted:	8-8-12
Date Analyzed:	8-8-12
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0808SM2

Analyte	Method	Result	PQL
Arsenic	6020	**ND**	0.50
Lead	6020	**ND**	5.0

Date of Report: August 10, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005B
Project: 6537-1

TOTAL METALS
EPA 6020
DUPLICATE QUALITY CONTROL

Date Extracted: 8-8-12
Date Analyzed: 8-8-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-005-27

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**4.46**	**4.47**	0	0.50	
Lead	**7.63**	**7.85**	3	5.0	

Date of Report: August 10, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005B
Project: 6537-1

TOTAL METALS
EPA 6020
MS/MSD QUALITY CONTROL

Date Extracted: 8-8-12
Date Analyzed: 8-8-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-005-27

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**98.4**	94	**98.2**	94	0	
Lead	250	**273**	106	**272**	106	0	

Date of Report: August 10, 2012
Samples Submitted: August 1, 2012
Laboratory Reference: 1208-005B
Project: 6537-1

% MOISTURE

Date Analyzed: 8-8-12

Client ID	Lab ID	% Moisture
7-31-4 12"	08-005-27	25
7-31-8 0-6"	08-005-28	16
7-31-16 12"	08-005-29	9
7-31-12 0-6"	08-005-30	10
7-31-20 12"	08-005-31	6
7-31-24 0-6"	08-005-32	8

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

August 9, 2012

Chuck Lie
Terra Associates, Inc.
12525 Willows Road, Suite 101
Kirkland, WA 98034

Re: Analytical Data for Project 6537-1
Laboratory Reference No. 1208-025

Dear Chuck:

Enclosed are the analytical results and associated quality control data for samples submitted on August 3, 2012.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

Case Narrative

Samples were collected on August 2, 2012 and received by the laboratory on August 3, 2012. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Total Metals EPA 6020 Analysis

Samples have been sieved through a #10 (2 mm) sieve prior to preparation.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-025-01					
Client ID:	**8-2-27**					
Arsenic	**10**	0.57	6020	8-3-12	8-4-12	
Lead	**25**	5.7	6020	8-3-12	8-4-12	
Lab ID:	08-025-02					
Client ID:	**8-2-28**					
Arsenic	**5.1**	0.56	6020	8-3-12	8-4-12	
Lead	**7.8**	5.6	6020	8-3-12	8-4-12	
Lab ID:	08-025-03					
Client ID:	**8-2-29**					
Arsenic	**5.0**	0.55	6020	8-3-12	8-4-12	
Lead	**9.8**	5.5	6020	8-3-12	8-4-12	
Lab ID:	08-025-04					
Client ID:	**8-2-31**					
Arsenic	**16**	0.58	6020	8-3-12	8-4-12	
Lead	**38**	5.8	6020	8-3-12	8-4-12	
Lab ID:	08-025-05					
Client ID:	**8-2-32**					
Arsenic	**6.9**	0.67	6020	8-3-12	8-4-12	
Lead	**15**	6.7	6020	8-3-12	8-4-12	
Lab ID:	08-025-06					
Client ID:	**8-2-33**					
Arsenic	**23**	0.61	6020	8-3-12	8-4-12	
Lead	**73**	6.1	6020	8-3-12	8-4-12	

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-025-07					
Client ID:	**8-2-34**					
Arsenic	**20**	0.66	6020	8-3-12	8-4-12	
Lead	**91**	6.6	6020	8-3-12	8-4-12	
Lab ID:	08-025-08					
Client ID:	**8-2-30**					
Arsenic	**8.9**	0.60	6020	8-3-12	8-4-12	
Lead	**50**	6.0	6020	8-3-12	8-4-12	
Lab ID:	08-025-09					
Client ID:	**8-2-35**					
Arsenic	**6.8**	0.58	6020	8-3-12	8-4-12	
Lead	**16**	5.8	6020	8-3-12	8-4-12	
Lab ID:	08-025-10					
Client ID:	**8-2-40**					
Arsenic	**25**	0.59	6020	8-3-12	8-4-12	
Lead	**76**	5.9	6020	8-3-12	8-4-12	
Lab ID:	08-025-11					
Client ID:	**8-2-37**					
Arsenic	**8.8**	0.55	6020	8-3-12	8-4-12	
Lead	**21**	5.5	6020	8-3-12	8-4-12	
Lab ID:	08-025-12					
Client ID:	**8-2-36**					
Arsenic	**6.4**	0.53	6020	8-3-12	8-4-12	
Lead	**14**	5.3	6020	8-3-12	8-4-12	

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-025-13					
Client ID:	**8-2-38**					
Arsenic	**3.1**	0.52	6020	8-4-12	8-4-12	
Lead	**8.3**	5.2	6020	8-4-12	8-4-12	
Lab ID:	08-025-14					
Client ID:	**8-2-39**					
Arsenic	**3.2**	0.55	6020	8-4-12	8-4-12	
Lead	**ND**	5.5	6020	8-4-12	8-4-12	
Lab ID:	08-025-15					
Client ID:	**8-2-41**					
Arsenic	**5.6**	0.57	6020	8-4-12	8-4-12	
Lead	**9.5**	5.7	6020	8-4-12	8-4-12	
Lab ID:	08-025-16					
Client ID:	**8-2-46**					
Arsenic	**8.4**	0.53	6020	8-4-12	8-4-12	
Lead	**9.4**	5.3	6020	8-4-12	8-4-12	
Lab ID:	08-025-17					
Client ID:	**8-2-47**					
Arsenic	**3.7**	0.53	6020	8-4-12	8-4-12	
Lead	**7.4**	5.3	6020	8-4-12	8-4-12	
Lab ID:	08-025-18					
Client ID:	**8-2-48**					
Arsenic	**23**	0.60	6020	8-4-12	8-4-12	
Lead	**44**	6.0	6020	8-4-12	8-4-12	

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-025-19					
Client ID:	**8-2-49**					
Arsenic	**10**	0.60	6020	8-4-12	8-4-12	
Lead	**18**	6.0	6020	8-4-12	8-4-12	
Lab ID:	08-025-20					
Client ID:	**8-2-50**					
Arsenic	**5.2**	0.58	6020	8-4-12	8-4-12	
Lead	**ND**	5.8	6020	8-4-12	8-4-12	
Lab ID:	08-025-21					
Client ID:	**8-2-51**					
Arsenic	**12**	0.58	6020	8-4-12	8-4-12	
Lead	**33**	5.8	6020	8-4-12	8-4-12	
Lab ID:	08-025-22					
Client ID:	**8-2-42**					
Arsenic	**9.9**	0.62	6020	8-4-12	8-4-12	
Lead	**25**	6.2	6020	8-4-12	8-4-12	
Lab ID:	08-025-23					
Client ID:	**8-2-43**					
Arsenic	**15**	0.62	6020	8-4-12	8-4-12	
Lead	**44**	6.2	6020	8-4-12	8-4-12	
Lab ID:	08-025-24					
Client ID:	**8-2-54**					
Arsenic	**9.8**	0.57	6020	8-4-12	8-4-12	
Lead	**25**	5.7	6020	8-4-12	8-4-12	

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-025-25					
Client ID:	**8-2-45**					
Arsenic	**9.0**	0.64	6020	8-4-12	8-4-12	
Lead	**21**	6.4	6020	8-4-12	8-4-12	
Lab ID:	08-025-26					
Client ID:	**8-2-44**					
Arsenic	**17**	0.58	6020	8-4-12	8-4-12	
Lead	**34**	5.8	6020	8-4-12	8-4-12	
Lab ID:	08-025-27					
Client ID:	**8-2-57**					
Arsenic	**2.0**	0.52	6020	8-4-12	8-4-12	
Lead	**ND**	5.2	6020	8-4-12	8-4-12	
Lab ID:	08-025-28					
Client ID:	**8-2-56**					
Arsenic	**12**	0.59	6020	8-4-12	8-4-12	
Lead	**27**	5.9	6020	8-4-12	8-4-12	
Lab ID:	08-025-29					
Client ID:	**8-2-55**					
Arsenic	**11**	0.59	6020	8-4-12	8-4-12	
Lead	**18**	5.9	6020	8-4-12	8-4-12	
Lab ID:	08-025-30					
Client ID:	**8-2-58**					
Arsenic	**13**	0.61	6020	8-4-12	8-4-12	
Lead	**37**	6.1	6020	8-4-12	8-4-12	

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-025-31					
Client ID:	**8-2-59**					
Arsenic	**10**	0.56	6020	8-4-12	8-4-12	
Lead	**21**	5.6	6020	8-4-12	8-4-12	
Lab ID:	08-025-32					
Client ID:	**8-2-60**					
Arsenic	**9.8**	0.79	6020	8-4-12	8-4-12	
Lead	**18**	7.9	6020	8-4-12	8-4-12	
Lab ID:	08-025-33					
Client ID:	**8-2-61**					
Arsenic	**4.9**	0.75	6020	8-4-12	8-4-12	
Lead	**9.5**	7.5	6020	8-4-12	8-4-12	
Lab ID:	08-025-34					
Client ID:	**8-2-72**					
Arsenic	**11**	0.73	6020	8-4-12	8-4-12	
Lead	**15**	7.3	6020	8-4-12	8-4-12	
Lab ID:	08-025-35					
Client ID:	**8-2-71 12"**					
Arsenic	**3.2**	0.57	6020	8-4-12	8-4-12	
Lead	**ND**	5.7	6020	8-4-12	8-4-12	
Lab ID:	08-025-36					
Client ID:	**8-2-62**					
Arsenic	**19**	0.58	6020	8-4-12	8-4-12	
Lead	**18**	5.8	6020	8-4-12	8-4-12	
Lab ID:	08-025-37					
Client ID:	**8-2-53**					
Arsenic	**7.6**	0.63	6020	8-4-12	8-4-12	
Lead	**23**	6.3	6020	8-4-12	8-4-12	

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

TOTAL METALS
EPA 6020
METHOD BLANK QUALITY CONTROL

Date Extracted:	8-3-12
Date Analyzed:	8-4-12
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0803SM1

Analyte	Method	Result	PQL
Arsenic	6020	**ND**	0.50
Lead	6020	**ND**	5.0

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

TOTAL METALS
EPA 6020
METHOD BLANK QUALITY CONTROL

Date Extracted:	8-4-12
Date Analyzed:	8-4-12
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0804SM1

Analyte	Method	Result	PQL
Arsenic	6020	**ND**	0.50
Lead	6020	**ND**	5.0

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

TOTAL METALS
EPA 6020
METHOD BLANK QUALITY CONTROL

Date Extracted:	8-4-12
Date Analyzed:	8-4-12
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0804SM2

Analyte	Method	Result	PQL
Arsenic	6020	**ND**	0.50
Lead	6020	**ND**	5.0

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

TOTAL METALS
EPA 6020
DUPLICATE QUALITY CONTROL

Date Extracted: 8-3-12
Date Analyzed: 8-4-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-005-20

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**3.16**	**3.27**	3	0.50	
Lead	**7.71**	**8.26**	7	5.0	

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

TOTAL METALS
EPA 6020
DUPLICATE QUALITY CONTROL

Date Extracted: 8-4-12
Date Analyzed: 8-4-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-025-13

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**3.03**	**3.09**	2	0.50	
Lead	**8.07**	**8.19**	2	5.0	

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

TOTAL METALS
EPA 6020
DUPLICATE QUALITY CONTROL

Date Extracted: 8-4-12
Date Analyzed: 8-4-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-025-32

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**6.18**	**6.27**	1	0.50	
Lead	**11.2**	**11.3**	0	5.0	

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

TOTAL METALS
EPA 6020
MS/MSD QUALITY CONTROL

Date Extracted: 8-3-12
Date Analyzed: 8-4-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-005-20

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**93.6**	90	**95.5**	92	2	
Lead	250	**261**	101	**260**	101	0	

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

TOTAL METALS
EPA 6020
MS/MSD QUALITY CONTROL

Date Extracted: 8-4-12
Date Analyzed: 8-4-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-025-13

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**99.9**	97	**102**	99	2	
Lead	250	**267**	104	**273**	106	2	

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

TOTAL METALS
EPA 6020
MS/MSD QUALITY CONTROL

Date Extracted: 8-4-12
Date Analyzed: 8-4-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-025-32

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**97.3**	91	**100**	94	3	
Lead	250	**272**	104	**269**	103	1	

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

% MOISTURE

Date Analyzed: 8-6-12

Client ID	Lab ID	% Moisture
8-2-27	08-025-01	12
8-2-28	08-025-02	11
8-2-29	08-025-03	9
8-2-31	08-025-04	14
8-2-32	08-025-05	25
8-2-33	08-025-06	18
8-2-34	08-025-07	25
8-2-30	08-025-08	17
8-2-35	08-025-09	14
8-2-40	08-025-10	15
8-2-37	08-025-11	9
8-2-36	08-025-12	5
8-2-38	08-025-13	3
8-2-39	08-025-14	8
8-2-41	08-025-15	13
8-2-46	08-025-16	6
8-2-47	08-025-17	5
8-2-48	08-025-18	17
8-2-49	08-025-19	16
8-2-50	08-025-20	13
8-2-51	08-025-21	14
8-2-42	08-025-22	20
8-2-43	08-025-23	20
8-2-54	08-025-24	13
8-2-45	08-025-25	21
8-2-44	08-025-26	14
8-2-57	08-025-27	5

Date of Report: August 9, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025
Project: 6537-1

% MOISTURE

Date Analyzed: 8-6-12

Client ID	Lab ID	% Moisture
8-2-56	08-025-28	16
8-2-55	08-025-29	15
8-2-58	08-025-30	18
8-2-59	08-025-31	11
8-2-60	08-025-32	37
8-2-61	08-025-33	34
8-2-72	08-025-34	32
8-2-71 12"	08-025-35	12
8-2-62	08-025-36	13
8-2-53	08-025-37	20

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

Page 1 of 4

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Terra Associates
Project Number: 6537-1
Project Name: —
Project Manager: Chuck Lia
Sampled by: Nicolas Hoffman

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Days
- ☐ 3 Days
- ☒ Standard (7 Days) (TPH analysis 5 Days)
- ☐ _____ (other)

Laboratory Number: 08-025

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	No. of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	~~TCLP Metals~~	HEM (oil and grease) 1664	King County Lead and Arsenic				% Moisture
1	8-2-27	8/2/12	7:50	Soil	1																	X				X
2	8-2-28		8:10		1																	X				
3	8-2-29		8:20		1																	X				
4	8-2-31		8:38	QNW 8/3/12	2 1																	X				
5	8-2-32		8:48		1																	X				
6	8-2-33		8:55		1																	X				
7	8-2-34		9:25		1																	X				
8	8-2-30		9:33		1																	X				
9	8-2-35		9:42		2															A		X				
10	8-2-40		9:57		1																	X				

	Signature	Company	Date	Time
Relinquished	[signature]	TAI	8/3/12	11:20
Received	[signature]	[signature]	8/3/12	1120
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Hold Ziplock #31 for composite @ later date.

A, B - Composite

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

Chain of Custody

Page 2 of 4

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Terra Associates
Project Number: 6537-1
Project Name: ———
Project Manager: Chuck Lia
Sampled by:

Turnaround Request (In working days)

(Check One)

☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days) (TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 08-025

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	No. of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	~~TCLP Metals~~	HEM (oil and grease) 1664	Lead, Cadmium, and Arsenic				% Moisture
11	~~S-~~ 8-2-37	8/2/12	10:12	Soil	1																	X				X
12	8-2-36		10:20		1																					
13	8-2-38		10:27		1																					
14	8-2-39		10:34		2															A						
15	8-2-41		10:44		2															A						
16	8-2-46		11:08		1																					
17	8-2-47		11:20		1																					
18	8-2-48		11:27		2															A						
19	8-2-49		11:35		1																					
20	8-2-50		11:45		1																					

	Signature	Company	Date	Time
Relinquished		TAI	8/3/12	1120
Received		COE	8/3/12	1120
Relinquished				
Received				
Relinquished				
Received				

Comments/Special Instructions

Hold Ziplocks for composites at a later date

Reviewed/Date

Reviewed/Date

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐

Electronic Data Deliverables (EDDs) ☐ _____

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Terra Associates
Project Number: 6537-1
Project Name: ——
Project Manager: Chuck Liu
Sampled by: Nicolas Hoffman

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Days
- ☐ 3 Days
- ☒ Standard (7 Days) (TPH analysis 5 Days)
- ☐ _____ (other)

Laboratory Number: 08-025

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	No. of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	~~TCLP Metals~~	HEM (oil and grease) 1664	King County Lead and Arsenic				% Moisture
21	S-2-51	8/2/12	11:53	Soil	1																	X				X
22	S-2-42		12:05		1																	X				
23	S-2-43		12:10		1																	X				
24	S-2-54		12:20		1																	X				
25	S-2-45		12:30		2															A		X				
26	S-2-44		12:40		1																	X				
27	S-2-57		13:00		1																	X				
28	S-2-56		13:10		2															B		X				
29	S-2-55		13:20		1																	X				
30	S-2-58		13:25		2															B		X				

	Signature	Company	Date	Time
Relinquished		TAI	8/3/12	11:20
Received		OSE	8/3/12	1120
Relinquished				
Received				
Relinquished				
Received				

Comments/Special Instructions

Hold ziplocs for composite samples at a later date.

Reviewed/Date

Reviewed/Date

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Terra Associates
Project Number: 6537-1
Project Name: ———
Project Manager: Chuck Lie
Sampled by: Nicolas Hoffman

Turnaround Request (in working days)

(Check One)

☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days) (TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 08-025

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	No. of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664	King County Land Arsenic				% Moisture
31	8-2-59	8/2/12	13:53	Soil	1																	X				X
32	8-2-60		14:00		2															B		X				
33	8-2-61		14:15		2															B		X				
34	8-2-72		14:30		2															B		X				
35	8-2-71 12"		14:40		2																	X				
36	8-2-62		14:50		1																	X				
37	8-2-53		15:05		2															B		X				
38	8-2-71 0-6"	8/2/12		Soil	1																	X				X
																						~~X~~				
																						~~X~~				

	Signature	Company	Date	Time
Relinquished		TAI	8/3/12	1:20
Received		OSE	8/3/12	1120
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

August 10, 2012

Chuck Lie
Terra Associates, Inc.
12525 Willows Road, Suite 101
Kirkland, WA 98034

Re: Analytical Data for Project 6537-1
Laboratory Reference No. 1208-025B

Dear Chuck:

Enclosed are the analytical results and associated quality control data for samples submitted on August 3, 2012.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: August 10, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025B
Project: 6537-1

Case Narrative

Samples were collected on August 2, 2012 and received by the laboratory on August 3, 2012. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Total Metals EPA 6020 Analysis

Samples have been sieved through a US Standard #10 sieve (2 mm) prior to preparation.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: August 10, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025B
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-025-38					
Client ID:	**8-2-71 0-6"**					
Arsenic	**10**	0.57	6020	8-8-12	8-8-12	
Lead	**13**	5.7	6020	8-8-12	8-8-12	

Date of Report: August 10, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025B
Project: 6537-1

TOTAL METALS
EPA 6020
METHOD BLANK QUALITY CONTROL

Date Extracted:	8-8-12
Date Analyzed:	8-8-12
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0808SM1

Analyte	Method	Result	PQL
Arsenic	6020	**ND**	0.50
Lead	6020	**ND**	5.0

Date of Report: August 10, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025B
Project: 6537-1

TOTAL METALS
EPA 6020
DUPLICATE QUALITY CONTROL

Date Extracted: 8-8-12
Date Analyzed: 8-8-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-044-20

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**9.71**	**10.5**	7	0.50	
Lead	**16.1**	**17.8**	10	5.0	

Date of Report: August 10, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025B
Project: 6537-1

TOTAL METALS
EPA 6020
MS/MSD QUALITY CONTROL

Date Extracted: 8-8-12
Date Analyzed: 8-8-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-044-20

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**105**	96	**110**	101	5	
Lead	250	**280**	105	**283**	107	1	

Date of Report: August 10, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025B
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-025-09,14,15,18,25 Comp.					
Client ID:	**8-2-35,39,41 48,45 Comp.**					
Arsenic	**14**	0.64	6020	8-8-12	8-8-12	
Lead	**44**	6.4	6020	8-8-12	8-8-12	
Lab ID:	08-025-28,30,32,33,34,37 Comp.					
Client ID:	**8-2-56,58,60,61,72,53 Comp.**					
Arsenic	**14**	0.78	6020	8-8-12	8-8-12	
Lead	**51**	7.8	6020	8-8-12	8-8-12	

Date of Report: August 10, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025B
Project: 6537-1

TOTAL METALS
EPA 6020
METHOD BLANK QUALITY CONTROL

Date Extracted:	8-8-12
Date Analyzed:	8-8-12
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0808SM1

Analyte	Method	Result	PQL
Arsenic	6020	**ND**	0.50
Lead	6020	**ND**	5.0

Date of Report: August 10, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025B
Project: 6537-1

TOTAL METALS
EPA 6020
DUPLICATE QUALITY CONTROL

Date Extracted: 8-8-12
Date Analyzed: 8-8-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-044-20

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**9.71**	**10.5**	7	0.50	
Lead	**16.1**	**17.8**	10	5.0	

Date of Report: August 10, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025B
Project: 6537-1

TOTAL METALS
EPA 6020
MS/MSD QUALITY CONTROL

Date Extracted: 8-8-12
Date Analyzed: 8-8-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-044-20

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**105**	96	**110**	101	5	
Lead	250	**280**	105	**283**	107	1	

Date of Report: August 10, 2012
Samples Submitted: August 3, 2012
Laboratory Reference: 1208-025B
Project: 6537-1

% MOISTURE

Date Analyzed: 8-8-12

Client ID	Lab ID	% Moisture
8-2-71 0-6"	08-025-38	13
8-2-35,39,41,48,45 Comp.	08-025-09,14,15,18 Comp.	22
8-2-56,58,60,61,72,53 Comp.	08-025-28,30,32,33,34,37 Comp.	36

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

August 10, 2012

Chuck Lie
Terra Associates, Inc.
12525 Willows Road, Suite 101
Kirkland, WA 98034

Re: Analytical Data for Project 6537-1
Laboratory Reference No. 1208-045

Dear Chuck:

Enclosed are the analytical results and associated quality control data for samples submitted on August 6, 2012.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-045
Project: 6537-1

Case Narrative

Samples were collected on August 6, 2012 and received by the laboratory on August 6, 2012. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Total Metals EPA 6020 Analysis

Samples have been sieved through a US Standard #10 sieve (2 mm) prior to preparation.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-045
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-045-01					
Client ID:	**8-6-79**					
Arsenic	**19**	0.60	6020	8-7-12	8-8-12	
Lead	**39**	6.0	6020	8-7-12	8-8-12	
Lab ID:	08-045-02					
Client ID:	**8-6-80**					
Arsenic	**29**	0.61	6020	8-7-12	8-8-12	
Lead	**170**	6.1	6020	8-7-12	8-8-12	
Lab ID:	08-045-03					
Client ID:	**8-6-81**					
Arsenic	**13**	0.59	6020	8-7-12	8-8-12	
Lead	**74**	5.9	6020	8-7-12	8-8-12	
Lab ID:	08-045-04					
Client ID:	**8-6-82**					
Arsenic	**14**	0.61	6020	8-7-12	8-8-12	
Lead	**32**	6.1	6020	8-7-12	8-8-12	
Lab ID:	08-045-05					
Client ID:	**8-6-83**					
Arsenic	**8.5**	0.57	6020	8-7-12	8-8-12	
Lead	**13**	5.7	6020	8-7-12	8-8-12	
Lab ID:	08-045-06					
Client ID:	**8-6-52**					
Arsenic	**18**	0.64	6020	8-7-12	8-8-12	
Lead	**50**	6.4	6020	8-7-12	8-8-12	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-045
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-045-07					
Client ID:	**8-6-76**					
Arsenic	**7.6**	0.57	6020	8-7-12	8-8-12	
Lead	**12**	5.7	6020	8-7-12	8-8-12	
Lab ID:	08-045-08					
Client ID:	**8-6-77**					
Arsenic	**17**	0.57	6020	8-7-12	8-8-12	
Lead	**25**	5.7	6020	8-7-12	8-8-12	
Lab ID:	08-045-09					
Client ID:	**8-6-65**					
Arsenic	**16**	0.58	6020	8-7-12	8-8-12	
Lead	**22**	5.8	6020	8-7-12	8-8-12	
Lab ID:	08-045-10					
Client ID:	**8-6-84**					
Arsenic	**17**	0.56	6020	8-7-12	8-8-12	
Lead	**37**	5.6	6020	8-7-12	8-8-12	
Lab ID:	08-045-11					
Client ID:	**8-6-85**					
Arsenic	**16**	0.56	6020	8-7-12	8-8-12	
Lead	**48**	5.6	6020	8-7-12	8-8-12	
Lab ID:	08-045-12					
Client ID:	**8-6-86**					
Arsenic	**13**	0.59	6020	8-7-12	8-8-12	
Lead	**18**	5.9	6020	8-7-12	8-8-12	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-045
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-045-13					
Client ID:	**8-6-87**					
Arsenic	**13**	0.58	6020	8-7-12	8-8-12	
Lead	**24**	5.8	6020	8-7-12	8-8-12	
Lab ID:	08-045-14					
Client ID:	**8-6-88**					
Arsenic	**4.4**	0.59	6020	8-7-12	8-8-12	
Lead	**ND**	5.9	6020	8-7-12	8-8-12	
Lab ID:	08-045-15					
Client ID:	**8-6-89**					
Arsenic	**5.7**	0.55	6020	8-7-12	8-8-12	
Lead	**21**	5.5	6020	8-7-12	8-8-12	
Lab ID:	08-045-16					
Client ID:	**8-6-90**					
Arsenic	**23**	0.59	6020	8-7-12	8-8-12	
Lead	**68**	5.9	6020	8-7-12	8-8-12	
Lab ID:	08-045-17					
Client ID:	**8-6-91**					
Arsenic	**6.9**	0.59	6020	8-7-12	8-8-12	
Lead	**10**	5.9	6020	8-7-12	8-8-12	
Lab ID:	08-045-18					
Client ID:	**8-6-93**					
Arsenic	**5.6**	0.55	6020	8-7-12	8-8-12	
Lead	**16**	5.5	6020	8-7-12	8-8-12	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-045
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-045-19					
Client ID:	**8-6-94**					
Arsenic	**29**	0.57	6020	8-7-12	8-8-12	
Lead	**34**	5.7	6020	8-7-12	8-8-12	
Lab ID:	08-045-20					
Client ID:	**8-6-95**					
Arsenic	**16**	0.57	6020	8-8-12	8-8-12	
Lead	**28**	5.7	6020	8-8-12	8-8-12	
Lab ID:	08-045-21					
Client ID:	**8-6-96**					
Arsenic	**5.9**	0.56	6020	8-8-12	8-8-12	
Lead	**36**	5.6	6020	8-8-12	8-8-12	
Lab ID:	08-045-22					
Client ID:	**8-6-97**					
Arsenic	**9.6**	0.60	6020	8-8-12	8-8-12	
Lead	**30**	6.0	6020	8-8-12	8-8-12	
Lab ID:	08-045-23					
Client ID:	**8-6-92**					
Arsenic	**18**	0.56	6020	8-8-12	8-8-12	
Lead	**29**	5.6	6020	8-8-12	8-8-12	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-045
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-045-01,02,03,04,05,21,22 Comp.					
Client ID:	**8-6-79,80,81,82,83,96,97 Comp.**					
Arsenic	**34**	0.65	6020	8-8-12	8-8-12	
Lead	**280**	6.5	6020	8-8-12	8-8-12	
Lab ID:	08-045-11,12,13,14,16,17 Comp.					
Client ID:	**8-6-85,86,87,88,90,91 Comp.**					
Arsenic	**23**	0.61	6020	8-8-12	8-8-12	
Lead	**54**	6.1	6020	8-8-12	8-8-12	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-045
Project: 6537-1

TOTAL METALS
EPA 6020
METHOD BLANK QUALITY CONTROL

Date Extracted:	8-7-12
Date Analyzed:	8-8-12
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0807SM2

Analyte	Method	Result	PQL
Arsenic	6020	**ND**	0.50
Lead	6020	**ND**	5.0

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-045
Project: 6537-1

TOTAL METALS
EPA 6020
METHOD BLANK QUALITY CONTROL

Date Extracted:	8-8-12
Date Analyzed:	8-8-12
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0808SM1

Analyte	Method	Result	PQL
Arsenic	6020	**ND**	0.50
Lead	6020	**ND**	5.0

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-045
Project: 6537-1

TOTAL METALS
EPA 6020
DUPLICATE QUALITY CONTROL

Date Extracted: 8-7-12
Date Analyzed: 8-8-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-045-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**16.0**	**15.8**	1	0.50	
Lead	**32.1**	**31.4**	2	5.0	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-045
Project: 6537-1

TOTAL METALS
EPA 6020
DUPLICATE QUALITY CONTROL

Date Extracted: 8-8-12
Date Analyzed: 8-8-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-044-20

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**9.71**	**10.5**	7	0.50	
Lead	**16.1**	**17.8**	10	5.0	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-045
Project: 6537-1

TOTAL METALS
EPA 6020
MS/MSD QUALITY CONTROL

Date Extracted: 8-7-12
Date Analyzed: 8-8-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-045-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**108**	92	**110**	94	1	
Lead	250	**286**	101	**293**	104	3	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-045
Project: 6537-1

TOTAL METALS
EPA 6020
MS/MSD QUALITY CONTROL

Date Extracted: 8-8-12
Date Analyzed: 8-8-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-044-20

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**105**	96	**110**	101	5	
Lead	250	**280**	105	**283**	107	1	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-045
Project: 6537-1

% MOISTURE

Date Analyzed: 8-7-12

Client ID	Lab ID	% Moisture
8-6-79	08-045-01	17
8-6-80	08-045-02	19
8-6-81	08-045-03	16
8-6-82	08-045-04	17
8-6-83	08-045-05	13
8-6-52	08-045-06	22
8-6-76	08-045-07	12
8-6-77	08-045-08	12
8-6-65	08-045-09	14
8-6-84	08-045-10	11
8-6-85	08-045-11	11
8-6-86	08-045-12	15
8-6-87	08-045-13	15
8-6-88	08-045-14	15
8-6-89	08-045-15	9
8-6-90	08-045-16	16
8-6-91	08-045-17	16
8-6-93	08-045-18	9
8-6-94	08-045-19	13
8-6-95	08-045-20	12
8-6-96	08-045-21	11
8-6-97	08-045-22	16
8-6-92	08-045-23	11
8-6-79,80,81,82,83,96,97 Comp.	08-045-01,02,03,04,05,021,022 Comp.	17
8-6-85,86,87,88,90,91 Comp.	08-045-11,12,13,14,16,17 Comp	19

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

August 10, 2012

Chuck Lie
Terra Associates, Inc.
12525 Willows Road, Suite 101
Kirkland, WA 98034

Re: Analytical Data for Project 6537-1
Laboratory Reference No. 1208-044

Dear Chuck:

Enclosed are the analytical results and associated quality control data for samples submitted on August 6, 2012.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044
Project: 6537-1

Case Narrative

Samples were collected on August 6, 2012 and received by the laboratory on August 6, 2012. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Total Metals EPA 6020 Analysis

Samples have been sieved through a US Standard #10 sieve (2 mm) prior to preparation.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-044-01					
Client ID:	**B1**					
Arsenic	**11**	0.56	6020	8-7-12	8-8-12	
Lead	**22**	5.6	6020	8-7-12	8-8-12	
Lab ID:	08-044-02					
Client ID:	**B2**					
Arsenic	**12**	0.57	6020	8-7-12	8-8-12	
Lead	**27**	5.7	6020	8-7-12	8-8-12	
Lab ID:	08-044-03					
Client ID:	**B3**					
Arsenic	**22**	0.60	6020	8-7-12	8-8-12	
Lead	**54**	6.0	6020	8-7-12	8-8-12	
Lab ID:	08-044-04					
Client ID:	**B4**					
Arsenic	**11**	0.55	6020	8-7-12	8-8-12	
Lead	**29**	5.5	6020	8-7-12	8-8-12	
Lab ID:	08-044-05					
Client ID:	**B5**					
Arsenic	**28**	0.61	6020	8-7-12	8-8-12	
Lead	**82**	6.1	6020	8-7-12	8-8-12	
Lab ID:	08-044-06					
Client ID:	**B6**					
Arsenic	**37**	0.59	6020	8-7-12	8-8-12	
Lead	**42**	5.9	6020	8-7-12	8-8-12	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-044-07					
Client ID:	**B7**					
Arsenic	**14**	0.63	6020	8-7-12	8-8-12	
Lead	**32**	6.3	6020	8-7-12	8-8-12	
Lab ID:	08-044-08					
Client ID:	**B8**					
Arsenic	**17**	0.59	6020	8-7-12	8-8-12	
Lead	**39**	5.9	6020	8-7-12	8-8-12	
Lab ID:	08-044-09					
Client ID:	**B9**					
Arsenic	**31**	0.60	6020	8-7-12	8-8-12	
Lead	**69**	6.0	6020	8-7-12	8-8-12	
Lab ID:	08-044-10					
Client ID:	**B10**					
Arsenic	**19**	0.64	6020	8-7-12	8-8-12	
Lead	**37**	6.4	6020	8-7-12	8-8-12	
Lab ID:	08-044-11					
Client ID:	**B11**					
Arsenic	**19**	0.61	6020	8-7-12	8-8-12	
Lead	**37**	6.1	6020	8-7-12	8-8-12	
Lab ID:	08-044-12					
Client ID:	**B12**					
Arsenic	**16**	0.59	6020	8-7-12	8-8-12	
Lead	**33**	5.9	6020	8-7-12	8-8-12	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-044-13					
Client ID:	**B13**					
Arsenic	**19**	0.60	6020	8-7-12	8-8-12	
Lead	**40**	6.0	6020	8-7-12	8-8-12	
Lab ID:	08-044-14					
Client ID:	**B14**					
Arsenic	**20**	0.60	6020	8-7-12	8-8-12	
Lead	**39**	6.0	6020	8-7-12	8-8-12	
Lab ID:	08-044-15					
Client ID:	**B15**					
Arsenic	**11**	0.57	6020	8-7-12	8-8-12	
Lead	**18**	5.7	6020	8-7-12	8-8-12	
Lab ID:	08-044-16					
Client ID:	**B16**					
Arsenic	**16**	0.59	6020	8-7-12	8-8-12	
Lead	**27**	5.9	6020	8-7-12	8-8-12	
Lab ID:	08-044-17					
Client ID:	**B17**					
Arsenic	**16**	0.58	6020	8-7-12	8-8-12	
Lead	**25**	5.8	6020	8-7-12	8-8-12	
Lab ID:	08-044-18					
Client ID:	**B18**					
Arsenic	**21**	0.59	6020	8-7-12	8-8-12	
Lead	**34**	5.9	6020	8-7-12	8-8-12	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-044-19					
Client ID:	**B19**					
Arsenic	**15**	0.59	6020	8-7-12	8-8-12	
Lead	**23**	5.9	6020	8-7-12	8-8-12	
Lab ID:	08-044-20					
Client ID:	**B20**					
Arsenic	**11**	0.58	6020	8-8-12	8-8-12	
Lead	**19**	5.8	6020	8-8-12	8-8-12	
Lab ID:	08-044-21					
Client ID:	**B21**					
Arsenic	**16**	0.58	6020	8-8-12	8-8-12	
Lead	**25**	5.8	6020	8-8-12	8-8-12	
Lab ID:	08-044-22					
Client ID:	**B22**					
Arsenic	**18**	0.58	6020	8-8-12	8-8-12	
Lead	**29**	5.8	6020	8-8-12	8-8-12	
Lab ID:	08-044-23					
Client ID:	**B23**					
Arsenic	**15**	0.58	6020	8-8-12	8-8-12	
Lead	**24**	5.8	6020	8-8-12	8-8-12	
Lab ID:	08-044-24					
Client ID:	**B24**					
Arsenic	**16**	0.59	6020	8-8-12	8-8-12	
Lead	**26**	5.9	6020	8-8-12	8-8-12	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-044-01,05,09,13,17,21 Comp.					
Client ID:	**B1,5,9,13,17,21 Comp.**					
Arsenic	**13**	0.85	6020	8-8-12	8-8-12	
Lead	**88**	8.5	6020	8-8-12	8-8-12	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044
Project: 6537-1

TOTAL METALS
EPA 6020
METHOD BLANK QUALITY CONTROL

Date Extracted:	8-7-12
Date Analyzed:	8-8-12
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0807SM1

Analyte	Method	Result	PQL
Arsenic	6020	**ND**	0.50
Lead	6020	**ND**	5.0

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044
Project: 6537-1

TOTAL METALS
EPA 6020
METHOD BLANK QUALITY CONTROL

Date Extracted:	8-8-12
Date Analyzed:	8-8-12
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0808SM1

Analyte	Method	Result	PQL
Arsenic	6020	**ND**	0.50
Lead	6020	**ND**	5.0

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044
Project: 6537-1

TOTAL METALS
EPA 6020
DUPLICATE QUALITY CONTROL

Date Extracted: 8-7-12
Date Analyzed: 8-8-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-044-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**10.1**	**9.88**	2	0.50	
Lead	**19.8**	**18.7**	6	5.0	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044
Project: 6537-1

TOTAL METALS
EPA 6020
DUPLICATE QUALITY CONTROL

Date Extracted: 8-8-12
Date Analyzed: 8-8-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-044-20

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**9.71**	**10.5**	7	0.50	
Lead	**16.1**	**17.8**	10	5.0	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044
Project: 6537-1

TOTAL METALS
EPA 6020
MS/MSD QUALITY CONTROL

Date Extracted: 8-7-12
Date Analyzed: 8-8-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-044-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**99.6**	90	**102**	91	2	
Lead	250	**269**	100	**268**	99	0	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044
Project: 6537-1

TOTAL METALS
EPA 6020
MS/MSD QUALITY CONTROL

Date Extracted: 8-8-12
Date Analyzed: 8-8-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-044-20

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**105**	96	**110**	101	5	
Lead	250	**280**	105	**283**	107	1	

Date of Report: August 10, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044
Project: 6537-1

% MOISTURE

Date Analyzed: 8-7&9-12

Client ID	Lab ID	% Moisture
B1	08-044-01	10
B2	08-044-02	12
B3	08-044-03	16
B4	08-044-04	9
B5	08-044-05	18
B6	08-044-06	15
B7	08-044-07	20
B8	08-044-08	16
B9	08-044-09	17
B10	08-044-10	22
B11	08-044-11	18
B12	08-044-12	16
B13	08-044-13	17
B14	08-044-14	16
B15	08-044-15	13
B16	08-044-16	15
B17	08-044-17	14
B18	08-044-18	15
B19	08-044-19	15
B20	08-044-20	13
B21	08-044-21	14
B22	08-044-22	14
B23	08-044-23	13
B24	08-044-24	15
B1,5,9,13,17,21 Comp.	08-044-01,05,09,13,17,21 Comp	41

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Terra Associates
Project Number: 6537-1
Project Name: ——
Project Manager: Chuck Lie
Sampled by: Nicolas R. Hoffman

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ Standard (7 working days) (TPH analysis 5 working days)
- ☐ ____ (other)

Laboratory Number: 08-044

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	X King County Arsenic & Lead			Composite			% Moisture
1	B1	8/6/12	12:32	Soil	3														X			2			✓
2	B2		12:40		1																				
3	B3		12:45		1																				
4	B4		12:50		1																				
5	B5		12:55		3																	2			
6	B6		13:02		1																				
7	B7		13:09		1																				
8	B8		13:14		1																				
9	B9		13:19		3																	2			
10	B10		13:28		1																				

	Signature	Company	Date	Time
Relinquished by		TAI	8/6/12	17:00
Received by		CSE	8/6/12	1700
Relinquished by				
Received by				
Relinquished by				
Received by				

Comments/Special Instructions:

Composite Ziplocks B1, B5, B9, B13, B17, B21

1' samples labeled on jars

Reviewed by/Date

Reviewed by/Date

Chromatograms with final report ☐

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Chain of Custody

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14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Terra Associates
Project Number: 6537-1
Project Name: —
Project Manager: Chuck Lie
Sampled by: Nicolas R. Hoffman

Turnaround Request (in working days)

(Check One)

- ☐ Same Day ☐ 1 Day
- ☐ 2 Day ☐ 3 Day
- ☒ Standard (7 working days)
  (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 08-044

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	X King County Arsenic & Lead		Composite				% Moisture
11	B11	8/6/12	13:33	Soil	1														X						0
12	B12		13:38		1																				
13	B13		13:44		3																2				
14	B14		13:53		1																				
15	B15		13:58		1																				
16	B16		14:02		1																				
17	B17		14:07		3																2				
18	B18		14:15		1																				
19	B19		14:20		1																				
20	B20		14:25		1																				

	Signature	Company	Date	Time
Relinquished by		TAI	8/6/12	17:00
Received by		OSE	8/6/12	1700
Relinquished by				
Received by				
Relinquished by				
Received by				

Comments/Special Instructions:

Reviewed by/Date

Reviewed by/Date

Chromatograms with final report ☐

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Company: Terra Associates
Project Number: 6537-1
Project Name:
Project Manager: Chuck Lie
Sampled by: Nicolas R. Hoffman

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ Standard (7 working days) (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 08-044

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	King County Lead & Arsenic		Composite			% Moisture
21	B21	8/6/12	14:30	Soil	3																②			X
22	B22		14:38		1																			
23	B23		14:43		1																			
24	B24		14:48		1																			

	Signature	Company	Date	Time
Relinquished by		TAI	8/6/12	17:20
Received by		OSE	8/6/12	1700
Relinquished by				
Received by				
Relinquished by				
Received by				

Comments/Special Instructions:

Reviewed by/Date

Reviewed by/Date

Chromatograms with final report ☐

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OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

August 14, 2012

Chuck Lie
Terra Associates, Inc.
12525 Willows Road, Suite 101
Kirkland, WA 98034

Re: Analytical Data for Project 6537-1
Laboratory Reference No. 1208-044B

Dear Chuck:

Enclosed are the analytical results and associated quality control data for samples submitted on August 6, 2012.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: August 14, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044B
Project: 6537-1

Case Narrative

Samples were collected on August 6, 2012 and received by the laboratory on August 6, 2012. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Total Metals EPA 6020 Analysis

Samples have been sieved through a US Standard #10 sieve (2 mm) prior to preparation.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: August 14, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044B
Project: 6537-1

TOTAL METALS
EPA 6020

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	08-044-25					
Client ID:	**B1**					
Arsenic	**16**	0.56	6020	8-14-12	8-14-12	
Lead	**27**	5.6	6020	8-14-12	8-14-12	
Lab ID:	08-044-26					
Client ID:	**B5-12"**					
Arsenic	**21**	0.59	6020	8-14-12	8-14-12	
Lead	**57**	5.9	6020	8-14-12	8-14-12	
Lab ID:	08-044-27					
Client ID:	**B9-12"**					
Arsenic	**17**	0.60	6020	8-14-12	8-14-12	
Lead	**44**	6.0	6020	8-14-12	8-14-12	
Lab ID:	08-044-28					
Client ID:	**B13-12"**					
Arsenic	**22**	0.59	6020	8-14-12	8-14-12	
Lead	**38**	5.9	6020	8-14-12	8-14-12	
Lab ID:	08-044-29					
Client ID:	**B17-12"**					
Arsenic	**21**	0.60	6020	8-14-12	8-14-12	
Lead	**36**	6.0	6020	8-14-12	8-14-12	
Lab ID:	08-044-30					
Client ID:	**B21-12"**					
Arsenic	**22**	0.59	6020	8-14-12	8-14-12	
Lead	**36**	5.9	6020	8-14-12	8-14-12	

Date of Report: August 14, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044B
Project: 6537-1

TOTAL METALS
EPA 6020
METHOD BLANK QUALITY CONTROL

Date Extracted:	8-14-12
Date Analyzed:	8-14-12
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0814SM1

Analyte	Method	Result	PQL
Arsenic	6020	**ND**	0.50
Lead	6020	**ND**	5.0

Date of Report: August 14, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044B
Project: 6537-1

TOTAL METALS
EPA 6020
DUPLICATE QUALITY CONTROL

Date Extracted: 8-14-12
Date Analyzed: 8-14-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-044-25

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**14.2**	**14.4**	2	0.50	
Lead	**24.1**	**25.9**	7	5.0	

Date of Report: August 14, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044B
Project: 6537-1

TOTAL METALS
EPA 6020
MS/MSD QUALITY CONTROL

Date Extracted: 8-14-12
Date Analyzed: 8-14-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 08-044-25

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**109**	95	**107**	93	2	
Lead	250	**281**	103	**278**	102	1	

Date of Report: August 14, 2012
Samples Submitted: August 6, 2012
Laboratory Reference: 1208-044B
Project: 6537-1

% MOISTURE

Date Analyzed: 8-13-12

Client ID	Lab ID	% Moisture
B1	08-044-25	11
B5-12"	08-044-26	15
B9-12"	08-044-27	16
B13-12"	08-044-28	15
B17-12"	08-044-29	16
B21-12"	08-044-30	15

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Terra Associates
Project Number: 6537-1
Project Name: ———
Project Manager: Chuck Lie
Sampled by: Nicolas R. Hoffman

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ Standard (7 working days)
  (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 08-044

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	X King County Arsenic & Lead	Composite	% Moisture
1	B1-12"	8/6/12	12:32	Soil	~~3~~ 2 DB														X	2	
2	B2		12:40		1																
3	B3		12:45		1																
4	B4		12:50		1																
5	B5		12:55		~~3~~ 2 DB															2	
6	B6		13:02		1																
7	B7		13:09		1																
8	B8		13:14		1																
9	B9		13:19		~~3~~ 2 DB															2	
10	B10		13:28		1																

	Signature	Company	Date	Time
Relinquished by		TAI	8/6/12	17:00
Received by		OSE	8/6/12	1700
Relinquished by				
Received by				
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

Composite Ziplocks B1, ~~B5~~, B9, B13, B17, B21

1' samples labeled on jars

Requested 8/13/12. DB

(1 day TAT)

Chromatograms with final report ☐

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Chain of Custody

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Phone: (425) 883-3881 • www.onsite-env.com

Laboratory Number: 08-044

Company: Terra Associates
Project Number: 6537-1
Project Name: —
Project Manager: Chuck Lie
Sampled by: Nicolas R. Hoffman

Turnaround Request (in working days)

(Check One)

- ☐ Same Day ☐ 1 Day
- ☐ 2 Day ☐ 3 Day
- ☒ Standard (7 working days)
  (TPH analysis 5 working days)
- ☐ _____ (other)

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	King County Arsenic & Lead	Composite	% Moisture
11	B11	8/6/12	13:33	Soil	1														X		10
12	B12		13:38		1																
13	B13		13:44		3/2"															2	
14	B14		13:53		1																
15	B15		13:58		1																
16	B16		14:02		1																
17	B17		14:07		3/2"															2	
18	B18		14:15		1																
19	B19		14:20		1																
20	B20		14:25		1																

	Signature	Company	Date	Time
Relinquished by		TAI	8/6/12	17:00
Received by		OSE	8/6/12	1700
Relinquished by				
Received by				
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

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Laboratory Number: 08-044

Company: Terra Associates
Project Number: 6537-1
Project Name:
Project Manager: Chuck Lie
Sampled by: Nicolas R. Hoffman

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ Standard (7 working days) (TPH analysis 5 working days)
- ☐ _____ (other)

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	King County Lead + Arsenic			2 Composite			% Moisture
21	B21	8/6/12	14:30	Soil	~~3~~ 2																				X
22	B22		14:38		1																				↓
23	B23		14:43		1																				
24	B24		14:48	↓	1																				
25	B1				1														⊗						⊗
26	B5-12"																		⊗						⊗
27	B9-12"																		⊗						⊗
28	B13-12"																		⊗						⊗
29	B17-12"																		⊗						⊗
30	B21-12"																		⊗						⊗

	Signature	Company	Date	Time
Relinquished by		TAI	8/6/12	17:20
Received by		OSE	8/6/12	1700
Relinquished by				
Received by				
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

⊗ Added 8/13/12. DB (1 day TAT)

Chromatograms with final report ☐

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OnSite Environmental Inc.
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March 2, 2011

Chuck Lie
Terra Associates, Inc.
12525 Willows Road, Suite 101
Kirkland, WA 98034

Re: Analytical Data for Project 6537
Laboratory Reference No. 1102-130

Dear Chuck:

Enclosed are the analytical results and associated quality control data for samples submitted on Februay 18, 2011.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: March 2, 2011
Samples Submitted: Februay 18, 2011
Laboratory Reference: 1102-130
Project: 6537

Case Narrative

Samples were collected on February 17, 2011 and received by the laboratory on February 18, 2011. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Total Metals EPA 6010B Analysis

All samples were sieved through a #10 sieve prior to digestion and analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

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TOTAL METALS
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-130-01					
Client ID:	**TP-1-6"**					
Arsenic	**20**	15	6010B	2-25-11	2-25-11	
Lead	**42**	7.6	6010B	2-25-11	2-25-11	
Lab ID:	02-130-02					
Client ID:	**TP-1-12"**					
Arsenic	**18**	16	6010B	2-25-11	2-28-11	
Lead	**36**	8.0	6010B	2-25-11	2-28-11	
Lab ID:	02-130-03					
Client ID:	**TP-2-6"**					
Arsenic	**27**	17	6010B	2-25-11	2-28-11	
Lead	**47**	8.4	6010B	2-25-11	2-28-11	
Lab ID:	02-130-04					
Client ID:	**TP-2-12"**					
Arsenic	**ND**	15	6010B	2-25-11	2-28-11	
Lead	**15**	7.5	6010B	2-25-11	2-28-11	
Lab ID:	02-130-05					
Client ID:	**TP-3-6"**					
Arsenic	**ND**	14	6010B	2-25-11	2-28-11	
Lead	**20**	7.0	6010B	2-25-11	2-28-11	
Lab ID:	02-130-06					
Client ID:	**TP-3-12"**					
Arsenic	**ND**	14	6010B	2-25-11	2-28-11	
Lead	**18**	6.9	6010B	2-25-11	2-28-11	

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TOTAL METALS
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-130-07					
Client ID:	**TP-4-6"**					
Arsenic	**ND**	14	6010B	2-25-11	2-28-11	
Lead	**12**	7.0	6010B	2-25-11	2-28-11	
Lab ID:	02-130-08					
Client ID:	**TP-4-12"**					
Arsenic	**ND**	13	6010B	2-25-11	2-28-11	
Lead	**7.1**	6.7	6010B	2-25-11	2-28-11	
Lab ID:	02-130-09					
Client ID:	**TP-5-6"**					
Arsenic	**ND**	14	6010B	2-25-11	2-28-11	
Lead	**11**	7.1	6010B	2-25-11	2-28-11	
Lab ID:	02-130-10					
Client ID:	**TP-5-12"**					
Arsenic	**ND**	13	6010B	2-25-11	2-28-11	
Lead	**7.3**	6.7	6010B	2-25-11	2-28-11	
Lab ID:	02-130-11					
Client ID:	**TP-6-6"**					
Arsenic	**ND**	13	6010B	2-25-11	2-28-11	
Lead	**ND**	6.5	6010B	2-25-11	2-28-11	
Lab ID:	02-130-12					
Client ID:	**TP-6-12"**					
Arsenic	**ND**	13	6010B	2-25-11	2-28-11	
Lead	**ND**	6.4	6010B	2-25-11	2-28-11	

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TOTAL METALS
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-130-13					
Client ID:	**TP-7-6"**					
Arsenic	**ND**	15	6010B	2-25-11	2-28-11	
Lead	**ND**	7.4	6010B	2-25-11	2-28-11	
Lab ID:	02-130-14					
Client ID:	**TP-7-12"**					
Arsenic	**ND**	13	6010B	2-25-11	2-28-11	
Lead	**12**	6.7	6010B	2-25-11	2-28-11	
Lab ID:	02-130-15					
Client ID:	**TP-8-6"**					
Arsenic	**ND**	14	6010B	2-25-11	2-28-11	
Lead	**13**	6.9	6010B	2-25-11	2-28-11	
Lab ID:	02-130-16					
Client ID:	**TP-8-12"**					
Arsenic	**20**	13	6010B	2-25-11	2-28-11	
Lead	**23**	6.5	6010B	2-25-11	2-28-11	
Lab ID:	02-130-17					
Client ID:	**TP-9-6"**					
Arsenic	**23**	16	6010B	2-25-11	2-28-11	
Lead	**31**	7.9	6010B	2-25-11	2-28-11	
Lab ID:	02-130-18					
Client ID:	**TP-9-12"**					
Arsenic	**ND**	14	6010B	2-25-11	2-28-11	
Lead	**16**	7.2	6010B	2-25-11	2-28-11	

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TOTAL METALS
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-130-19					
Client ID:	**TP-10-6"**					
Arsenic	**28**	15	6010B	2-25-11	2-28-11	
Lead	**61**	7.6	6010B	2-25-11	2-28-11	
Lab ID:	02-130-20					
Client ID:	**TP-10-12"**					
Arsenic	**ND**	14	6010B	2-25-11	2-28-11	
Lead	**15**	6.9	6010B	2-25-11	2-28-11	
Lab ID:	02-130-21					
Client ID:	**TP-11-6"**					
Arsenic	**ND**	15	6010B	2-28-11	2-28-11	
Lead	**16**	7.3	6010B	2-28-11	2-28-11	
Lab ID:	02-130-22					
Client ID:	**TP-11-12"**					
Arsenic	**ND**	15	6010B	2-28-11	2-28-11	
Lead	**ND**	7.3	6010B	2-28-11	2-28-11	
Lab ID:	02-130-23					
Client ID:	**TP-12-6"**					
Arsenic	**31**	15	6010B	2-28-11	2-28-11	
Lead	**72**	7.6	6010B	2-28-11	2-28-11	
Lab ID:	02-130-24					
Client ID:	**TP-12-12"**					
Arsenic	**ND**	14	6010B	2-28-11	2-28-11	
Lead	**21**	7.1	6010B	2-28-11	2-28-11	

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TOTAL METALS
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-130-25					
Client ID:	**TP-13-6"**					
Arsenic	**ND**	14	6010B	2-28-11	2-28-11	
Lead	**7.7**	6.8	6010B	2-28-11	2-28-11	
Lab ID:	02-130-26					
Client ID:	**TP-13-12"**					
Arsenic	**ND**	14	6010B	2-28-11	2-28-11	
Lead	**13**	7.2	6010B	2-28-11	2-28-11	
Lab ID:	02-130-27					
Client ID:	**TP-14-6"**					
Arsenic	**ND**	16	6010B	2-28-11	2-28-11	
Lead	**9.3**	7.8	6010B	2-28-11	2-28-11	
Lab ID:	02-130-28					
Client ID:	**TP-14-12"**					
Arsenic	**ND**	15	6010B	2-28-11	2-28-11	
Lead	**8.8**	7.4	6010B	2-28-11	2-28-11	
Lab ID:	02-130-29					
Client ID:	**TP-15-6"**					
Arsenic	**37**	16	6010B	2-28-11	2-28-11	
Lead	**48**	8.0	6010B	2-28-11	2-28-11	
Lab ID:	02-130-30					
Client ID:	**TP-15-12"**					
Arsenic	**17**	15	6010B	2-28-11	2-28-11	
Lead	**17**	7.7	6010B	2-28-11	2-28-11	

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TOTAL METALS
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-130-31					
Client ID:	**TP-16-6"**					
Arsenic	**ND**	11	6010B	2-28-11	2-28-11	
Lead	**ND**	5.3	6010B	2-28-11	2-28-11	
Lab ID:	02-130-32					
Client ID:	**TP-16-12"**					
Arsenic	**ND**	11	6010B	2-28-11	2-28-11	
Lead	**ND**	5.3	6010B	2-28-11	2-28-11	
Lab ID:	02-130-33					
Client ID:	**TP-17-6"**					
Arsenic	**23**	15	6010B	2-28-11	2-28-11	
Lead	**25**	7.3	6010B	2-28-11	2-28-11	
Lab ID:	02-130-34					
Client ID:	**TP-17-12"**					
Arsenic	**ND**	14	6010B	2-28-11	2-28-11	
Lead	**12**	7.2	6010B	2-28-11	2-28-11	
Lab ID:	02-130-35					
Client ID:	**TP-18-6"**					
Arsenic	**38**	14	6010B	2-28-11	2-28-11	
Lead	**21**	7.1	6010B	2-28-11	2-28-11	
Lab ID:	02-130-36					
Client ID:	**TP-18-12"**					
Arsenic	**ND**	14	6010B	2-28-11	2-28-11	
Lead	**ND**	6.9	6010B	2-28-11	2-28-11	

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TOTAL METALS
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-130-37					
Client ID:	**TP-19-6"**					
Arsenic	**36**	17	6010B	2-28-11	2-28-11	
Lead	**42**	8.5	6010B	2-28-11	2-28-11	
Lab ID:	02-130-38					
Client ID:	**TP-19-12"**					
Arsenic	**ND**	14	6010B	2-28-11	2-28-11	
Lead	**17**	7.1	6010B	2-28-11	2-28-11	
Lab ID:	02-130-39					
Client ID:	**TP-20-6"**					
Arsenic	**ND**	13	6010B	2-28-11	2-28-11	
Lead	**15**	6.6	6010B	2-28-11	2-28-11	
Lab ID:	02-130-40					
Client ID:	**TP-20-12"**					
Arsenic	**ND**	13	6010B	2-28-11	2-28-11	
Lead	**14**	6.4	6010B	2-28-11	2-28-11	
Lab ID:	02-130-41					
Client ID:	**TP-21-6"**					
Arsenic	**ND**	16	6010B	2-28-11	2-28-11	
Lead	**19**	8.0	6010B	2-28-11	2-28-11	
Lab ID:	02-130-42					
Client ID:	**TP-21-12"**					
Arsenic	**ND**	15	6010B	2-28-11	2-28-11	
Lead	**17**	7.6	6010B	2-28-11	2-28-11	

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TOTAL METALS
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-130-43					
Client ID:	**TP-22-6"**					
Arsenic	**ND**	15	6010B	2-28-11	2-28-11	
Lead	**13**	7.7	6010B	2-28-11	2-28-11	
Lab ID:	02-130-44					
Client ID:	**TP-22-12"**					
Arsenic	**ND**	15	6010B	2-28-11	2-28-11	
Lead	**9.8**	7.5	6010B	2-28-11	2-28-11	
Lab ID:	02-130-45					
Client ID:	**TP-23-6"**					
Arsenic	**ND**	14	6010B	2-28-11	2-28-11	
Lead	**12**	6.8	6010B	2-28-11	2-28-11	
Lab ID:	02-130-46					
Client ID:	**TP-23-12"**					
Arsenic	**ND**	14	6010B	2-28-11	2-28-11	
Lead	**ND**	6.8	6010B	2-28-11	2-28-11	
Lab ID:	02-130-47					
Client ID:	**TP-24-6"**					
Arsenic	**26**	15	6010B	2-28-11	2-28-11	
Lead	**48**	7.5	6010B	2-28-11	2-28-11	
Lab ID:	02-130-48					
Client ID:	**TP-24-12"**					
Arsenic	**ND**	14	6010B	2-28-11	2-28-11	
Lead	**17**	7.1	6010B	2-28-11	2-28-11	

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TOTAL METALS
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-130-49					
Client ID:	**TP-25-6"**					
Arsenic	**ND**	11	6010B	2-28-11	2-28-11	
Lead	**ND**	5.6	6010B	2-28-11	2-28-11	
Lab ID:	02-130-50					
Client ID:	**TP-25-12"**					
Arsenic	**ND**	11	6010B	2-28-11	2-28-11	
Lead	**ND**	5.6	6010B	2-28-11	2-28-11	
Lab ID:	02-130-51					
Client ID:	**TP-26-6"**					
Arsenic	**30**	17	6010B	2-28-11	2-28-11	
Lead	**45**	8.3	6010B	2-28-11	2-28-11	
Lab ID:	02-130-52					
Client ID:	**TP-26-12"**					
Arsenic	**ND**	15	6010B	2-28-11	2-28-11	
Lead	**14**	7.7	6010B	2-28-11	2-28-11	
Lab ID:	02-130-53					
Client ID:	**TP-27-6"**					
Arsenic	**20**	19	6010B	2-28-11	2-28-11	
Lead	**55**	9.3	6010B	2-28-11	2-28-11	
Lab ID:	02-130-54					
Client ID:	**TP-27-12"**					
Arsenic	**23**	15	6010B	2-28-11	2-28-11	
Lead	**34**	7.7	6010B	2-28-11	2-28-11	

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TOTAL METALS
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-130-55					
Client ID:	**TP-28-6"**					
Arsenic	**18**	14	6010B	2-28-11	2-28-11	
Lead	**32**	6.8	6010B	2-28-11	2-28-11	
Lab ID:	02-130-56					
Client ID:	**TP-28-12"**					
Arsenic	**ND**	13	6010B	2-28-11	2-28-11	
Lead	**31**	6.6	6010B	2-28-11	2-28-11	
Lab ID:	02-130-57					
Client ID:	**TP-29-6"**					
Arsenic	**20**	16	6010B	2-28-11	2-28-11	
Lead	**19**	7.9	6010B	2-28-11	2-28-11	
Lab ID:	02-130-58					
Client ID:	**TP-29-12"**					
Arsenic	**ND**	14	6010B	2-28-11	2-28-11	
Lead	**ND**	7.2	6010B	2-28-11	2-28-11	
Lab ID:	02-130-59					
Client ID:	**TP-30-6"**					
Arsenic	**76**	18	6010B	2-28-11	2-28-11	
Lead	**180**	9.0	6010B	2-28-11	2-28-11	
Lab ID:	02-130-60					
Client ID:	**TP-30-12"**					
Arsenic	**34**	16	6010B	2-28-11	2-28-11	
Lead	**48**	8.1	6010B	2-28-11	2-28-11	

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TOTAL METALS
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted:	2-25-11
Date Analyzed:	2-25-11
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0225S3

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Lead	6010B	**ND**	5.0

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TOTAL METALS
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted:	2-28-11
Date Analyzed:	2-28-11
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0228S1

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Lead	6010B	**ND**	5.0

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TOTAL METALS
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted:	2-28-11
Date Analyzed:	2-28-11
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0228S2

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Lead	6010B	**ND**	5.0

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TOTAL METALS
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 2-25-11
Date Analyzed: 2-25-11

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 02-130-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**13.1**	**11.7**	11	10	
Lead	**27.4**	**28.7**	5	5.0	

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TOTAL METALS
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 2-28-11
Date Analyzed: 2-28-11

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 02-130-21

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Lead	**10.8**	**9.60**	12	5.0	

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TOTAL METALS
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 2-28-11
Date Analyzed: 2-28-11

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 02-130-41

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Lead	**11.9**	**11.7**	2	5.0	

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TOTAL METALS
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 2-25-11
Date Analyzed: 2-25-11

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 02-130-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**103**	90	**106**	93	3	
Lead	250	**240**	85	**247**	88	3	

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TOTAL METALS
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 2-28-11
Date Analyzed: 2-28-11

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 02-130-21

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**103**	103	**103**	103	1	
Lead	250	**238**	91	**240**	92	1	

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TOTAL METALS
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 2-28-11
Date Analyzed: 2-28-11

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 02-130-41

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**105**	105	**107**	107	2	
Lead	250	**236**	90	**239**	91	1	

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% MOISTURE

Date Analyzed: 2-25&28-11

Client ID	Lab ID	% Moisture
TP-1-6”	02-130-01	34
TP-1-12”	02-130-02	38
TP-2-6”	02-130-03	41
TP-2-12”	02-130-04	33
TP-3-6”	02-130-05	29
TP-3-12”	02-130-06	28
TP-4-6”	02-130-07	28
TP-4-12”	02-130-08	25
TP-5-6”	02-130-09	29
TP-5-12”	02-130-10	25
TP-6-6”	02-130-11	23
TP-6-12”	02-130-12	22
TP-7-6”	02-130-13	33
TP-7-12”	02-130-14	25
TP-8-6”	02-130-15	27
TP-8-12”	02-130-16	23
TP-9-6”	02-130-17	37
TP-9-12”	02-130-18	31
TP-10-6”	02-130-19	34
TP-10-12”	02-130-20	27
TP-11-6”	02-130-21	31
TP-11-12”	02-130-22	32
TP-12-6”	02-130-23	34
TP-12-12”	02-130-24	30
TP-13-6”	02-130-25	27
TP-13-12”	02-130-26	30
TP-14-6”	02-130-27	36

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% MOISTURE

Date Analyzed: 2-25&28-11

Client ID	Lab ID	% Moisture
TP-14-12”	02-130-28	33
TP-15-6”	02-130-29	38
TP-15-12”	02-130-30	35
TP-16-6”	02-130-31	6
TP-16-12”	02-130-32	6
TP-17-6”	02-130-33	32
TP-17-12”	02-130-34	31
TP-18-6”	02-130-35	30
TP-18-12”	02-130-36	28
TP-19-6”	02-130-37	41
TP-19-12”	02-130-38	30
TP-20-6”	02-130-39	24
TP-20-12”	02-130-40	22
TP-21-6”	02-130-41	37
TP-21-12”	02-130-42	35
TP-22-6”	02-130-43	35
TP-22-12”	02-130-44	33
TP-23-6”	02-130-45	26
TP-23-12”	02-130-46	26
TP-24-6”	02-130-47	33
TP-24-12”	02-130-48	29
TP-25-6”	02-130-49	11
TP-25-12”	02-130-50	10
TP-26-6”	02-130-51	40
TP-26-12”	02-130-52	35
TP-27-6”	02-130-53	46
TP-27-12”	02-130-54	35

-

Date of Report: March 2, 2011
Samples Submitted: Februay 18, 2011
Laboratory Reference: 1102-130
Project: 6537

% MOISTURE

Date Analyzed: 2-25&28-11

Client ID	Lab ID	% Moisture
TP-28-6”	02-130-55	26
TP-28-12”	02-130-56	24
TP-29-6”	02-130-57	37
TP-29-12”	02-130-58	31
TP-30-6”	02-130-59	45
TP-30-12”	02-130-60	38

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

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Phone: (425) 883-3881 • www.onsite-env.com

Laboratory Number: 02-130

Company: TAI
Project Number: 6537
Project Name: ———
Project Manager: Chuck Lie
Sampled by: Nicolas R. Hoffman

Turnaround Request (in working days)

(Check One)

- ☐ Same Day ☐ 1 Day
- ☐ 2 Days ☐ 3 Days
- ☑ Standard (7 Days) (TPH analysis 5 Days)
- ☐ _____ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	Lead	Arsenic				% Moisture
1	TP-1 -6"	2/17/11	10:20	S	1																X	X				X
2	TP-1 -12"		10:20																							X
3	TP-2 -6"		10:50																							X
4	TP-2 -12"		10:50																							X
5	TP-3 -6"		11:15																							X
6	TP-3 -12"		11:15																							X
7	TP-4 -6"		11:30																							X
8	TP-4 -12"		11:30																							X
9	TP-5 -6"		11:45																							X
10	TP-5 -12"		11:45																							X

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Comments/Special Instructions

~~Ase~~ Arsenic using King County protocol

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

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Company: TAI
Project Number: 6537
Project Name: —
Project Manager: Chuck Lie
Sampled by: Nicolas R. Hoffman

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☑ Standard (7 Days)
(TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 02-130

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	Lead	Arsenic					% Moisture
11	TP-6 -6"	2/17/11	12:00	S	1																X	X					X
12	TP-6 -12"		12:00																								
13	TP-7 -6"		12:10																								
14	TP-7 -12"		12:10																								
15	TP-8 -6"		12:20																								
16	TP-8 -12"		12:20																								
17	TP-9 -6"		12:40																								
18	TP-9 -12"		12:40																								
19	TP-10 -6"		12:50																								
20	TP-10 -12"	↓	12:50	↓	↓																↓	↓					↓

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Company: TAI
Project Number: 6537
Project Name: —
Project Manager: Chuck Lie
Sampled by: Nicolas R. Hoffman

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☑ Standard (7 Days)
(TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 02-130

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	Lead	Arsenic					% Moisture
21	TP-11 -6"	2/17/11	13:00	S	1																X	X					X
22	TP-11 -12"		13:00																								
23	TP-12 -6"		13:10																								
24	TP-12 -12"		13:10																								
25	TP-13 -6"		13:40																								
26	TP13 -12"		13:40																								
27	TP-14 -6"		13:50																								
28	TP-14 -12"		13:50																								
29	TP-15 -6"		14:00																								
30	TP-15 -12"		14:10 00																								

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Company: TAI
Project Number: 6537
Project Name: ——
Project Manager: Chuck Liz
Sampled by: Nicolas R. Hoffman

Turnaround Request (in working days)

(Check One)

- ☐ Same Day ☐ 1 Day
- ☐ 2 Days ☐ 3 Days
- ☑ Standard (7 Days) (TPH analysis 5 Days)
- ☐ _____ (other)

Laboratory Number: 02-130

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	Lead	Arsenic				% Moisture
31	TP-16 -6"	2/17/11	14:10	S	1																X	X				X
32	TP-16 -12"		14:10																							
33	TP-17 -6"		14:20																							
34	TP-17 -12"		14:20																							
35	TP-18 -6"		14:30																							
36	TP-18 -12"		14:30																							
37	TP-19 -6"		14:40																							
38	TP-19 -12"		14:40																							
39	TP-20 -6"		14:50																							
40	TP-20 -12"		14:50																							

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Company: TAI
Project Number: 6537
Project Name: ——
Project Manager: Chuck Lia
Sampled by: Nicolas R. Hoffman

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☑ Standard (7 Days) (TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 02-130

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	Lead	Arsenic				% Moisture
41	TP-21-6"	2/17/11	15:00	S	1																X	X				X
42	TP-21-12"		15:00																							
43	TP-22-6"		15:10																							
44	TP-22-12"		15:10																							
45	TP-23-6"		15:20																							
46	TP-23-12"		15:20																							
47	TP-24-6"		15:30																							
48	TP-24-12"		15:30																							
49	TP-25-6"		15:40																							
50	TP-25-12"		15:40																							

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Company: TAI
Project Number: 6537
Project Name: —
Project Manager: Chuck Liu
Sampled by: Nicolas R. Hoffman

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☑ Standard (7 Days)
(TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 02-130

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	Lead	Arsenic					% Moisture
51	TP-26 -6"	2/17/11	15:50	S	1																X	X					X
52	TP-26 -12"		15:50																								
53	TP-27 -6"		16:00																								
54	TP-27 -12"		16:00																								
55	TP-28 -6"		16:10																								
56	TP-28 -12"		16:10																								
57	TP-29 -6"		16:20																								
58	TP-29 -12"		16:20																								
59	TP-30 -6"		16:30																								
60	TP-30 -12"		16:30																								

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Appendix E-2

TSP Site Assessment/Cleanup Action Plan

TERRA ASSOCIATES, Inc.
Consultants in Geotechnical Engineering, Geology
and
Environmental Earth Sciences

July 7, 2022
Project No. T-6537-7

Ms. Ryan Sawyer
Acorn Environmental
5170 Golden Foothill Parkway
El Dorado Hills, CA 95762

Subject: Tacoma Smelter Plume Site Assessment/Cleanup Action Plan
8.92 Acre Assemblage
7900 Main Street and 7929 Briton Parkway Northeast
Lacey, Washington
Thurston County Tax Parcel 11811210000 and 11811210100

Dear Ms. Sawyer:

We have completed our project site assessment for impacts from the Tacoma Smelter Plume (TSP).

We understand the current project involves the development of the site with a commercial or residential project. The site covers 8.92 acres and consists of three distinct elements:

1. Decision Unit A (DU A) consists of about eight acres of nearly level land that has been previously cleared and graded.

2. Decision Unit B (DU B) consists of an aggregate of about one acre of nearly level land, and which retains the initial open coniferous trees native this this area of Hawks Prairie.

3. An estimated 850 cubic yard stockpile of soils in the northwest corner of DU A.

The current interactive map at the Ecology TSP page shows this area is believed to have arsenic in the range of 20 to 100 mg/kg.

SCOPE OF WORK

We followed the procedures described in Ecology Publication 19-09-101, Asarco Tacoma Smelter Site-Model Remedies Plan for the Tacoma Smelter Plume (Model Remedies).

To determine the actual levels of arsenic, we divided the site into three decision units. These decisions units are based upon historical land use and proposed land use. The decision units consist of:

Decision Unit	Predominant Land Cover	Proposed Land Use	Approximate Acreage	Notes
DU A	Development area -bare or sparsely vegetated	Redevelopment	8	42 sample locations and a total of 53 samples.
DU B	Development area - currently forested	Redevelopment	1	16 sample locations and a total of 24 samples including duff samples.
N/A	850 cubic yard stockpile in DU A	Redevelopment	N/A	4 composite samples

PROJECT DESCRIPTION

The project site is an approximately 8.95-acre assemblage of 2 tax parcels located in a generally commercial area of the Hawks Prairie area of Lacey, Washington. The location of the site is shown on Figures 1 and 2. An oblique aerial photo taken of the site is presented on Figure 3.

Historical Site Grading

Figure 4 is an aerial photo taken in 2009 that shows the extent of prior grading at that time. The area of disturbance is within DU A and consists of a prior building and parking lot in the northern quarter of the site and a recently placed sewer line that diagonally crosses the southeast corner of the site.

Figure 5 is an aerial photo that shows that, with the exception of the clusters of trees, that the entire site appears to have been cleared and a storm water pond had been excavated in the extreme southwest corner of the site.

Current Surface Description

The site consists of two Thurston County tax parcels, parcel #11811210000 and 11811210100. The site covers 8.92 acres and has no listed address. The site is developed with an asphalt road running east-west along the north edge of the site and a parking lot area at the north end. A stormwater pond is located at the southwest corner of the site. Drainage ditches run from the pond to near the southeast corner of the site and two branches run north-south to the approximate site midpoint. A sewer easement and sanitary sewer line run north-south on the east half of the site. A vegetated soil stockpile is present at the northwest corner of the site which appears to consist of native site material.

The site appears to have been previously graded and consists of mostly cleared land with gravels exposed at the surface. Topography is predominately flat, with a gentle slope towards the south. Ground cover across much of the site consists of primarily grass, weeds and young alder. Three distinct tree areas are present in the central portion of the site containing fir and cedar trees, with ground cover consisting of grass and weeds.

Current Site Conditions are shown on Figure 3.

Subsurface Description

A series of 11 test pits were excavated with a small track-hoe and an additional 47 hand holes were excavated with hand tools. Depths ranged from six feet to seven and one-half feet deep. Test pits and hand holes show areas of fill mostly consistent with re-worked site soils. No fill material was observed at a majority of the excavation locations. Test pit and hand holes show native site soils generally consist of a thin, approximately one to three inch layer of dark brown topsoil material overlying gray to brown sand with gravel. In the tree areas, the topsoil layer thickens slightly and a one to two inch layer of forest duff is also present in DU B.

In the test pit at sample location A-6, we observed approximately seven feet of fill material consisting of a uniform layer of gray-brown sand with gravel material which appeared to be a manufactured/screened utility backfill material overlying native gray sand with gravel material.

In the test pit at sample location A-24 we observed approximately 12 inches of brown silty sand with gravel fill material overlying a thin topsoil and roots layer, overlying native gray sand with gravel material. In the test pit at sample location A-34 we observed approximately three feet of reworked gray sand with gravel fill material overlying a thin topsoil and roots layer, overlying native gray sand with gravel material.

In the test pit at sample location A-37 we observed approximately two and one-half feet of reworked gray sand with gravel fill material overlying a thin topsoil and roots layer, overlying native gray sand with gravel material.

No shallow perched groundwater was found in our test pits. The groundwater will occur within the advance outwash soils at depths of 60 to 120 feet below site grades.

SITE SAMPLING

The current sampling was conducted on June 20 and 21, 2022, and samples were obtained from a grid pattern superimposed on the site. A total of 58 locations were sampled. A total of 81 individual samples were analyzed for lead and arsenic. Sampling proceeded in general accordance with Ecology Publication 19-09-101.

The sample locations are presented on Figure 4, attached to this report.

The samples were placed into laboratory prepared glassware. Chain of custody protocols were followed for all samples. At the lab, the samples were prepared for analysis by sieving the samples through a 2mm (US No. 10) sieve to remove gravel. The test results for the current samples are attached in Appendix A.

SAMPLE RESULTS

The results of the current sampling are presented on Tables 1 through 3, attached to this report.

Decision Unit A (DU A)

None of the samples exceeded their respective cleanup levels for the soil and duff samples. The overall average of all samples for arsenic and lead is 3.5 and 8.0 mg/kg respectively. The average for the surficial samples from the upper six inches of the site subgrade in DU A for arsenic and lead respectively is 3.5 and 8.6 mg/kg respectively. The average of the deeper samples for arsenic and lead are 3.5 and 5.2 mg/kg respectively.

Decision Unit B (DU B)

Five of the 0 to 6-inch samples had levels of arsenic that exceeded the 20 mg/kg level. The average of the 0-6-inch samples for arsenic and lead is 4.6 and 7.5 mg/kg respectively. No samples from the 6 to 12-inch interval exceeded the cleanup levels. No samples exceeded the cleanup value for lead. The overall average of all samples for arsenic and lead is 4.6 and 7.4 respectively. None of the composite duff samples exceeded the cleanup levels of 20 and 250 mg/kg for arsenic and lead respectively.

Stockpile

There is a stockpile of soils located in the northwest corner of the site. We estimated the volume of soils to be about 850 cubic yards. The soils are consistent with native site soils. To assess the soils for TSP issues, 4 composite soil samples were taken in accordance with Table 5 of the Model Remedies. None of the samples exceeded their respective cleanup levels.

DISCUSSION

Based on the results of testing, no remedial measures are required on this site for the proposed development.

LIMITATIONS

The findings, conclusions, and recommendations presented in this report are our professional opinions based on our documented site observations, our review of current Ecology guidelines, our recent local experience, and the analytical testing summarized in this report. Other information related to past site uses or current site conditions may exist.

If further information on the site becomes available, Terra Associates, Inc. should review the information, as it may affect our conclusions.

We prepared our conclusions and recommendations in general accordance with current guidance from Ecology and generally accepted local professional engineering practices in use at this time. We make no other warranty, either expressed, or implied. The report is the copyrighted property of Terra Associates, Inc. and is for the specific application to the 8.92 Acre Assemblage project in Lacey, Washington. This letter is for the exclusive use of Acorn Environmental and their authorized representatives.

We trust the information presented is sufficient for your current needs. If you have any questions or require additional information, please call.

Sincerely yours,
TERRA ASSOCIATES, INC.

Max Price
Staff Scientist

7-7-2022

Charles R. Lie, L.E.G., L.H.G.
Project Manager

Attachments: Table 1 – Analytical Test Result Summary-DU A
Table 2A and 2B – Analytical Test Result Summary-DU B
Table 3 – Analytical Test Result Summary-Composite Stockpile Samples

Figure 1 – Vicinity Map
Figure 2 – Topographic Vicinity Map
Figure 3 – 2022 Oblique Aerial Photo
Figure 4 – 2009 Vertical Aerial Photo
Figure 5 – 2012 Vertical Aerial Photo
Figure 6 – Sample Location Sketch

Appendix A – Analytical Test Reports

Table 1
Decision Unit A (DU A)
Analytical Test Result Summary

Location	Depth	Arsenic	Lead	Location	Depth	Arsenic	Lead
A1	0-6	5.4	14	A23	0-6	3.3	4.4
A2	0-6	3.7	8		6-12	2.8	3.6
A3	0-6	6.5	11	A24	0-6	3.5	8
	6-12	7.3	12		12-18	3.3	4.2
A4	0-6	4.4	6.5	A25	0-6	2.1	1.9
A5	0-6	6.7	8.3	A26	0-6	2.6	4
A6	0-6	2.3	2.7	A27	0-6	2.5	6.3
	84-90	3.7	3	A28	0-6	3	5.6
A7	0-6	15	28		-6-12	5.1	13
A8	0-6	7.4	110	A29	0-6	4.1	6.8
A9	0-6	4.8	8.4	A30	0-6	3.3	7.7
A10	0-6	2.4	4	A31	0-6	2.9	5
	6-12	2.1	2.6	A32	0-6	1.7	1.4
A11	0-6	2.9	4.7	A33	0-6	1.7	3.5
A12	0-6	4.2	4.9	A34	0-6	1.7	1.7
	6-12	3.1	5.3		36-42	1.9	1.8
A13	0-6	2.3	2.7	A35	0-6	1.8	2.1
A14	0-6	2.3	3.7	A36	0-6	1.4	1.5
	6-12	5.9	7.4	A37	0-6	2.7	7.4
A15	0-6	3.5	9.2		30-36	1.6	1.4
A16	0-6	6.9	15	A38	0-6	3.7	9.7
A17	0-6	3	6.7	A39	0-6	3.7	13
A18	0-6	2.4	2.7	A40	0-6	2.1	4.8
A19	0-6	1.7	1.8	A41	0-6	2.1	5
A20	0-6	2	2.4	A42	0-6	1.7	4.2
	6-12	1.7	2.4	Overall Average		3.5	8.0
A21	0-6	1.7	1.8	Surface average		3.5	8.6
A22	0-6	3.3	8.9	Deeper Average		3.5	5.2
MTCA		**20**	**250**	**MTCA**		**20**	**250**

Notes: All Depths are in inches
All Values are mg/kg by dry weight

Table 2A
Decision Unit B (DU B)
Analytical Test Result Summary

Location	Depth	Arsenic	Lead
B1	0-6	9.1	8.7
B2	0-6	7.2	12
		11	18
B3	0-6	3.7	6
B4	0-6	5.8	7.4
B5	0-6	9.3	19
B6	0-6	4.4	7.2
	6-12	2.4	2.4
B7	0-6	7.1	12
B8	0-6	4.2	5.4
B9	0-6	4.6	6.5
	6-12	4	5.7
B10	0-6	1.8	2.4
B11	0-6	3.2	5.7
B12	0-6	3.6	5.6
B13	0-6	1.5	2.6
B14	0-6	2.4	8.3
B15	0-6	2.8	5.3
B16	0-6	3.1	5.6
	6-12	1.4	2.4
Over All Average		4.63	7.41
Average 0-6 inches		4.6	7.5
MTCA Method A		20	250

Notes: All Depths are in inches
All Values are mg/kg by dry weight

Table 2B
Decision Unit B-Duff
Analytical Test Result Summary

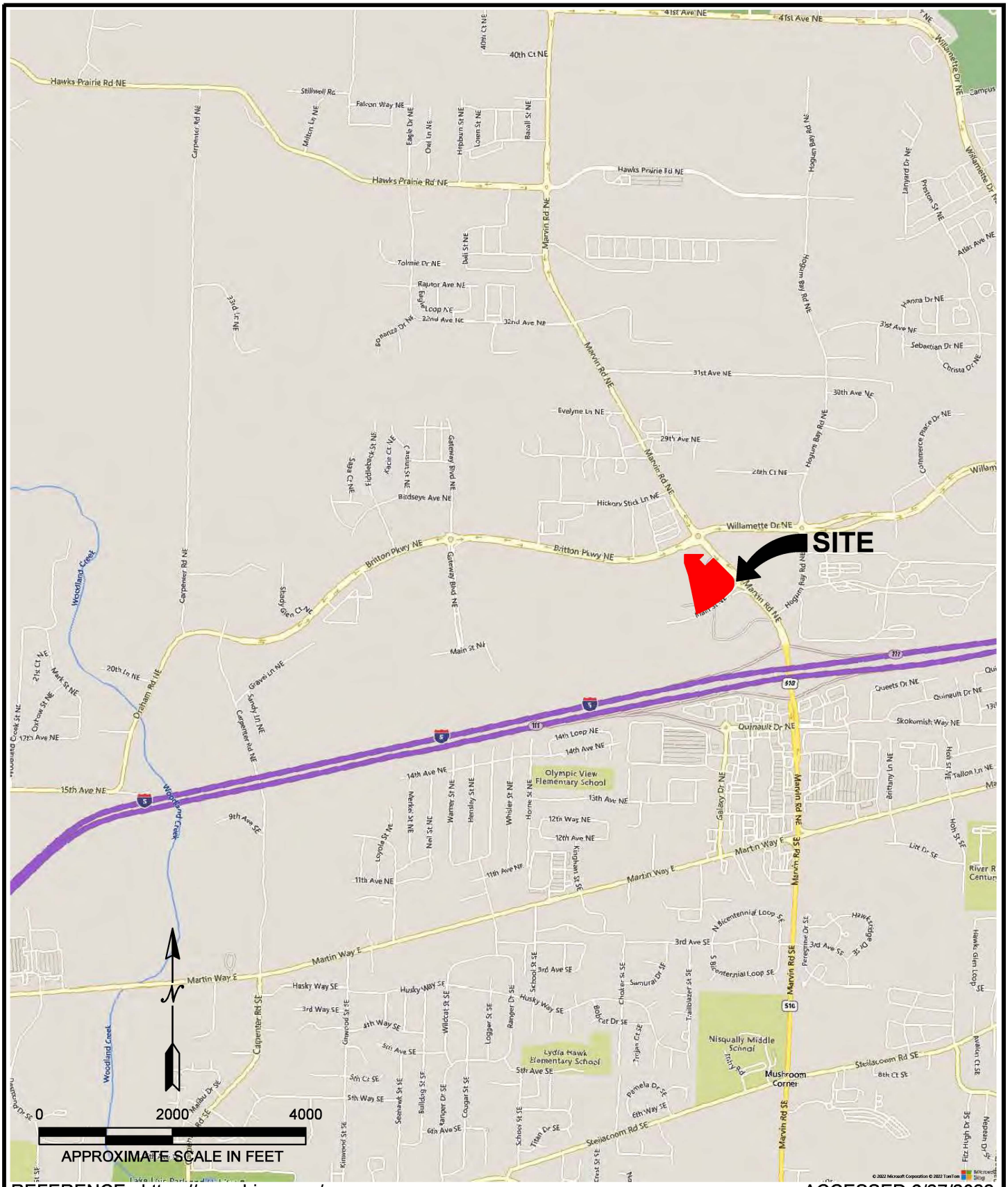
Sample ID	Arsenic	Lead
Duff B1	18	90
Duff B2	5.4	18
Duff B3	5.3	15
Duff B4	6.5	51
MTCA Method A	**20**	**250**

Notes: All sample results are in mg/kg based on dry weight.

Table 3
Composite Stockpile Samples

Sample	Arsenic	Lead
SP-1	2.2	4.4
SP-2	2.4	4.8
SP-3	3.2	6.9
SP-4	1.5	2.3
MTCA	20	250

Notes: All sample results are in mg/kg based on dry weight**.**
Refer to text for sampling details

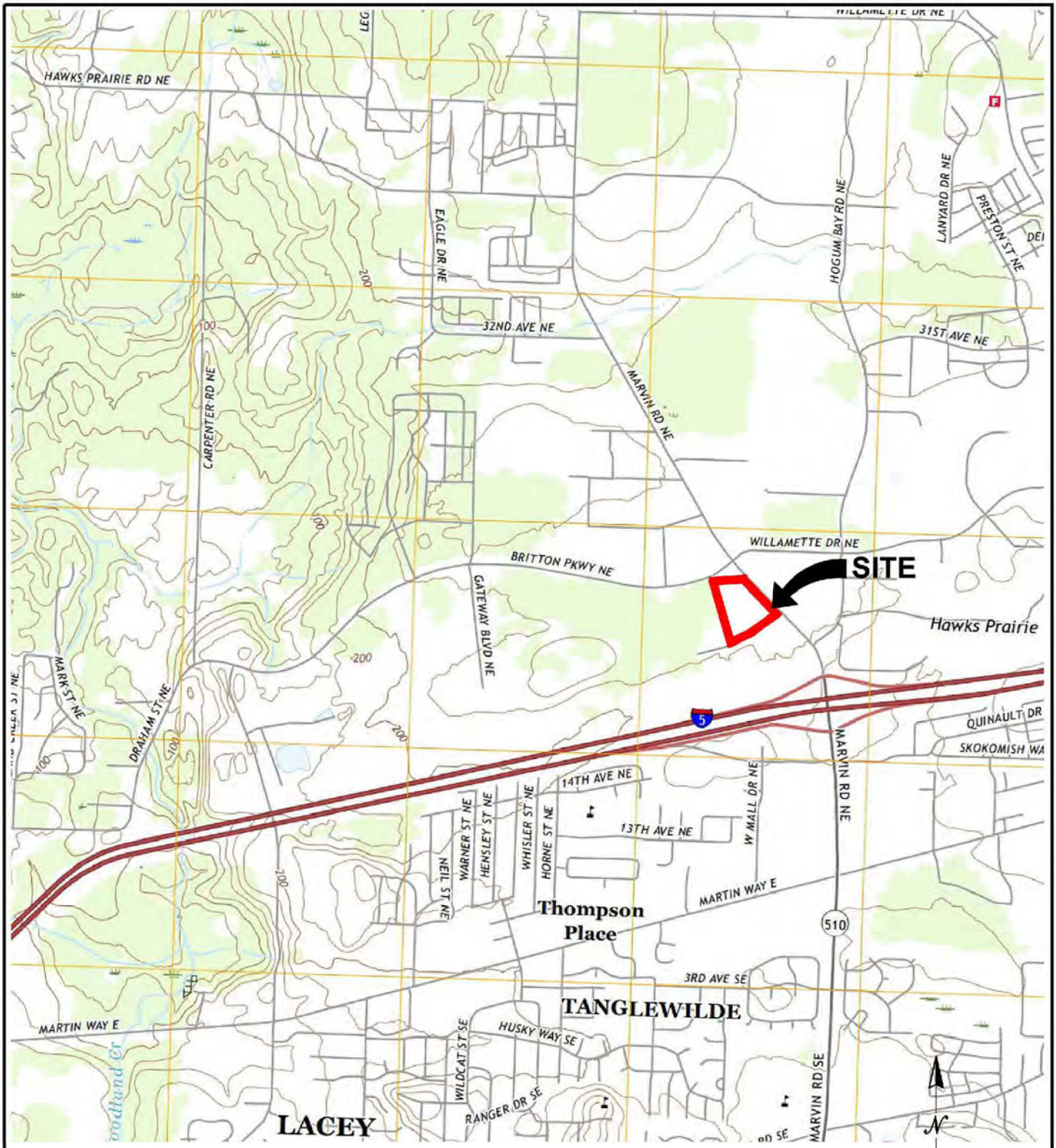


REFERENCE: https://www.bing.com/maps ACCESSED 6/27/2022

Terra Associates, Inc.
Consultants in Geotechnical Engineering
Geology and
Environmental Earth Sciences

VICINITY MAP
8.92 ACRE PARCEL
LACEY, WASHINGTON

Proj.No.T-6537-7	Date:JULY 2022	Figure 1



CONTOUR INTERVAL: 20 FEET
REFERENCE: USGS MAPS, LACEY, WASHINGTON QUADRANGLE

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Geology and
Environmental Earth Sciences

TOPOGRAPHIC VICINITY MAP
8.92 ACRE PARCEL
LACEY, WASHINGTON

Proj.No.T-6537-7	Date:JULY 2022	Figure 2

LEGEND:

APPROXIMATE PARCEL BOUNDARY

REFERENCE: MAP CREATED USING GEODATA PUBLIC WEBSITE.

NOT TO SCALE

Terra Associates, Inc.
Consultants in Geotechnical Engineering Geology and Environmental Earth Sciences

2009 VERTICAL AERIAL PHOTO
8.92 ACRE PARCEL
LACEY, WASHINGTON

Proj.No.T-6537-7	Date:JULY 2022	Figure 3

LEGEND:

APPROXIMATE PARCEL BOUNDARY

REFERENCE: MAP CREATED USING GEODATA PUBLIC WEBSITE.

NOT TO SCALE

Terra Associates, Inc.
Consultants in Geotechnical Engineering Geology and Environmental Earth Sciences

2012 VERTICAL AERIAL PHOTO
8.92 ACRE PARCEL
LACEY, WASHINGTON

Proj.No.T-6537-7	Date:JULY 2022	Figure 4

NOTE:
OBLIQUE AERIAL PHOTO LOOKING NORTH
PHOTO COPY RIGHT PICTOMETRY
(IMAGE DATE 2022)

REFERENCE: https://www.pictometry.com

LEGEND:

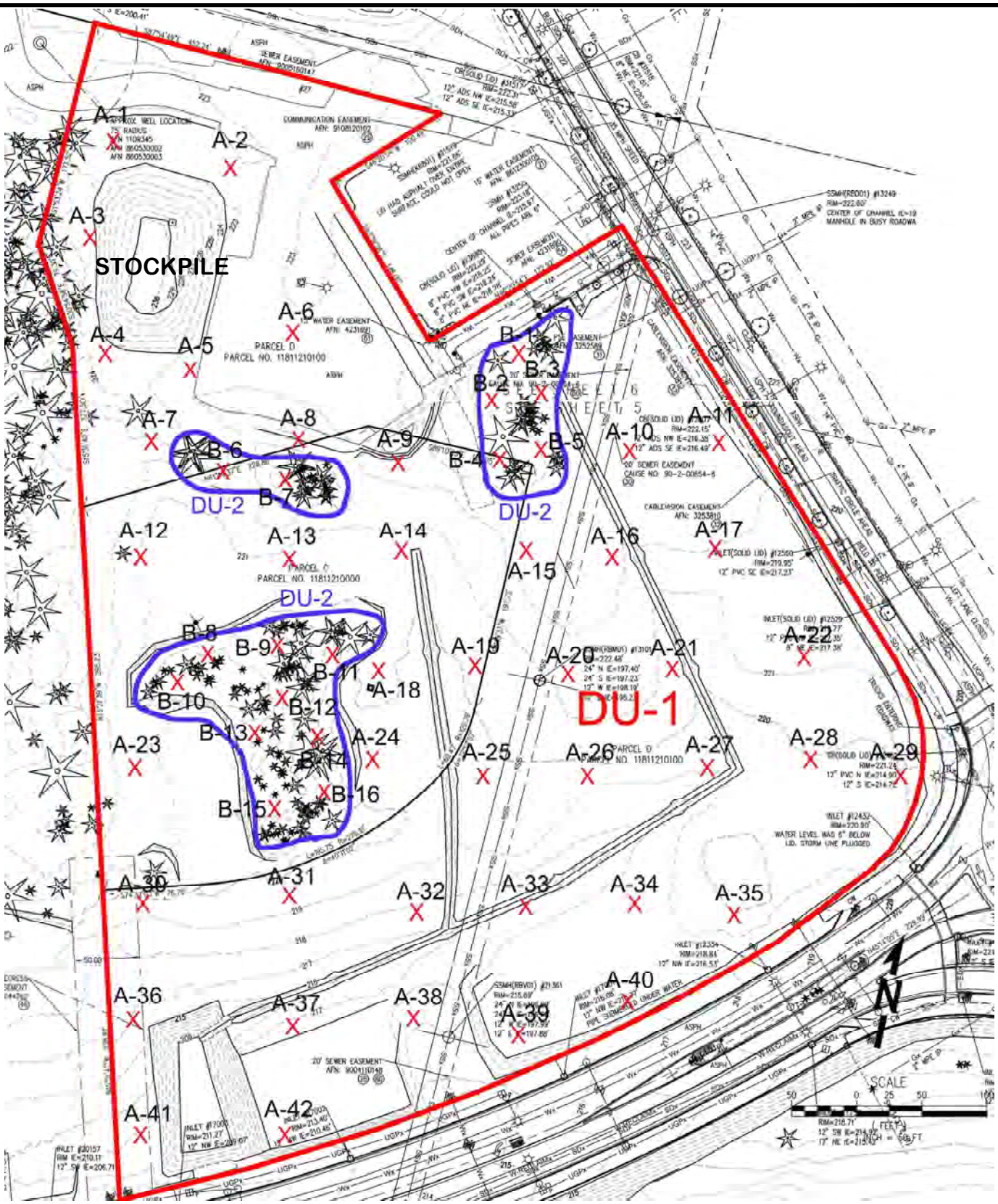
APPROXIMATE PARCEL BOUNDARY

NOT TO SCALE

Terra Associates, Inc.
Consultants in Geotechnical Engineering Geology and Environmental Earth Sciences

2022 OBLIQUE AERIAL PHOTO
8.92 ACRE PARCEL
LACEY, WASHINGTON

Proj.No.T-6537-7	Date:JULY 2022	Figure 5



LEGEND: ⊗ APPROXIMATE SAMPLE LOCATION

Terra Associates, Inc.
Consultants in Geotechnical Engineering
Geology and
Environmental Earth Sciences

SAMPLE LOCATION SKETCH
8.92 ACRE PARCEL
LACEY, WASHINGTON

Proj.No.T-6537-7	Date:JULY 2022	Figure 6

APPENDIX A

ANALYTICAL TEST REPORTS

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

June 22, 2022

Chuck Lie
Terra Associates, Inc.
12220 113th Avenue NE, Suite 130
Kirkland, WA 98034

Re: Analytical Data for Project 6537-7
Laboratory Reference No. 2206-126

Dear Chuck:

Enclosed are the analytical results and associated quality control data for samples submitted on June 14, 2022.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: June 22, 2022
Samples Submitted: June 14, 2022
Laboratory Reference: 2206-126
Project: 6537-7

Case Narrative

Samples were collected on June 14, 2022 and received by the laboratory on June 14, 2022. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: June 22, 2022
Samples Submitted: June 14, 2022
Laboratory Reference: 2206-126
Project: 6537-7

TOTAL METALS
EPA 6020B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**A-3 0-6"**					
Laboratory ID:	06-126-01					
Arsenic	**6.5**	0.75	EPA 6020B	6-17-22	6-21-22	
Lead	**11**	0.75	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-3 6-12"**					
Laboratory ID:	06-126-02					
Arsenic	**7.3**	0.76	EPA 6020B	6-17-22	6-21-22	
Lead	**12**	0.76	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-6 0-6"**					
Laboratory ID:	06-126-03					
Arsenic	**2.3**	0.67	EPA 6020B	6-17-22	6-21-22	
Lead	**2.7**	0.67	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-6 7-7.5'**					
Laboratory ID:	06-126-04					
Arsenic	**3.7**	0.75	EPA 6020B	6-17-22	6-21-22	
Lead	**3.0**	0.75	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-12 0-6"**					
Laboratory ID:	06-126-05					
Arsenic	**4.2**	0.86	EPA 6020B	6-17-22	6-21-22	
Lead	**4.9**	0.86	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-12 6-12"**					
Laboratory ID:	06-126-06					
Arsenic	**3.1**	0.78	EPA 6020B	6-17-22	6-21-22	
Lead	**5.3**	0.78	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-14 0-6"**					
Laboratory ID:	06-126-07					
Arsenic	**2.3**	0.77	EPA 6020B	6-17-22	6-21-22	
Lead	**3.7**	0.77	EPA 6020B	6-17-22	6-21-22	

Date of Report: June 22, 2022
Samples Submitted: June 14, 2022
Laboratory Reference: 2206-126
Project: 6537-7

TOTAL METALS
EPA 6020B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**A-14 6-12"**					
Laboratory ID:	06-126-08					
Arsenic	**5.9**	0.73	EPA 6020B	6-17-22	6-21-22	
Lead	**7.4**	0.73	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-10 0-6"**					
Laboratory ID:	06-126-09					
Arsenic	**2.4**	0.68	EPA 6020B	6-17-22	6-21-22	
Lead	**4.0**	0.68	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-10 6-12"**					
Laboratory ID:	06-126-10					
Arsenic	**2.1**	0.67	EPA 6020B	6-17-22	6-21-22	
Lead	**2.6**	0.67	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-20 0-6"**					
Laboratory ID:	06-126-11					
Arsenic	**2.0**	0.67	EPA 6020B	6-17-22	6-21-22	
Lead	**2.4**	0.67	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-20 6-12"**					
Laboratory ID:	06-126-12					
Arsenic	**1.7**	0.67	EPA 6020B	6-17-22	6-21-22	
Lead	**2.4**	0.67	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-24 0-6"**					
Laboratory ID:	06-126-13					
Arsenic	**3.5**	0.69	EPA 6020B	6-17-22	6-21-22	
Lead	**8.0**	0.69	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-24 12-18"**					
Laboratory ID:	06-126-14					
Arsenic	**3.3**	0.85	EPA 6020B	6-17-22	6-21-22	
Lead	**4.2**	0.85	EPA 6020B	6-17-22	6-21-22	

Date of Report: June 22, 2022
Samples Submitted: June 14, 2022
Laboratory Reference: 2206-126
Project: 6537-7

TOTAL METALS
EPA 6020B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**A-23 0-6"**					
Laboratory ID:	06-126-15					
Arsenic	**3.3**	0.78	EPA 6020B	6-17-22	6-21-22	
Lead	**4.4**	0.78	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-23 6-12"**					
Laboratory ID:	06-126-16					
Arsenic	**2.8**	0.74	EPA 6020B	6-17-22	6-21-22	
Lead	**3.6**	0.74	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-37 0-6"**					
Laboratory ID:	06-126-17					
Arsenic	**2.7**	0.71	EPA 6020B	6-17-22	6-21-22	
Lead	**7.4**	0.71	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-37 2.5-3'**					
Laboratory ID:	06-126-18					
Arsenic	**1.6**	0.65	EPA 6020B	6-17-22	6-21-22	
Lead	**1.4**	0.65	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-34 0-6"**					
Laboratory ID:	06-126-19					
Arsenic	**1.7**	0.64	EPA 6020B	6-17-22	6-21-22	
Lead	**1.7**	0.64	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-34 3-3.5'**					
Laboratory ID:	06-126-20					
Arsenic	**1.9**	0.66	EPA 6020B	6-17-22	6-21-22	
Lead	**1.8**	0.66	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-28 0-6"**					
Laboratory ID:	06-126-21					
Arsenic	**3.0**	0.71	EPA 6020B	6-17-22	6-21-22	
Lead	**5.6**	0.71	EPA 6020B	6-17-22	6-21-22	

Date of Report: June 22, 2022
Samples Submitted: June 14, 2022
Laboratory Reference: 2206-126
Project: 6537-7

TOTAL METALS
EPA 6020B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**A-28 6-12"**					
Laboratory ID:	06-126-22					
Arsenic	**5.1**	0.71	EPA 6020B	6-17-22	6-21-22	
Lead	**13**	0.71	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-1 0-6"**					
Laboratory ID:	06-126-23					
Arsenic	**5.4**	0.74	EPA 6020B	6-17-22	6-21-22	
Lead	**14**	0.74	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-2 0-6"**					
Laboratory ID:	06-126-24					
Arsenic	**3.7**	0.68	EPA 6020B	6-17-22	6-21-22	
Lead	**8.0**	0.68	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-4 0-6"**					
Laboratory ID:	06-126-25					
Arsenic	**4.4**	0.70	EPA 6020B	6-17-22	6-21-22	
Lead	**6.5**	0.70	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-5 0-6"**					
Laboratory ID:	06-126-26					
Arsenic	**6.7**	0.76	EPA 6020B	6-17-22	6-21-22	
Lead	**8.3**	0.76	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-7 0-6"**					
Laboratory ID:	06-126-27					
Arsenic	**15**	0.93	EPA 6020B	6-17-22	6-21-22	
Lead	**28**	0.93	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-8 0-6"**					
Laboratory ID:	06-126-28					
Arsenic	**7.4**	0.76	EPA 6020B	6-17-22	6-21-22	
Lead	**110**	0.76	EPA 6020B	6-17-22	6-21-22	

Date of Report: June 22, 2022
Samples Submitted: June 14, 2022
Laboratory Reference: 2206-126
Project: 6537-7

TOTAL METALS
EPA 6020B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**A-9 0-6"**					
Laboratory ID:	06-126-29					
Arsenic	**4.8**	0.78	EPA 6020B	6-17-22	6-21-22	
Lead	**8.4**	0.78	EPA 6020B	6-17-22	6-21-22	
Client ID:	**A-11 0-6"**					
Laboratory ID:	06-126-30					
Arsenic	**2.9**	0.70	EPA 6020B	6-20-22	6-21-22	
Lead	**4.7**	0.70	EPA 6020B	6-20-22	6-21-22	
Client ID:	**A-13 0-6"**					
Laboratory ID:	06-126-31					
Arsenic	**2.3**	0.71	EPA 6020B	6-20-22	6-21-22	
Lead	**2.7**	0.71	EPA 6020B	6-20-22	6-21-22	
Client ID:	**A-15 0-6"**					
Laboratory ID:	06-126-32					
Arsenic	**3.5**	0.72	EPA 6020B	6-20-22	6-21-22	
Lead	**9.2**	0.72	EPA 6020B	6-20-22	6-21-22	
Client ID:	**A-16 0-6"**					
Laboratory ID:	06-126-33					
Arsenic	**6.9**	0.74	EPA 6020B	6-20-22	6-21-22	
Lead	**15**	0.74	EPA 6020B	6-20-22	6-21-22	
Client ID:	**A-17 0-6"**					
Laboratory ID:	06-126-34					
Arsenic	**3.0**	0.69	EPA 6020B	6-20-22	6-21-22	
Lead	**6.7**	0.69	EPA 6020B	6-20-22	6-21-22	
Client ID:	**A-18 0-6"**					
Laboratory ID:	06-126-35					
Arsenic	**2.4**	0.72	EPA 6020B	6-20-22	6-21-22	
Lead	**2.7**	0.72	EPA 6020B	6-20-22	6-21-22	

Date of Report: June 22, 2022
Samples Submitted: June 14, 2022
Laboratory Reference: 2206-126
Project: 6537-7

TOTAL METALS
EPA 6020B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**A-19 0-6"**					
Laboratory ID:	06-126-36					
Arsenic	**1.7**	0.65	EPA 6020B	6-20-22	6-21-22	
Lead	**1.8**	0.65	EPA 6020B	6-20-22	6-21-22	
Client ID:	**A-21 0-6"**					
Laboratory ID:	06-126-37					
Arsenic	**1.7**	0.67	EPA 6020B	6-20-22	6-21-22	
Lead	**2.5**	0.67	EPA 6020B	6-20-22	6-21-22	
Client ID:	**A-22 0-6"**					
Laboratory ID:	06-126-38					
Arsenic	**3.3**	0.70	EPA 6020B	6-20-22	6-21-22	
Lead	**8.9**	0.70	EPA 6020B	6-20-22	6-21-22	
Client ID:	**A-25 0-6"**					
Laboratory ID:	06-126-39					
Arsenic	**2.1**	0.65	EPA 6020B	6-20-22	6-21-22	
Lead	**1.9**	0.65	EPA 6020B	6-20-22	6-21-22	
Client ID:	**A-26 0-6"**					
Laboratory ID:	06-126-40					
Arsenic	**2.6**	0.67	EPA 6020B	6-20-22	6-21-22	
Lead	**4.0**	0.67	EPA 6020B	6-20-22	6-21-22	
Client ID:	**A-27 0-6"**					
Laboratory ID:	06-126-41					
Arsenic	**2.5**	0.68	EPA 6020B	6-20-22	6-21-22	
Lead	**6.3**	0.68	EPA 6020B	6-20-22	6-21-22	

Date of Report: June 22, 2022
Samples Submitted: June 14, 2022
Laboratory Reference: 2206-126
Project: 6537-7

TOTAL METALS
EPA 6020B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0617SM2					
Arsenic	**ND**	0.25	EPA 6020B	6-17-22	6-21-22	
Lead	**ND**	0.25	EPA 6020B	6-17-22	6-21-22	
Laboratory ID:	MB0617SM3					
Arsenic	**ND**	0.25	EPA 6020B	6-17-22	6-21-22	
Lead	**ND**	0.25	EPA 6020B	6-17-22	6-21-22	
Laboratory ID:	MB0620SM1					
Arsenic	**ND**	0.25	EPA 6020B	6-20-22	6-21-22	
Lead	**ND**	0.25	EPA 6020B	6-20-22	6-21-22	

Date of Report: June 22, 2022
Samples Submitted: June 14, 2022
Laboratory Reference: 2206-126
Project: 6537-7

TOTAL METALS
EPA 6020B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	06-126-01									
	ORIG	DUP								
Arsenic	**5.35**	**5.61**	NA	NA		NA	NA	5	20	
Lead	**8.74**	**10.0**	NA	NA		NA	NA	14	20	
Laboratory ID:	06-126-17									
	ORIG	DUP								
Arsenic	**2.39**	**2.46**	NA	NA		NA	NA	3	20	
Lead	**6.51**	**7.13**	NA	NA		NA	NA	9	20	
Laboratory ID:	06-126-30									
	ORIG	DUP								
Arsenic	**2.64**	**2.69**	NA	NA		NA	NA	2	20	
Lead	**4.19**	**4.23**	NA	NA		NA	NA	1	20	
MATRIX SPIKES										
Laboratory ID:	06-126-01									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	**106**	**95.0**	100	100	5.35	**101**	**90**	75-125	11	20
Lead	**265**	**255**	250	250	8.74	**103**	**99**	75-125	4	20
Laboratory ID:	06-126-17									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	**98.0**	**85.5**	100	100	2.39	**96**	**83**	75-125	14	20
Lead	**242**	**224**	250	250	6.51	**94**	**87**	75-125	8	20
Laboratory ID:	06-126-30									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	**99.0**	**96.5**	100	100	2.64	**96**	**94**	75-125	3	20
Lead	**250**	**247**	250	250	4.19	**98**	**97**	75-125	1	20

Date of Report: June 22, 2022
Samples Submitted: June 14, 2022
Laboratory Reference: 2206-126
Project: 6537-7

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
A-3 0-6"	06-126-01	**17**	6-15-22
A-3 6-12"	06-126-02	**17**	6-15-22
A-6 0-6"	06-126-03	**6**	6-15-22
A-6 7-7.5'	06-126-04	**17**	6-15-22
A-12 0-6"	06-126-05	**27**	6-15-22
A-12 6-12"	06-126-06	**20**	6-17-22
A-14 0-6"	06-126-07	**19**	6-15-22
A-14 6-12"	06-126-08	**14**	6-15-22
A-10 0-6"	06-126-09	**8**	6-15-22
A-10 6-12"	06-126-10	**7**	6-15-22
A-20 0-6"	06-126-11	**7**	6-15-22
A-20 6-12"	06-126-12	**7**	6-15-22
A-24 0-6"	06-126-13	**9**	6-15-22
A-24 12-18"	06-126-14	**26**	6-15-22
A-23 0-6"	06-126-15	**20**	6-15-22
A-23 6-12"	06-126-16	**15**	6-15-22
A-37 0-6"	06-126-17	**12**	6-15-22
A-37 2.5-3'	06-126-18	**4**	6-15-22
A-34 0-6"	06-126-19	**3**	6-15-22
A-34 3-3.5'	06-126-20	**5**	6-15-22
A-28 0-6"	06-126-21	**12**	6-17-22
A-28 6-12"	06-126-22	**13**	6-17-22
A-1 0-6"	06-126-23	**15**	6-17-22
A-2 0-6"	06-126-24	**8**	6-17-22
A-4 0-6"	06-126-25	**11**	6-17-22
A-5 0-6"	06-126-26	**18**	6-17-22
A-7 0-6"	06-126-27	**33**	6-17-22

Date of Report: June 22, 2022
Samples Submitted: June 14, 2022
Laboratory Reference: 2206-126
Project: 6537-7

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
A-8 0-6"	06-126-28	**18**	6-17-22
A-9 0-6"	06-126-29	**19**	6-17-22
A-11 0-6"	06-126-30	**10**	6-17-22
A-13 0-6"	06-126-31	**12**	6-17-22
A-15 0-6"	06-126-32	**14**	6-17-22
A-16 0-6"	06-126-33	**15**	6-17-22
A-17 0-6"	06-126-34	**10**	6-17-22
A-18 0-6"	06-126-35	**14**	6-17-22
A-19 0-6"	06-126-36	**4**	6-17-22
A-21 0-6"	06-126-37	**7**	6-17-22
A-22 0-6"	06-126-38	**11**	6-17-22
A-25 0-6"	06-126-39	**3**	6-17-22
A-26 0-6"	06-126-40	**7**	6-17-22
A-27 0-6"	06-126-41	**8**	6-17-22

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

X2 - Sample extract treated with a silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Y1 - Negative effects of the matrix from this sample on the instrument caused values for this analyte in the bracketing continuing calibration verification standard (CCVs) to be outside of 20% acceptance criteria. Because of this, quantitation limits and sample concentrations should be considered estimates.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: TERRA ASSOCIATES INC (TAI)
Project Number: 6537-7
Project Name:
Project Manager: CHUCK LIE
Sampled by: MAX PRICE

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 06-126

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX (8021☐ 8260☐)	NWTPH-Gx	NWTPH-Dx (Acid / SG Clean-up☐)	Volatiles 8260	Halogenated Volatiles 8260	EDB EPA 8011 (Waters Only)	Semivolatiles 8270/SIM (with low-level PAHs)	PAHs 8270/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081	Organophosphorus Pesticides 8270/SIM	Chlorinated Acid Herbicides 8151	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664	Lead + Arsenic				% Moisture
1	A-3 0-6"	6/14/22	925	S	1																		X				X
2	A-3 6-12"		930																								
3	A-6 0-6"		940																								
4	A-6 ~~0~~-7.5'		945																								
5	A-12 0-6"		950																								
6	A-12 6-12"		955																								
7	A-14 0-6"		1000																								
8	A-14 6-12"		1005																								
9	A-10 0-6"		1015																								
10	A-10 6-12"		1020																								

	Signature	Company	Date	Time
Relinquished		TAI	6/14/22	1540
Received		OSE	6/14/22	1540
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
KING CO. PROTOCOLS

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
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Company: TERRA ASSOCIATES INC (TAI)
Project Number: 6537-7
Project Name:
Project Manager: CHUCK LIE
Sampled by: MAX PRICE

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 06-126

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX (8021☐ 8260☐)	NWTPH-Gx	NWTPH-Dx (Acid / SG Clean-up☐)	Volatiles 8260	Halogenated Volatiles 8260	EDB EPA 8011 (Waters Only)	Semivolatiles 8270/SIM (with low-level PAHs)	PAHs 8270/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081	Organophosphorus Pesticides 8270/SIM	Chlorinated Acid Herbicides 8151	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664	Lead + Arsenic				% Moisture
11	A-20 0-6"	6/14/22	1025	S	1																		X				X
12	A-20 6-12"		1030																								
13	A-24 0-6"		1035																								
14	A-24 12-18"		1040																								
15	A-23 0-6"		1045																								
16	A-23 6-12"		1050																								
17	A-37 0-6"		1100																								
18	A-37 2.5-3'		1105																								
19	A-34 0-6"		1115																								
20	A-34 3-3.5'		1120																								

	Signature	Company	Date	Time
Relinquished		TAI	6/14/22	1540
Received		OSE	6/14/22	1540
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
KING CO. PROTOCOLS

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Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

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Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 06-126

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX (8021☐ 8260☐)	NWTPH-Gx	NWTPH-Dx (Acid / SG Clean-up☐)	Volatiles 8260	Halogenated Volatiles 8260	EDB EPA 8011 (Waters Only)	Semivolatiles 8270/SIM (with low-level PAHs)	PAHs 8270/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081	Organophosphorus Pesticides 8270/SIM	Chlorinated Acid Herbicides 8151	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664	Lead + Arsenic				% Moisture
21	A-28 0-6"	1130	6/14/22	S	1																		X				X
22	A-28 6-12"	1135																									
23	A-1 0-6"	1220																									
24	A-2 0-6"	1230																									
25	A-4 0-6"	1235																									
26	A-5 0-6"	1240																									
27	A-7 0-6"	1245																									
28	A-8 0-6"	1250																									
29	A-9 0-6"	1300																									
30	A-11 0-6"	1305																									

	Signature	Company	Date	Time
Relinquished		TAI	6/14/22	1540
Received		OSE	6/14/22	1540
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
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Data Package: Standard ☐ Level III ☐ Level IV ☐
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Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 06-126

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX (8021☐ 8260☐)	NWTPH-Gx	NWTPH-Dx (Acid / SG Clean-up☐)	Volatiles 8260	Halogenated Volatiles 8260	EDB EPA 8011 (Waters Only)	Semivolatiles 8270/SIM (with low-level PAHs)	PAHs 8270/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081	Organophosphorus Pesticides 8270/SIM	Chlorinated Acid Herbicides 8151	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664	Lead + Arsenic				% Moisture
31	A-13 0-6"	6/14/22	1310	S	1																		X				X
32	A-15 0-6"		1315																								
33	A-16 0-6"		1320																								
34	A-17 0-6"		1330																								
35	A-18 0-6"		1340																								
36	A-19 0-6"		1345																								
37	A-21 0-6"		1350																								
38	A-22 0-6"		1355																								
39	A-25 0-6"		1400																								
40	A-26 0-6"		1405																								

	Signature	Company	Date	Time
Relinquished		TAI	6/14/22	1540
Received		OSE	6/14/22	1540
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
KING CO. PROTOCOLS

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

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Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: TERRA ASSOCIATES INC (TAI)
Project Number: 6537-7
Project Name:
Project Manager: CHUCK LEE
Sampled by: MAX PRICE

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 06-126

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX (8021☐ 8260☐)	NWTPH-Gx	NWTPH-Dx (Acid / SG Clean-up☐)	Volatiles 8260	Halogenated Volatiles 8260	EDB EPA 8011 (Waters Only)	Semivolatiles 8270/SIM (with low-level PAHs)	PAHs 8270/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081	Organophosphorus Pesticides 8270/SIM	Chlorinated Acid Herbicides 8151	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664	Lead + Arsenic				% Moisture
41	A-27 0-6"	6/14/22	1410	S	1																		X				X

	Signature	Company	Date	Time
Relinquished		TAI	6/14/22	1540
Received		OSE	6/14/22	1540
Relinquished				
Received				
Relinquished				
Received				

Comments/Special Instructions
KING CO PROTOCOLS

Data Package: Standard ☐ Level III ☐ Level IV ☐

Reviewed/Date

Reviewed/Date

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

June 24, 2022

Chuck Lie
Terra Associates, Inc.
12220 113th Avenue NE, Suite 130
Kirkland, WA 98034

Re: Analytical Data for Project 6537-7
Laboratory Reference No. 2206-136

Dear Chuck:

Enclosed are the analytical results and associated quality control data for samples submitted on June 15, 2022.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: June 24, 2022
Samples Submitted: June 15, 2022
Laboratory Reference: 2206-136
Project: 6537-7

Case Narrative

Samples were collected on June 15, 2022 and received by the laboratory on June 15, 2022. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Total Metals EPA 6020B Analysis

Samples were sieved through a 2mm sieve prior to digestion and percent moisture determination.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: June 24, 2022
Samples Submitted: June 15, 2022
Laboratory Reference: 2206-136
Project: 6537-7

TOTAL METALS
EPA 6020B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**A-29 0-6"**					
Laboratory ID:	06-136-01					
Arsenic	**4.1**	0.79	EPA 6020B	6-20-22	6-22-22	
Lead	**6.8**	0.79	EPA 6020B	6-20-22	6-22-22	
Client ID:	**A-30 0-6"**					
Laboratory ID:	06-136-02					
Arsenic	**3.3**	0.72	EPA 6020B	6-20-22	6-22-22	
Lead	**7.7**	0.72	EPA 6020B	6-20-22	6-22-22	
Client ID:	**A-31 0-6"**					
Laboratory ID:	06-136-03					
Arsenic	**2.9**	0.79	EPA 6020B	6-20-22	6-22-22	
Lead	**5.0**	0.79	EPA 6020B	6-20-22	6-22-22	
Client ID:	**A-32 0-6"**					
Laboratory ID:	06-136-04					
Arsenic	**1.7**	0.64	EPA 6020B	6-20-22	6-22-22	
Lead	**1.4**	0.64	EPA 6020B	6-20-22	6-22-22	
Client ID:	**A-33 0-6"**					
Laboratory ID:	06-136-05					
Arsenic	**1.7**	0.66	EPA 6020B	6-20-22	6-22-22	
Lead	**3.5**	0.66	EPA 6020B	6-20-22	6-22-22	
Client ID:	**A-35 0-6"**					
Laboratory ID:	06-136-06					
Arsenic	**1.8**	0.66	EPA 6020B	6-20-22	6-22-22	
Lead	**2.1**	0.66	EPA 6020B	6-20-22	6-22-22	
Client ID:	**A-36 0-6"**					
Laboratory ID:	06-136-07					
Arsenic	**1.4**	0.65	EPA 6020B	6-20-22	6-22-22	
Lead	**1.5**	0.65	EPA 6020B	6-20-22	6-22-22	

Date of Report: June 24, 2022
Samples Submitted: June 15, 2022
Laboratory Reference: 2206-136
Project: 6537-7

TOTAL METALS
EPA 6020B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**A-38 0-6"**					
Laboratory ID:	06-136-08					
Arsenic	**3.7**	0.72	EPA 6020B	6-20-22	6-22-22	
Lead	**9.7**	0.72	EPA 6020B	6-20-22	6-22-22	
Client ID:	**A-39 0-6"**					
Laboratory ID:	06-136-09					
Arsenic	**3.7**	0.72	EPA 6020B	6-20-22	6-22-22	
Lead	**13**	0.72	EPA 6020B	6-20-22	6-22-22	
Client ID:	**A-40 0-6"**					
Laboratory ID:	06-136-10					
Arsenic	**2.1**	0.69	EPA 6020B	6-20-22	6-22-22	
Lead	**4.8**	0.69	EPA 6020B	6-20-22	6-22-22	
Client ID:	**A-41 0-6"**					
Laboratory ID:	06-136-11					
Arsenic	**2.1**	0.67	EPA 6020B	6-20-22	6-22-22	
Lead	**5.0**	0.67	EPA 6020B	6-20-22	6-22-22	
Client ID:	**A-42 0-6"**					
Laboratory ID:	06-136-12					
Arsenic	**1.7**	0.67	EPA 6020B	6-20-22	6-22-22	
Lead	**4.2**	0.67	EPA 6020B	6-20-22	6-22-22	
Client ID:	**B-1 0-6"**					
Laboratory ID:	06-136-13					
Arsenic	**9.1**	0.78	EPA 6020B	6-20-22	6-22-22	
Lead	**8.7**	0.78	EPA 6020B	6-20-22	6-22-22	
Client ID:	**B-2 0-6"**					
Laboratory ID:	06-136-14					
Arsenic	**7.2**	0.75	EPA 6020B	6-20-22	6-22-22	
Lead	**12**	0.75	EPA 6020B	6-20-22	6-22-22	

Date of Report: June 24, 2022
Samples Submitted: June 15, 2022
Laboratory Reference: 2206-136
Project: 6537-7

TOTAL METALS
EPA 6020B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**B-2 6-12"**					
Laboratory ID:	06-136-15					
Arsenic	**11**	0.77	EPA 6020B	6-20-22	6-22-22	
Lead	**18**	0.77	EPA 6020B	6-20-22	6-22-22	
Client ID:	**B-3 0-6"**					
Laboratory ID:	06-136-16					
Arsenic	**3.7**	0.76	EPA 6020B	6-20-22	6-22-22	
Lead	**6.0**	0.76	EPA 6020B	6-20-22	6-22-22	
Client ID:	**B-4 0-6"**					
Laboratory ID:	06-136-17					
Arsenic	**5.8**	0.86	EPA 6020B	6-20-22	6-22-22	
Lead	**7.4**	0.86	EPA 6020B	6-20-22	6-22-22	
Client ID:	**B-5 0-6"**					
Laboratory ID:	06-136-18					
Arsenic	**9.3**	0.75	EPA 6020B	6-20-22	6-22-22	
Lead	**19**	0.75	EPA 6020B	6-20-22	6-22-22	
Client ID:	**B-6 0-6"**					
Laboratory ID:	06-136-19					
Arsenic	**4.4**	0.74	EPA 6020B	6-20-22	6-22-22	
Lead	**7.2**	0.74	EPA 6020B	6-20-22	6-22-22	
Client ID:	**B-6 6-12"**					
Laboratory ID:	06-136-20					
Arsenic	**2.4**	0.67	EPA 6020B	6-20-22	6-22-22	
Lead	**2.4**	0.67	EPA 6020B	6-20-22	6-22-22	
Client ID:	**B-7 0-6"**					
Laboratory ID:	06-136-21					
Arsenic	**7.1**	0.87	EPA 6020B	6-21-22	6-22-22	
Lead	**12**	0.87	EPA 6020B	6-21-22	6-22-22	

Date of Report: June 24, 2022
Samples Submitted: June 15, 2022
Laboratory Reference: 2206-136
Project: 6537-7

TOTAL METALS
EPA 6020B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**B-8 0-6"**					
Laboratory ID:	06-136-22					
Arsenic	**4.2**	0.78	EPA 6020B	6-21-22	6-22-22	
Lead	**5.4**	0.78	EPA 6020B	6-21-22	6-22-22	
Client ID:	**B-9 0-6"**					
Laboratory ID:	06-136-23					
Arsenic	**4.6**	0.89	EPA 6020B	6-21-22	6-22-22	
Lead	**6.5**	0.89	EPA 6020B	6-21-22	6-22-22	
Client ID:	**B-9 6-12"**					
Laboratory ID:	06-136-24					
Arsenic	**4.0**	0.84	EPA 6020B	6-21-22	6-22-22	
Lead	**5.7**	0.84	EPA 6020B	6-21-22	6-22-22	
Client ID:	**B-10 0-6"**					
Laboratory ID:	06-136-25					
Arsenic	**1.8**	0.65	EPA 6020B	6-21-22	6-22-22	
Lead	**2.4**	0.65	EPA 6020B	6-21-22	6-22-22	
Client ID:	**B-11 0-6"**					
Laboratory ID:	06-136-26					
Arsenic	**3.2**	0.68	EPA 6020B	6-21-22	6-22-22	
Lead	**5.7**	0.68	EPA 6020B	6-21-22	6-22-22	
Client ID:	**B-12 0-6"**					
Laboratory ID:	06-136-27					
Arsenic	**3.6**	0.73	EPA 6020B	6-21-22	6-22-22	
Lead	**5.6**	0.73	EPA 6020B	6-21-22	6-22-22	
Client ID:	**B-13 0-6"**					
Laboratory ID:	06-136-28					
Arsenic	**1.5**	0.66	EPA 6020B	6-21-22	6-22-22	
Lead	**2.6**	0.66	EPA 6020B	6-21-22	6-22-22	

Date of Report: June 24, 2022
Samples Submitted: June 15, 2022
Laboratory Reference: 2206-136
Project: 6537-7

TOTAL METALS
EPA 6020B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**B-14 0-6"**					
Laboratory ID:	06-136-29					
Arsenic	**2.4**	0.67	EPA 6020B	6-21-22	6-22-22	
Lead	**8.3**	0.67	EPA 6020B	6-21-22	6-22-22	
Client ID:	**B-15 0-6"**					
Laboratory ID:	06-136-30					
Arsenic	**2.8**	0.66	EPA 6020B	6-21-22	6-22-22	
Lead	**5.3**	0.66	EPA 6020B	6-21-22	6-22-22	
Client ID:	**B-16 0-6"**					
Laboratory ID:	06-136-31					
Arsenic	**3.1**	0.71	EPA 6020B	6-21-22	6-22-22	
Lead	**5.6**	0.71	EPA 6020B	6-21-22	6-22-22	
Client ID:	**B-16 6-12"**					
Laboratory ID:	06-136-32					
Arsenic	**1.4**	0.67	EPA 6020B	6-21-22	6-22-22	
Lead	**2.4**	0.67	EPA 6020B	6-21-22	6-22-22	
Client ID:	**Du-2 Duff 1**					
Laboratory ID:	06-136-33					
Arsenic	**18**	1.3	EPA 6020B	6-21-22	6-22-22	
Lead	**90**	1.3	EPA 6020B	6-21-22	6-22-22	
Client ID:	**Du-2 Duff 2**					
Laboratory ID:	06-136-34					
Arsenic	**5.4**	1.0	EPA 6020B	6-21-22	6-22-22	
Lead	**18**	1.0	EPA 6020B	6-21-22	6-22-22	
Client ID:	**Du-2 Duff 3**					
Laboratory ID:	06-136-35					
Arsenic	**5.3**	1.2	EPA 6020B	6-21-22	6-22-22	
Lead	**15**	1.2	EPA 6020B	6-21-22	6-22-22	

Date of Report: June 24, 2022
Samples Submitted: June 15, 2022
Laboratory Reference: 2206-136
Project: 6537-7

TOTAL METALS
EPA 6020B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Du-2 Duff 4**					
Laboratory ID:	06-136-36					
Arsenic	**6.5**	1.3	EPA 6020B	6-21-22	6-22-22	
Lead	**51**	1.3	EPA 6020B	6-21-22	6-22-22	
Client ID:	**SP-1**					
Laboratory ID:	06-136-37					
Arsenic	**2.2**	0.69	EPA 6020B	6-21-22	6-22-22	
Lead	**4.4**	0.69	EPA 6020B	6-21-22	6-22-22	
Client ID:	**SP-2**					
Laboratory ID:	06-136-38					
Arsenic	**2.4**	0.69	EPA 6020B	6-21-22	6-22-22	
Lead	**4.8**	0.69	EPA 6020B	6-21-22	6-22-22	
Client ID:	**SP-3**					
Laboratory ID:	06-136-39					
Arsenic	**3.2**	0.72	EPA 6020B	6-21-22	6-22-22	
Lead	**6.9**	0.72	EPA 6020B	6-21-22	6-22-22	
Client ID:	**SP-4**					
Laboratory ID:	06-136-40					
Arsenic	**1.5**	0.68	EPA 6020B	6-21-22	6-22-22	
Lead	**2.3**	0.68	EPA 6020B	6-21-22	6-22-22	

Date of Report: June 24, 2022
Samples Submitted: June 15, 2022
Laboratory Reference: 2206-136
Project: 6537-7

TOTAL METALS
EPA 6020B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0621SM1					
Arsenic	**ND**	0.25	EPA 6020B	6-21-22	6-22-22	
Lead	**ND**	0.25	EPA 6020B	6-21-22	6-22-22	
Laboratory ID:	MB0620SM1					
Arsenic	**ND**	0.25	EPA 6020B	6-20-22	6-22-22	
Lead	**ND**	0.25	EPA 6020B	6-20-22	6-22-22	

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	06-136-01									
	ORIG	DUP								
Arsenic	**3.24**	**3.14**	NA	NA		NA	NA	3	20	
Lead	**5.39**	**5.24**	NA	NA		NA	NA	3	20	
Laboratory ID:	06-136-21									
	ORIG	DUP								
Arsenic	**5.11**	**5.45**	NA	NA		NA	NA	6	20	
Lead	**8.46**	**9.04**	NA	NA		NA	NA	7	20	
MATRIX SPIKES										
Laboratory ID:	06-136-01									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	**89.5**	**81.0**	100	100	3.24	**86**	**78**	75-125	10	20
Lead	**240**	**215**	250	250	5.39	**93**	**84**	75-125	11	20
Laboratory ID:	06-136-21									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	**88.7**	**90.5**	100	100	5.11	**84**	**85**	75-125	2	20
Lead	**236**	**239**	250	250	8.46	**91**	**92**	75-125	1	20

Date of Report: June 24, 2022
Samples Submitted: June 15, 2022
Laboratory Reference: 2206-136
Project: 6537-7

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
A-29 0-6"	06-136-01	**21**	6-20-22
A-30 0-6"	06-136-02	**13**	6-20-22
A-31 0-6"	06-136-03	**21**	6-20-22
A-32 0-6"	06-136-04	**3**	6-20-22
A-33 0-6"	06-136-05	**6**	6-20-22
A-35 0-6"	06-136-06	**5**	6-20-22
A-36 0-6"	06-136-07	**3**	6-20-22
A-38 0-6"	06-136-08	**13**	6-20-22
A-39 0-6"	06-136-09	**14**	6-20-22
A-40 0-6"	06-136-10	**10**	6-20-22
A-41 0-6"	06-136-11	**7**	6-20-22
A-42 0-6"	06-136-12	**7**	6-20-22
B-1 0-6"	06-136-13	**19**	6-20-22
B-2 0-6"	06-136-14	**16**	6-20-22
B-2 6-12"	06-136-15	**19**	6-20-22
B-3 0-6"	06-136-16	**18**	6-20-22
B-4 0-6"	06-136-17	**27**	6-20-22
B-5 0-6"	06-136-18	**16**	6-20-22
B-6 0-6"	06-136-19	**15**	6-20-22
B-6 6-12"	06-136-20	**6**	6-20-22
B-7 0-6"	06-136-21	**28**	6-20-22
B-8 0-6"	06-136-22	**20**	6-20-22
B-9 0-6"	06-136-23	**29**	6-20-22
B-9 6-12"	06-136-24	**26**	6-20-22
B-10 0-6"	06-136-25	**3**	6-20-22
B-11 0-6"	06-136-26	**8**	6-20-22
B-12 0-6"	06-136-27	**14**	6-20-22

Date of Report: June 24, 2022
Samples Submitted: June 15, 2022
Laboratory Reference: 2206-136
Project: 6537-7

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
B-13 0-6"	06-136-28	**5**	6-20-22
B-14 0-6"	06-136-29	**7**	6-20-22
B-15 0-6"	06-136-30	**5**	6-20-22
B-16 0-6"	06-136-31	**12**	6-20-22
B-16 6-12"	06-136-32	**7**	6-20-22
Du-2 Duff 1	06-136-33	**51**	6-20-22
Du-2 Duff 2	06-136-34	**40**	6-20-22
Du-2 Duff 3	06-136-35	**49**	6-20-22
Du-2 Duff 4	06-136-36	**52**	6-20-22
SP-1	06-136-37	**9**	6-20-22
SP-2	06-136-38	**9**	6-20-22
SP-3	06-136-39	**13**	6-20-22
SP-4	06-136-40	**8**	6-20-22

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

X2 - Sample extract treated with a silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Y1 - Negative effects of the matrix from this sample on the instrument caused values for this analyte in the bracketing continuing calibration verification standard (CCVs) to be outside of 20% acceptance criteria. Because of this, quantitation limits and sample concentrations should be considered estimates.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

Page 1 of 4

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: TERRA ASSOCIATES INC (TAI)
Project Number: 6537-7
Project Name:
Project Manager: CHUCK LEE
Sampled by: MAX PRICE

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 06-136

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX (8021☐ 8260☐)	NWTPH-Gx	NWTPH-Dx (Acid / SG Clean-up☐)	Volatiles 8260	Halogenated Volatiles 8260	EDB EPA 8011 (Waters Only)	Semivolatiles 8270/SIM (with low-level PAHs)	PAHs 8270/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081	Organophosphorus Pesticides 8270/SIM	Chlorinated Acid Herbicides 8151	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664	Lead + Arsenic				% Moisture
1	A-29 0-6"	6/15/22	805	S	1																		X				X
2	A-30 0-6"		810																								
3	A-31 0-6"		815																								
4	A-32 0-6"		820																								
5	A-33 0-6"		825																								
6	A-35 0-6"		830																								
7	A-36 0-6"		835																								
8	A-38 0-6"		840																								
9	A-39 0-6"		845																								
10	A-40 0-6"		850																								

	Signature	Company	Date	Time
Relinquished		TAI	6/15/22	1430
Received		CORE	6/15/22	1430
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

KING CO. PROTOCOLS

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
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Company: TERRA ASSOCIATES INC (TAI)
Project Number: 6537-7
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Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 06-136

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX (8021☐ 8260☐)	NWTPH-Gx	NWTPH-Dx (Acid / SG Clean-up☐)	Volatiles 8260	Halogenated Volatiles 8260	EDB EPA 8011 (Waters Only)	Semivolatiles 8270/SIM (with low-level PAHs)	PAHs 8270/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081	Organophosphorus Pesticides 8270/SIM	Chlorinated Acid Herbicides 8151	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664	Lead + Arsenic				% Moisture
11	A-41 0-6"	6/15/22	855	S	1																		X				X
12	A-42 0-6"		900																								
13	B-1 0-6"		910																								
14	B-2 0-6"		915																								
15	B-2 6-12"		920																								
16	B-3 0-6"		925																								
17	B-4 0-6"		930																								
18	B-5 0-6"		935																								
19	B-6 0-6"		950																								
20	B-6 6-12"		955																								

	Signature	Company	Date	Time
Relinquished		TAI	6/15/22	1430
Received		OSE	6/15/22	1430
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
KING CO. PROTOCOLS

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
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Company: TERRA ASSOCIATES INC (TAI)
Project Number: 6537-7
Project Name:
Project Manager: CHUCK LEE
Sampled by: MAX PRICE

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 06-136

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX (8021☐ 8260☐)	NWTPH-Gx	NWTPH-Dx (Acid / SG Clean-up☐)	Volatiles 8260	Halogenated Volatiles 8260	EDB EPA 8011 (Waters Only)	Semivolatiles 8270/SIM (with low-level PAHs)	PAHs 8270/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081	Organophosphorus Pesticides 8270/SIM	Chlorinated Acid Herbicides 8151	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664	Lead + Arsenic				% Moisture
21	B-7 0-6"	6/15/22	1000	S	1																		X				✓
22	B-8 0-6"		1005																								
23	B-9 0-6"		1010																								
24	B-9 6-12"		1015																								
25	B-10 0-6"		1020																								
26	B-11 0-6"		1025																								
27	B-12 0-6"		1030																								
28	B-13 0-6"		1035																								
29	B-14 0-6"		1040																								
30	B-15 0-6"	✓	1045	✓	✓																		✓				✓

	Signature	Company	Date	Time
Relinquished		TAI	6/15/22	1430
Received		CORE	6/15/22	1430
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
KING CO. PROTOCOLS

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: TERRA ASSOCIATES INC (TAI)
Project Number: 6537-7
Project Name:
Project Manager: CHUCK LIE
Sampled by: MAX PRICE

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 06-136

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX (8021☐ 8260☐)	NWTPH-Gx	NWTPH-Dx (Acid / SG Clean-up☐)	Volatiles 8260	Halogenated Volatiles 8260	EDB EPA 8011 (Waters Only)	Semivolatiles 8270/SIM (with low-level PAHs)	PAHs 8270/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081	Organophosphorus Pesticides 8270/SIM	Chlorinated Acid Herbicides 8151	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664	Lead + Arsenic				% Moisture
31	B-16 0-6"	6/15/22	1050	S	1																		X				Y
32	B-16 6-12"		1055																								
33	DU-2 Duff 1		1100																								
34	DU-2 Duff 2		1110																								
35	DU-2 Duff 3		1115																								
36	DU-2 Duff 4		1120																								
37	SP-1		1130																								
38	SP-2		1140																								
39	SP-3		1150																								
40	SP-4		1200																								

	Signature	Company	Date	Time
Relinquished		TAI	6/15/22	1430
Received		CORE	6/15/22	1430
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
KING CO. PROTOCOLS

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Appendix E-3

Department of Ecology Opinion Letter, 2012

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

September 24, 2012

Ms. Leshya Wig
Wig Properties LLC – Lacey Gateway
4811 - 134th Place SE
Bellevue, WA 98006

Re: Opinion on the Proposed Cleanup of a Property associated with the Tacoma Smelter Plume

- Site Name: Lacey Gateway – Parcel A
- Property Address: Parcel #11810101000 (Parcel A), no assigned street address, Lacey, WA
  Parcel #11810101100 (Parcel A), no assigned street address, Lacey, WA
- Facility/Site No.: 18563
- Cleanup Site ID: 11952
- VCP Project No.: SW1244

Dear Ms. Wig:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your proposed independent cleanup of a Property associated with the Tacoma Smelter Plume Site (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.

Issues Presented and Opinion

1. Upon completion of the proposed cleanup, will further remedial action likely be necessary at the Property to clean up contamination associated with the Site?

   NO. Ecology has determined that no further remedial action will likely be necessary at the Property to clean up contamination associated with the Site.

2. Upon completion of the proposed cleanup, will further remedial action likely still be necessary elsewhere at the Site?

   YES. Ecology has determined that further remedial action will likely still be necessary elsewhere at the Site, but no further remediation will be necessary for the Property.

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 Property and the Site

This opinion applies only to the Property described below within Site.

1. Description of the Property.

The Property (Parcel A) includes the following tax parcels in Thurston County, which were affected by the Site and will be addressed by your cleanup:

- #011810101000
- #011810101100

Enclosure A includes a legal description of the Property and details of the Property as currently known to Ecology.

In the future, these parcels will be divided into smaller lots with different parcel numbers and addresses. This opinion letter covers all future lots created from #011810101000 and #011810101100.

2. Description of the Site.

The Site is defined by the nature and extent of contamination associated with the following releases:

- Arsenic into the Soil.
- Lead into the Soil.

Those releases have affected more than one parcel of real property, including the parcel identified above.

Enclosure B includes a detailed description and diagram of the Site, as currently known to Ecology.

3. Identification of Other Sites that may affect the Property.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the Property is affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Terra Associates, Inc., TSP Cleanup Action Plan/Phase II Environmental Assessment – Lacey Gateway Parcels A and B, dated September 21, 2012.

2. Rick Walk (City of Lacey), e-mail correspondence with Elizabeth Weldin (Ecology) about the local government permitting for Lacey Gateway, dated September 7, 2012.

3. Ryan Andrews (City of Lacey), e-mail correspondence with Elizabeth Weldin (Ecology) about the creation of smaller lots, future parcel numbers, and future addresses for Lacey Gateway, dated August 22, 2012.

4. Ryan Andrews (City of Lacey), e-mail correspondence with Elizabeth Weldin (Ecology) about open space and tree preservation for Lacey Gateway, dated August 21, 2012.

5. Terra Associates, Inc., Technical Memorandum – Lead and Arsenic Sampling – Hawks Prairie/Lacey Gateway, dated March 9, 2011.

6. City of Lacey, Lacey Gateway Town Center, Final Supplemental Environmental Impact Statement, dated January 26, 2010.

Those documents are kept in the Central Files of the Sourthwest 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

1. Cleanup of the Property located within the Site.

Ecology has concluded that, upon completion of your proposed cleanup, **no further remedial action** will likely be necessary at the Property to clean up contamination associated with the Site. That conclusion is based on the following analysis:

a. Characterization of the Site.

The Site is described in **Enclosure B.**

For almost 100 years, the Asarco Company operated a copper smelter in Tacoma, Washington. Air pollution from the smelter settled on the surface soil over a vast region -- more than 1,000 square miles of the Puget Sound basin. Elevated levels of contamination are found as far south as Lacey and as far north as Seattle (West Seattle). Additionally, elevated levels of contamination are found as far west as the Kitsap Peninsula and as far east as Kent and Bellevue. Arsenic, lead, cadmium, and other heavy metals are still in the soil as a result of this pollution.

Lacey Gateway Parcel A is located in Lacey, Washington. Please see Enclosures A and B and Figures 1, 2, and 3 for more information about the Property.

Terra Associates collected soil samples at the Property on February 17, 2011 for a Phase 1 assessment (Figure 4 and Table 5). The soil samples were analyzed for lead and arsenic using EPA method 6010B. Terra Associates collected soil and duff samples on the Property from July 31 to August 6, 2012 as part of the characterization sampling for the cleanup action plan (Figure 4, Tables 6 and 7). The samples were analyzed using EPA Method 6020.

Table 1 shows a summary of the soil data collected. Where the value was below the practical quantitation limits (PQL), a value of one-half the PQL was used to calculate the arithmetic average. The MTCA Method A cleanup levels for arsenic and lead are 20 milligrams per kilograms (mg/kg) and 250 mg/kg, respectively.

Table 1. Summary of soil data collected on Parcel A

Year	Depth		Arsenic (mg/kg)	Lead (mg/kg)
2011	0 to 6 inches	Min	5.5	2.7
2011	0 to 6 inches	Average	17.3	23.6
2011	0 to 6 inches	Max	38.0	55.0
2011	6 to 12 inches	Min	5.5	2.7
2011	6 to 12 inches	Average	8.4	13.0
2011	6 to 12 inches	Max	23.0	34.0
2012	0 to 6 inches	Min	2.0	2.6
2012	0 to 6 inches	Average	12.5	29.5
2012	0 to 6 inches	Max	37.0	240.0
2012	6 to 12 inches	Min	4.9	5.2
2012	6 to 12 inches	Average	6.6	13.9
2012	6 to 12 inches	Max	9.5	22.0
MTCA Cleanup Level			**20**	**250**

If the duff was thicker than 2 inches at a sampling location, Terra Associates collected duff. Below is a summary of arsenic and lead concentrations for the composite duff samples collected.

Table 2. Analytical Results for Parcel A Composite Duff Samples 2012

Zone	Sample Locations Used For Composite	Arsenic (mg/kg)	Lead (mg/kg)
A-1	35, 39, 41, 45, 48	14	44
A-1	53, 56, 58, 60, 61, 72	14	51
A-2	79, 80, 81, 82, 83, 96, 97	34	280
A-3	85, 86, 87, 88, 90, 91	23	54
A-4	69, 68, 67, 64, 63	29	120
A-4	73, 74, 75, 78	37	150
	MTCA Cleanup Level	**20**	**250**

b. Establishment of cleanup standards for the Site.

Ecology has determined the cleanup levels and points of compliance established for the Site will likely meet the substantive requirements of MTCA.

As part of the Interim Action Plan for the Tacoma Smelter Plume Site (June 2012) (IAP), Ecology completed a terrestrial ecological evaluation for properties with only Tacoma Smelter Plume contamination. Ecology determined the MTCA Method A cleanup levels for both arsenic and lead were protective of both human health and the environment. The MTCA Method A cleanup levels for soil are as follows:

- Arsenic is 20 mg/kg
- Lead is 250 mg/kg

The IAP determined that the soil and duff cleanup level protective of human health and the environment for properties within the Tacoma Smelter Plume Site are the following:

- Average arsenic detected in the soil is less than 20 mg/kg
- Average lead detected in the soil is less than 250 mg/kg
- Duff composite sample is less than 20 mg/kg
- Duff composite sample is less than 250 mg/kg

OR

- No single soil sample has arsenic above 40 mg/kg
- No single soil sample has lead above 500 mg/kg

c. Selection of cleanup for the Property.

Ecology has determined the cleanup you proposed for the Property will likely meet the substantive requirements of MTCA and the IAP. Your proposed cleanup meets the minimum cleanup requirements and will not exacerbate conditions or preclude reasonable cleanup alternatives elsewhere at the Site.

Ecology proposed four model remedies in the IAP:

- Excavation and removal
- Mixing
- Capping in place
- Consolidation and capping

For purposes of remediation, Terra Associates divided Parcel A into four zones A-1, A-2, A-3, and A-4 (Enclosure C and Figure 4). Zones A-1 and A-4 are found in parcel #11810101100. Most of parcel #11810101000 is in zone A-3. The southern section of parcels #11810101100 and #11810101000 is in zone A-2.

By October 26, 2012, Wig Properties will record a notice on title. The notice on title will alert future buyers that there is a cleanup action plan on the Property.

In zone A-1, Ecology is not requiring remedial actions based on the characterization sampling. Concentrations of arsenic and lead found in the duff and soil are below the cleanup level of the MTCA and IAP.

In zones A-2, A-3, and A-4, the mixing of the duff with the soil will be the remediation. Concentrations of arsenic and lead found in the soil are below the cleanup level of the MTCA and IAP. Duff composite samples collected in zone A-2 had an average arsenic concentration of 34 mg/kg and an average lead

concentration of 280 mg/kg. Duff composite samples collected in zone A-3 had an average arsenic concentration of 23 mg/kg and an average lead concentration of 54 mg/kg. Terra Associates collected two duff composite samples in zone A-4. One composite sample had had an average arsenic concentration of 29 mg/kg and an average lead concentration of 120 mg/kg. The other composite sample had an average arsenic concentration of 37 mg/kg and an average lead concentration of 150 mg/kg. Ecology allows for the mixing of contaminated duff with soil if concentrations of arsenic and lead in the soil are below 20 mg/kg and 250 mg/kg, respectively.

At some point in time, the Property owner will divide Parcel A into smaller lots with new parcel numbers and addresses. Some of the future lots will straddle zone A-1 and zones A-2, A-3, or A-4. Only the portion of a lot in zones A-2, A-3, or A-4 needs to be remediated.

Before installing the infrastructure and buildings, the lots will be graded. The amount and depth of grading will depend on the project and the lot's topography. The grading could consist of as much as 10 feet of cut and fills.

Ecology supports the preservation of native vegetation and the protection of critical areas. Ecology is working with local governments to preserve native vegetation, protect critical areas, and clean-up Tacoma Smelter Plume contamination. Remediation projects are also subject to local government land use regulations. Before any remediation begins on the Property, the Property owner shall obtain all necessary permits and approvals from the local government. The issuance of this opinion letter does **not** give the Property owner the authorization to do remediation without the necessary permits and approvals from the local government.

The City of Lacey will require areas to be left undisturbed for open space, tree preservation, or critical area protection. If elevated levels of arsenic are found in these undistributed areas, then Ecology may need to require additional information and/or noticing from the owner. This may include, but is not limited to, the following:

- Evaluation of the environmental benefits of not remediating the undisturbed areas.
- Terrestrial Ecological Evaluation for the undisturbed area.
- Signage around the undisturbed contaminated area with a monitoring and maintenance plan.
- Fencing around the undisturbed contaminated area with a monitoring and maintenance plan.

- Environmental covenant recorded on title.
- Notice about the contamination in the rental agreement.

Compliance sampling will be conducted on zones A-2, A-3, and A-4. The compliance sampling will be in conjunction with individual project grading. The landowners will follow the Tacoma Smelter Plume Model Remedies Guidance (2012) and the cleanup action plan. Samples will be collected from the top 6 inches of the final grade. Also, at every fourth soil sampling location, a soil sample will be collected at a depth of 6 to 12 inches. Samples will be analyzed for arsenic and lead. Table 3 shows how many sample locations are needed:

Table 3. Minimum Number of Compliance Sample Locations per Decision Unit

Sampling Area (DU) Size (acres)	Sample Locations Needed
0.25	8
1	16
5	32
10	48
20	64
100	90
>100	90+1 per 10 acres

Parks may be constructed as part of the Lacey Gateway development. Park areas in zones A-2, A-3, or A-4 will be treated as independent decision units. Compliance sampling will be done according to Tacoma Smelter Plume Model Remedies Guidance (2012) and the cleanup action plan.

As Parcel A is developed, soil may be stockpiled on the Property for disposal or reuse. Stockpile sampling will be done according to Tacoma Smelter Plume Model Remedies Guidance (2012) and the cleanup action plan. Composite samples will be collected before stockpiled soils are reused on or disposed off of the Property. The number of composite samples will depend on the volume of stockpiled material. Six sub-samples will be collected per each composite soil sample. The soil sample will be analyzed for lead and arsenic. Table 4 shows how many samples are needed from stockpiles.

Table 4. Number of Composite Samples per Stockpile

Stockpile Volume (Cubic yards)	Number of Composites
<500	2
500 to 999	4
1,000 to 4,999	6
5,000 to 9,999	10
10,000 to 19,999	14
>20,000	14+1 per 5,000 cubic yards

As the Property is developed, soil may need to be imported. Any imported soil will follow the guidance of the cleanup action plan and Tacoma Smelter Plume Model Remedies Guidance (2012). Three six-point (six subsample) composites will be collected for any imported soil. Soil will be analyzed for arsenic and lead.

The contractor working on the Property will limit contaminated soil and dust from leaving the Property by installing various best management practices. The contractor will follow the cleanup action plan and City of Lacey's guidance for erosion and sediment control.

Parcel A will be developed over the next 10 to 20 years. Parcel A will be cut into separate lots with a variety of possible land uses (Enclosure A). As a future lot owner develops engineering and grading plans for a specific project, Ecology wants a lot-specific cleanup action plan to also be developed. Ecology wants to review this lot-specific cleanup action plan.

As a reminder, in accordance with WAC 173-340-840(5) and Ecology Toxics Cleanup Program Policy 840 (Data Submittal Requirements), data generated for Independent Remedial Actions shall be submitted simultaneously in both a written and electronic format. For additional information regarding electronic format requirements, see the website http://www.ecy.wa.gov/eim. Be advised that according to the policy, any reports containing sampling data that are submitted for Ecology review are considered incomplete until the electronic data has been entered. Please ensure that data generated during on-site activities is submitted pursuant to this policy. **Data must be submitted to Ecology in this format for Ecology to issue a No Further Action determination.** Please be sure to submit all soil data collected to date, as well as any future data, in this format. Be advised that Ecology requires up to two weeks to process the data once it is received.

2. Cleanup of the Site as a whole.

Ecology has concluded that **further remedial action** will still be necessary elsewhere within the Site (Tacoma Smelter Plume Site) upon completion of your proposed cleanup. In other words, while your proposed cleanup may constitute the final action for the Property, it will constitute only an **"interim action"** for the Site as a whole.

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 Property. This opinion **does not**:

- Change the boundaries of the Site.
- 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 proposed will be substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. Opinion is limited to proposed cleanup.

This letter does not provide an opinion on whether further remedial action will actually be necessary at the Property upon completion of your proposed cleanup. To obtain such an opinion, you must submit a report to Ecology upon completion of your cleanup and request an opinion under the VCP.

4. 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).

Contact Information

Thank you for choosing to clean up your Property under the Voluntary Cleanup Program (VCP). As you conduct your cleanup, please do not hesitate to request additional services. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our website: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion, please contact me by phone at 360-407-7094 or by e-mail at ewel461@ecy.wa.gov.

Sincerely,

Elizabeth Weldin

Elizabeth Weldin
SWRO Toxics Cleanup Program

EVW/ksc:Lacey Gateway Parcel A Opinion Letter 09242012

Enclosures:
Enclosure A: Legal Description and general description of the Property
Enclosure B: Site description of Tacoma Smelter Plume
Enclosure C: Legal Description of Remediation Zones A-1, A-2, A-3, and A-4
Figure 1: Vicinity Map of Lacey Gateway
Figure 2: Topographic Vicinity Map of Lacey Gateway
Figure 3: Schematic Property Sketch
Figure 4: Remediation Zones – Parcel A
Table 5: Analytical Test Result – Parcel A, 2012 Soil Samples
Table 6: Analytical Test Results-parcel A, Composite Duff Samples 2012
Table 7: Analytical Test Result Summary – Parcel A, Soil Samples 2011

By certified mail: (7011 1150 0000 7881 9982)

cc: Mon Wig; Wig Properties LLC
Chuck Lie; Terra Associates, Inc
Rick Walk; City of Lacey Community Development
Ryan Andrews; City of Lacey Community Development
Marian Abbett - Ecology
Scott Rose - Ecology
Dolores Mitchell – Ecology w/o enclosures

Enclosure A
Legal Description of the Property

PARCEL A:

PARCEL A OF BOUNDARY LINE ADJUSTMENT NO. BLA 07-002 LA, AS RECORDED SEPTEMBER 6, 2007 UNDER RECORDING NUMBER 3955914 AND 3955915;

EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE CITY OF LACEY BY INSTRUMENT RECORDED UNDER RECORDING NUMBER 3901811;

IN THURSTON COUNTY, WASHINGTON

Tax Parcel Nos.: 11810101060, 11810101100

Property Description

Lacey Gateway (Property) is located in Lacey, Washington. Parcel A consists of two parcels – #011810101000 and #011810101100. The City of Lacey has not assigned these parcels with addresses. Parcel A will be divided into smaller lots. The City of Lacey will assign new parcel numbers and addresses to the new lots.

Parcel A is a 212.14-acre undeveloped piece of land. The Parcel A is bordered by I-5 to the south, a gravel pit and forest to the west, Britton Parkway NE to the north, and vacant land – formerly a trap and skeet range to the east. Parcel A surrounds a Cabela's retail sporting goods store and parking.

Parcel A slopes gently downward from the north to the south. A ridge line oriented generally northwest to southeast runs through the central part of the Property. Several existing dirt/gravel roads are found on the Property. No buildings are present on Parcel A.

Parcel A has sparsely to heavily forested areas with individual clusters of trees, scattered large stands of trees, and several non-forested areas. The gaps in the stand and non-forest areas are vegetated with Scotch broom, ocean spray, blackberry, broadleaf weeds, salal, and grasses. In the forested sections of the Property, Douglas fir is the predominate tree species found, along with Oregon white oak, big leaf maple, and Pacific Madrona.

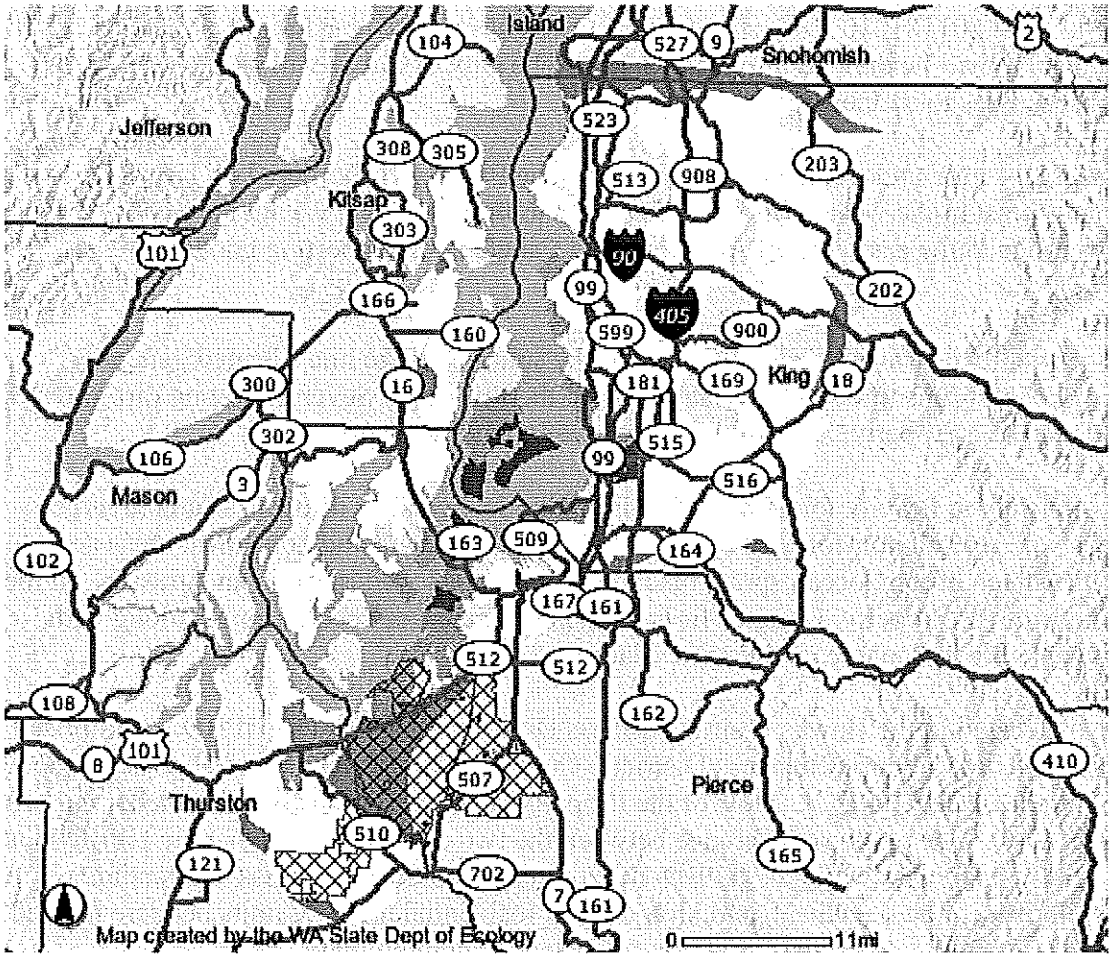
The Property is located in the Hawks Prairie Business District (HPBD). The HPBD is comprised of two sub-zones: Hawks Prairie Business District – Commercial (HPBD-C) and Hawks Prairie Business/Commercial (HPBD-BC). Most of the Property is zoned HPBD-BC with the far eastern part zoned HPBD-C. The primary difference between the two designations is that the HPBD-C is focused on strictly retail uses while the HPBD-BC zoning allows for mixed-use residential, including retail, office, hotel, medical, and high-density residential up to 20 units per acre located within a mixed-use building with the first floor dedicated for commercial.

The Property is currently owned by Homestreet Bank. Wig Properties is in the process of buying the Property. Wig Properties has several ideas about different uses for the Property, including retail, entertainment, hotel, civic use, offices, high density residential, public plazas, and parks. Wig Properties has not developed a master plan for the Property. The City of Lacey will require dedicated open space, tree retention, and critical area protection associated with the Property. Some of the areas may be dedicated to the City.

The Property is mapped as Recessional Outwash and Vashon Till. The outwash soils are expected to be underlain by dense till soils. Terra Associates found medium dense sands with gravel in their test pits.

Enclosure B

Tacoma Smelter Plume



An interactive color map can be found at
http://apps.ecy.wa.gov/website/facsite/viewer.htm?sp_area=Tacoma%20Smelter%20Plume

For almost 100 years, the Asarco Company operated a copper smelter in Tacoma. Air pollution from the smelter settled on the surface soil over a vast region -- more than 1,000 square miles of the Puget Sound basin. Elevated levels of contamination are found as far south as the Nisqually Ridge and as far north as Seattle (West Seattle). Additionally, elevated levels of contamination are found as far west as the Kitsap Peninsula and as far east as Kent and Bellevue. Arsenic, lead, cadmium, and other heavy metals are still in the soil as a result of this pollution. The area has elevated levels of arsenic, lead, and cadmium in the soil due to the Asarco smelter.

Enclosure C

Legal Description of Remediation Zones A-1, A-2, A-3, and A-4

ZONE A-1
THAT PORTION OF PARCEL "A" OF BOUNDARY LINE ADJUSTMENT NUMBER BLA 070002LA, AS RECORDED SEPTEMBER 6, 2007 UNDER AUDITOR'S FILE NUMBERS 3955914 AND 3955915 LYING EASTERLY OF RIGHT-OF-WAYS DEDICATED TO THE CITY OF LACEY FOR GATEWAY BLVD AND MAIN STREET AS RECORDED UNDER AUDITOR'S FILE NUMBERS 3937098, 3937099, 3961810, AND 3961811 AND LYING EASTERLY OF LOT 2 OF SURVEY RECORDED UNDER AUDITOR'S FILE NUMBER 3916761.
EXCEPTING THEREFROM THE SOUTH 250.00 FEET OF THAT PART OF SAID PARCEL "A" ADJOINING THE NORTHERLY RIGHT-OF-WAY OF INTERSTATE 5.
ALSO, EXCEPT THAT PORTION LYING NORTHWESTERLY OF THE FOLLOWING DESCRIBED LINE:
BEGINNING AT THE INTERSECTION OF EAST LINE OF THE WEST 291.54 FEET OF THE NORTHWEST QUARTER OF SECTION 11, TOWNSHIP 18 NORTH, RANGE 1 WEST W.M., WITH THE SOUTHERLY RIGHT OF WAY LINE OF BRITTON PARKWAY NE; THENCE SOUTH 02° 01' 31" WEST, ALONG SAID EAST LINE 518.87 FEET; THENCE SOUTH 77° 46' 31" WEST PARALLEL WITH THE NORTHERLY RIGHT-OF-WAY LINE OF INTERSTATE 5 (PSH NO. 1) A DISTANCE OF 1479.87 FEET TO THE EASTERLY RIGHT-OF-WAY LINE OF GATEWAY BLVD NE AND THE TERMINUS OF THIS DESCRIBED LINE.

ZONE A-2
THE SOUTH 250.00 FEET OF THAT PART OF PARCEL "A" OF BOUNDARY LINE ADJUSTMENT NUMBER BLA 070002LA, AS RECORDED SEPTEMBER 6, 2007 UNDER AUDITOR'S FILE NUMBERS 3955914 AND 3955915 ADJOINING THE NORTHERLY RIGHT-OF-WAY OF INTERSTATE 5.

ZONE A-3
THAT PORTION OF PARCEL "A" OF BOUNDARY LINE ADJUSTMENT NUMBER BLA 070002LA, AS RECORDED SEPTEMBER 6, 2007 UNDER AUDITOR'S NUMBERS 3955914 AND 3955915 LYING WESTERLY OF RIGHT-OF-WAYS DEDICATED TO THE CITY OF LACEY FOR GATEWAY BLVD AND MAIN STREET RECORDED UNDER AUDITOR'S NUMBERS 3937098, 3937099, 3961810, AND 3961811 AND LYING WESTERLY OF LOT 2 OF SURVEY RECORDED UNDER AUDITOR'S FILE NUMBER 3916761.
EXCEPTING THEREFROM THE SOUTH 250.00 FEET THAT PART OF SAID PARCEL "A" ADJOINING THE NORTHERLY RIGHT-OF-WAY OF INTERSTATE 5.

ZONE A-4
THAT PORTION OF PARCEL "A" OF BOUNDARY LINE ADJUSTMENT NUMBER BLA 070002LA, AS RECORDED SEPTEMBER 6, 2007 UNDER AUDITOR'S FILE NUMBERS 3955914 AND 3955915 DESCRIBED AS FOLLOWS:
BEGINNING AT THE INTERSECTION OF EAST LINE OF THE WEST 291.54 FEET OF THE NORTHWEST QUARTER OF SECTION 11, TOWNSHIP 18 NORTH, RANGE 1 WEST W.M., WITH THE SOUTHERLY RIGHT-OF-WAY LINE OF BRITTON PARKWAY

NE; THENCE SOUTH 02° 01' 31" WEST, ALONG SAID EAST LINE 518.87 FEET; THENCE SOUTH 77° 46' 31" WEST PARALLEL WITH THE NORTHERLY RIGHT OF WAY LINE OF INTERSTATE 5 (PSH NO. 1) A DISTANCE OF 1479.87 FEET TO THE EASTERLY RIGHT-OF-WAY LINE OF GATEWAY BLVD NE AND THE TERMINUS OF THIS DESCRIBED LINE.

Table X 5
Analytical Test Result – Parcel A
2012 Soil Samples

Sample	Location	Sample Depth (inches)	Arsenic	Lead	Duff Sample
7-31-1	1	6	5.6	27	No
7-31-2	2	6	25	240	No
7-31-3	3	6	16	23	No
7-31-4	4	6	10	15	No
		12	6.0	10	No
7-31-5	5	6	19	36	No

Table 1 (continued)
Analytical Test Result – Parcel A
2012 Soil Samples

Sample	Location	Sample Depth (inches)	Arsenic	Lead	Duff Sample
7-31-6	6	6	9.6	41	No
7-31-7	7	6	14	33	No
7-31-8	8	6	10	20	No
		12	9.5	22	No
7-31-9	9	6	6.1	15	No
7-31-10	10	6	3.6	9.0	No
7-31-11	11	6	7.7	16	No
7-31-12	12	6	10	26	No
		12	9.5	22	No
7-31-13	13	6	30	46	No
7-31-14	14	6	11	21	No
7-31-15	15	6	9.6	23	No
7-31-16	16	6	23	64	No
		12	9.2	18	No
7-31-17	17	6	3.3	5.7	No
7-31-18	18	6	3.8	6.9	No
7-31-19	19	6	2.9	5.6U	No
7-31-20	20	6	3.4	8.4	No
		12	2.8	6.1	No
7-31-21	21	6	15	25	No
7-31-22	22	6	4.4	12	No
7-31-23	23	6	27	72	No
7-31-24	24	6	6.2	14	No
		12	4.6	9.9	No
7-31-25	25	6	9.3	20	No
7-31-26	26	6	37	54	No
8-2-27	27	6	10	25	No
8-2-28	28	6	5.1	7.8	No
8-2-29	29	6	5.0	9.8	No
8-2-30	30	6	8.9	50	No
8-2-31	31	6	16	38	No
8-2-32	32	6	6.9	15	No
8-2-33	33	6	23	73	No
8-2-34	34	6	20	91	No
8-2-35	35	6	6.8	16	Yes
8-2-36	36	6	6.4	14	No
8-2-37	37	6	8.8	21	No
8-2-38	38	6	3.1	8.3	No
8-2-39	39	6	3.2	5.5U	Yes
8-2-40	40	6	25	76	No

Table 9 (continued)
Analytical Test Result – Parcel A
2012 Soil Samples

Sample	Location	Sample Depth (inches)	Arsenic	Lead	Duff Sample
8-2-41	41	6	5.6	9.5	Yes
8-2-42	42	6	9.9	25	No
8-2-43	43	6	15	44	No
8-2-44	44	6	17	34	No
8-2-45	45	6	9	21	Yes
8-2-46	46	6	8.4	9.4	No
8-2-47	47	6	3.7	7.4	No
8-2-48	48	6	23	44	Yes
8-2-49	49	6	10	18	No
8-2-50	50	6	5.2	5.8U	No
8-2-51	51	6	12	33	No
8-6-52	52	6	18	50	No
8-2-53	53	6	7.6	23	Yes
8-2-54	54	6	9.8	25	No
8-2-55	55	6	11	18	No
8-2-56	56	6	12	27	Yes
8-2-57	57	6	2.0	5.2U	No
8-2-58	58	6	13	37	Yes
8-2-59	59	6	10	21	No
8-2-60	60	6	9.8	18	Yes
8-2-61	61	6	4.9	9.5	Yes
8-2-62	62	6	19	18	No
8-3-63	63	6	15	21	Yes
8-3-64	64	6	34	22	Yes
8-6-65	65	6	16	22	No
8-3-66	66	6	3.3	6.2	No
8-3-67	67	6	17	44	Yes
8-3-68	68	6	16	21	Yes
8-3-69	69	6	15	13	Yes
8-3-70	70	6	3.7	8.1	No
8-2-71	71	6	10	13	No
		12	4.9	9.5	No
8-2-72	72	6	11	15	Yes
8-3-73	73	6	23	34	Yes
8-3-74	74	6	27	30	Yes
8-3-75	75	6	12	15	Yes
8-6-76	76	6	7.6	12	No
8-6-77	77	6	17	25	No
8-3-78	78	6	8.3	11	Yes
8-6-79	79	6	19	39	Yes
8-6-80	80	6	29	170	Yes

Table 5 (continued)
Analytical Test Result – Parcel A
2012 Soil Samples

Sample	Location	Sample Depth (inches)	Arsenic	Lead	Duff Sample
8-6-81	81	6	13	74	Yes
8-6-82	82	6	13	32	Yes
8-6-83	83	6	8.5	13	Yes
8-6-84	84	6	17	37	No
8-6-85	85	6	16	48	Yes
8-6-86	86	6	13	18	No
8-6-87	87	6	13	24	No
8-6-88	88	6	4.4	5.9U	No
8-6-89	89	6	5.7	21	No
8-6-90	90	6	23	68	No
8-6-91	91	6	6.9	10	No
8-6-92	92	6	18	29	No
8-6-93	93	6	5.6	16	No
8-6-94	94	6	29	34	No
8-6-95	95	6	16	28	No
8-6-96	96	6	5.9	36	Yes
8-6-97	97	6	9.6	30	Yes
MTCA Method A			20	250	N/A
Background (a)			7	24	--
Background (b)			13	18	--

Table 6
Analytical Test Results – Parcel A
Composite Duff Samples 2012

Sample Locations Used For Composite	Arsenic	Lead
35, 39, 41, 45, 48	14	44
53, 56, 58, 60, 61, 72	14	51
79, 80, 81, 82, 83, 96, 97	34	280
85, 86, 87, 88, 90, 91	23	54
73, 74, 75, 78	37	150
69,68, 67, 64, 63	29	120
MTCA	**20**	**250**

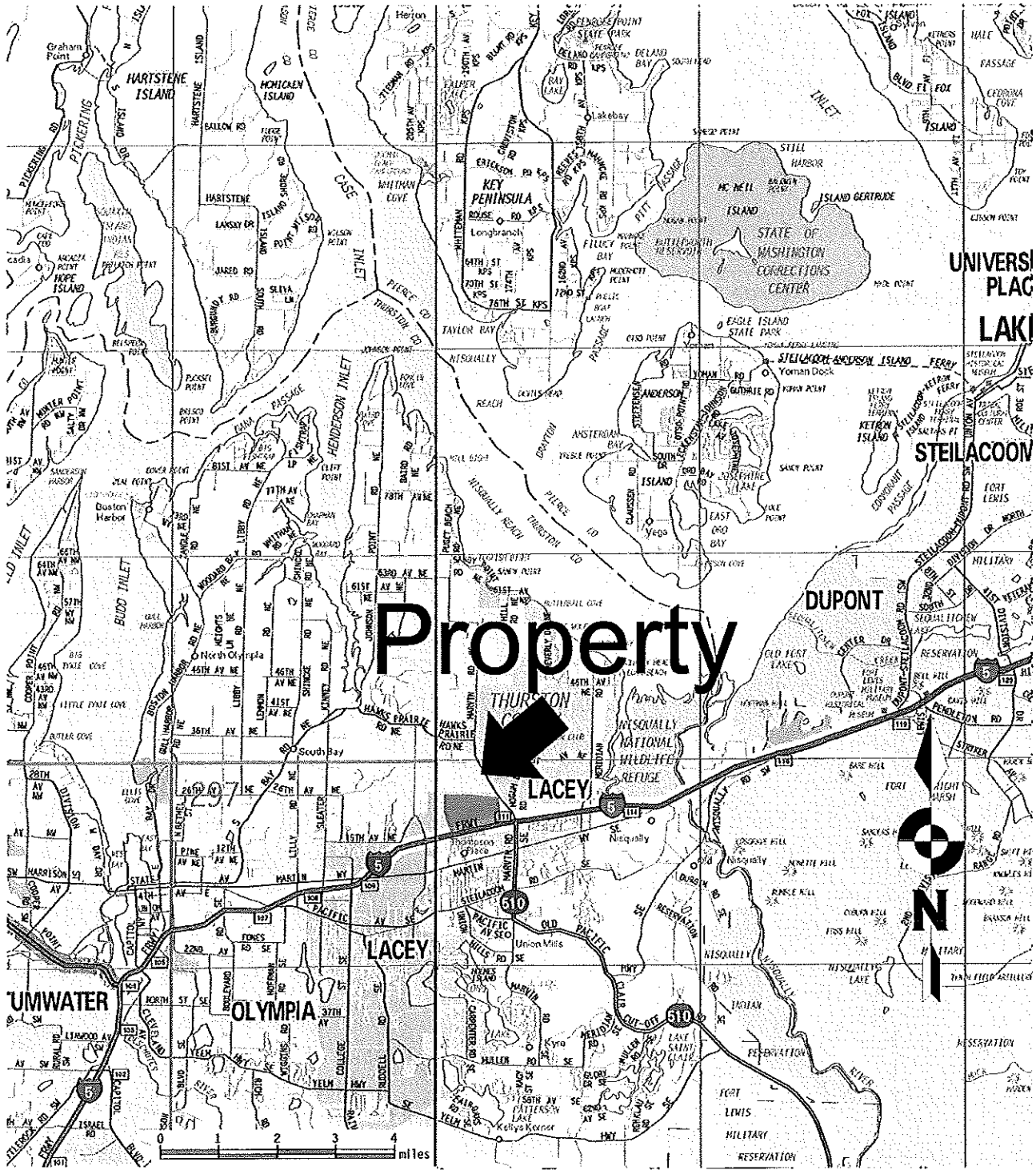
Table 7
Analytical Test Result Summary – Parcel A
Soil Samples 2011

Sample Location	Sample Depth (inches)	Arsenic	Lead
TP-13	6	14U	7.7
	12	14U	13
TP-14	6	16U	9.3
	12	15U	8.8
TP-15	6	37	48
	12	17	17
TP-16	6	11U	5.3U
	12	11U	5.3U
TP-17	6	23	25
	12	14U	12
TP-18	6	38	21
	12	14U	6.9U
TP-19	6	36	42
	12	14U	17
TP-20	6	13U	15
	12	13U	14
TP-21	6	16U	19
	12	15U	17
TP-22	6	15U	13
	12	15U	9.8
TP-23	6	14U	12
	12	14U	6.8U
TP-24	6	26	48
	12	14U	17
TP-25	6	11U	5.6U
	12	11U	5.6U

Table 4 (continued)
Analytical Test Result Summary

Sample Location	Sample Depth (inches)	Arsenic	Lead
TP-26	6	30	30
	12	15U	14
TP-27	6	20	55
	12	23	34
TP-28	6	18	32
	12	13U	31
TP-29	6	20	19
	12	14U	7.2U
MTCA Method A		20	250
Background (a)		7	24
Background (b)		13	18

Notes: All units are parts per million (ppm).
U modifier indicates that the metal was not present at the stated Practical Quantification Level (PQL).
PQL varies with moisture content; final results are based on dry weights.
MTCA Cleanup values shown are MTCA Method A for unrestricted land use.
Shaded cell exceeds MTCA Method A cleanup value.
Background (a) values are from Ecology Publication 9415.
Background (b) values are from USGS WRI Report 95-4018 Table 4.



Reference: Thomas Bros Pacific Northwest Road Atlas.

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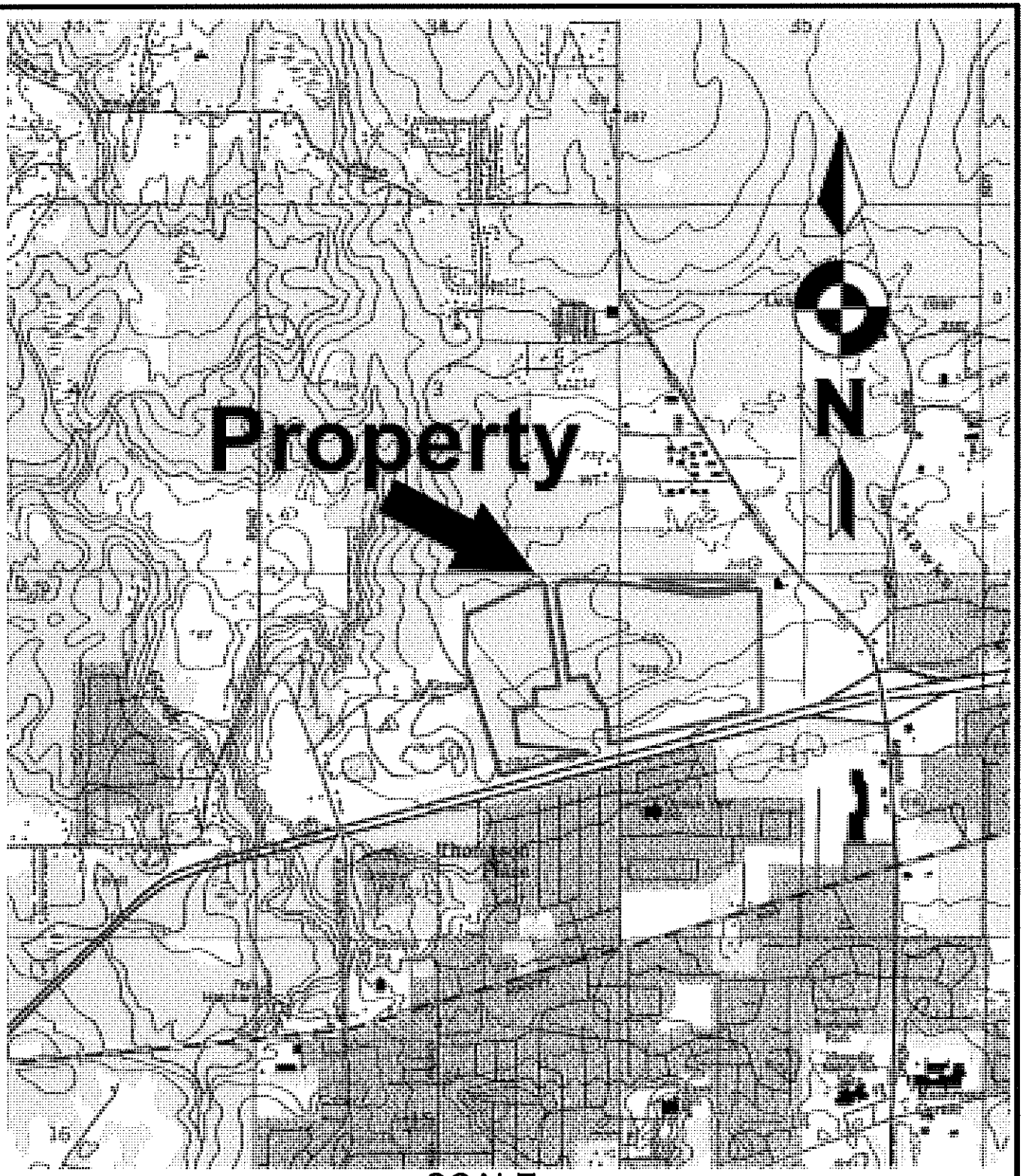
Vicinity Map
Lacey Gateway Parcels A and B
Lacey, Washington

Proj. No T-6537-1	Date Sept 2012	Figure 1



SCALE

1 0 1/2 1 MILE

Reference: Lacey USGS Quadrangle

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Topographic Vicinity Map
Lacey Gateway Parcels A and B
Lacey, Washington

Proj. No T-6537-1	Date Sept 2012	Figure 2

Reference: Google Earth copyright, image dated 2011

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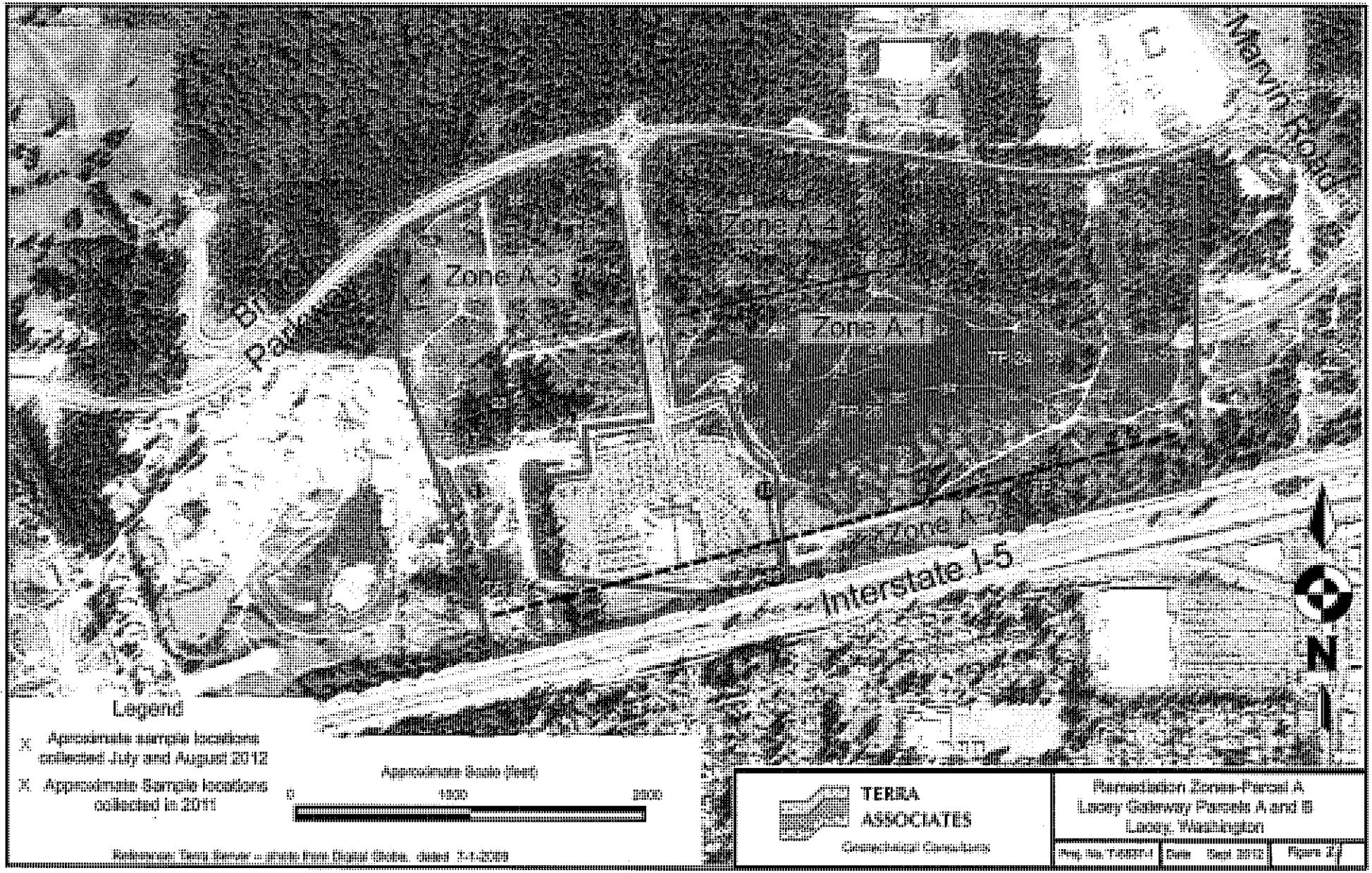
Schematic Property Sketch
Lacey Gateway Parcels A and B
Lacey, Washington

Proj. No. T-6537-1	Date Sept 2012	Figure 3


Zone A-3
Zone A-1
Zone A-2
Interstate I-5
Marvin Road
Legend
Approximate sample locations collected July and August 2012
Approximate Sample locations collected in 2011
Approximate Scale (feet)
0
1500
3000
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Remediation Zones-Parcel A
Lacey Gateway Parcels A and B
Lacey, Washington