

CLEANUP ACTION PLAN (CAP)

Gig Harbor Dry Cleaners

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

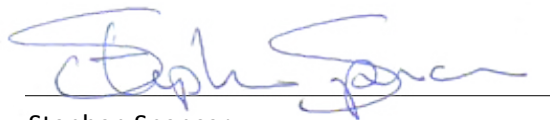
Prepared For:

Orlandini & Waldron

6711 Regents Blvd. W.
University Place, Washington 98466



Brian A. Dixon
Sr. Environmental Scientist



Stephen Spencer
Principal Environmental Scientist

Prepared By:

ECI | Environmental Consulting
1931 S. Fawcett Avenue
Tacoma, Washington 98402
(253) 238-9270

ECI Project No. 0547-03

Cleanup Action Plan

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

TABLE OF CONTENTS

1.0	Introduction	1
1.1	Document Purpose	1
1.2	Site Location / Description	1
1.3	Physical Setting	2
1.4	Previous Site Investigations	3
1.4.1	Phase I ESA – Aerotech, September 2014.....	3
1.4.2	Limited Phase II Environmental Investigation – Aerotech, September, 2014	3
1.4.3	Focused Subsurface Investigation – ECI, October 2014.....	4
1.4.4	Supplemental Focused Subsurface Investigation – ECI, November 2014	5
2.0	Conceptual Site Model	5
2.1	Contaminants of Concern	6
2.2	Media of Concern.....	6
2.3	Distribution of Contamination in Soil	6
2.4	Exposure Pathways	6
2.4.1	Soil Pathway.....	6
2.4.2	Groundwater Pathway.....	6
2.4.3	Vapor Pathway.....	7
3.0	Cleanup Standards	7
3.1	Cleanup Standards	7
3.2	Cleanup Levels	7
3.3	Point of Compliance for Soil.....	8
4.0	Technical Components	9
4.1	Responsibility for Cleanup Action	9
4.2	Goals and Objectives.....	9
5.0	General Description of Proposed Cleanup Action	9
5.1	Project Permitting.....	9
5.1.1	State Environmental Policy Act (SEPA)	9
5.1.2	Contained-In Determination	10
5.2	Demolition	10
5.2.1	Health and Safety Plan (HASP).....	10
5.2.2	Underground Utility Locating.....	10
5.2.3	Interior Limited Building Demolition	10
5.2.4	Building Demolition.....	11
5.3	Soil Remediation	11

Cleanup Action Plan

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

5.3.1 Soil Excavation.....	11
5.3.2 Sampling and Analysis.....	12
5.3.3 Field Documentation.....	12
5.3.3.1 Field Log Books.....	12
5.3.3.2 Site Photographs.....	13
5.4 Site Restoration.....	13
6.0 Applicable Laws	13
7.0 Public Participation / Communication	14
8.0 Project Reporting.....	14
9.0 Use of Document	14
10.0 References.....	15

List of Appendices

Appendix A: Project Figures

- Figure 1: Site Location Map
- Figure 2: Site Topographic Map
- Figure 3: Sample Location Map

Appendix B: ECI Boring Logs

Cleanup Action Plan

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

1.0 INTRODUCTION

EcoCon, Inc., (ECI) has prepared this Cleanup Action Plan (CAP) for the property located at 6978 Kimball Drive, in Gig Harbor Washington (the Property) (Figure 1) on behalf of Orlandini and Waldron, the Property Trustee. This CAP was prepared for submittal to the Washington State Department of Ecology (Ecology), and was developed to meet the general requirements of a CAP as defined by the Washington State Model Toxics Control Act (MTCA) Regulation in Chapter 173-340-380 of the Washington Administrative Code (WAC).

As established in WAC 173-340-200, the “Site” is defined by the full lateral and vertical extent of contamination that has resulted from the operation of a dry cleaning facility on the Property. Based on the findings of environmental investigations discussed within this report, the Site has been defined as perchloroethylene (PCE) contaminated soil beneath the northern portion of the Property, beneath the dry cleaning facility extending east beyond the facility entrance (Figure 3, Appendix A).

1.1 Document Purpose

The purpose of this CAP is to satisfy the specific requirements of MTCA in accordance with WAC 173-340-380, -400, and -410 and to obtain a determination of No Further Action (NFA) from Ecology. This CAP presents historical information regarding the source and extent of impacts and outlines the proposed corrective action to address the full extent of contamination beneath the Site.

1.2 Site Location / Description

The Property consists of a single tax parcel #0221087024, which is part of a larger shopping center development known as Pioneer Plaza/Kimball Center. The Property is improved with a Burger King restaurant situated within the central portion of the Property, a vacant commercial building located on the southern side of the Property, and an approximately 8,129 square foot, single story, retail strip mall building, with six units including: Ultimate Looks (6932), Framer’s Workshop (6940), Clark’s Jewelers (6946), Kimball Espresso Café (6950), a vacant suite (6968), and Gig Harbor Cleaners (6978). The south building is an approximately 5,738 square foot, vacant single story building (6876 and 6878).

The Gig Harbor Dry Cleaners facility is located at the north margin of the building in an approximately 1,700 square foot space, with a main entrance to the east, followed by a service counter, and clothing storage area. Located near the western (rear) portion of the facility are a restroom, a boiler and utility room, a PCE drum storage area, and a PCE dry cleaning machine.

The Property was originally developed prior to 1968 with four residential structures located on the northern portion of the Property. By 1985, the Property was developed with the construction of the three present-day structures. The north shop appears to have operated as a dry cleaner since 1985. The

Cleanup Action Plan

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

Property is located in a commercially developed area of Gig Harbor. To the north is Pioneer Way followed by Cathouse Tattoo. To the south is a shopping center. To the east is Kimball Drive followed by a 76 franchised gasoline station, a thrift store, undeveloped wooded land, and Custom Homes. To the west is an electrical utilities right-of-way, followed by the Highway 16. The vicinity is generally flat and consists of connected masonry buildings with asphalt parking, and is bordered by retail businesses to the north and east.

The following is the legal description of the property as provided by Pierce County Assessor's website:

Parcel #0221087024:

Section 08 Township 21 Range 02 Quarter 32 : TR "A" OF DBLR 85-01-18-0280 DESC AS FOLL PARCEL A DESC AS L 1 & 2 OF S P 84-02-10-0196 PARCEL B COM AT NW COR OF LOT 3 GIG HARBOR ABAND MILITARY RESERV TH E ALG N LI SD LOT 3 326.43 FT TO E R/W LI OF TAC CY LIGHT R/W & POB TH CONT E ALG N LI SD LOT 3 57.57 FT TH N 15 DEG 25 MIN 13 SEC E 116.74 FT TO SWLY R/W LI OF FRONTAGE RD (FR3 LI) TH S 34 DEG 05 MIN 01 SEC E ALG SD R/W LI 185.46 FT TH ALG C TO R HAVING RAD OF 570 FT FOR ARC LENGTH OF 49.97 FT HAVING CENTRAL ANGLE OF 05 DEG 01 MIN 24 SEC TH S 55 DEG 54 MIN 59 SEC W 231.92 FT TO SD E R/W LI OF TAC CY LIGHT POWERLINE TH N 01 DEG 46 MIN 12 SEC W ALG SD E LI 80.27 FT TH ALG C TO L HAVING RAD OF 470 FT AN ARC LENGTH OF 137.4 FT HAVING CENTRAL ANGLE OF 16 DEG 44 MIN 59 SEC TO POB PARCEL C THAT POR OF LOT 2A OF GIG HARBOR ABAND MIL RESERV LY E OF PARCEL A W OF MOST ELY W LI OF PARCEL B & S OF SWLY R/W LI OF FRONTAGE RD (FR3 LI) SD LI OF PARCEL A & B ABOVE DESC COMB 3-104 & 3-147 SEG H-0613 JU 1/25/96JU

1.3 Physical Setting

The Site elevation is approximately 301 feet above mean sea level (Figure 2, Appendix A). As observed during a Site visit and confirmed on the USGS topographic map, the Site exhibits a surficial drainage towards the east and along much of the eastern portion of the parcel. Surficial drainage along the western and southwestern portions of the Site is toward the west or southwest. The Site lies near the axis of the north-south oriented glacial ridge along which State Route 16 is generally constructed. Significant bodies of water in the vicinity of the Site include the Puget Sound located approximately one half mile to the east-northeast, and Wollochet Bay located two miles to the southwest. The City of Gig Harbor lies along the eastern slopes of the glacial ridge, east of the axis, where elevations decrease to Sea Level at the Puget Sound. The Site lies above the uppermost portions of a somewhat poorly developed drainage corridor, which extends to the southwest toward Picnic Point and Wollochet Bay. The Site and vicinity are mapped as Quaternary Vashon Till soil, characterized locally as consisting of compact, frequently concrete-like mixture of cobbles and coarse gravel in binder of clay and silt.

Cleanup Action Plan

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

Due to the location of the Site near the axis of a broad till-covered ridge, the inferred general direction of shallow perched groundwater flow is to the east, or east-northeast towards the Puget Sound. The potentiometric surface of the shallow perched groundwater, where present, is expected to occur in subtle mimicry of the natural surface topography. Deeper regional groundwater is also expected to be present in water-bearing sands, well below the base of the glacial till aquitard. Groundwater was encountered during previous investigations at a depth of approximately 24 feet below ground surface (bgs).

1.4 Previous Site Investigations

1.4.1 Phase I ESA – Aerotech, September 2014

On September 24, 2014, Aerotech Environmental Consulting, Inc., (“Aerotech”) conducted a Phase I Environmental Site Assessment for the subject Property. Aerotech identified the following recognized environmental concerns (RECs):

- The present dry cleaning company has continuously occupied the northern unit of the retail strip mall building from the original completion of construction of the building in 1985. With the long term usage as a dry cleaning company of over 29 years, this usage may have environmentally impacted the subject Property.

Based on their identification of this REC, Aerotech recommended a limited and targeted subsurface investigation be conducted to determine whether the dry cleaning operations had impacted the soil and or groundwater at the Subject Site.

1.4.2 Limited Phase II Environmental Investigation – Aerotech, September, 2014

On September 25, 2014, Aerotech conducted a Limited Phase II Environmental Investigation, which consisted of the completion of five soil borings and collection/analysis of ten soil samples from these borings. Concentrations of tetrachloroethylene/perchloroethylene (PCE) were documented in soils underneath the building slab at the Gig Harbor Dry Cleaners facility. The analytical results for soil samples, collected at depths between 4 and 8 feet below the concrete slab floor, indicate the presence of PCE at concentrations above the most stringent State of Washington Model Toxics Control Act (“MTCA”) Method A Cleanup Levels for soil of 0.05 ppm. PCE was detected in the drum storage area at a depth of 4 feet, at concentrations of 0.30 ppm; and in soil adjoining the PCE-dry cleaning machine, at a depth of 8 feet, at concentrations of 0.059 ppm. PCE was not detected in soils analyzed near the rear door of the dry cleaning operation, or at two locations within the lateral sanitary sewer trench extending northeast of the east corner of the dry cleaning facility. Groundwater was not encountered during the environmental investigation.

Cleanup Action Plan

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

After a review of the Aerotech's previous report, ECI determined that the extent of PCE impacted soil exceeding the State of Washington Model Toxics Control Act ("MTCA") Method A Cleanup Levels for soil had not been adequately delineated and additional assessment was necessary to properly characterize contaminated soils at the site. In addition, ECI noted that the previous subsurface investigation did not contact groundwater and assess the possibility of groundwater being impacted by the PCE release at the Site.

1.4.3 Focused Subsurface Investigation – ECI, October 2014

On October 31, 2014, ECI conducted a Focused Subsurface Investigation which consisted of advancing seven borings at the Site using direct-push drilling techniques (DPT). Four borings (B6 through B9) were completed inside the dry cleaner facility buildings adjacent to the dry cleaning units and to the south and east (Figure 3, Appendix A). Two borings (B10 and B12) were completed outside the building to the north and west, with an additional boring (B11) completed northeast of the building to assess depth to groundwater and possible groundwater impact.

The six soil borings inside and adjacent to the dry cleaner facility (B6 – B10 and B12) were completed using a one-inch diameter, two-foot long, stainless steel push-probe fitted with two-foot long single-use (disposable) acetate liner, advanced with a handheld rotary hammer. Boring B11 was completed using a two-inch diameter, four-foot long stainless steel push-probe fitted with four-foot long single-use (disposable) acetate liner advanced with truck-mounted direct-push drilling equipment.

Prior to advancing each soil boring, the drilling rods, soil samplers and groundwater sampling screen were decontaminated by washing with an aqueous detergent solution consisting of a non-phosphate detergent and potable water, and then rinsing with potable water.

During drilling, soil conditions were logged and screened continuously using visual and olfactory observations. The results of field screening and the soil conditions encountered during drilling are presented on the soil boring logs in Appendix B.

The following conclusions were supported by the findings of the October 31, 2014 investigation.

- A minor release has occurred in the area of the dry cleaning unit. Soil concentrations of PCE exceed MTCA Method A Soil Cleanup Levels inside the building to the east of the dry cleaning machine.
- PCE was not identified in groundwater at a concentration above the method detection limit, and accordingly not exceeding MTCA Method A Cleanup Levels.
- Additional investigation is necessary to adequately characterize the horizontal extent of PCE-impacted soil to the east of the dry cleaning unit at the Subject Property.

Cleanup Action Plan

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

- Areas of concern were identified owing to the age of the dry cleaning equipment and the questionable storage and handling of PCE and “contact water” in the equipment area.

Based on these conclusions, ECI recommended additional investigation to further characterize and delineate the extent of PCE impacted soil underlying the Site.

1.4.4 Supplemental Focused Subsurface Investigation – ECI, November 2014

On October 31, 2014, ECI conducted a Focused Subsurface Investigation (FSI) which consisted of advancing three borings at the Site using DPT. Two borings (B13 through B14) were completed on the exterior of the dry cleaners building. The third boring, B15, was placed within the adjacent rental space (tanning salon). Boring locations are depicted on Figure 3 in Appendix A.

Borings B13 and B14 were completed using a two-inch diameter, four-foot long stainless steel push-probe fitted with four-foot long single-use (disposable) acetate liner advanced with truck-mounted direct-push drilling equipment. Boring B15, inside the tanning salon rental space was completed using a one-inch diameter, two-foot long, stainless steel push-probe fitted with two-foot long single-use (disposable) acetate liner, advanced with a handheld rotary hammer.

Prior to advancing each soil boring, the drilling rods, soil samplers and groundwater sampling screen were decontaminated by washing with an aqueous detergent solution consisting of a non-phosphate detergent and potable water, and then rinsing with potable water.

During drilling, soil conditions were logged and screened continuously using visual and olfactory observations. The results of field screening and the soil conditions encountered during drilling are presented on the soil boring logs in Appendix B.

The following conclusions were supported by the findings of the FSI:

- Soil concentrations of PCE exceed MTCA Method A Soil Cleanup Levels inside the building to the east and south of the dry cleaning machine.

Based on the results and aerial extent of PCE impacted soil, the release impacted the gravel underlying the concrete slab and migrated to the east towards the front of the building and under the tanning salon.

2.0 CONCEPTUAL SITE MODEL

This section provides a summary of the conceptual site model, which includes a discussion of the contaminants of concern (COCs), the media of concern, the distribution of contamination in soil, and the potential exposure pathways for the Site.

2.1 Contaminants of Concern

Based on the findings of previous environmental investigations, the primary COC for the Site is PCE. Analytical results from soil sampled during Aerotech's Limited Phase II Environmental Investigation confirmed that the PCE degradation products trichloroethylene (TCE), cis-1,2-dichloroethylene (cis-1,2 DCE), and vinyl chloride (VC) were not present at concentrations exceeding their respective laboratory reporting limit, however they will remain as secondary COCs for the Site.

2.2 Media of Concern

Based on the findings of previous environmental investigations, soil is the media concern at the Site with the potential for soil vapor impacts due to contaminant adsorption onto soil mineral surfaces.

2.3 Distribution of Contamination in Soil

Based on the findings of previous environmental investigations, it appears that PCE contaminated soil is present beneath the central and eastern portion of the dry cleaning facility extending laterally approximately 10 to 20 feet beyond the eastern entrance. The vertical distribution of PCE appears confined to depths between 4 and 8 feet bgs.

2.4 Exposure Pathways

The following section discusses the confirmed and potential human and ecological exposure pathways at the Site.

2.4.1 Soil Pathway

Potential exposure pathways for soil contamination include volatilization into soil vapor and subsequent exposure through the vapor pathway (discussed in section 2.4.3) or via the direct contact pathway through dermal contact or ingestion. Currently the full extent of contamination is covered by the foundation of the dry cleaning facility and the associated parking lot, however the risk of exposure during any future development activities will remain until the soil is removed or remediated.

2.4.2 Groundwater Pathway

Previous environmental investigation on Site have reported concentrations of COCs in groundwater below the laboratory reporting limits and/or applicable cleanup levels, therefore exposure through the groundwater pathway is considered incomplete.

Cleanup Action Plan

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

2.4.3 Vapor Pathway

Soil vapor can become contaminated from volatilization of a PCE source adsorbed to soil mineral surfaces. The vapor pathway can be mitigated through the presence of an engineering control such as a concrete slab or ventilation system, however the potential for exposure during any future development activities will remain until the soil is removed or remediated.

3.0 CLEANUP STANDARDS

This section develops Site cleanup standards for chemical constituents that were detected in affected Site media. Cleanup standards consist of:

- 1) CULs defined by regulatory criteria that are adequately protective of human health and the environment,
- 2) The point of compliance at which the CULs must be met.

3.1 Cleanup Standards

The process for developing CULs consists of identifying:

- The contaminated media,
- The contaminants of concern (COC),
- The current and potential pathways of exposure,
- The current and potential receptors,
- The current and potential land use.

Based on previous investigations, CULs will be developed for the following COCs in Site soil:

- Tetrachloroethylene (PCE)
- Trichloroethylene (TCE)
- Cis-1,2 Dichloroethene (Cis-1,2 DCE)
- Vinyl chloride (VC)

3.2 Cleanup Levels

Under MTCA, CULs determine the level at which a particular hazardous substance does not threaten human health or the environment. The CULs for soil are identified in this section.

MTCA regulations (WAC 173-340-704) indicate that:

Cleanup Action Plan

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

“Method A may be used to establish CULs at sites that have few hazardous substances and ... sites where numerical standards are available in this chapter for applicable state and federal laws for all indicator hazardous substances in the media for which the Method A cleanup level is being used.”

These soil CULs are protective of human health due to direct contact or ingestion.

The Method A Soil CULs selected for the Site are presented in Table 1 below. If no promulgated Method A CUL exists for a given chemical, the proposed cleanup level is the MTCA Method B Standard Formula Value for carcinogenic or non-carcinogenic compounds.

Table 1: Contaminants of Concern: Soil

MTCA Cleanup Regulation 173-340-900: Table 740-1: Method A Soil Cleanup Levels for Unrestricted Land Uses or Method B Standard Formula		
Primary Contaminant of Concern	Analytical Method	Cleanup Levels (CUL)
		Soil
		mg/kg
Tetrachloroethylene (PCE)	EPA 8260C	0.05
Trichloroethylene (TCE)	EPA 8260C	0.03
Cis-1,2-dichloroethylene (cis-1,2 DCE)	EPA 8260C	160*
Vinyl Chloride (VC)	EPA 8260C	0.67**

*Method B Standard Formula Non-Carcinogenic

**Method B Standard Formula Carcinogenic

3.3 Point of Compliance for Soil

For soil, WAC 173-340-740 indicates that the point of compliance for soil is where the soil CULs shall be attained.

The most conservative point of compliance for soil is for the protection of groundwater. WAC 173-340-740(6)(b) states:

“For soil cleanup levels based on the protection of groundwater, the point of compliance shall be established in the soils throughout the site.”

It is proposed that the point of compliance for the Site will be based on the protection of groundwater and be throughout the Site. The determination of the adequacy of soil cleanup will be based on the

Cleanup Action Plan

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

ability to comply with MTCA-A CULs for the Site, and to meet performance standards designed to minimize human or environmental exposure.

4.0 TECHNICAL COMPONENTS

4.1 Responsibility for Cleanup Action

The site owner will be responsible for conducting remedial actions through the Washington State Voluntary Cleanup Program (VCP). The Subject Site is currently not covered by an Ecology Administrative Action; therefore, any state or local permits that are required will need to be obtained.

ECI has been retained by the site owner to prepare this CAP, provide a work plan for the cleanup, provide oversight during the cleanup, and provide draft and final remedial action reports.

4.2 Goals and Objectives

The specific cleanup goals and objectives for the Site include the following:

- Remediation of subsurface PCE contaminated soil identified during previous environmental investigations.
- Protection of human health and the environment, including protection against direct contact or ingestion of contaminated soil while allowing for the most beneficial use of the Site by the property owners.
- Obtain a determination of No Further Action (NFA) from Ecology.

5.0 GENERAL DESCRIPTION OF PROPOSED CLEANUP ACTION

This section provides a description of the cleanup action components that will be implemented in order to remediate soil beneath the Site.

5.1 Project Permitting

ECI will apply for and receive the required Ecology and City of Gig Harbor building demolition and grade and fill permits. This permitting process is required based on the proposed building demolition activities and excavation / backfill activities.

5.1.1 State Environmental Policy Act (SEPA)

The State Environmental Policy Act (SEPA) is legislation that allows local governments to identify and mitigate possible environmental impacts of certain projects. A SEPA review of this project may be required due to the amount of soil excavation being proposed.

Cleanup Action Plan

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

5.1.2 Contained-In Determination

Under the contained-in policy, Ecology may determine that the contaminated media no longer contains a listed hazardous waste when the hazardous constituents in the media at the Subject Site are below risk-based levels. ECI will provide Ecology with statistically adequate analytical data that represents the level of contamination in the media along with a request for a contained-in determination.

5.2 Demolition

Site preparation will consist of either demolition of the building (northern most portion) housing the dry cleaning operation and a portion of the adjacent tanning salon or working from the interior of the building, removing the concrete floor using smaller excavation equipment and supporting the exterior walls with shoring. Both processes are generally discussed below. Finalization of the demolition plan will occur during the contractor bid process.

5.2.1 Health and Safety Plan (HASP)

A site-specific Health and Safety Plan (HASP) will be prepared in accordance with Chapter 296-62 of the Washington Administrative Code (WAC) and 29 CFR 1910.120 (Code of Federal Regulations). The HASP will identify potential physical and chemical hazards and specified personal protection and safety monitoring requirements. Health and safety meetings will be conducted during fieldwork at the beginning of each workday to review aspects of the HASP, and to provide an opportunity for ECI workers and contractor personnel to discuss health and safety issues or concerns. Onsite personnel associated with the field activities will be required to be familiar with and comply with the HASP's provisions. Subcontractors on site will be required to have their own HASP that identifies potential physical and chemical hazards associated with their own work activities.

5.2.2 Underground Utility Locating

Prior to site activities, ECI will submit a public utility locate request at least two business days prior to site activities. Also, a private utility locating service will be utilized to locate any private underground utilities that may not have been marked by the public locating service.

5.2.3 Interior Limited Building Demolition

The interior of the Gig Harbor Dry Cleaning building will be emptied of all equipment and non-load bearing walls including the wall separating the dry-cleaners from the adjacent tanning salon. Site utilities will be disconnected once all improvements have been removed, and the concrete floor will be removed by saw cutting rather than jack hammer to lessen noise impact to the adjacent tenants. The glass facade on the building unit's northern elevation will be removed. This opening will be the primary construction entrance. The concrete and underlying soil will be removed starting in the rear (western) area moving

Cleanup Action Plan

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

east. Pin pile supports will be placed on four foot centers along the perimeter of the exterior walls as needed. Where the impacted soil is within three feet of the exterior wall and excavation depth is expected to be over two feet bgs. All pin pile installation will be completed following the approval of a structural engineer.

5.2.4 Building Demolition

The interior of the Gig Harbor Dry Cleaning building will be emptied of all equipment and non-load bearing walls including the wall separating the dry-cleaners from the adjacent tanning salon. Site utilities will be disconnected. The exterior (roof mounted) heating, ventilating, and air conditioning equipment will be removed and stored. A structural engineer will survey the building and mark load bearing walls and roof support. Any necessary structural installation will be erected prior to demolition. The exterior walls on the north, east and west elevations and the roof covering the dry cleaning business will be removed. The concrete floor will be removed by saw cutting rather than jack hammer to lessen noise impact to the adjacent tenants. The concrete and underlying soil will be removed starting in the rear (western) area moving east.

5.3 Soil Remediation

The scope of work includes the following tasks:

- Excavation and off-site disposal of contaminated soil;
- Health and Safety Plan (HASP) preparation;
- Underground Utility location (as needed);
- Sample collection and analysis;
- Data analysis and interpretation;
- Remedial excavation report preparation

5.3.1 Soil Excavation

Following the concrete saw cutting, concrete and soil impacted with PCE will be excavated following the previously delineated contaminated soil outline. The excavation will be advanced to approximately 8 feet below ground surface. Soil samples, as detailed below in section 5.3.2 will be collected on a ten foot grid, with one sample being collected in each grid. Sample results will guide additional excavation activities. The excavation sampling cycle will continue until soil sample results are reported below applicable MTCA Method A CUL.

Cleanup Action Plan

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

5.3.2 Sampling and Analysis

During excavation activities, representative soil samples will be collected in an effort to confirm removal of the contaminated soils. Soil samples will be collected using a grid method. This will allow for the continued excavation if contaminated soil in areas where sample analysis has been reported exceeding applicable cleanup levels. Confirmation samples will be collected from each excavation sidewall and the base of the excavation. Each soil sample will be field screened a photoionization detector. Soil samples will then be placed into new, laboratory provided containers and provided a unique sample identification number. Soil samples collected for volatile organic compounds (VOC) analysis will be collected using the Ecology-required EPA Collection Method 5035. Following collection, each sample will be placed into a climate controlled container maintained at 4° Celsius until submitted to the accredited laboratory, under industry standard chain of custody protocols

Soil samples collected during the soil remediation activities will be delivered to an Ecology accredited laboratory, for analysis. The laboratory will analyze the soil samples for PCE, TCE, cis-1,2 DCE, and VC by EPA Method 8260C. Additionally if the onsite environmental professional determines, through field screening, that other contaminants may be present, additional analysis may be performed.

A chain-of-custody (COC) record will remain with all samples to the onsite or offsite laboratory. COCs will be completed and sent with the samples for each delivery to the laboratory. If multiple coolers are sent to the laboratory, COCs will be completed and sent with the samples for each cooler. The chain-of-custody form will identify the contents of each cooler and maintain the custodial integrity of the samples. Generally, a sample is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorize personnel.

5.3.3 Field Documentation

ECI will be documenting all field activities with the use of field logs and photographs.

5.3.3.1 Field Log Books

Field logbooks are intended to provide sufficient information to reconstruct events that occurred during field activities.

The following are examples of information to be included by the sampler(s) in a field logbook:

- Project name and location;
- Name, date, and time of entry;
- Names and responsibilities of field crew members;

Cleanup Action Plan

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

- Name and titles of any site visitors involved in or actively observing the sampling;
- Descriptions of deviations from the sampling procedures and any problems encountered;
- Weather information including air temperature and recent precipitation;
- Date and time of sample collection;
- General observations, including the setting / features surrounding the sampling location, topography, etc.; and
- Work start and stop times.

5.3.3.2 Site Photographs

Photographs will be taken at each sampling location to document field conditions, including the features and structures surrounding the sample locations. Photographs also will provide a record of the spatial relationships between the sampled area and surrounding features and structures

5.4 Site Restoration

Following removal activities of the contaminated soil, the excavation will be backfilled with an engineered structural fill material capable of 95% compaction. The backfill will be placed in twelve inch lifts and compacted using a mechanical compactor. Backfill placement final grade will meet the existing concrete subgrade. Compaction testing will be completed by a properly licensed testing company.

6.0 APPLICABLE LAWS

MTCA requires that all cleanup actions conducted under MTCA shall comply with applicable state and federal laws (WAC 173-340-710(1)). MTCA defines applicable state and federal laws to include legally applicable requirements and those requirements that are relevant and appropriate. Collectively, these requirements are referred to as applicable or relevant and appropriate requirements (ARARs). This section provides a brief overview of potential ARARs for the site cleanup. The primary ARAR is the MTCA cleanup regulation (WAC 173-340).

Other than MTCA, the primary ARARs that may pertain to the cleanup action include the following:

- Federal Maximum Contaminant Levels (40 CFR Part 141), developed under the Safe Drinking Water Act;
- Washington Clean Air Act, Chapter 70.94 RCW;

Cleanup Action Plan

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

- Solid and Hazardous Waste Management (Chapter 70.105 RCW; and the accompanying Dangerous Waste regulations (WAC 173-303);
- State of Washington Solid Waste Regulations (WAC 173-350 and WAC 173-351);
- The Federal Resource Conservation and Recovery Act (RCRA) including the Land Disposal Restrictions (40 CFR 260 – 282);
- Washington Industrial Safety and Health Act (RCW 49.17) and the Federal Occupational Safety and Health Act (29 CFR 1910, 1926);
- State Environmental Policy Act SEPA (Chapter 43.21C RCW and WAC 197-11);
- Construction Stormwater General Permit (Chapter 90.48 RCW) (33 U.S.C. Section 1251 et seq.).

State and federal groundwater and air quality criteria are considered in the development of CULs. State Dangerous Waste Regulations may be applicable to contaminated soil removed from the site during cleanup activities. State Environmental Policy Act requirements will be addressed concurrent with the site CAP to the degree applicable for the selected cleanup action.

7.0 PUBLIC PARTICIPATION / COMMUNICATION

Consideration of public concerns is an inherent part of the Site cleanup process under MTCA (see WAC 173-340-600). Ecology is responsible for providing public notice and the opportunity for public comments on this CAP per WAC 173-340-600(13), if required. The formal review and comment period is approximately 30 days. After review and consideration of public comments, the contents of this document may be revised accordingly.

8.0 PROJECT REPORTING

Upon completion of the cleanup action and follow-up confirmation sampling, a draft Remedial Action Completion Report will be prepared for submittal to Ecology documenting the cleanup action activities and the results of confirmation sampling. If the confirmation sampling results adequately demonstrate that cleanup has successfully remediated soil to below the Site CULs, the report will include or be accompanied by a request for an NFA determination from Ecology.

9.0 USE OF DOCUMENT

This CAP has been prepared for Orlandini and Waldron, their agents, and/or assigns for the property located at 6978 Kimball Drive in Gig Harbor, Washington. No other party is entitled to rely on the

Cleanup Action Plan

6978 Kimball Drive
Gig Harbor, Washington

May 5, 2015

information, conclusions, and recommendations included in this document without the express written consent of Orlandini and Waldron.

10.0 REFERENCES

Guidance documents were reviewed and obtained from the following sources:

- Washington Department of Ecology (Ecology), Southwest Regional Office, Records
- Tacoma-Pierce County Health Department (TPCHD) Waste Disposal (<http://www.tpchd.org/environment/waste-management/waste-disposal-authorization>)
- Pierce County Assessor Website (<http://www.co.pierce.wa.us/Index.aspx?NID=91>)
- Washington State Department of Ecology Contained In Determination (<http://www.ecy.wa.gov/programs/hwtr/determinations/index.html>)

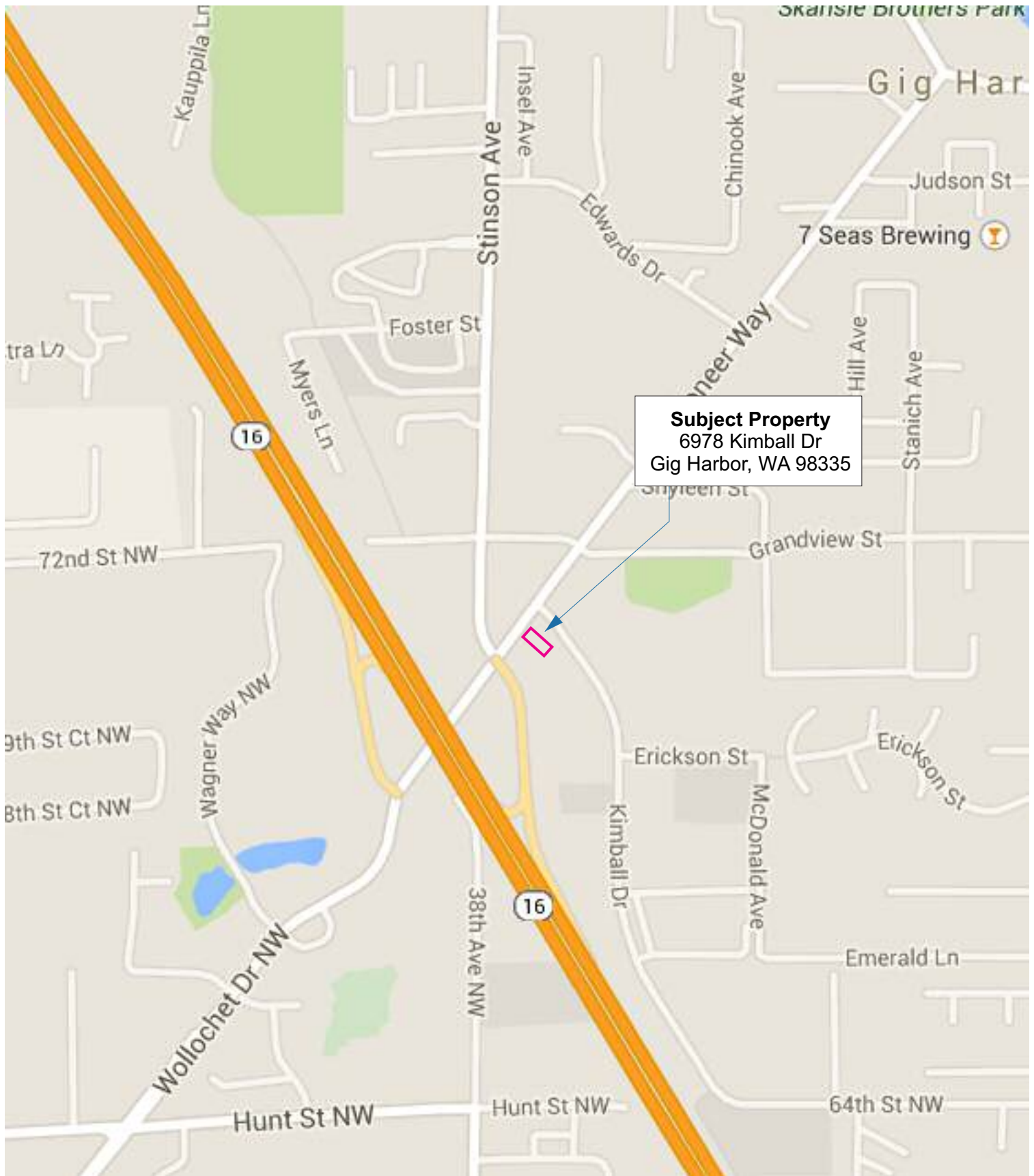
Appendix A

Project Figures

Figure 1: Site Location Map

Figure 2: Site Topographic Map

Figure 3: Sample Location Map



Subject Property
 6978 Kimball Dr
 Gig Harbor, WA 98335



Site Location Map
 Cleanup Action Plan
 6978 Kimball Dr
 Gig Harbor, Washington 98335

Date: May 5, 2015
 Completed By: K. Spencer
 Reviewed By: S. Spencer
 Version: ECI-001
 Project No.: 0547-03

Figure No.:

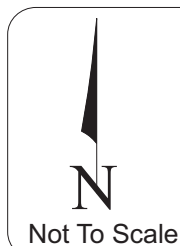
01

Sheet 01 of 03

ECI environmental Services
www.ecoconline.com



Subject Property
6978 Kimball Dr
Gig Harbor, WA 98335



Site Topographic Map
Cleanup Action Plan
6978 Kimball Dr
Gig Harbor, Washington 98335

Date: May 5, 2015
Completed By: K. Spencer
Reviewed By: S. Spencer
Version: ECI-001
Project No.: 0547-03

Figure No.:
02
Sheet 02 of 03

ECI environmental Services
www.ecoconline.com

Pioneer Way

Kimball Drive

Asphalt Parking

Presumed Area
of Impacted Soil

Lobby

Dry Cleaning
Equipment

B11-W-103114 (24') (Water Sample)
Tetrachloroethene:<1 ug/L

B-5 (8' Aerotech)
Tetrachloroethene:<0.025

B14-4-111814 (4')
Tetrachloroethene:0.17
B14-8-111814 (8')
Tetrachloroethene:<0.025
B14-12-111814 (12')
Tetrachloroethene:<0.025

B-4 (7' Aerotech)
Tetrachloroethene:<0.025
B-4 (12')
Tetrachloroethene:<0.025

B15-4-111814 (4')
Tetrachloroethene:0.063
B15-8-111814 (8')
Tetrachloroethene:<0.025
B15-12-111814 (12')
Tetrachloroethene:<0.025

B8-4-103114 (4')
Tetrachloroethene:<0.025
B8-8-103114 (8')
Tetrachloroethene:<0.025

B-2 (8' - Aerotech)
Tetrachloroethene:0.059
B6-4-103114 (4')
Tetrachloroethene:<0.025
B6-12-103114 (12')
Tetrachloroethene:<0.025

B13-4-111814 (4')
Tetrachloroethene:<0.025
B13-8-111814 (8')
Tetrachloroethene:<0.025
B13-12-111814 (12')
Tetrachloroethene:<0.025

B9-4-103114 (4')
Tetrachloroethene:0.30
B9-8-103114 (8')
Tetrachloroethene:<0.025

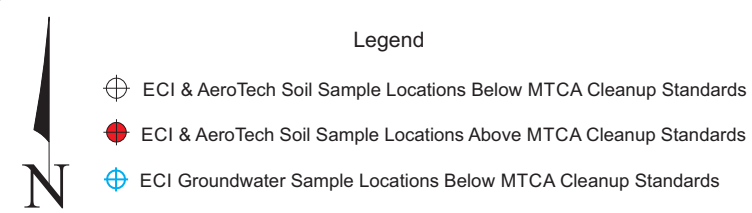
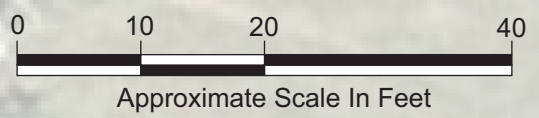
B12-4-103114 (4')
Tetrachloroethene:<0.025
B12-6-103114 (6')
Tetrachloroethene:<0.025

B-1 (4' Aerotech)
Tetrachloroethene:0.30
B7-8-103114 (4')
Tetrachloroethene:<0.025
B7-12-103114 (12')
Tetrachloroethene:<0.025

B10-4-103114 (4')
Tetrachloroethene:<0.025
B10-8-103114 (8')
Tetrachloroethene:<0.025
B10-12-103114 (12')
Tetrachloroethene:<0.025

B-3 (17' Aerotech)
Tetrachloroethene:<0.025

Gravel Parking



Sample location Map
Cleanup Action Plan
6978 Kimball Dr
Gig Harbor, Washington 98335

Appendix B

ECI Boring Logs

Appendix B

ECI Boring Logs

[illegible]

ECI environmental services www.ecocononline.com						Project: Gig Harbor Dry Cleaners Location: 6978 Kimball Drive, Harbor, Washington Gig Client: Orlandini & Waldron, PS		Boring ID: B7 Project Number: 0547-01																																	
Date Start/Finish: 10/31/2014						Drilling Method: Direct Push		Unified Soil Classification System <table><tr><td rowspan="5">NON-COHESIVE SOILS</td><td>GW</td><td>WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL</td></tr><tr><td>GP</td><td>POORLY-GRADED GRAVEL</td></tr><tr><td>GM</td><td>SILTY GRAVEL</td></tr><tr><td>GC</td><td>CLAYEY GRAVEL</td></tr><tr><td>SW</td><td>WELL-GRADED SAND, FINE TO COARSE SAND</td></tr><tr><td rowspan="7">COHESIVE SOILS</td><td>SP</td><td>POORLY-GRADED SAND</td></tr><tr><td>SM</td><td>SILTY SAND</td></tr><tr><td>SC</td><td>CLAYEY SAND</td></tr><tr><td>ML</td><td>SILT</td></tr><tr><td>CL</td><td>CLAY</td></tr><tr><td>OL</td><td>ORGANIC SILT, ORGANIC CLAY</td></tr><tr><td>MH</td><td>SILT OF HIGH PLASTICITY, ELASTIC SILT</td></tr><tr><td>CH</td><td>CLAY OF HIGH PLASTICITY, FAT CLAY</td></tr><tr><td>OH</td><td>ORGANIC CLAY, ORGANIC SILT</td></tr><tr><td>PT</td><td>PEAT</td></tr></table>		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	COHESIVE SOILS	SP	POORLY-GRADED SAND	SM	SILTY SAND	SC	CLAYEY SAND	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
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																																							
COHESIVE SOILS	SP	POORLY-GRADED SAND																																							
	SM	SILTY SAND																																							
	SC	CLAYEY SAND																																							
	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																																								
Logged By: Kyle Spencer						Auger ID/OD:																																			
Checked By: K. Craig Klein						Borehole ID/OD:																																			
Contractor: Standard Environmental Probe						Sampler: Acetate Liner																																			
Operator: Chris Ross						Hammer Wt./Fall:																																			
Boring Location: Adjacent to cleaning machine						Ground Elevation:																																			
Coordinates:						Water Depth: NA																																			
Weather: Cloudy, Rain, 50 Degrees						Boring Depth: 12'																																			
Depth (ft bgs)	Sample No.	Time	Sample Condition	PID Reading	Remarks	Soil and Rock Description		Unified Classification	Graphical Representation																																
4						Sand with gravel, fine to medium grained, light brown, loose, dry		SP																																	
8	B7-8		Good																																						
12	B7-12		Good																																						

Notes:

Page

[illegible]

[illegible]

[illegible]

ECI environmental services www.ecocononline.com						Project: Gig Harbor Dry Cleaners Location: 6978 Kimball Drive, Harbor, Washington Client: Orlandini & Waldron, PS		Boring ID: B14 <u>Project Number:</u> 0547-01																																																																																																																																																																																																																		
Date Start/Finish: 11/18/2014						Drilling Method: Direct Push		<table border="1"><thead><tr><th colspan="2">Unified Soil Classification System</th></tr></thead><tbody><tr><td rowspan="6">NON-COHESIVE SOILS</td><td>GW</td><td>WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL</td></tr><tr><td>GP</td><td>POORLY-GRADED GRAVEL</td></tr><tr><td>GM</td><td>SILTY GRAVEL</td></tr><tr><td>GC</td><td>CLAYEY GRAVEL</td></tr><tr><td>SW</td><td>WELL-GRADED SAND, FINE TO COARSE SAND</td></tr><tr><td>SP</td><td>POORLY-GRADED SAND</td></tr><tr><td rowspan="7">COHESIVE SOILS</td><td>SM</td><td>SILTY SAND</td></tr><tr><td>SC</td><td>CLAYEY SAND</td></tr><tr><td>ML</td><td>SILT</td></tr><tr><td>CL</td><td>CLAY</td></tr><tr><td>OL</td><td>ORGANIC SILT, ORGANIC CLAY</td></tr><tr><td>MH</td><td>SILT OF HIGH PLASTICITY, ELASTIC SILT</td></tr><tr><td>CH</td><td>CLAY OF HIGH PLASTICITY, FAT CLAY</td></tr><tr><td rowspan="2"></td><td>OH</td><td>ORGANIC CLAY, ORGANIC SILT</td></tr><tr><td>PT</td><td>PEAT</td></tr></tbody></table>		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	COHESIVE SOILS	SM	SILTY SAND	SC	CLAYEY SAND	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																																																																																																																																																																														
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																																																																																																																																																																																																																								
COHESIVE SOILS	SM	SILTY SAND																																																																																																																																																																																																																								
	SC	CLAYEY SAND																																																																																																																																																																																																																								
	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																																																																																																																																																																																																																								
Logged By: Brad Reilly						Auger ID/OD:																																																																																																																																																																																																																				
Checked By: K. Craig Klein						Borehole ID/OD:																																																																																																																																																																																																																				
Contractor: Standard Environmental Probe						Sampler: Acetate Liner																																																																																																																																																																																																																				
Operator: Chris Ross						Hammer Wt./Fall:																																																																																																																																																																																																																				
Boring Location: Outside, east of building						Ground Elevation:																																																																																																																																																																																																																				
Coordinates:						Water Depth: 21'																																																																																																																																																																																																																				
Weather: Clear, dry, 35 Degrees						Boring Depth: 24'																																																																																																																																																																																																																				
<table border="1"><thead><tr><th>Depth (ft bgs)</th><th>Sample No.</th><th>Time</th><th>Sample Condition</th><th>PID Reading</th><th>Remarks</th><th>Soil and Rock Description</th><th>Unified Classification</th><th>Graphical Representation</th></tr></thead><tbody><tr><td>4</td><td>B14-4</td><td>1:10p</td><td>Good</td><td></td><td></td><td>Sand with gravel, fine to medium grained, light brown, loose, dry</td><td>SP</td><td rowspan="24"></td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td>8</td><td>B14-8</td><td>1:15p</td><td>Good</td><td></td><td></td><td>Sand with gravel, fine to medium grained, gray, loose, dry</td><td>SP</td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td>12</td><td>B14-12</td><td>1:25p</td><td>Good</td><td></td><td></td><td>Sand with gravel, fine to medium grained, gray, loose, dry</td><td>SP</td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></tbody></table>									Depth (ft bgs)	Sample No.	Time	Sample Condition	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation	4	B14-4	1:10p	Good			Sand with gravel, fine to medium grained, light brown, loose, dry	SP																																		8	B14-8	1:15p	Good			Sand with gravel, fine to medium grained, gray, loose, dry	SP																																	12	B14-12	1:25p	Good			Sand with gravel, fine to medium grained, gray, loose, dry	SP																																																																																																																
Depth (ft bgs)	Sample No.	Time	Sample Condition	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation																																																																																																																																																																																																																		
4	B14-4	1:10p	Good			Sand with gravel, fine to medium grained, light brown, loose, dry	SP																																																																																																																																																																																																																			
8	B14-8	1:15p	Good			Sand with gravel, fine to medium grained, gray, loose, dry	SP																																																																																																																																																																																																																			
12	B14-12	1:25p	Good			Sand with gravel, fine to medium grained, gray, loose, dry	SP																																																																																																																																																																																																																			
Notes:																																																																																																																																																																																																																										
Page																																																																																																																																																																																																																										

ECI environmental services www.ecocononline.com						Project: Gig Harbor Dry Cleaners Location: 6978 Kimball Drive, Gig Harbor, Washington Client: Orlandini & Waldron, PS		Boring ID: B15 Project Number: 0547-01																																			
Date Start/Finish: 11/18/2014						Drilling Method: Direct Push		<table><tr><th colspan="2">Unified Soil Classification System</th></tr><tr><td rowspan="8">NON-COHESIVE SOILS</td><td>GW</td><td>WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL</td></tr><tr><td>GP</td><td>POORLY-GRADED GRAVEL</td></tr><tr><td>GM</td><td>SILTY GRAVEL</td></tr><tr><td>GC</td><td>CLAYEY GRAVEL</td></tr><tr><td>SW</td><td>WELL-GRADED SAND, FINE TO COARSE SAND</td></tr><tr><td>SP</td><td>POORLY-GRADED SAND</td></tr><tr><td>SM</td><td>SILTY SAND</td></tr><tr><td>SC</td><td>CLAYEY SAND</td></tr><tr><td rowspan="6">COHESIVE SOILS</td><td>ML</td><td>SILT</td></tr><tr><td>CL</td><td>CLAY</td></tr><tr><td>OL</td><td>ORGANIC SILT, ORGANIC CLAY</td></tr><tr><td>MH</td><td>SILT OF HIGH PLASTICITY, ELASTIC SILT</td></tr><tr><td>CH</td><td>CLAY OF HIGH PLASTICITY, FAT CLAY</td></tr><tr><td>OH</td><td>ORGANIC CLAY, ORGANIC SILT</td></tr><tr><td>PT</td><td>PEAT</td></tr></table>		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
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																																										
Logged By: Brad Reilly						Auger ID/OD:																																					
Checked By: K. Craig Klein						Borehole ID/OD:																																					
Contractor: Standard Environmental Probe						Sampler: Acetate Liner																																					
Operator: Chris Ross						Hammer Wt./Fall:																																					
Boring Location: Inside, north wall adjacent property						Ground Elevation:																																					
Coordinates:						Water Depth: N/A																																					
Weather: Clear, dry, 35 Degrees						Boring Depth: 12'																																					
Depth (ft bgs)	Sample No.	Time	Sample Condition	PID Reading	Remarks	Soil and Rock Description		Unified Classification	Graphical Representation																																		
4	B15-4	2:15p	Good			Sand with gravel, fine to medium grained, light brown, loose, dry		SP																																			
8	B15-8	2:35p	Good			Sand with gravel, fine to medium grained, gray, loose, dry		SP																																			
12	B15-12	3:25p	Good			Sand with gravel, fine to medium grained, gray, loose, dry		SP																																			
Notes:																																											
Page																																											