Focused Subsurface Investigation Report

December 18, 2017

Site Address:

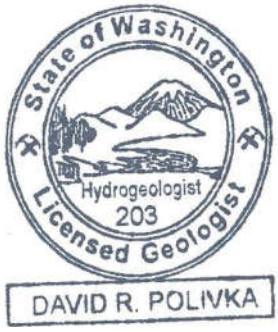
23418 Pacific Highway South
Kent, Washington

Prepared for:

Muscatel Midway Properties LLC
C/o Cole Law Firm
John A. Coe, Esq.
600 Stewart St. Ste. 620
Seattle, WA 98101-1261

Prepared By:

David R Polivka, L.G. LH.G.
Sr. Hydrogeologist



Stephen M. Spencer
Principal Environmetnal Scientist

Prepared by:
ECI | Environmental Services
PO Box 153
Fox Island, Washington 98333
Office: (253) 238-9270

ECI Project No.: 0673-01-01

Table of Contents

List of Tables

List of Appendices

List of Appendices (Continued)

Appendix C: Boring Logs

- Area 1 Boring Logs
- Area 2 Boring Logs
- Area 3 Boring Logs

Appendix D: Laboratory Data Sheets

- Area 1 Laboratory Data Sheets
- Area 2 Laboratory Data Sheets
- Area 3 Laboratory Data Sheets

1.0 INTRODUCTION

EcoCon, Inc. (ECI) has prepared this Focused Subsurface Investigation (FSI) Report for a property located at 23418 Pacific Highway South, in Kent, Washington (Subject Property) (Figures 1 and 2, Appendix A).

The purpose of this report is to present the findings of a Focused Subsurface Investigation performed at the Site to determine if the soil and/or groundwater beneath the Subject Property has been impacted by historical activities of concern on or adjacent to the Subject Property. These activities included:

- A gasoline station historically operated on the southwest corner of the Subject Property, from at least 1941 to an unknown date. No information was provided as to when the station was decommissioned. The former service station was discovered during historical research conducted by others;
- A dry cleaning business (King Dry Cleaners) that operated in a portion of the building located in the southern portion of the Subject Property and addressed as 23416 Pacific Highway South Kent, Washington; and
- A petroleum hydrocarbon soil remediation project in 2002 conducted on the adjacent property to the south (23428 Pacific Highway South, Kent, Washington). As of the date of this report, the site has not received a "No Further Action" (NFA) determination from the Washington State Department of Ecology (Ecology)

The scope of work for this FSI was divided into three areas to specifically address potential impacts from each of the identified activities of concern (Figure 3, Appendix A). These areas are:

- Area 1: The area believed to be occupied by the former service station.
- Area 2: The area on the north side of the building in front of the former dry cleaners.
- Area 3: The area along the southern Subject Property boundary with the adjacent property.

In accordance with the Washington State Model Toxics Control Act (MTCA) Cleanup Regulations as established in Section 200 of Chapter 173-340 of the Washington Administrative Code (WAC 173-340-200), the "Site" is defined by the full lateral and vertical extent of contamination, if present, that has resulted from a historical release of hazardous substances on or adjacent to the Subject Property.

1.1 Site Location / Description

The Subject Property is located at 23418 Pacific Avenue South in Kent, Washington, and consists of a 2.27-acre rectangular shaped parcel (King County parcel number 250060-0465). The Subject Property is located in the Northeast 1/4 of the Southeast 1/4 of Section 16, Township 22 North, Range 4 East, Willamette Meridian.

According to the City of Kent Zoning Map, the western half of the Subject Property is zoned "Midway Transit Community 1" (MTC-1) and the eastern half of the Subject Property is zoned "Midway Transit Community 2" (MTC-2). Both of the zoning designations are:

> *"…to provide an area that will encourage the location of moderately dense and varied retail, office, or residential activities in support of rapid light rail and mass transit options, to enhance a pedestrian-oriented character…*"

The only difference in the two zoning designations is that the MTC-1 zoning acknowledges *"… the existing highway corridor character.*"

The Subject Property and is developed with one building on the southern half of the property that was originally built in 1962. Most recently it was divided into five commercial spaces housing from west to east, a Dollar Tree store, a smoke shop, a United States Post Office branch, a small grocery and produce store, and a fitness center. It was reported that the former dry cleaners was located adjacent to the Dollar Tree Store to the east. The building is currently vacant because of a fire that destroyed the western (Dollar Tree) portion of the building in 2015. With the exception of the foundation footings, that portion of the building has been removed. The northern half of the Subject Property is a paved parking lot.

The Subject Property is bound:

- To the North by a Sherwin-Williams Paint store and the White Snow Laundry in what appears to be a former bank building. Beyond this is S Kent- Des Moines Road also known as State Route 516.
- To the South by a retail tire business and a vacant parking lot. Further south are other commercial businesses. tire store and then at, with residences beyond the road;
- To the East by 30th Avenue South and then motel to the northeast and an auto body shop to the east and a trucking company storage parking lot to the southeast. Further to the east is Interstate 5; and
- To the West by Pacific Highway South (also known as State Route 99) and then a recreational marijuana retail store and a sea diving shop along with a travel agency. To West and Northwest is a retail strip mall containing various restaurants and other commercial businesses. Further west are multifamily residential developments.

The greater vicinity is occupied primarily commercial developments.

1.2 Previous Environmental Investigations and Remedial Actions

ECI was told that a previous Phase I Environmental Site Assessment (ESA) was conducted on the Subject Property for Sound Transit, who reportedly wants all or a portion of the Subject Property for expansion of the regional light rail system. ECI was not provided a copy of that ESA. However, it was during that ESA that the former service station was identified.

During a review of the Ecology cleanup site database, ECI observed that the adjacent property to the south was listed by Ecology (listed as Southgate Oil) as having had a leaking underground storage tank reported in 2001 and that a remediation was completed and submitted to Ecology in 2002. However, as of the date of this report, the site has not received an NFA determination from Ecology. ECI has not reviewed any other information regarding this site.

2.0 PHYSICAL SETTING

Topographical, geological and hydrogeological conditions can often affect to some extent, the environmental integrity of a property. Underlying soil and bedrock formations may facilitate or impede the migration of chemical contaminants in groundwater, and may even be the source of contaminants such as radon and metals.

This section of the report summarizes the topography, geology and hydrogeology beneath the Subject Property and the surrounding areas. The physical setting information was obtained from ECI's observations during this investigation, from documents produced for other investigations in the area obtained by ECI, and from the Washington State Department of Natural Resources (DNR).

2.1 Geology/ Topography

The Subject Property is located within the Puget Sound Basin, which is classified as unconsolidated Pleistocene continental glacial drift. The glacial deposits predominantly consist of sand and silt, with varying amounts of gravel and cobbles (United States Geological Survey, 2005).

According to the EPA 2015 "Second Five-Year Review Report" for the Midway Landfill Superfund Site located approximately 0.6 miles to the south, the Subject Property is located near the crest of a narrow north-south trending glacier feature known as the Des Moines Drift Plain. This area, referred to as "upland" because of its location above adjacent valleys and sea level, is bordered by Puget Sound on the west and the Green River valley on the east.

Maximum elevations along the crest of the upland generally range from 400 to 450 feet above mean sea level. Puget Sound is at sea level, and the Green River valley floor typically averages about 30 feet above mean sea level. The United States Geological Survey (USGS) Des Moines, WA topographic map (2017), 7.5-minute quadrangle topographic map, shows that the Subject Property is situated at an elevation of approximately 398 feet above Mean Sea Level (MSL).

The upland area is cut with a number of steep-sided stream valleys. Adjacent to the Subject Property, the land surface is relatively flat across Highway 99 with a slight slope to the northwest. It then drops steeply downward approximately 200 feet towards Massey Creek approximately half a mile to the west-northwest.

To the east of the Subject Property the land surface rises slightly for approximately 400 feet and then slopes steeply downward to the east with an elevation change of approximately 300 feet, across some natural and manmade terraces towards the Green River approximately one mile east of the Subject Property. No significant water bodies were identified within one mile of the Subject Property.

The immediate area of the site is underlain by glacial drift consisting of alluvium, an alluvial terrace, and peat. These units were deposited during the Holocene and are characterized by mostly unconsolidated silt, sand, and gravelly valley fill with some clay, which includes low-level terrace, marsh, peat, artificial fill and glacial deposits. The soils encountered in ECIs borings were generally brown to light brown, dry, dense

to very dense, coarse sandy silt with gravel. Boring Logs from this investigation are presented in Appendix C.

The Natural Resources Conservation Service (NRCS) Web Soil Survey describes the soils at the Subject Property as Alderwood. This soil is characterized as gravelly sandy loam, a class C soil with slow infiltration rates that is moderately well drained.

2.2 Hydrogeology

The primary aquifers in the Puget Sound region are typically overlain by relatively impermeable glacial till deposits, that are present at or near the ground surface. Within these till deposits are localized areas or lenses of water-bearing sands and gravels that may result in a shallow, localized, perched water table. Lateral and vertical migration of shallow groundwater may be impeded by the relatively impermeable nature of the till and by the sometimes-discontinuous nature of the perched water-bearing sands and gravel. The hydrogeology of the area is complex due to the topographic ridge in the area

According to the EPA 2015 "Second Five-Year Review Report" for the adjacent Midway Landfill Superfund Site, there is a shallow "Perched Aquifer" which was believed to represent shallow, discontinuous lenses of groundwater perched on low permeability deposits. EPA states that while this groundwater is shallow and discontinuous, it is not always perched. The majority of these shallow zones are found north of the Midway Landfill which includes the Subject Property. Based on a review of well logs in the Ecology online well log database, depth to a shallow aquifer is reported to be from 30 feet below ground surface (bgs) to over 100 feet bgs. Regionally, there are several deeper aquifers located several hundred feet bgs which are reported to flow to the south and southeast.

The shallow groundwater flow in the area is most likely controlled by the topography. Because of the depth to groundwater and topographic ridge upon which the Subject Property is located, the anticipated groundwater flow direction at the Subject Property may be divided between the east and the northwest. Groundwater migration pathways may also follow underground conduits.

3.0 REGULATORY COMPLIANCE AND CONTAMINANTS OF CONCERN

Regulatory compliance for this project is based on the Washington Administrative Code (WAC) 173-340 – Model Toxic Control Act (MTCA) - RCW Chapter 70.105D, implemented by the Washington State Department of Ecology. Pursuant to Chapter 70.105D RCW, Ecology has established procedures for developing cleanup levels and requirements for cleanup actions. The rules establishing these levels and requirements were developed by Ecology in consultation with a Science Advisory Board (established under the Act) and with representatives from local government, citizen, environmental, and business groups. The rules were first published in February 1991, with amendments in January 1996, February 2001, and October 2007.

3.1 Contaminants of Concern & MTCA-A Cleanup Levels

3.1.1 Contaminants of Concern

Based on ECI's review of historical data, the primary contaminants of concern (COCs) at this Site are divided by area and include:

- Area 1:
  - Gasoline-range Organics (GRO)
  - Benzene, Toluene, Ethylbenzene, and total Xylenes (BTEX)
  - Diesel-Range Organics (DRO), and
  - Heavy Oil-range Organics (ORO)
- Area 2:
  - Volatile Organic Constituents (VOCs)
    (Primarily tetrachloroethylene also known as Perchloroethylene [PCE])
- Area 3:
  - Gasoline-range Organics (GRO)
  - Benzene, Toluene, Ethylbenzene, and total Xylenes (BTEX)
  - Diesel-Range Organics (DRO), and
  - Heavy Oil-range Organics (ORO)

Ecology's WAC 173-340-900 Table 830-1 lists Secondary COC to be analyzed for if the primary COCs are detected above the laboratory reporting limits.

Those Secondary COCs include:

- Carcinogenic Poly-cyclic aromatic hydrocarbons (cPAHs), if DRO or ORO are detected,
- Halogenated Volatile organic compounds (HVOCs), if ORO is detected from waste oil,
- PCB Mixtures, if ORO is detected,
- The gasoline additives Methyl tert-butyl ether (MTBE) Ethylene dibromide (EDB) and 1,2-dichloroethane/ethylene dichloride (EDC), if GRO is detected, and
- Lead, if GRO is detected.

3.1.2 Cleanup Levels

Pursuant to Chapter 70.105D RCW, Ecology has established procedures for developing cleanup levels and requirements for cleanup actions. The MTCA regulations provide three approaches for establishing cleanup levels:

- **Method A: ARARs and Tables.** This method is to be used where the cleanup action is routine and involves relatively few hazardous substances. The soil and groundwater cleanup levels are set at concentrations at least as stringent as concentrations specified in applicable state and federal laws (ARARs) and are presented in Tables 720-1, 740-1, and 745-1 of the regulations (WAC 173-340).
- **Method B: Universal Method**. Method B is the "universal method" for determining cleanup levels for all media at all sites. Under Method B, cleanup levels for individual hazardous substances are established using applicable state and federal laws and the risk equations and other requirements specified in WAC 173-340.

  Method B has two tiers, a "Standard" tier and a "Modified" tier. The "Standard" Method B tier uses generic default assumptions to calculate cleanup levels. The "Modified" Method B tier provides for the use of chemical-specific or site-specific information to change selected default assumptions. These can be established using a quantitative risk assessment process.
- **Method C: Conditional Method**. When compliance with cleanup levels developed under Method A or B are impossible to achieve or may cause greater environmental harm, Method C cleanup levels for individual hazardous substances may be established for surface water, groundwater, and air. Method C industrial soil and air cleanup levels may also be established at industrial properties that meet specific criteria.

  Like Method B, Method C is divided into two tiers, a "Standard" and a "Modified" tier. The "Standard" Method C tier uses generic default assumptions to calculate cleanup levels. The "Modified" Method C tier provides for the use of chemical-specific or site-specific information to change selected default assumptions. These can be established using a quantitative risk assessment process.

For this Site ECI has determined that Method A cleanup levels are appropriate. There are a limited number of COCs in each area and any cleanup is routine should they be present. The MTCA Method A Soil Cleanup levels for the COCs at this Site are presented in the following table.

Table A: Cleanup Levels for the Constituents of Concern

Table 830-1 Constituent Method-A Soil Cleanup Levels for Unrestricted Land Use (MTCA Cleanup Regulation 173-340-900: Table 740-1)	
Contaminant of Concern (COCs)	**Soil Cleanup Levels (mg/kg)**
Primary Contaminants of Concern	
Gasoline Range Organics (GRO)	100/30[1]
Diesel Range Organics (DRO)	2,000
Oil Range Organics (ORO)	2,000

[1] Gasoline Range Organics in Soil: Gasoline mixtures without benzene and the total of ethylbenzene, toluene and xylene are less than 1% of the gasoline mixture has a soil CUL = 100 mg/kg. All other gasoline mixtures have a soil CUL = 30 mg/kg.

Table 830-1 Constituent Method-A Soil Cleanup Levels for Unrestricted Land Use (MTCA Cleanup Regulation 173-340-900: Table 740-1)	
Contaminant of Concern (COCs)	**Soil Cleanup Levels (mg/kg)**
Benzene	0.03
Ethylbenzene	6
Toluene	7
Total Xylenes	9
Tetrachloroethylene (PCE)	0.05
Secondary Contaminants of Concern	
cPAHs[2]	0.1
PCB Mixtures	1
EDB	0.005
EDC	--
MTBE	0.1
Arsenic	20
Lead	250

4.0 FOCUSED SUBSURFACE INVESTIGATION

On November 20 and 21, 2017, ECI conducted a Focused Subsurface Investigation (FSI) at the Subject Property based on the approved proposals submitted on November 8, 2017. ECI installed twelve (12) borings on the Subject Property for the purposes of sampling the soil and groundwater (if encountered) beneath the Subject Property.

4.1 Limited Geophysical Survey & Utility Locating

Before mobilizing to the Site, ECI contacted the Washington Utility Locating Center to locate the public utilities in the area of the Subject Site. Prior beginning the borings, ECI's locating subcontractor, Mountain View Locating Services L.L.C. of Bonney Lake Washington, conducted a thorough non-invasive geophysical survey of the Subject Property, using electromagnetic survey techniques. The intent of the limited geophysical survey was to locate and trace subsurface utilities and other buried equipment and "clear" each boring location.

4.2 Soil Borings

Standard Environmental Probe of Tumwater, Washington advanced twelve (12) borings at the Site (Borings B1 through B10 and Borings B12 and B13) using a Geoprobe® drill rig and direct push drilling techniques under the supervision of an ECI environmental professional. The locations of the borings are

[2] Total concentration as benzo(a)pyrene using the toxicity equivalency methodology in WAC 173-340-708 (8)

presented on Figure 3 in Appendix A. Six (6) borings were installed in Area 1, two (2) borings were installed in Area 2 and four (4) borings were installed in Area 3.

During drilling, each boring was logged by an ECI professional for lithology and the soils screened for evidence of contamination. The borings were advanced until the probe could not be driven further ("refusal"). The depths of the borings ranged from 7 to 12 feet bgs. The soils encountered in each boring were generally brown to light brown, dry to moist, dense to very dense, coarse sandy silt with gravel to the total depths drilled.

While some moist soils were present in the soil borings, groundwater was not encountered during this investigation. As previously mentioned, groundwater is estimated to be at depths of 30 to over 100 feet bgs. Boring logs for this investigation are presented in Appendix C.

4.3 Sample Collection

In each boring two to three samples were collected during drilling. Based on field screening, two samples from each boring analyzed for the respective COCs.

4.3.1 Sample Collection and Handling Procedures

At each sampling location, a two-inch diameter, four-foot long stainless-steel push-probe fitted with four-foot long single-use (disposable) acetate liner was advanced. Relatively undisturbed soil samples were collected directly from the acetate liner extracted from the borings. Samples were transferred into new laboratory-provided analyte specific sample containers and assigned a unique sample ID; those collected for volatile organic compounds (VOCs) were collected using the EPA Method 5035 sampling procedures.

The samples were placed in a climate-controlled container and maintained at or below 4° Celsius until they were delivered to an Ecology accredited laboratory, Friedman & Bruya, Inc. of Seattle, Washington, under industry standard chain of custody protocol.

4.3.2 Sample Analyses

The laboratory analyzed each sample from the borings for the COCs specific to each area.

The analytical methods used are listed below:

Table B: Analyte and Analytical Method

Analyte	Analytical Method
Gasoline Range Organics (GRO)	EPA Method 5035 / NWTPH-Gx
Diesel & Oil Range Organics (DRO & ORO)	NWTPH-Dx Extended
Chlorinated Polycyclic Aromatic Hydrocarbons (cPAHs)	EPA Method 8270D

Volatile Organic Compounds (VOCs)	EPA Method 5035 / EPA Method 8260C

4.4 Analytical Results

Upon receipt of the analytical results and laboratory reporting limits they were compared to the appropriate cleanup level. The analytical results of the samples analyzed revealed that:

- Area 1: The Area 2 COCs (GRO, BTEX, DRO and ORO) were not present above the laboratory reporting limits and the reporting limits were below the respective MTCA Method A CULs.
- Area 2: The Area 2 COCs (VOCs) were not present above the laboratory reporting limits and the reporting limits were below the respective MTCA Method A CULs.
- Area 3: In Area 3, the COCs (GRO, BTEX, DRO and ORO) were not present above the laboratory reporting limits and the reporting limits were below the respective MTCA Method A CULs in three (3) of the four (4) borings (Boring B9, B10, and B12).

  In Boring B13, DRO was detected at a depth of 8 feet bgs (Sample B13-8') at a level of 8,800 mg/kg which is above the MTCA Method A cleanup level of 2,000 mg/kg. The laboratory also reported GRO at a level of 170 mg/kg, which is above the MTCA Method A cleanup level of 100 mg/kg. However, according to the laboratory, the GRO reported is not actually GRO but DRO. It is a result of an overlap of the DRO hydrocarbon range with the GRO hydrocarbon range.

  Boring B13 is located along the southern property boundary approximately 38 feet south of the building and approximately 240 feet east of the corner of the former building footing (100 feet west of the centerline of 30th Avenue South) (Figure 3, Appendix A). The analytical results are presented in Table 1, Appendix B and the laboratory datasheets are presented in Appendix D.

  Based on the location of the boring and the depth of the sample, it is believed that the DRO reported maybe from the adjacent property to the south, which has had a cleanup of DRO in 2002.

5.0 SUMMARY and RECOMMENDATIONS

5.1 Summary

This FSI Report was prepared at the request of Muscatel Midway Properties, LLC for a property located at 23418 Pacific Highway South Kent, Washington. The purpose of this FSI was to determine if soil and/or groundwater underlying the Property has been impacted by historical activities on the Subject Property or immediately adjacent properties. The investigatory activities were divided into three areas to specifically address potential impacts from the activities of concern identified. These areas are:

- Area 1: The area in the southwest portion of the property believed to be occupied by a former service station.
- Area 2: The area on the north side of the building in front of a former dry cleaners.

- Area 3: The area along the southern property boundary with the adjacent property which had a leaking UST in 2002.

ECI installed twelve (12) borings on the Subject Property for the purposes of sampling the soil and groundwater (if encountered) beneath the Subject Property. The analytical results indicated that one of the borings contained DRO in soil at concentrations above the MTCA Method A Cleanup Levels. Groundwater was not encountered during this investigation.

Boring B13, advanced along the southern property boundary approximately 85 feet west of the southeast corner of the Subject Property was reported containing DRO at 8,800 mg/kg, ORO at 1,100 mg/kg and gasoline at 170 mg/kg each exceeding there applicable MTCA Method A cleanup level. It is our understanding that the southern adjacent property underwent a cleanup action in the early to mid-2000's. Based on the location of boring B13 and its proximity to the remediation work completed on the southern adjacent property, the contamination identified appears to be originating from the southern property.

5.2 Recommendations

ECI recommends that further investigation be performed to delineate the extent of the soil contamination on the Subject Property in the area of Boring B13. In addition, it is recommended that the owner of the adjacent property be notified.

Ecology also requires that:

> *"…Any owner or operator who has information that a hazardous substance has been released to the environment at the owner or operator's facility and may be a threat to human health or the environment shall report such information to the department within ninety days of discovery…"* (WAC 173-340-300).

As required by this above regulatory citation, it is recommended that Ecology be notified of the findings of this investigation.

6.0 REFERENCES

King County Assessor-Treasurer, 2017 : http://blue.kingcounty.com/Assessor/eRealProperty/

Washington State Department of Ecology, 2007, *Model Toxics Control Act Statute and Regulation, Publication No. 94-06*, November 2007.

Washington State Department of Ecology, 2017, *Washington State Well Report Viewer*: https://fortress.wa.gov/ecy/waterresources/map/WCLSWebMap/default.aspx

Washington State Department of Natural Resources, 2017, *Geologic Information Portal:* https://www.dnr.wa.gov/geologyportal

List of Appendices

List of Appendices

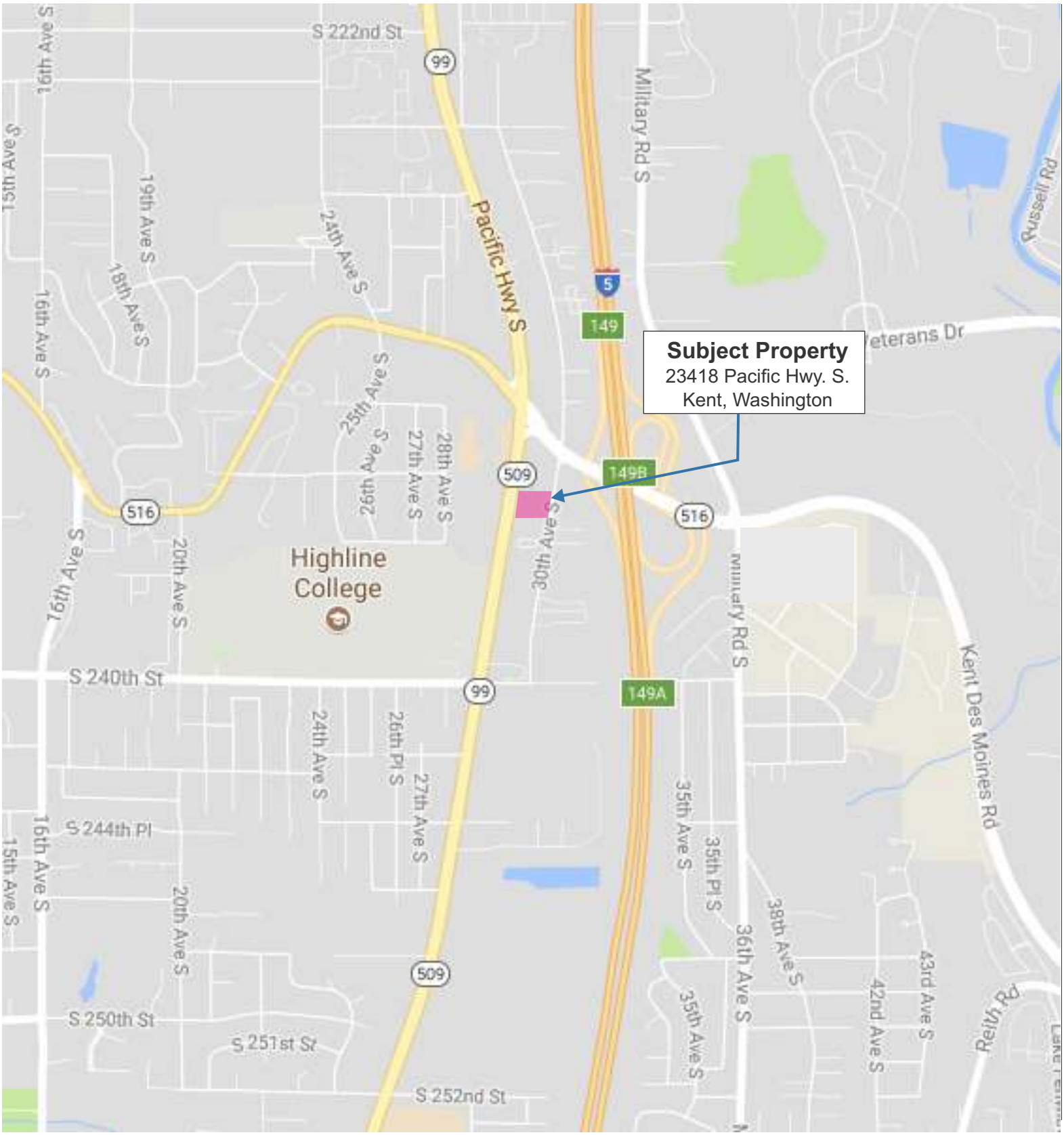
Appendix A: Project Figures

Figure 1: Site Location Map

Figure 2: Site Topographic Map

Figure 3: Boring Location Map

Figure 4: Site Photographs



Not To Scale

Vicinity Map
Focused Subsurface Investigation
23418 Pacific Highway S.
Kent, Washington

Date:	December 8, 2017
Completed By:	K. Spencer
Reviewed By.:	S. Spencer
Version:	ECI-001
Project No.:	0673-01-01

Figure No.: 01
Sheet 01 of 04

eci Environmental Services
Providing Practical Environmental Compliance Solutions
Offices In: Anchorage | Tacoma | Portland

N
Not To Scale

Topographic Map
Focused Subsurface Investigation
23418 Pacific Highway S.
Kent, Washington

Date:	December 8, 2017
Completed By:	K. Spencer
Reviewed By.:	S. Spencer
Version:	ECI-001
Project No.:	0673-01-01

Figure No.: 02
Sheet 02 of 04

eci Environmental Services
Providing Practical Environmental Compliance Solutions
Offices In: Anchorage | Tacoma | Portland

B13-8' Soil (mg/kg)		B13-10' Soil (mg/kg)		MTCA Method A Cleanup Level Soil (mg/kg)	
DRO	**8800**	DRO	**1100**	DRO	2000
ORO	<250	ORO	<250	ORO	2000
GRO	**170**	GRO	21	GRO[B]	100 / 30
B	<0.02	B	<0.02	B	0.03
T	<0.02	T	<0.02	T	7.0
Eb	<0.02	Eb	<0.02	Eb	6.0
X	<0.06	X	<0.06	X[A]	9.0

Note:

A: Benzene, Toluene & ethylbenzene: Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

B: Gasoline mixtures without benzene and the total of ethylbenzene, toluene and xylene are less than 1% of the gasoline mixture the CUL is 100 mg/kg,All other gasoline mixtures the CUL is 30 mg/kg

Area 1: Target Primary COCs, GRO, DRO, ORO, BTEX, Pb
Samples to be collected at 4 to 5 foot increments extending to feet extending to 20 feet bgs or water.
Area 2: Target Primary COCs - VOCs
Samples to be collected at 4 to 5 foot increments extending to feet extending to 20 feet bgs or water.
Area 3: Target Primary COCs - GRO, DRO, ORO, VOCs
Samples to be collected at 4 to 5 foot increments extending to feet extending to 20 feet bgs or water.

Explanation

- Boring Location Below Cleanup Levels
- Boring Location Above Cleanup Levels

GRO Gasolene-Range Organics
DRO Diesel-Range Organics
ORO Oil-Range Organic
BTEX Benzene, Toluene, Ethyl benzene, Xylenes
CUL Cleanup Level

Sample Collection Location Map
Focused Subsurface Investigation
23418 Pacific Highway S.
Kent, Washington

Date: December 8, 2017
Completed By: K. Spencer
Reviewed By.: S. Spencer
Version: ECI-001
Project No.: 0673-01-01

Figure No.: 03
Sheet 03 of 04

eci Environmental Services
Providing Practical Environmental Compliance Solutions
Offices in: Anchorage | Tacoma | Portland

Photograph One: Boring B13

Photograph Two: Boring B9

Photograph Three: Boring B6

Photograph Four: Boring B5

Photograph Five: Boring B8

Photograph Six: Boring B2

Project Photographs
Focused Subsurface Investigation
23418 Pacific Highway S.
Kent, Washington

Date:	December 8, 2017
Completed By:	K. Spencer
Reviewed By.:	S. Spencer
Version:	ECI-001
Project No.:	0673-01-01

Figure No.: 04

Sheet 04 of 04

eci Environmental Services

Providing Practical Environmental Compliance Solutions
Offices In: Anchorage | Tacoma | Portland

Appendix B: Project Tables

Table 1-Area I Analytical Results

Table 2-Area 2 Analytical Results

Table 3-Area 3 Analytical Results

eci Environmental Services

Practical Environmental Compliance Solutions

Offices In: Anchorage | Tacoma | Portland

Table 1 - Summary of Area 1 Soil Analytical Results

23418 Pacific Highway South

Kent, Washington 98032

Sample Identification Number	Date Sampled	Total Petroleum Hydrocarbons (mg/kg)			Select Volatile Organic Compounds (mg/kg)			
		Diesel Range Organics	Oil Range Organics	Gasoline Range Organics	Benzene	Toluene	Ethylbenzene	Total Xylenes
B3-5	11/20/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B3-12	11/20/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B4-5	11/20/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B4-11	11/20/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B5-5	11/20/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B5-7	11/20/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B6-5	11/20/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B6-10	11/20/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B7-5	11/20/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B7-12	11/20/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B8-5	11/20/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B8-12	11/20/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
MTCA Method A Clean Up Levels		2,000	2,000	100/30[1]	0.03	7	6	9

Notes:

(mg/kg) = milligrams per kilogram

< Not detected above the specified laboratory reporting limit

Bold indicates a detected concentration below Ecology MTCA Method A cleanup levels

Bold indicates a detected concentration above Ecology MTCA Method A cleanup levels

eci Environmental Services

Practical Environmental Compliance Solutions

Offices In: Anchorage | Tacoma | Portland

Table 2 - Summary of Area 2 Soil Analytical Results

23418 Pacific Highway South

Kent, Washington 98032

Sample Identification Number	Date Sampled	Select Volatile Organic Compounds (mg/kg)						
		MTBE	EDC	EDB	Benzene	Toluene	Ethylbenzene	Total Xylenes
B1-3	11/20/2017	<0.05	<0.05	<0.05	<0.03	<0.05	<0.05	<0.05
B1-11	11/20/2017	<0.05	<0.05	<0.05	<0.03	<0.05	<0.05	<0.05
B2-3	11/20/2017	<0.05	<0.05	<0.05	<0.03	<0.05	<0.05	<0.05
B2-11	11/20/2017	<0.05	<0.05	<0.05	<0.03	<0.05	<0.05	<0.05
MTCA Method A Clean Up Levels		0.1	--	0.050	0.03	7	6	9

Notes:

(mg/kg) = milligrams per kilogram

< Not detected above the specified laboratory reporting limit

Bold indicates a detected concentration below Ecology MTCA Method A cleanup levels

Bold indicates a detected concentration above Ecology MTCA Method A cleanup levels

eci Environmental Services

Practical Environmental Compliance Solutions

Offices In: Anchorage | Tacoma | Portland

Table 3 - Summary of Area 3 Soil Analytical Results

23418 Pacific Highway South

Kent, Washington 98032

Sample Identification Number	Date Sampled	Total Petroleum Hydrocarbons (mg/kg)			Select Volatile Organic Compounds (mg/kg)			
		Diesel Range Organics	Oil Range Organics	Gasoline Range Organics	Benzene	Toluene	Ethylbenzene	Total Xylenes
B9-7	11/21/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B9-10	11/21/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B10-7	11/21/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B10-10	11/21/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B12-7	11/21/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B12-10	11/21/2017	<50	<250	<5	<0.02	<0.02	<0.02	<0.06
B13-8	11/21/2017	**8,800**	<250	**170***	<0.02	<0.02	<0.02	<0.06
B13-10	11/21/2017	**1,100**	<250	**21**	<0.02	<0.02	<0.02	<0.06
MTCA Method A Clean Up Levels		2,000	2,000	100/30[1]	0.03	7	6	9

Notes:

(mg/kg) = milligrams per kilogram

< Not detected above the specified laboratory reporting limit

Bold indicates a detected concentration below Ecology MTCA Method A cleanup levels

Bold indicates a detected concentration above Ecology MTCA Method A cleanup levels

* Indicates that the GRO reported by the laboratory is due to overlap from a middle distillate such as heating oil or diesel

Appendix C: Boring Logs

Appendix C
Boring Logs

Area 1 Boring Logs

Area 1 Boring Logs

ECI environmental services
www.ecocononline.com
Anchorage | Tacoma | Portland

Project:	Focused Subsurface Investigation
Location:	23418 Pacific Highway South, Kent, Washington - Area 1
Client:	Muscatel Midway Properties

Boring ID: B3

Project Number: 0673-01-01

Date Start/Finish:	11/20/2017	**Drilling Method:**	Direct Push
Logged By:	Kaden Reed	**Auger ID/OD:**	--
Checked By:	David Polivka	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Macro Core 5
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See Figure 3, Appendix A	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Rain	**Boring Depth:**	12 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Brown, dry, dense, coarse, sandy silt with gravel	ML	
2							
3							
4				No odor	Brown, dry, very dense, coarse, sandy silt with gravel	ML	
5	B3-5	10:40 AM					
6							
7							
8							
9							
10	B3-10	10:50 AM					
11				No odor	Brown, dry, very dense, coarse, sandy silt with cobble	ML	
12	B3-12	11:00 AM					
13					Termination of boring due to refusal		
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes:

ECI environmental services
www.ecocononline.com
Anchorage | Tacoma | Portland

Project:	Focused Subsurface Investigation
Location:	23418 Pacific Highway South, Kent, Washington - Area 1
Client:	Muscatel Midway Properties

Boring ID: B4

Project Number: 0673-01-01

Date Start/Finish:	11/20/2017	**Drilling Method:**	Direct Push
Logged By:	Kaden Reed	**Auger ID/OD:**	--
Checked By:	David Polivka	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Macro Core 5
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See Figure 3, Appendix A	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Rain	**Boring Depth:**	11 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Brown, dry, dense, coarse, sandy silt with gravel	ML	
2							
3							
4				No odor	Grayish brown, dry, dense, coarse, silty sand with gravel	SM	
5	B4-5	11:20 AM					
6							
7							
8							
9							
10							
11	B4-11	11:35 AM					
12					Termination of boring due to refusal		
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes:

ECI environmental services
www.ecocononline.com
Anchorage | Tacoma | Portland

Project:	Focused Subsurface Investigation
Location:	23418 Pacific Highway South, Kent, Washington - Area 1
Client:	Muscatel Midway Properties

Boring ID: B5

Project Number: 0673-01-01

Date Start/Finish:	11/20/2017	**Drilling Method:**	Direct Push
Logged By:	Kaden Reed	**Auger ID/OD:**	--
Checked By:	David Polivka	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Macro Core 5
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See Figure 3, Appendix A	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Rain	**Boring Depth:**	7 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Brown, dry, dense, coarse, sandy silt with gravel	ML	
2							
3							
4							
5	B5-5	1:00 PM					
6				No odor	Brown, dry, very dense, coarse, sandy silt with gravel	ML	
7	B5-7	1:10 PM					
8					Termination of boring due to refusal		
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes:

ECI environmental services
www.ecocononline.com
Anchorage | Tacoma | Portland

Project:	Focused Subsurface Investigation
Location:	23418 Pacific Highway South, Kent, Washington - Area 1
Client:	Muscatel Midway Properties

Boring ID: B6

Project Number: 0673-01-01

Date Start/Finish:	11/20/2017	**Drilling Method:**	Direct Push
Logged By:	Kaden Reed	**Auger ID/OD:**	--
Checked By:	David Polivka	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Macro Core 5
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See Figure 3, Appendix A	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Rain	**Boring Depth:**	10 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Brown, dry, dense, coarse, sandy silt with gravel	ML	
2							
3							
4							
5	B6-5	1:35 PM					
6							
7							
8							
9							
10	B6-10	1:40 PM					
11					Termination of boring due to refusal		
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes:

ECI environmental services
www.ecocononline.com
Anchorage | Tacoma | Portland

Project:	Focused Subsurface Investigation
Location:	23418 Pacific Highway South, Kent, Washington - Area 1
Client:	Muscatel Midway Properties

Boring ID: B7

Project Number: 0673-01-01

Date Start/Finish:	11/20/2017	**Drilling Method:**	Direct Push
Logged By:	Kaden Reed	**Auger ID/OD:**	--
Checked By:	David Polivka	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Macro Core 5
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See Figure 3, Appendix A	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Rain	**Boring Depth:**	12 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Brown, dry, dense, coarse, sandy silt with cobble	ML	
2							
3							
4							
5	B7-5	2:10 PM					
6							
7				No odor	Light brown, dry, dense, coarse, sandy silt with gravel	ML	
8							
9							
10	B7-10	2:20 PM					
11							
12	B7-12	2:30 PM		No odor	Brown, dry, dense, coarse, sandy silt with gravel	ML	
13					Termination of boring due to refusal		
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes:

ECI environmental services
www.ecocononline.com
Anchorage | Tacoma | Portland

Project:	Focused Subsurface Investigation
Location:	23418 Pacific Highway South, Kent, Washington - Area 1
Client:	Muscatel Midway Properties

Boring ID: B8

Project Number: 0673-01-01

Date Start/Finish:	11/20/2017	**Drilling Method:**	Direct Push
Logged By:	Kaden Reed	**Auger ID/OD:**	--
Checked By:	David Polivka	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Macro Core 5
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See Figure 3, Appendix A	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Rain	**Boring Depth:**	12 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Dark brown, dry, dense, coarse, sandy silt with gravel	ML	
2							
3							
4							
5	B8-5	3:00 PM					
6							
7							
8							
9							
10	B8-10	3:10 PM					
11							
12	B8-12	3:15 PM					
13					Termination of boring due to refusal		
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes:

Area 2 Boring Logs

Area 2 Boring Logs

ECI environmental services
www.ecocononline.com
Anchorage | Tacoma | Portland

Project:	Focused Subsurface Investigation
Location:	23418 Pacific Highway South, Kent, Washington - Area 2
Client:	Muscatel Midway Properties

Boring ID: B1

Project Number: 0673-01-01

Date Start/Finish:	11/20/2017	**Drilling Method:**	Direct Push
Logged By:	Kaden Reed	**Auger ID/OD:**	--
Checked By:	David Polivka	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Macro Core 5
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See Figure 3, Appendix A	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Rain	**Boring Depth:**	12 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Brown, dry, dense, coarse, sandy silt with gravel	ML	
2							
3	B1-3	9:15 AM		No odor	Dark brown, dry, dense, coarse, sandy silt with gravel	ML	
4							
5				No odor	Light brown, moist, dense, coarse, sandy silt with gravel	ML	
6							
7	B1-7	9:20 AM					
8							
9							
10				No odor	Light brown, wet*, very dense, coarse, sandy silt with gravel	ML	
11	B1-11	9:25 AM					
12							
13					Termination of boring due to refusal		
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes: * the wetness in the boring at 10 to 12 feet is attributed to surface water entring the boring during drilling.

ECI environmental services
www.ecocononline.com
Anchorage | Tacoma | Portland

Project:	Focused Subsurface Investigation
Location:	23418 Pacific Highway South, Kent, Washington - Area 2
Client:	Muscatel Midway Properties

Boring ID: B2

Project Number: 0673-01-01

Date Start/Finish:	11/20/2017	**Drilling Method:**	Direct Push
Logged By:	Kaden Reed	**Auger ID/OD:**	--
Checked By:	David Polivka	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Macro Core 5
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See Figure 3, Appendix A	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Rain	**Boring Depth:**	12 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Brown, dry, dense, coarse, sandy silt with gravel	ML	
2							
3	B2-3	9:40 AM		No odor	Dark brown, dry, dense, coarse, sandy silt with gravel	ML	
4							
5				No odor	Light brown, dry, dense, coarse, sandy silt with gravel	ML	
6							
7	B2-7	9:45 AM					
8							
9							
10				No odor	Grayish brown, moist, very dense, coarse, sandy silt with gravel	ML	
11	B2-11	10:00 AM					
12							
13					Termination of boring due to refusal		
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes:

Area 3 Boring Logs

Area 3 Boring Logs

ECI environmental services
www.ecocononline.com
Anchorage | Tacoma | Portland

Project:	Focused Subsurface Investigation
Location:	23418 Pacific Highway South, Kent, Washington - Area 3
Client:	Muscatel Midway Properties

Boring ID: B9

Project Number: 0673-01-01

Date Start/Finish:	11/21/2017	**Drilling Method:**	Direct Push
Logged By:	Kaden Reed	**Auger ID/OD:**	--
Checked By:	David Polivka	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Macro Core 5
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See Figure 3, Appendix A	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Rain	**Boring Depth:**	10 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Dark brown, dry, dense, coarse, sandy silt with gravel	ML	
2							
3	B9-3	8:50 AM					
4				No odor	Brown, dry, dense, coarse, sandy silt with gravel	ML	
5							
6							
7	B9-7	9:00 AM					
8							
9							
10	B9-10	9:05 AM					
11					Termination of boring due to refusal		
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes:

ECI environmental services
www.ecocononline.com
Anchorage | Tacoma | Portland

Project:	Focused Subsurface Investigation
Location:	23418 Pacific Highway South, Kent, Washington - Area 3
Client:	Muscatel Midway Properties

Boring ID: B10

Project Number: 0673-01-01

Date Start/Finish:	11/21/2017	**Drilling Method:**	Direct Push
Logged By:	Kaden Reed	**Auger ID/OD:**	--
Checked By:	David Polivka	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Macro Core 5
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See Figure 3, Appendix A	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Rain	**Boring Depth:**	10 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Brown, dry, dense, coarse, sandy silt with gravel	ML	
2							
3	B10-3	9:35 AM					
4							
5							
6							
7	B10-7	9:45 AM					
8							
9							
10	B10-10	9:50 AM					
11					Termination of boring due to refusal		
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes:

ECI environmental services
www.ecocononline.com
Anchorage | Tacoma | Portland

Project:	Focused Subsurface Investigation
Location:	23418 Pacific Highway South, Kent, Washington - Area 3
Client:	Muscatel Midway Properties

Boring ID: B12

Project Number: 0673-01-01

Date Start/Finish:	11/21/2017	**Drilling Method:**	Direct Push
Logged By:	Kaden Reed	**Auger ID/OD:**	--
Checked By:	David Polivka	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Macro Core 5
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See Figure 3, Appendix A	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Rain	**Boring Depth:**	10 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Brown, dry, dense, coarse, sandy silt with cobble	ML	
2							
3	B12-3	11:20 AM					
4							
5				No odor	Grayish brown, dry, dense, coarse, sandy silt with cobble	ML	
6							
7	B12-7	11:30 AM					
8							
9				No odor	Dark brown, dry, dense, coarse, sandy silt with cobble	ML	
10	B12-10	11:35 AM					
11					Termination of boring due to refusal		
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes:

ECI environmental services
www.ecocononline.com
Anchorage | Tacoma | Portland

Project:	Focused Subsurface Investigation
Location:	23418 Pacific Highway South, Kent, Washington - Area 3
Client:	Muscatel Midway Properties

Boring ID: B13

Project Number: 0673-01-01

Date Start/Finish:	11/21/2017	**Drilling Method:**	Direct Push
Logged By:	Kaden Reed	**Auger ID/OD:**	--
Checked By:	David Polivka	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Macro Core 5
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See Figure 3, Appendix A	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Rain	**Boring Depth:**	10 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Brown, dry, dense, coarse, sandy silt with cobble	ML	
2							
3	B13-3	12:10 PM					
4							
5							
6							
7							
8	B13-8	12:20 PM		Odor	Grayish brown, dry, dense, coarse, sandy silt with cobble	ML	
9							
10	B13-10	12:30 PM		No odor			
11					Termination of boring due to refusal		
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes:

Appendix D: Laboratory Data Sheets

Appendix D
Laboratory Data Sheets

Area 1 Laboratory Data Sheets

Area 1 Laboratory Data Sheets

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

November 30, 2017

David Polivka, Project Manager
EcoCon, Inc.
15 S. Oregon Ave, Suite 110
Tacoma, WA 98409

Dear Mr Polivka:

Included are the results from the testing of material submitted on November 22, 2017 from the Area 1, PO 0673-01-01, F&BI 711424 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Stephen Spencer
EMS1130R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 22, 2017 by Friedman & Bruya, Inc. from the EcoCon Area 1, PO 0673-01-01, F&BI 711424 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EcoCon
711424 -01	B3-5
711424 -02	B3-10
711424 -03	B3-12
711424 -04	B4-5
711424 -05	B4-11
711424 -06	B5-5
711424 -07	B5-7
711424 -08	B6-5
711424 -09	B6-10
711424 -10	B7-5
711424 -11	B7-10
711424 -12	B7-12
711424 -13	B8-5
711424 -14	B8-10
711424 -15	B8-12

All quality control requirements were acceptable.

Date of Report: 11/30/17
Date Received: 11/22/17
Project: Area 1, PO 0673-01-01, F&BI 711424
Date Extracted: 11/28/17
Date Analyzed: 11/28/17

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
B3-5 711424-01	<0.02	<0.02	<0.02	<0.06	<5	91
B3-12 711424-03	<0.02	<0.02	<0.02	<0.06	<5	94
B4-5 711424-04	<0.02	<0.02	<0.02	<0.06	<5	90
B4-11 711424-05	<0.02	<0.02	<0.02	<0.06	<5	92
B5-5 711424-06	<0.02	<0.02	<0.02	<0.06	<5	93
B5-7 711424-07	<0.02	<0.02	<0.02	<0.06	<5	95
B6-5 711424-08	<0.02	<0.02	<0.02	<0.06	<5	86
B6-10 711424-09	<0.02	<0.02	<0.02	<0.06	<5	98
B7-5 711424-10	<0.02	<0.02	<0.02	<0.06	<5	98
B7-12 711424-12	<0.02	<0.02	<0.02	<0.06	<5	92
B8-5 711424-13	<0.02	<0.02	<0.02	<0.06	<5	91

Date of Report: 11/30/17
Date Received: 11/22/17
Project: Area 1, PO 0673-01-01, F&BI 711424
Date Extracted: 11/28/17
Date Analyzed: 11/28/17

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
B8-12 711424-15	<0.02	<0.02	<0.02	<0.06	<5	97
Method Blank 07-2631 MB	<0.02	<0.02	<0.02	<0.06	<5	102

Date of Report: 11/30/17
Date Received: 11/22/17
Project: Area 1, PO 0673-01-01, F&BI 711424
Date Extracted: 11/28/17
Date Analyzed: 11/28/17 and 11/29/17

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
B3-5 711424-01	<50	<250	115
B3-12 711424-03	<50	<250	114
B4-5 711424-04	<50	<250	114
B4-11 711424-05	<50	<250	101
B5-5 711424-06	<50	<250	111
B5-7 711424-07	<50	<250	100
B6-5 711424-08	<50	<250	117
B6-10 711424-09	<50	<250	114
B7-5 711424-10	<50	<250	110
B7-12 711424-12	<50	<250	102
B8-5 711424-13	<50	<250	105

Date of Report: 11/30/17
Date Received: 11/22/17
Project: Area 1, PO 0673-01-01, F&BI 711424
Date Extracted: 11/28/17
Date Analyzed: 11/28/17 and 11/29/17

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
B8-12 711424-15	<50	<250	102
Method Blank 07-2669 MB	<50	<250	99

Date of Report: 11/30/17
Date Received: 11/22/17
Project: Area 1, PO 0673-01-01, F&BI 711424

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 711444-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	100	69-120
Toluene	mg/kg (ppm)	0.5	99	70-117
Ethylbenzene	mg/kg (ppm)	0.5	102	65-123
Xylenes	mg/kg (ppm)	1.5	97	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

Date of Report: 11/30/17
Date Received: 11/22/17
Project: Area 1, PO 0673-01-01, F&BI 711424

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 711424-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	96	96	73-135	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	96	74-139

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

~~#114~~ 711424 (NP)

SAMPLE CHAIN OF CUSTODY

ME 11/22/17 VSI/BO3

Page 1 of 2

Report To David Polivka + Stephen Spencer

Company ECI

Address PO Box 153

City, State, ZIP Fox Island, WA 98333

Phone _____ Email dpolivka@eilcon.us sspencer@eilcon.us

SAMPLERS (signature)

PROJECT NAME: Area 1

PO #: 0673-01-01

REMARKS

INVOICE TO

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH _____
- Rush charges authorized by: _____

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other _____

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
B3-5	01 A-E	11/29/17	1040	S	5		X	X	X								X-per DP
B3-10	02		1050														11/27/17
B3-11	03		1100				X	X	X								mc
B4-5	04		1120				X	X	X								
B4-11	05		1135				X	X	X								
B5-5	06		1300				X	X	X								
B5-7	07		1310				X	X	X								
B6-5	08		1335				X	X	X								
B6-10	09		1340				X	X	X								
B7-5	10		1410				X	X	X								

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kaitlin Reed	ECI	11/29/17	1025
Received by:	VINH	FBI	11/22/17	1025
Relinquished by:				
Received by:		Samples received at 15 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

71424

SAMPLE CHAIN OF CUSTODY

ME 11/22/17 VSI

Page # 2 of 2 B03

Report To David Polivka + Stephen Spencer

Company ECI

Address

City, State, ZIP

Phone Email

SAMPLERS (*signature*)

PROJECT NAME	PO #
Area 1	0673-01-01
REMARKS	INVOICE TO

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
B7-10	11 A-E	11/20/17	1420	S	5												
B7-12	12		1430				X	X	X								
B8-5	13		1500				X	X	X								
B8-10	14		1510														
B8-12	15		1515				X	X	X								

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kaila Reed	ECI	11/22/17	1025
Received by:	VINH	FBI	11/22/17	1025
Relinquished by:				
Received by:		Samples received at 15 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

Area 2 Laboratory Data Sheets

Area 2 Laboratory Data Sheets

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

December 4, 2017

David Polivka, Project Manager
EcoCon, Inc.
15 S. Oregon Ave, Suite 110
Tacoma, WA 98409

Dear Mr Polivka:

Included are the results from the testing of material submitted on November 22, 2017 from the Area 2, PO 0673-01-01, F&BI 711425 project. There are 9 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Stephen Spencer
EMS1204R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 22, 2017 by Friedman & Bruya, Inc. from the EcoCon Area 2, PO 0673-01-01, F&BI 711425 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EcoCon
711425 -01	B1-3
711425 -02	B1-7
711425 -03	B1-11
711425 -04	B2-3
711425 -05	B2-7
711425 -06	B2-11

All quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B1-3	Client:	EcoCon
Date Received:	11/22/17	Project:	Area 2, PO 0673-01-01, F&BI 711425
Date Extracted:	11/28/17	Lab ID:	711425-01
Date Analyzed:	11/28/17	Data File:	112823.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	99	55	145
4-Bromofluorobenzene	100	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B1-11	Client:	EcoCon
Date Received:	11/22/17	Project:	Area 2, PO 0673-01-01, F&BI 711425
Date Extracted:	11/28/17	Lab ID:	711425-03
Date Analyzed:	11/28/17	Data File:	112824.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	99	55	145
4-Bromofluorobenzene	99	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B2-3	Client:	EcoCon
Date Received:	11/22/17	Project:	Area 2, PO 0673-01-01, F&BI 711425
Date Extracted:	11/28/17	Lab ID:	711425-04
Date Analyzed:	11/28/17	Data File:	112825.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	99	55	145
4-Bromofluorobenzene	100	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B2-11	Client:	EcoCon
Date Received:	11/22/17	Project:	Area 2, PO 0673-01-01, F&BI 711425
Date Extracted:	11/28/17	Lab ID:	711425-06
Date Analyzed:	11/28/17	Data File:	112826.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	99	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	EcoCon
Date Received:	Not Applicable	Project:	Area 2, PO 0673-01-01, F&BI 711425
Date Extracted:	11/28/17	Lab ID:	07-2652 mb
Date Analyzed:	11/28/17	Data File:	112808.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	98	55	145
4-Bromofluorobenzene	100	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 12/04/17
Date Received: 11/22/17
Project: Area 2, PO 0673-01-01, F&BI 711425

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 711427-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	23	24	10-142	4
Chloromethane	mg/kg (ppm)	2.5	<0.5	46	46	10-126	0
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	48	48	10-138	0
Bromomethane	mg/kg (ppm)	2.5	<0.5	59	61	10-163	3
Chloroethane	mg/kg (ppm)	2.5	<0.5	57	58	10-176	2
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	55	55	10-176	0
Acetone	mg/kg (ppm)	12.5	<0.5	80	80	10-163	0
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	64	63	10-160	2
Hexane	mg/kg (ppm)	2.5	<0.25	58	56	10-137	4
Methylene chloride	mg/kg (ppm)	2.5	<0.5	76	74	10-156	3
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	76	75	21-145	1
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	71	69	14-137	3
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	75	75	19-140	0
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	83	82	10-158	1
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	77	77	25-135	0
Chloroform	mg/kg (ppm)	2.5	<0.05	78	77	21-145	1
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	83	83	19-147	0
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	77	76	12-160	1
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	78	77	10-156	1
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	75	73	17-140	3
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	79	78	9-164	1
Benzene	mg/kg (ppm)	2.5	<0.03	75	75	29-129	0
Trichloroethene	mg/kg (ppm)	2.5	<0.02	77	76	21-139	1
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	78	78	30-135	0
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	80	82	23-155	2
Dibromomethane	mg/kg (ppm)	2.5	<0.05	78	79	23-145	1
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	80	84	24-155	5
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	82	82	28-144	0
Toluene	mg/kg (ppm)	2.5	<0.05	79	80	35-130	1
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	84	84	26-149	0
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	82	82	10-205	0
2-Hexanone	mg/kg (ppm)	12.5	<0.5	80	82	15-166	2
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	81	81	31-137	0
Tetrachloroethene	mg/kg (ppm)	2.5	0.070	76	76	20-133	0
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	84	85	28-150	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	82	84	28-142	2
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	80	81	32-129	1
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	81	82	32-137	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	86	85	31-143	1
m,p-Xylene	mg/kg (ppm)	5	<0.1	81	82	34-136	1
o-Xylene	mg/kg (ppm)	2.5	<0.05	80	82	33-134	2
Styrene	mg/kg (ppm)	2.5	<0.05	83	84	35-137	1
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	84	85	31-142	1
Bromoform	mg/kg (ppm)	2.5	<0.05	85	84	21-156	1
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	82	83	23-146	1
Bromobenzene	mg/kg (ppm)	2.5	<0.05	82	83	34-130	1
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	83	84	18-149	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	81	82	28-140	1
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	79	81	25-144	2
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	82	83	31-134	1
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	81	82	31-136	1
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	84	84	30-137	0
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	81	82	10-182	1
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	84	85	23-145	1
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	84	84	21-149	0
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	85	84	30-131	1
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	81	82	29-129	1
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	83	83	31-132	0
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	91	88	11-161	3
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	86	86	22-142	0
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	86	87	10-142	1
Naphthalene	mg/kg (ppm)	2.5	<0.05	84	84	14-157	0
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	87	88	20-144	1

Date of Report: 12/04/17
Date Received: 11/22/17
Project: Area 2, PO 0673-01-01, F&BI 711425

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	49	10-146
Chloromethane	mg/kg (ppm)	2.5	62	27-133
Vinyl chloride	mg/kg (ppm)	2.5	69	22-139
Bromomethane	mg/kg (ppm)	2.5	75	38-114
Chloroethane	mg/kg (ppm)	2.5	74	10-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	77	10-196
Acetone	mg/kg (ppm)	12.5	94	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	79	47-128
Hexane	mg/kg (ppm)	2.5	83	43-142
Methylene chloride	mg/kg (ppm)	2.5	86	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	85	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	82	67-127
1,1-Dichloroethane	mg/kg (ppm)	2.5	87	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	102	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	87	72-113
Chloroform	mg/kg (ppm)	2.5	87	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	92	57-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	86	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	90	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	86	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	92	60-139
Benzene	mg/kg (ppm)	2.5	85	68-114
Trichloroethene	mg/kg (ppm)	2.5	87	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	88	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	90	72-130
Dibromomethane	mg/kg (ppm)	2.5	87	70-120
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	92	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	93	75-136
Toluene	mg/kg (ppm)	2.5	89	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	97	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	93	75-113
2-Hexanone	mg/kg (ppm)	12.5	93	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	90	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	90	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	95	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	93	74-132
Chlorobenzene	mg/kg (ppm)	2.5	90	76-111
Ethylbenzene	mg/kg (ppm)	2.5	91	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	98	69-135
m,p-Xylene	mg/kg (ppm)	5	91	78-122
o-Xylene	mg/kg (ppm)	2.5	90	77-124
Styrene	mg/kg (ppm)	2.5	93	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	95	76-127
Bromoform	mg/kg (ppm)	2.5	97	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	91	74-124
Bromobenzene	mg/kg (ppm)	2.5	91	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	93	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	89	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	88	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	90	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	89	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	92	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	90	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	93	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	93	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	93	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	89	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	92	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	100	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	95	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	97	50-153
Naphthalene	mg/kg (ppm)	2.5	91	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	94	63-138

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

71425

SAMPLE CHAIN OF CUSTODY

ME 11/22/17

VS2

Page # 1 of 1

Report To David Polidori Stephen Sperry

Company ECI

Address PO Box 153

City, State, ZIP Fox Island, WA 98333

Phone _____ Email dpolidori@ecginc.com sperry@ecginc.com

SAMPLERS (signature)

PROJECT NAME: Area 2

PO #: 0673-01-01

REMARKS: Hold All

INVOICE TO

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	VOCs				Notes
				S		ANALYSES REQUESTED											
B1-3	01 A-D	11/20/17	0915		4					X			X				X-pe DP 11/22/17
B1-7	02		0920							X							MG
B1-11	03		0925							X			X				
B2-3	04		0940							X			X				
B2-7	05		0945							X							
B2-11	06		1000										X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kristen Read	ECI	11/22/17	1025
Received by:	VINH	FBI	11/22/17	1025
Relinquished by:				
Received by:		Samples received at 15 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

Area 3 Laboratory Data Sheets

Area 3 Laboratory Data Sheets

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

December 7, 2017

David Polivka, Project Manager
EcoCon, Inc.
15 S. Oregon Ave, Suite 110
Tacoma, WA 98409

Dear Mr Polivka:

Included is the amended report from the testing of material submitted on November 22, 2017 from the Area 3, PO 0673-01-01, F&BI 711426 project. Per your request, a description of the material detected in the samples has been added to the case narrative.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Stephen Spencer
EMS1201R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

December 1, 2017

David Polivka, Project Manager
EcoCon, Inc.
15 S. Oregon Ave, Suite 110
Tacoma, WA 98409

Dear Mr Polivka:

Included are the results from the testing of material submitted on November 22, 2017 from the Area 3, PO 0673-01-01, F&BI 711426 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Stephen Spencer
EMS1201R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 22, 2017 by Friedman & Bruya, Inc. from the EcoCon Area 3, PO 0673-01-01, F&BI 711426 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EcoCon
711426 -01	B9-3
711426 -02	B9-7
711426 -03	B9-10
711426 -04	B10-3
711426 -05	B10-7
711426 -06	B10-10
711426 -07	B12-3
711426 -08	B12-7
711426 -09	B12-10
711426 -10	B13-3
711426 -11	B13-8
711426 -12	B13-10

The detection in the NWTPH-Gx range of samples B13-8 and B13-10 is due to overlap from a middle distillate such as heating oil or diesel. The data were flagged accordingly.

All quality control requirements were acceptable.

Date of Report: 12/01/17
Date Received: 11/22/17
Project: Area 3, PO 0673-01-01, F&BI 711426
Date Extracted: 11/28/17
Date Analyzed: 11/29/17

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
B9-7 711426-02	<0.02	<0.02	<0.02	<0.06	<5	90
B9-10 711426-03	<0.02	<0.02	<0.02	<0.06	<5	95
B10-7 711426-05	<0.02	<0.02	<0.02	<0.06	<5	86
B10-10 711426-06	<0.02	<0.02	<0.02	<0.06	<5	93
B12-7 711426-08	<0.02	<0.02	<0.02	<0.06	<5	90
B12-10 711426-09	<0.02	<0.02	<0.02	<0.06	<5	90
B13-8 711426-11	<0.02	<0.02	<0.02	<0.06	170 x	92
B13-10 711426-12	<0.02	<0.02	<0.02	<0.06	21 x	97
Method Blank 07-2633 MB	<0.02	<0.02	<0.02	<0.06	<5	99

Date of Report: 12/01/17
Date Received: 11/22/17
Project: Area 3, PO 0673-01-01, F&BI 711426
Date Extracted: 11/28/17
Date Analyzed: 11/28/17

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
B9-7 711426-02	<50	<250	105
B9-10 711426-03	<50	<250	112
B10-7 711426-05	<50	<250	100
B10-10 711426-06	<50	<250	103
B12-7 711426-08	<50	<250	107
B12-10 711426-09	<50	<250	102
B13-8 711426-11	8,800	<250	120
B13-10 711426-12	1,100	<250	102
Method Blank 07-2669 MB	<50	<250	99

Date of Report: 12/01/17
Date Received: 11/22/17
Project: Area 3, PO 0673-01-01, F&BI 711426

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 711426-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	98	69-120
Toluene	mg/kg (ppm)	0.5	97	70-117
Ethylbenzene	mg/kg (ppm)	0.5	100	65-123
Xylenes	mg/kg (ppm)	1.5	95	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

Date of Report: 12/01/17
Date Received: 11/22/17
Project: Area 3, PO 0673-01-01, F&BI 711426

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 711424-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	96	96	73-135	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	96	74-139

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

711426

SAMPLE CHAIN OF CUSTODY

ME 11/22/17 VSI

Page # 1 of 2

Report To David Polichka + Stephen Spencer

Company ECI

Address PO Box 153

City, State, ZIP Fox Island WA 98333

Phone _____ Email multiregions sspencer@eeicon.us

SAMPLERS (signature)

PROJECT NAME: Area 3

PO #: 0673-01-01

REMARKS

INVOICE TO

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH _____
- Rush charges authorized by: _____

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other _____

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
						ANALYSES REQUESTED											
B9-3	01 A-E	11/21/17	0850	S	5												X-per DP
B9-7	02		0900				X	X	X								11/22/17
B9-10	03		0905				X	X	X								mc.
B10-3	04		0935														
B10-7	05		0945				X	X	X								
B10-10	06		0950				X	X	X								
B12-3	07		1120														
B12-7	08		1130				X	X	X								
B12-10	09		1135				X	X	X								
B13-3	10		1210														

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kate Reed	ECI	11/22/17	1025
Received by:	NINN	FBI	11/22/17	1025
Relinquished by:				
Received by:		Samples received at 15 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

71426

SAMPLE CHAIN OF CUSTODY

ME 11/22/17 VSI/803

Page # 2 of 2

Report To David Polisher + Stephen Spencer

Company ECI

Address PO Box 153

City, State, ZIP

Phone Email

SAMPLERS (*signature*)

PROJECT NAME: Area 3

PO #: 0673-01-01

REMARKS

INVOICE TO

TURNAROUND TIME
- ☒ Standard Turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
B13-8	11 A-G	11/21/17	1220	S	5		X	X	X								
B13-10	12	↓	1230	S	5		X	X	X								

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kale Reed	ECI	11/22/17	1025
Received by:	VINH	FBI	11/22/17	1025
Relinquished by:				
Received by:		Samples received at 15 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282