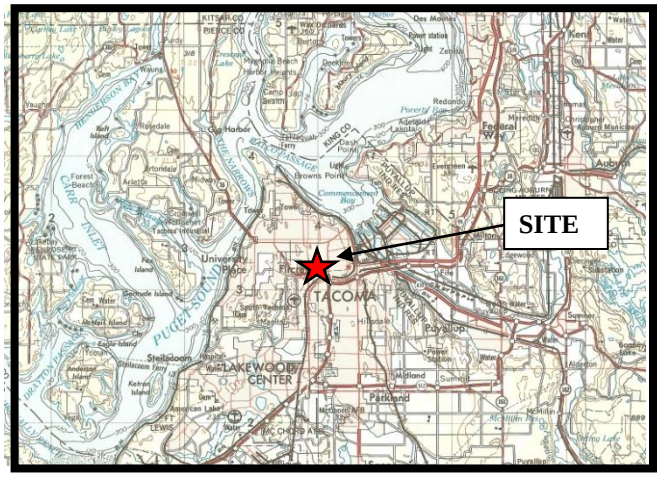
CLEANUP ACTION PLAN

For the

HIGHLAND HILLS SHOPPING CENTER

NORTHWEST FURNITURE & BRIDGESTONE FIRESTONE RETAIL CENTER



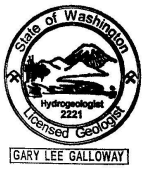
Prepared for

HIGHLAND SIXTH ASSOCIATES LP

C/o Koehler & Company
Attn: Doug McFadyen
1924 1st Avenue, 3rd Floor
Seattle, Washington 98101

Prepared by

Gary Galloway, LHG
President



GALLOWAY ENVIRONMENTAL, INC.
3102 - 220th Place SE
Sammamish, Washington 98075-9540

September 25, 2015

CONTENTS *Page No.*

EXECUTIVE SUMMARY		*ES-I*
1.0	*INTRODUCTION*	*1-1*
1.0.1	*Special Terms and Conditions*	*1-1*
1.0.2	*Involved Parties*	*1-1*
1.0.3	*Regulatory Framework*	*1-2*
1.0.4	*Cleanup Action Objective*	*1-2*
2.0	*SITE DESCRIPTION*	*2-1*
2.0.1	*Location and Legal Description*	*2-1*
2.0.2	*Background and General Facility Information*	*2-1*
2.0.3	*Current Uses of Adjoining Properties*	*2-1*
2.0.4	*Proposed Land Use*	*2-1*
3.0	*PREVIOUS ENVIRONMENTAL REPORTS*	*3-1*
4.0	*ENVIRONMENTAL SETTING*	*4-1*
4.0.1	*Regional Physiographic Conditions*	*4-1*
4.0.2	*Soil/Geologic Conditions*	*4-1*
4.0.3	*Hydrogeologic Conditions*	*4-1*
5.0	*SITE SPECIFIC RISK ASSESSMENT*	*5-1*
5.0.1	*Media of Concern*	*5-1*
5.0.2	*Exposure Pathways*	*5-2*
5.0.2.1	*Soil to Groundwater Pathway*	*5-2*
5.0.2.2	*Soil Particulate to Air Pathway*	*5-2*
5.0.2.3	*Soil Direct Contact Pathway*	*5-3*
5.0.2.4	*Terrestrial Ecological Evaluation*	*5-3*
6.0	*MTCA MEDIA CLEANUP LEVELS AND POINTS OF COMPLIANCE*	*6-1*
6.0.1	*Cleanup Levels*	*6-1*
6.0.2	*Points of Compliance*	*6-2*
7.0	*SUMMARY OF SITE CONDITIONS AND REMEDIAL ACTION ALTERNATIVES*	*7-1*
7.1	*ALTERNATIVE CLEANUP ACTIONS CONSIDERED*	*7-2*
7.1.1	*Remedial Option 1— Protective Cap and Institutional Controls*	*7-3*
7.1.2	*Remedial Option 2— InSitu Chemical Treatment (Bioremediation or Chemical Oxidation)*	*7-4*
7.1.3	*Remedial Option 3 — InSitu Treatment — Vapor Extraction/Ozonation*	*7-6*
7.1.4	*Remedial Option 4 — Additional Excavation*	*7-7*
7.2	*DISPROPORTIONATE COST ANALYSIS*	*7-9*
7.2.1	*Northwest Furniture Outlet Analysis*	*7-10*
7.2.2	*BFRC Analysis*	*7-12*
7.3	*CRITERIA RANKING*	*7-14*

CONTENTS (Continued) *Page No.*

7.4	*COMPARISON OF ALTERNATIVES BY CRITERIA*	*7-15*
7.4.1	*Northwest Furniture Outlet Analysis*	*7-15*
7.4.2	*BFRC Analysis*	*7-16*
7.5	*REMEDIAL ALTERNATIVE(S) SELECTION*	*7-17*
7.5.1	*Northwest Furniture Outlet Analysis*	*7-17*
7.5.2	*BFRC Analysis*	*7-17*
8.0	*CLEANUP ACTION DESIGN*	*8-1*
8.1	*VAPOR INTRUSION INVESTIGATION*	*8-1*
8.2	*PERFORMANCE MONITORING*	*8-2*
8.3	*PROTECTION MONITORING*	*8-3*
8.4	*INSTITUTIONAL CONTROLS*	*8-4*
8.5	*SCHEDULE*	*8-4*
9.0	*LIMITATIONS*	*9-1*
10.0	*REFERENCES*	*10-1*

FIGURES

2-1	*LOCATION MAP*	*2-2*
2-2	*VICINITY MAP*	*2-3*
3-1	*SOIL SAMPLE LOCATIONS (GeoProbe & BFRC Clearance Samples)*	*3-6*
4-1	*TOPOGRAPHIC MAP*	*4-2*
8-1	*SOIL CLEARANCE AND VAPOR INTRUSION SAMPLE LOCATIONS*	*8-5*

TABLES

3-1	*SOIL SAMPLE RESULTS SUMMARY (GeoProbe Investigation - NW Furniture)*	*3-7*
3-2	*BFRC SOIL SAMPLE RESULTS SUMMARY (Remedial Excavation Limits)*	*3-8*
7-1	*REMEDIAL ALTERNATIVE(S) SCORING EVALUATION SUMMARY*	*7-19*
8-1	*PROJECT TASK SCHEDULE*	*8-4*

APPENDICES

A	*PREVIOUS ENVIRONMENTAL REPORTS*
B	*REPRESENTATIVE WELL LOGS*

EXECUTIVE SUMMARY

Galloway Environmental, Inc. (GEI) has prepared this Cleanup Action Work Plan (CAP) on behalf of Highland Sixth Associates LP. This CAP is designed to: 1) Describe the nature and extent of contaminants remaining at the Site following remedial actions previously performed at the Site, and 2) Identify additional remedial option(s), which may be necessary to comply with MTCA Cleanup Regulations.

Background

The Site consists of the adjoining Northwest Furniture Outlet and the Bridgestone Firestone Retail Center properties at the Highland Hills Shopping Center in Tacoma, Washington. The Pierce County Assessor lists the businesses addresses as 5907 and 5909 6th Avenue in Tacoma, Washington 98406.

The property is approximately four miles west of Tacoma's Central Business District and 1½ miles east of The Narrows Passage of Puget Sound. The Site is situated in the NW¼ of Section 2, Township 20 North, Range 2 East. Surrounding properties consist primarily of commercial properties.

Several environmental site investigations and remedial action reports have been completed at the subject property. These reports are summarized in Section 1.0.3 — Previous Environmental Studies.

Summary of the Investigations and Remedial Actions previously performed at the Site

- Residual Contamination — Remaining soils with contaminant concentrations above allowable Washington State Model Toxics Control Act Method B (MTCA) Cleanup Levels (CULs) exist at two locations of the Site, these are summarized as follows.

  Northwest Furniture Outlet - Laboratory analysis of soil samples collected during GEI's latest direct push (GeoProbe) investigation confirmed the presence of contaminant concentrations above the allowable MTCA CULs for "Direct Contact" under Methods B or C for Unrestricted Land Use (ULU) in one of the eight soil penetrations sampled beneath the footprint of the Northwest Furniture Outlet (previously operated as the Daisy Clothing Care facility). See Appendix A — Previous Environmental Reports, Site Cleanup Confirmation Investigation at the Highland Hills Shopping Center, by GEI, dated December 29, 2014.

  BFRC - Soil samples collected from the limits of the remedial excavation at the BFRC in 2009 also exceeded MTCA CULs for "Direct Contact" under Methods B or C for in the sidewalls and bottom of the excavation. See Appendix A — Interim Cleanup Status Letter Report to the WDOE, by GEI, dated March 30. 2009.

- Water samples — No groundwater was encountered during any environmental investigations or remedial actions at the Site - including drilling one well to 90 feet of depth to investigate for the presence of water at the Site.

  GEI conducted a well log search of Ecology's well logs near the Site. The search included reviewing many nearby soil borings drilled to depths ranging up to over 200 feet belowground — the presence of groundwater was not noted on any of these well logs *(See Appendix B — Representative Well Logs).*

Conclusions of the Investigations and Remedial Action Reports

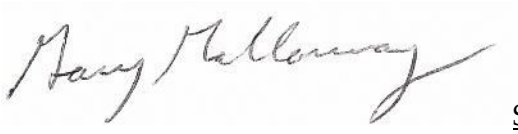
- To comply with MTCA regulations: 1) Additional remedial action (impacted soil removals) is recommended in vicinity of one direct push soil penetration with elevated COC concentrations

in the footprint of the previous Northwest Furniture Outlet, and 2) A protective cap with associated institutional controls (deed restrictions, restrictive covenants, etc.) are recommended inside of the BRFC work bay area. Institutional Controls are necessary to ensure worker protection for workers performing invasive activities in vicinity of areas where soils with residual COC concentrations exceed MTCA CULs.

- Water — Since groundwater is not present within 90 feet of the ground surface and GEI's review of WDOE well logs in vicinity of the Site did not identify groundwater as being present within 100 feet of the ground surface, protection of ground water is not considered a media of concern for this Site.
- Surface water is not present at the Site.
- Vapor intrusion studies are proposed as a part of this CAP.
- A Terrestrial Ecological Evaluation will be performed as a part of this CAP.

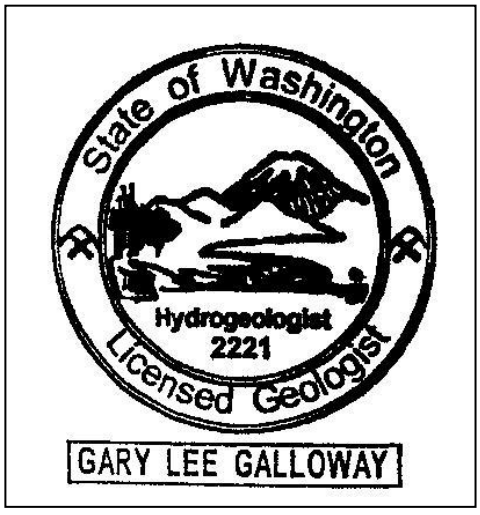
DECLARATIVE STATEMENT

Consistent with the Model Toxics Control Act, Chapter 70.105D RCW, as implemented by the Model Toxics Control Act Cleanup Regulation, Chapter 173-340 WAC, it is determined that the selected cleanup actions are protective of human health and the environment, attain federal and state requirements that are applicable or relevant and appropriate, comply with cleanup standards, provide for compliance monitoring, use permanent solutions to the maximum extent practicable, and provide for a reasonable restoration time-frame.



September 25, 2015

Gary L. Galloway, LG/LHG — Date
President
Galloway Environmental, Inc.



1.0 INTRODUCTION

Galloway Environmental, Inc. (GEI) has prepared this Cleanup Action Work Plan (CAP) on behalf of Highland Sixth Associates LP. This CAP is targeted to describe remedial actions completed at the Site and identify additional potential remedial actions that may be necessary to comply with Model Toxics Control Act (MTCA) Cleanup Levels (CULs). The CAP also identifies data gaps necessary to complete the Cleanup of the Site.

The Site consists of the adjoining Northwest Furniture Outlet and the Bridgestone Firestone Retail Center properties at the Highland Hills Shopping Center in Tacoma, Washington. The Pierce County Assessor lists the businesses addresses as 5907 and 5909 6th Avenue in Tacoma, Washington 98406.

This CAP presents the evaluation of existing conditions and background information at the Site, including the following:

- An analysis and summary of the site background and the physical setting
- An analysis and summary of previous responses and investigations
- Presentation of the conceptual site model, including an analysis and summary of the nature and extent of contamination; preliminary assessment of human health and environmental impacts; and the additional data needed to conduct the baseline risk assessment

Because the remedial action process is dynamic and iterative, this CAP and/or supplemental plans, such as the QAPP and the FSP, will be modified during the remediation process to incorporate new information and refined project objectives.

1.0.1 Special Terms and Conditions

This CAP is based upon the application of scientific principles and professional judgment to certain facts with resultant subjective interpretations. Professional judgments expressed herein are based upon the facts currently available within the limits of the existing data, scope of work, budget and schedule and may undergo revision as additional data are obtained. To the extent that more definitive conclusions are desired by the client than are warranted by the currently available facts, it is specifically GEI's intent that the conclusions and recommendations stated in our report is intended as guidance and not necessarily a firm course of action except where explicitly stated as such.

1.0.2 Involved Parties

Current Facility Operator and addresses

HIGHLAND SIXTH ASSOCIATES LP
C/o Koehler & Company
Attn: Doug McFadyen
1924 1st Avenue, 3rd Floor
Seattle, Washington 98101
Phone: (206) 720-2269

Environmental Consultant

Galloway Environmental, Inc.
Attn: Gary Galloway, LHG, REA, CHMM
3102 220th Place SE

Sammamish, Washington 98075-9540
Phone: (425) 688-8852

Ecology Project Manager (not yet assigned)

1.0.3 Regulatory Framework

Remediation of petroleum-impacted soil in Washington State is regulated by the Model Toxics Control Act *(MTCA, WAC 173-340).* Generally, remediation of such sites is performed following the voluntary independent provisions of MTCA.

GEI's approach to these site cleanup services will follow all appropriate Washington State, local and federal guidance documents, including the following Washington Department of Ecology (WDOE) and US Environmental Protection Agency (EPA) guidance documents. Work will comply with current safety, health and other relevant regulations, including:

- OSHA CFR 1910.120, Hazardous Waste Operations and Emergency Responses
- WAC 296-24, General Safety & Health Standards
- WAC 296-62, WAC Occupational Health Standards
- WAC 296-800/OSHA 29 CFR 1910, WAC Core Safety & Health Standards
- WAC 296-155/OSHA 29 CFR 1926, Construction Industry Standards
- WAC 173-340, Model Toxics Control Act Cleanup Regulation
- WAC 173-303, Dangerous Waste Regulations
- EPA CFR 40, Protection of Environment
- NPDES Waste Discharge Regulations
- Stormwater Management Manual for Western WA, WDOE August 2001
- WAC 173-201A, Water Quality Standards for the State of Washington
- RCW 46.25.085, 46.25.080, 46.25.070, 46.48.170, 4.24.314
- Section 311 Clean Water Act, RCW 90.56

1.0.4 Cleanup Action Objective

Following the successful completion of this Cleanup Action, the impacted soils (with contaminant concentrations above the applicable MTCA CULs) will either be removed from the Site, treated, or are covered with a protective cap that is designed to prevent potential adverse exposures to human health or the environment. Performance monitoring of the remedial actions and long-term institutional controls will be implemented to ensure potential exposures to these contaminants are mitigated.

2.0 SITE DESCRIPTION

2.0.1 Location and Legal Description

The Site consists of land previously occupied by the Northwest Furniture Outlet and the existing Bridgestone Firestone Retail Center. The Pierce County Assessor lists the Site's addresses as 5907 and 5909 6th Avenue in Tacoma, Washington 98406.

The Site is approximately three miles west of Tacoma's central business district and 1½ miles east of The Narrows Passage of Puget Sound *(See Figure 2-1 — Site Location Map)*. The property is situated in the NW¼ of Section 2, Township 20 North, Range 2 East. Surrounding properties consist primarily of commercial properties.

2.0.2 Background and General Facility Information

The single story, 5,000 square foot Northwest Furniture Outlet structure was constructed to house the Daisy Clothing Care business in 1969. The facility had washing machines, clothing dryers and seven dry cleaning units. Daisy Clothing Care was in operation at the site until 1985 and the cleaners ceased its operation. Reportedly, the Northwest Furniture Outlet suite was vacant until 1993 when the Northwest Furniture Outlet occupied the structure. The structure was demolished in April 2008 and most of the footprint of the structure was capped with asphalt with a small area adjacent to the remaining BFRC structure planted with vegetation, small shrubs, and trees *(See Figure 2-2 — Site Vicinity Map).*

A 6,820 square foot Bridgestone Firestone Retail Center (BRFC) auto service center was built adjoining the Northwest Furniture Outlet (Daisy Clothing Care) structure in 1969. Currently there are six vehicle service bays situated in the north and western portions of the structure. Five of the service bays are equipped with hydraulic lifts and an aboveground alignment rack has replaced a hydraulic lift that had previously occupied the northern bay. There are six floor drains (one near each lift) that are connected by an underground line leading to an underground oil/water separator located adjacent to the northern wall of the facility — the oil/water separator was removed from beneath the concrete floor of the facility by GEI in 2005. Along with approximately 175 tons of impacted soil *(See Section 3.0 Previous Environmental Reports).*

Both businesses are (or were) provided City of Tacoma water and sewer services since 1969.

2.0.3 Current Uses of Adjoining Properties

Properties bordering the Site are commercial and/or retail properties.

2.0.4 Proposed Land Use

The Owner plans to continue using the BFRC as is currently being used and does not plan to re-develop the area formerly used by the Northwest Furniture Outlet.

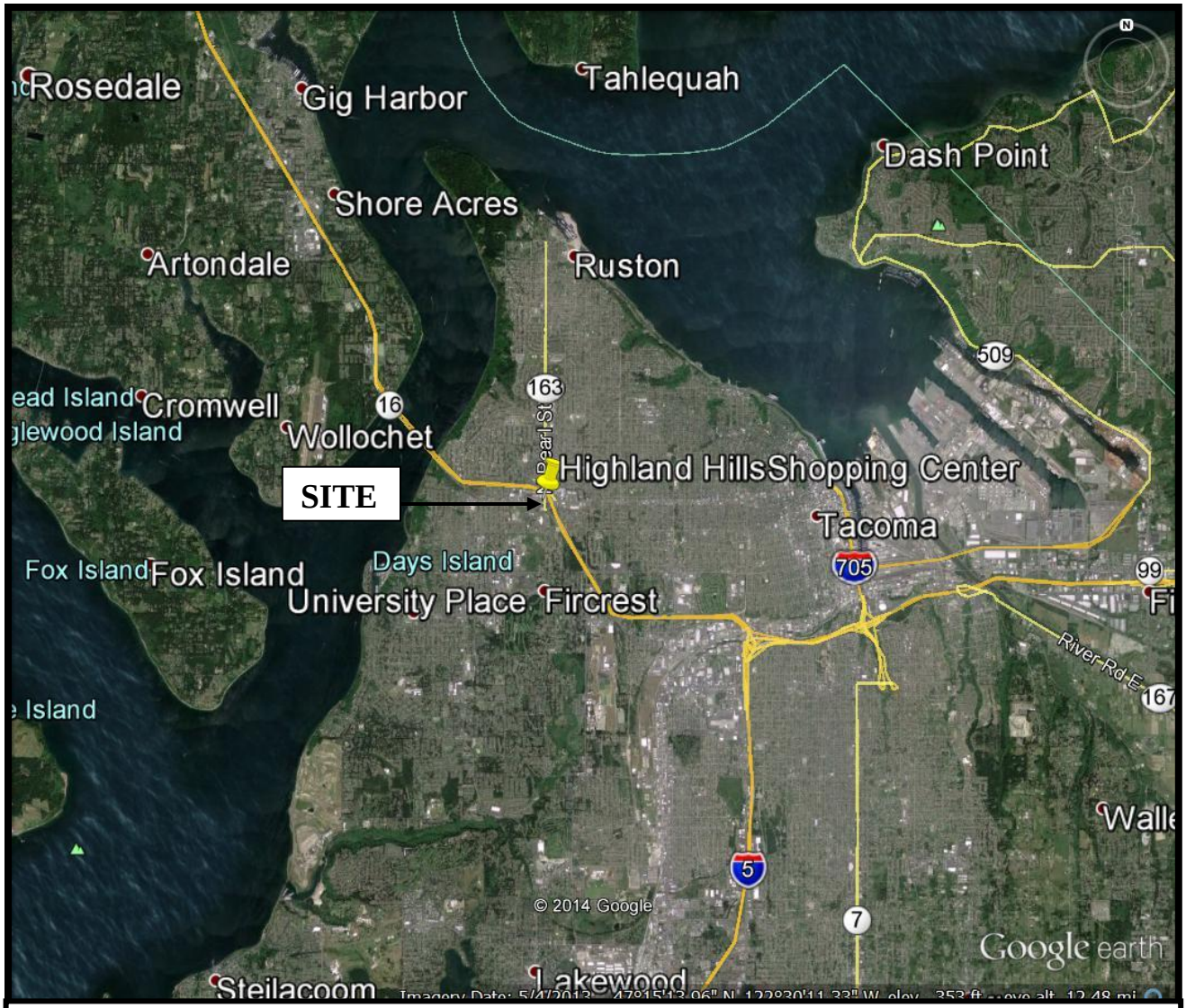


FIGURE 2-1 — LOCATION MAP
Highland Hills Shopping Center - Northwest Furniture & Bridgestone Firestone Retail Center
Source: Modified after Google Maps 2013, GEI Project # 35001

FIGURE 2-2 — VICINITY MAP
Northwest Furniture & Bridgestone Firestone Retail Center Property CAP
Source: Modified after Google May 2013, GEI Project #35001

3.0 PREVIOUS ENVIRONMENTAL REPORTS

Several environmental studies and remedial actions have been completed at the subject shopping center property. These investigations have provided information related to Environmental Site Investigation and Remedial Action Reports at the Northwest Furniture Outlet Facility (previously operated as Daisy Clothing Care) and the adjacent BFRC facility *(See Appendix A — Previous Environmental Reports).*

These investigations confirmed that concentrations of halogenated volatile organic compounds (HVOCs), gasoline-range petroleum compounds (mineral spirits), and total xylenes exceeded the allowable Washington State Model Toxics Control Act (MTCA) Method B cleanup limits in soil at the site. GEI has integrated the results of these investigations into the scope of work for this investigation. These reports are summarized as follows.

Limited Level II ESA at the Northwest Furniture Outlet, 5909 Sixth Avenue, GEI, July 2004

GEI completed a Limited Level II Environmental Site Investigation at the Northwest Furniture Outlet property in July 2004. GEI's field screening and follow up laboratory analysis of soil samples collected from hand auger borings resulted in solvent compound concentrations above the allowable MTCA limits.

Phase II ESA at the Highland Hills Shopping Center, 5907 - 6201 Sixth Avenue, by Environmental Partners, Inc, March 2005

Environmental Partners, Inc. (EPI) completed a Phase II Environmental Site Assessment (ESA) of portions of the site to test for the presence of potential contaminants of concern outside the excavation area.

Laboratory analysis of EPI's soil samples confirmed that contaminant concentrations exceeded the allowable MTCA Method A concentrations, but were within the allowable Method B levels for "Direct Contact" cleanup levels in all of the borings except at one boring (Boring No. B-8).

EPI submitted one soil sample from B-8. The soil sample was collected from approximately 11.5 feet below grade. Laboratory analysis of the sample resulted in 33 ppm PCE — the MTCA Method B Direct Contact limit in soil (MTCA 2005) was 19.6 ppm for PCE). This (EPI) sample also exceeded MTCA's limits for gasoline-range petroleum concentrations – the laboratory noted the following; *"Chromatogram indicates sample contains products which are likely mineral spirits, light oil and lube oil".*

EPI's Draft Phase II ESA Executive Summary also states the following.

"The Firestone shop contains a sub-floor oil/water separator in the proximity of a parts cleaning station, which likely involved the past use of chlorinated solvents. There is a potential that past practices may have introduced solvents or petroleum hydrocarbons into the shallow soil in the vicinity of the oil/water separator" (Draft Phase II ESA Executive Summary, Highland Hills Shopping Center, Environmental Partners, Inc., March 2005).

Environmental Cleanup Status Report at the NW Furniture Outlet Property, by GEI, August 2005

GEI completed a Limited Level II Environmental Site Investigation at the Northwest Furniture Outlet property in July 2004. GEI's field screening and follow up laboratory

analysis of soil samples collected from hand auger borings resulted in solvent compound concentrations above the allowable MTCA (2004)) limits.

Based on these MTCA accidences, the owner asked GEI to remove the impacted soil until: 1) the residual contaminant concentrations were within the allowable MTCA limits; or 2) continued removals of the affected soil would (potentially) jeopardize the structural integrity of the building.

Excavated soils with contaminant concentrations exceeding Ecology's Dangerous Waste limits were loaded directly into 20 cubic yard containers for disposal at Waste Management's RCRA-permitted (hazardous waste) facility and excavated soils with contaminant concentrations below the Dangerous Waste limits were loaded directly into Waste Management's 20 cubic yard containers for rail delivery to Waste Management's non-hazardous waste facility as per WDOE's "Contained In" authorization letter *(Disposal of Soils with F002-Listed Dangerous Waste Constituents, Letter from K. Seiler - WDOE SWRO Section Manager to Galloway Environmental, March 11, 2005)*

GEI removed approximately 175 tons of solvent-impacted soils from below the concrete floor of the facility and collected soil samples from the sidewalls and bottom of the excavation to test for potential residual contaminant concentrations in the excavation. The excavation was backfilled with pea gravel and a four-inch thick concrete slab will be poured over the gravel. GEI also installed a 20-mil, chemical resistant PVC liner at about three feet below grade to restrict potential residual vapors from entering the facility.

GEI collected interim soil samples from the sidewalls and excavation bottom for field screening and laboratory analysis during the removals to quantify the contaminant concentrations remaining in the soils. Field screening and laboratory tests of soil samples (collected from the excavation) that resulted in concentrations exceeding the targeted cleanup levels (MTCA Method B – Direct Contact levels) were subsequently excavated and the excavation was re-sampled.

Following the removals of as much of the impacted soils as possible, GEI collected representative soil samples from the sidewalls and bottom of the excavation to test for residual contaminant concentrations remaining in the excavation. Contaminant concentrations in soils exposed at the limits of the final excavation resulted in concentrations dry cleaning compounds above the WDOE-acceptable MTCA Method A and below the Method B Cleanup Levels for "Direct Contact" of the soils *(Environmental Cleanup Status Report, Galloway Environmental, Inc., August 2005).*

BFRC Retail Store Number 015539, 5907 Sixth Avenue, Seacor International, Inc. Nov. 2, 2005

SECOR International, Inc. completed a Limited Subsurface Assessment of the BFRC facility in November 2005. SECOR's assessment included the advancement of six Strataprobe penetrations to depths ranging from 13 to 19.5 feet bgs. Laboratory analysis of soil samples collected from the borings confirmed the presence of gasoline-range compounds, total xylenes and volatile organic compounds at concentrations exceeding the allowable MTCA Method A Cleanup Levels. No groundwater was encountered in any of the penetrations *(Limited Subsurface Assessment Report for BF Retail & Commercial Operations, LLC, BFRC Retail*

Store Number 015539, 5907 6th Avenue, Tacoma, Washington, by SECOR International, Inc., November 2, 2005).

ESA Services at the BFRC Services Facility, by GEI, August 16, 2006

GEI contracted Cascade Drilling to drill one soil boring near the furniture store to a maximum depth of 90 feet below the ground surface to investigate whether groundwater was present in the boring. If groundwater was encountered in the boring, then we planned to collect a water sample from the boring for chemical analysis for the contaminants of concern for the site.

GEI collected soil samples from the boring on five-foot intervals. The samples were field-screened for obvious signs of contamination (discolored soil or obvious odors, etc.), which are sometimes characteristic of environmental impacts to soil. The samples also were field-tested using a photoionization detector (PID – Mini-Rae), to screen for volatile compounds in the samples.

Since the field screening of the soils samples did not identify any indications of contamination in the samples, GEI submitted three soil samples from the boring for laboratory analysis. These samples were collected from approximately 15 feet, 30 feet and 60 feet of depth. The sampling protocols and procedures followed appropriate state and federal guidance documents, primarily EPA SW-846 and Washington State guidance documents (including EPA Method 5035A). OnSite Environmental Inc. analyzed the samples for the contaminants of concern using NWTPH-Gx/BTEX and Halogenated Volatiles (EPA Method 8260B).

Groundwater was not encountered in the soil boring - The boring was advanced to 90 feet belowground and the auger flight was lifted approximately 6-inches (off the bottom) to see if water would collect at the bottom of the boring – after waiting approximately 15 minutes no water was present in the boring. The Contaminants of Concern (COCs) were not detected in any of the soil samples submitted to the laboratory.

Summary Status Letter, NW Furniture Store/ BFRC, Letter correspondence to Scott Rose (WDOE VCP) from GEI, dated March 30, 2009

Gary Galloway summarized the environmental services completed at the BFRC and NW Furniture Outlet as follows.

Northwest Furniture Outlet Property

Based on MTCA accidences identified during GEI's Phase II Environmental Site Investigation at the Furniture Store, the owner asked GEI to remove the impacted soil until: 1) the residual contaminant concentrations were within the allowable MTCA limits; or 2) continued removals of the affected soil would (potentially) jeopardize the structural integrity of the nearby buildings.

In 2005, GEI removed approximately 175 tons of impacted soils from below the concrete floor of the facility. Following the removals of as much of the impacted soils as possible, GEI collected representative soil samples from the sidewalls and bottom of the excavation to test for residual contaminant concentrations remaining in the excavation. Also, Environmental Partners, Inc. (EPI) completed a Phase II Environmental Site Assessment

(ESA) of portions of the site (including the BFRC -Firestone Store) to test for the presence of potential contaminants of concern outside the excavation area.

The Furniture Store building was demolished in April 2008 and in May 2008; GEI contracted ESN Drilling Company to inject chemical oxidation compounds (Potassium Permanganate) into the ground (to approximately 15 feet belowground) in the former footprint of the furniture store as shown in the attached figure - clearance soil sample data is provided in the attached table. Most of the former footprint of the furniture store has been capped with asphalt – with approximately ten feet of landscaped vegetation adjacent to the Firestone Store.

BFRC Property

Based on MTCA accidences identified during EPI's Focused Phase II Environmental Site Investigation at the Firestone Store, the owner asked GEI to remove an underground oil/water separator and the impacted soil until: 1) the residual contaminant concentrations were within the allowable MTCA limits; or 2) continued removals of the affected soil would (potentially) jeopardize the structural integrity of the nearby buildings.

GEI removed the separator and impacted soil to a depth of 15 feet – the excavation measured 15'x15'x15'. Clearance soil samples were collected from the limits of the excavation and the excavation was backfilled with pea gravel and reinforced concrete was poured at the surface *(See attached figure and table).*

In September 2008 and in March 2009, GEI gravity feed approximately 300 gallons of 3% KMnO4 (Potassium Permanganate) into the backfilled gravel (former oil/water separator location) to further reduce contaminant concentrations in the soils. The owner has asked GEI to continue the chemical oxidation treatment in the pea gravel semi-annually at the site.

Site Cleanup Confirmation Investigation, Highland Hills Shopping Center, Northwest Furniture Outlet and Bridgestone Firestone Retail Center, by GEI, dated December 29, 2014

GEI conducted a focused environmental site assessment beneath the footprint of the previous Northwest Furniture Outlet to collect soil samples from an area that had previously been identified as impacted by dry cleaning solvents. This investigation was targeted to determine whether the remedial actions completed at the Site had successfully removed or treated the impacted soils to comply with MTCA CULs.

Specifically, GEI performed environmental soil sampling and analysis at eight (8) shallow soil penetration test holes drilled at the property. The results of the investigation are summarized as follows *(See Appendix A — Site Cleanup Confirmation Investigation).*

- Soil samples — Laboratory analysis of GEI's soil samples resulted in elevated concentrations of Chemicals of Concern (COCs) above the allowable MTCA Method B CULs for Unrestricted Land Use (ULU) in one of the eight soil penetrations sampled during this investigation.

PHOTO HERE stained soil

Soil samples collected from the limits of the remedial excavation at the BFRC in 2009 also exceeded MTCA CULs for "Direct Contact" in the sidewalls and bottom of the

excavation *(See Appendix A — Interim Cleanup Status Letter Report to the WDOE, by GEI, dated March 30. 2001).*

- Water samples — No groundwater was encountered during this study.

Conclusions and Recommendations

- Additional environmental investigation or remedial action is recommended to comply with MTCA regulations in vicinity of the one soil penetration with elevated COC concentrations in the soil.
- Institutional Controls are necessary to ensure worker protection for workers performing invasive activities in vicinity of the BFRC remedial excavation.

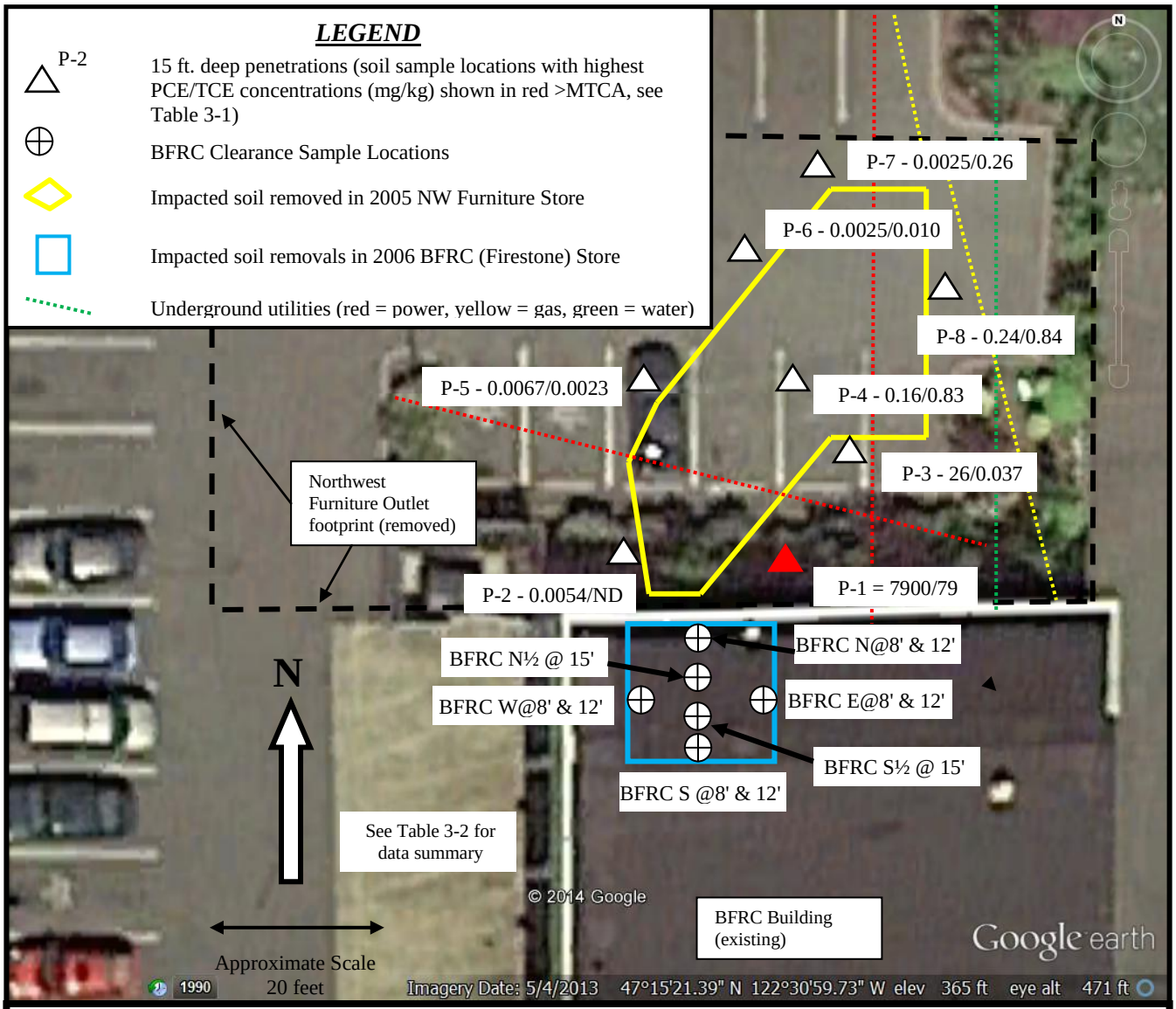


FIGURE 3-1 —SOIL SAMPLE LOCATIONS (GeoProbe & BFRC Clearance Samples)
Northwest Furniture & Bridgestone Firestone Retail Center Property Focused SCCI — See Table 3-1 for laboratory results
Source: Google Maps 2014, GEI Project #35001

TABLE 3-1 SOIL SAMPLE RESULTS SUMMARY (GeoProbe Investigation - NW Furniture)

Sample Number with sample depths	PID Readings	Laboratory Analysis — mg/kg (ppm)					
		TCE	PCE	(cis) 1,2 Dichloro-ethene	1,1,1,2-Tetrachloro-ethane	1,2-Dichlorobenzene	Vinyl Chloride
P-1@2.6'	>50	**79**	**7900**	5.4	0.44	0.073	<0.058
P1@8'	0.0	0.010	0.80	0.39	<0.001	<0.001	<0.0009
P1@8' dup**	0.0	<0.086	0.12	2.4	<0.086	<0.086	0.086
P1@11'	0.0	0.0063	0.061	0.037	<0.001	<0.0009	0.0009
P2@11'	0.0	<0.0009	0.0054	0.002	<0.0009	<0.0009	0.0009
P3@2.6'	0.0	0.037	26	0.0023	<0.0007	<0.0007	0.0007
P-3@7'	0.0	0.0027	0.015	13	<0.0065	<0.0065	0.0011
P4@11'	1.8	0.83	0.16	45	<0.091	<0.091	0.0012
P5@7.5'	0.0	0.0023	0.0067	0.14	<0.001	<0.001	0.0010
P6@8'	0.0	0.010	0.0025	0.053	<0.001	<0.001	0.0010
P7@8'	0.0	0.26	0.0093	1.1	<0.0011	<0.061	0.0011
P8-11'	1.2	0.84	0.24	3.5	<0.063	<0.063	0.0009
MTCA Limits Method B Residential (top) Method C Industrial (bottom)		40 (12*) 1750 (2850*)	480 (476*) 21000 (62500*)	160 7000	2400 105000	160 315000	240 (0.67*) 10500 (87.5*)

* Method B & C values for carcinogenic compounds are listed in parenthesis (CLARC December 2014)
** Duplicate (laboratory) analysis for this sample
Sample locations shown in Figure 3-1 (Also see Appendix A — Previous Environmental Reports)

*TABLE 3-2 BFRC SOIL SAMPLE RESULTS SUMMARY (Remedial Excavation Limits)**							
Sample No. & depth (feet)	**NWTPH-Gx***	**Xylene (total)**	**Methylene Chloride**	**(cis) 1,2 Dichloroethene**	**TCE**	**PCE**	**Remarks**
BFRC E@8′	8.3	0.0218	0.054	0.0020	0.0011	0.0015	Sidewall samples Note: Benzene, Toluene, and Xylenes < MTCA Method A CULs
BFRC W@8′	**500**	0.24	ND	ND	ND	ND	Sidewall samples BTEX < MTCA Method A CULs
BFRC N@8′	**370**	0.40	ND	0.045	ND	ND	"
BFRC S@8′	90	0.0088	ND	0.0025	0.0015	0.0052	"
BFRC N@12′	**780**	ND	ND	ND	ND	0.220	"
BFRC S@12′	ND	0.0025	ND	0.0054	0.015	0.10	"
BFRC E@12′	**120**	0.0072	ND	0.0016	0.0017	0.080	"
BFRC W@12′	**1600**	0.14	ND	ND	ND	ND	"
BFRC S ½ @15′	**5600**	6.40	ND	ND	0.32	1.9	Bottom samples BTEX < MTCA Method A CULs
BFRC N ½ @15′	**8100**	20	ND	0.46	0.75	2.4	"
MTCA Limits Method B Residential (top) Method C Industrial (bottom)	30**	16,000 105,000	480 21,000	160 7,000	40 (12*) 1,750 (2,850*)	480 (476*) 21,000 (62,500*)	

* = The chromatograms are similar to mineral spirits (See Appendix A)
** = Gasoline mixtures with benzene and total BTEX < 1%
Bold and shaded values are > MTCA Method B ULU

4.0 ENVIRONMENTAL SETTING

4.0.1 Regional Physiographic Conditions

The site is situated in the lowlands of the Puget Sound basin in Western Washington. The Puget Sound is a north-south trending trough between the Olympic Mountains to the west and the Cascade Mountains to the east. Elevation in the lowlands ranges from sea level up to several hundred feet. North-south trending valleys dominate the topography and low, nearly flat-topped highlands cut by streams. The Puget Sound occupies a large part of the western portion of the basin; lakes and streams occur frequently throughout the remainder of the basin.

The subject site is at an elevation of about 340 feet above mean sea level and is situated near the top of a gently rolling elevated plain which was formed during the last period of continental glaciation that ended approximately 13,500 years ago *(See Figure 4-1 — Topographic Map).*

Climate

Western Washington is characterized as having a mild marine climate. While the average total annual precipitation is approximately 37 inches, most of the rain falls between October and April.

4.0.2 Soil/Geologic Conditions

The uplands of the Puget Sound Basin are separated by large Pleistocene glacial troughs now occupied by tidal waters, large lakes, or have been alluviated by streams that inherited the troughs with the retreat of the most recent glaciation. Native soils in the area consist of glacial drift and non-glacial Pleistocene deposits.

Soils exposed in the sidewalls and bottom of the excavations completed during the removals of impacted soils for this project consisted mainly of artificial fill materials ranging from the six to nine feet of depth. The fill materials were predominately silty sand with gravel, organics and silty fine sand. Glacial till, a dense heterogeneous mixture of silt, sand, and gravel underlies the fill.

4.0.3 Hydrogeologic Conditions

Based on the results of previous subsurface investigations, the depth of groundwater in vicinity of the subject property is greater than 90 feet below the ground surface *(See Sections 3.0 — Previous Environmental Investigations and 5.0.1 — Media of Concern).*

The subject property is supplied water from a local municipal source. On site drainage is handled through on site ground retention and storm drains. Surface drainage appears to be adequate as there is no evidence of standing water, streams or creeks in the vicinity of the site.

On-site drainage is handled through on-site ground retention and storm drains. Surface drainage appears to be adequate and there is no evidence of standing water in vicinity of the site.

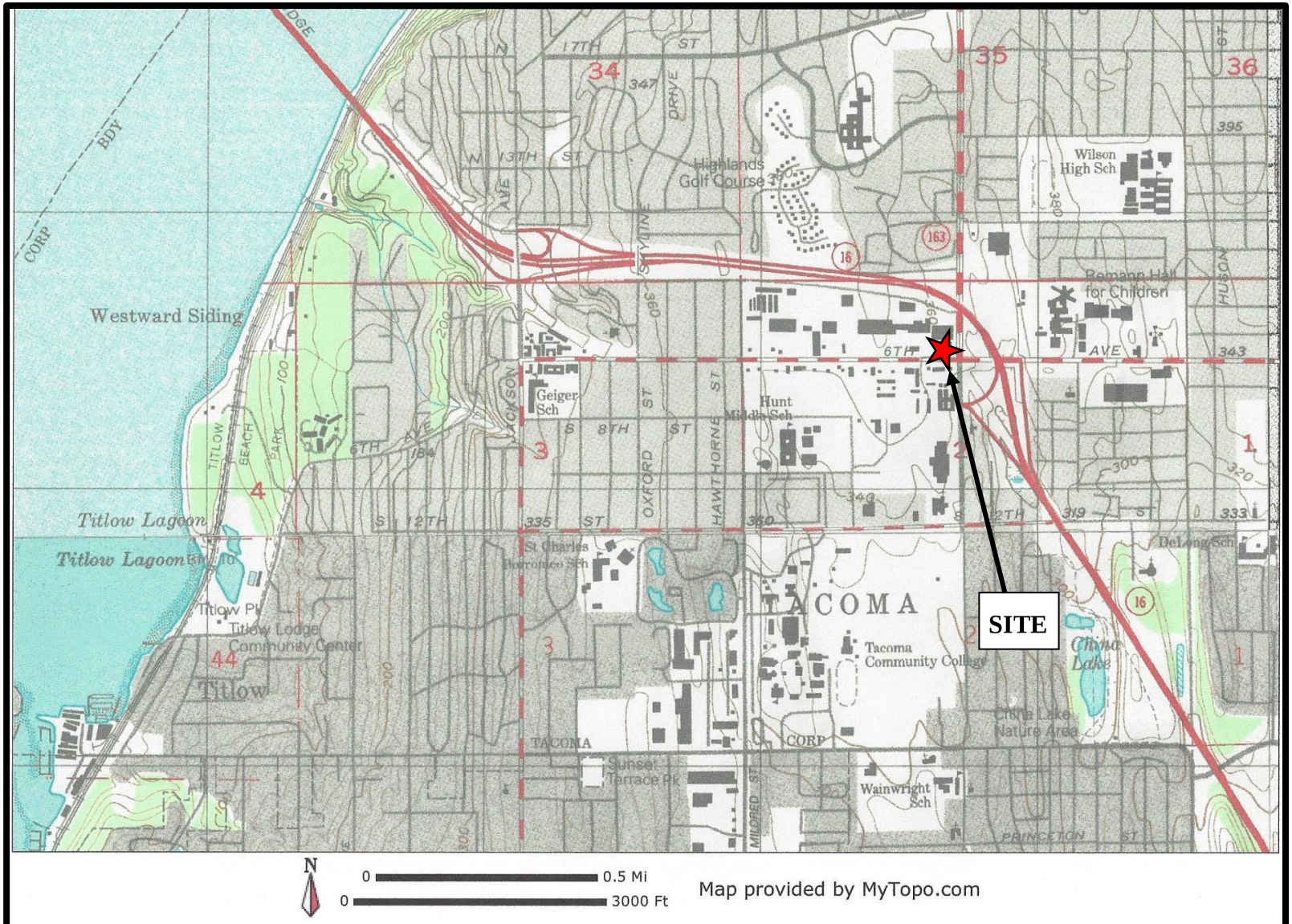


FIGURE 4-1 — TOPOGRAPHIC MAP
Northwest Furniture & Bridgestone Firestone Retail Center Property CAP
Source: USGS Topographic Map, GEI Project #35001

5.0 SITE SPECIFIC RISK ASSESSMENT

Potential risks to human health and the environment are evaluated here first by listing the various media that might present some risk at the site and then by presenting a more detailed view of potential exposures to that media.

5.0.1 Media of Concern

Each medium of concern represents a potential exposure point for either the human exposure assessment or the terrestrial and aquatic ecological assessments discussed below. The media of concern are as follows:

- Groundwater
- Soil - Direct Contact
- Vapor Intrusion - air inside a building on the subject site
- Surface water and Sediments

Groundwater

1) Groundwater Soil Boring

   GEI contracted the Cascade Drilling Company to drill one soil boring to a depth of 90 feet below the ground surface near the western side of the Northwest Furniture building to investigate whether groundwater was present belowground at the Site *(See Appendix A – Previous Environmental Reports, BFRC GW Letter Report)*. If groundwater was encountered in the boring, then we planned to collect a water sample from the boring for chemical analysis for the contaminants of concern for the site.

   GEI collected soil samples from the boring on five-foot intervals. The samples were field-screened for obvious signs of contamination (discolored soil or obvious odors, etc.), which are sometimes characteristic of environmental impacts to soil. The samples also were field-tested using a photoionization detector (PID – Mini-Rae), to screen for volatile compounds in the samples.

   Since the field screening of the soils samples did not identify any indications of contamination in the samples, GEI submitted three soil samples from the boring for laboratory analysis. These samples were collected from approximately 15 feet, 30 feet and 60 feet of depth. The sampling protocols and procedures followed appropriate state and federal guidance documents, primarily EPA SW-846 and Washington State guidance documents (including EPA Method 5035A). OnSite Environmental Inc. analyzed the samples for the contaminants of concern using NWTPH-Gx/BTEX and Halogenated Volatiles (EPA Method 8260B).

   Groundwater was not encountered in the soil boring. The boring was advanced to 90 feet belowground and the auger flight was lifted approximately 6-inches (off the bottom) to see if water would collect at the bottom of the boring. After waiting approximately 15 minutes no water was present in the boring, we then decided to let the boring stand until the next morning to see if water would be present at the bottom of the boring and no water was present in the boring.

   Soil – Field screening and laboratory analysis did not identify any contamination in the boring *(See Appendix A).*

2) Department of Ecology Well Log Search

GEI conducted a well log search of Ecology's well logs near the Site. The search included reviewing many nearby soil borings drilled to depths ranging up to over 200 feet belowground — the presence of groundwater was not noted on any of these well logs *(See Appendix B — Representative Well Logs).*

Since water was not encountered within 90 feet of the ground surface in GEI's boring and Ecology's well records do not indicate the presence of groundwater within 200 feet of the surface in nearby wells, the protection of ground water is not considered a media of concern.

Soil

Direct exposure to soils - MTCA [WAC 173-340-740(6)(d)] states*: "For soil cleanup levels based on human exposure via direct contact or other exposure pathways where contact with soil is required to complete the pathway, the point of compliance shall be established in the soils throughout the site from the ground surface to fifteen feet below the ground surface. This represents a reasonable estimate of the depth of soil that could be excavated and distributed at the soil surface as a result of site development activities."* Direct exposure (dermal or incidental ingestion) to soils within 15 feet of the ground surface, has been considered below in setting cleanup levels to protect human health and the environment.

Vapor Intrusion

Soil gas samples will be collected and analyzed from belowground near the BFRC and the asphalt parking area west of the BFRC facility as summarized in Section 8.1 — Vapor Intrusion Investigation.

Surface Water and Sediments

There is no surface water or sediments present at the Site. A Terrestrial Assessment will be included with GEI's Environmental Cleanup Report after this CAP has been implemented.

5.0.2 Exposure Pathways

The following pathways were evaluated at the site for this ECR.

- Product to groundwater and surface water
- Soil to groundwater
- Soil particulate to air
- Soil direct contact
- Terrestrial ecological evaluation

5.0.2.1 Soil to Groundwater Pathway

Potential groundwater impacts are not of concern because no groundwater was identified within 90 feet of the ground surface *(See Section 5.0.1, above).*

5.0.2.2 Soil Particulate to Air Pathway

This pathway is not a concern for the Northwest Furniture Outlet area because the impacted soil will be removed to comply with the applicable CULs. The clearance soil samples from the

BFRC removals indicate that COCs impacts to the soils are present at depths ranging from eight to 15 feet below the existing concrete floor of the building.

This pathway is not of concern for the site provided that the concrete surface covering the contaminants is not removed – vapor intrusion samples will be collected to confirm this.

5.0.2.3 Soil Direct Contact Pathway

As stated above, the COCs impacts to the soil are limited to: 1) A small area in the approximate footprint of the previous Northwest Furniture Outlet building, and 2) In the sidewalls and bottom of the remedial excavation inside the BFRC building.

This pathway is not of concern for the Northwest Furniture Outlet area because the contaminants will be removed to comply with the applicable CULs. This pathway is not a concern for the BFRC building provided that the concrete surface covering the contaminants is not removed and institutional controls *(deed restrictions, restrictive covenants, etc.)* are enacted to make workers aware of the residual contamination prior to conducting invasive activities.

5.0.2.4 Terrestrial Ecological Evaluation

A Terrestrial Ecological Evaluation will be provided as a part of this CAP.

6.0 MTCA MEDIA CLEANUP LEVELS AND POINTS OF COMPLIANCE

The Model Toxics Control Act (MTCA) cleanup regulations require that a cleanup action must comply with cleanup levels for selected hazardous substances, points of compliance, and applicable or relevant and appropriate state and federal laws (ARARs) [WAC 173-340-710]. The Chemicals of Concern (COCs) for this Site are listed below..

6.0.1 Cleanup Levels

The Model Toxics Control Act (MTCA) cleanup regulations require that a cleanup action must comply with cleanup levels for selected hazardous substances, points of compliance, and applicable or relevant and appropriate state and federal laws (ARARs) [WAC 173-340-710]. The final indicator hazardous substances identified for the site, the associated cleanup levels, and ARARs are briefly summarized in the following sections.

The Site Cleanup Levels (CULs) for the Site are set as follows.

1) *Soils*

   Soil cleanup levels for the indicator hazardous substances were identified for the site using the criteria outlined in the WDOE Cleanup Levels and Risk Calculation (CLARC) web-based tables, dated September 15, 2015 (WAC 173-340). We have listed all COCs that have been detected at the Site even though most of them were not detected in samples collected during recent studies at the Site.

   Soil cleanup levels applies to all soils within 15 feet of the ground surface are calculated using Method B: Standard Formulae Values for Direct Contact for Unrestricted Land Use. The point of compliance (POC) is everywhere on the site where contaminant concentrations have been confirmed to be above the applicable MTCA CULs.

   - NWTPH-Gx = 30 mg/kg MTCA Method A (no benzene detected in these samples)
   - Methylene Chloride = 480 mg/kg MTCA Method B
   - (cis) 1,2 Dichloroethene = 160 mg/kg MTCA Method B
   - Tetrachloroethylene = 480 mg/kg, MTCA Method B
   - Trichloroethylene = 40 mg/kg, MTCA Method B
   - Benzene = 320 mg/kg, MTCA Method B
   - Toluene = 320 mg/kg, MTCA Method B
   - Ethylbenzene = 8,000 mg/kg, MTCA Method B
   - Xylenes (total) = 16,000 mg/kg, MTCA Method B
   - Vinyl Chloride = 240 mg/kg, MTCA Method B

2) *Ground water*

   CULs are MTCA Method A Ground water cleanup Levels (WAC 173-340-720). Since no groundwater was observed in soil borings performed for this project (completed to 90 feet below ground, which is at least 75 feet below the deepest confirmed contamination at the Site) and WDOE well logs in vicinity of the Site do not identify groundwater within 200 feet of the surface, groundwater does not appear to be a concern for this Site *(See Section 5.0.1 — Media of Concern,* WAC 173-340-720).

3) *Vapor Intrusion Screening Levels (VIS)*

The CULS for soil and vapor intrusion screening levels are summarized as follows (Method B - CLARC, September 15, 2015).

- NWTPH-Gx = no vapor intrusion screening level listed
- Methylene Chloride = VIS = 274 μg/m³
- (cis) 1,2 Dichloroethene = no VIS listed
- Tetrachloroethylene = VIS = 18.3 μg/m³
- Trichloroethylene = VIS = 0.914 μg/m³
- Benzene = VIS = 13.7 μg/m³
- Toluene = VIS = 2290 μg/m³
- Ethylbenzene = VIS = 457 μg/m³
- Xylenes (total) = VIS = 100 μg/m³
- Vinyl Chloride = VIS = 45.7 μg/m³

4) *Surface water*

CULs are MTCA Method B Surface Water Cleanup Levels (WAC 173-340-730 and State Surface Water Quality Standards (Chapter 173-201A). This pathway is not of concern for the site because there is no surface water present at the Site.

5) *Sediments*

Sediment CULs are Summary of Guidelines for Contaminated Freshwater Sediments (March 1995). This pathway is not of concern for the site because there are no sediments present at the Site.

6.0.2 Points of Compliance

The points of compliance for this CAP are throughout the Site *(WAC 173-340-720(8) — Point of Compliance).* Verification that these Cleanup Action Goals have been met at the points of compliance will be verified through soil and vapor quality sampling.

7.0 SUMMARY OF SITE CONDITIONS AND REMEDIAL ACTION ALTERNATIVES

The results of the remedial excavation clearance sampling and the GeoProbe investigation conducted in the footprint of the previous location of the Northwest Furniture Outlet (Daisy Cleaners) indicate that contaminant concentrations remain above the applicable CULs in two locations of the Site: 1) The landscaped area west of the BFRC facility (previous footprint of the NW Furniture Outlet), and 2) The western portion of the BFRC facility *(See Figure 3-1 — Impacted Soil Locations Remaining at the Site).* The nature and extent of the contamination in these impacted areas are summarized as follows.

NW Furniture Outlet (Daisy Cleaners)

Laboratory analysis of soil samples collected during GEI's direct push (GeoProbe) investigation, completed in December 2014, confirmed the presence of contaminant concentrations above the allowable MTCA CULs for "Direct Contact" under Method B for in one of the eight soil penetrations sampled beneath the footprint of the Northwest Furniture Outlet (previously operated as the Daisy Clothing Care facility). The soil sample collected from P1 at 2.6 feet below the ground surface resulted in 79 mg/kg TCE and 7,900 PCE — the sample was collected from a dark-stained soil lense approximately four-inches think. All other COCs were well below the applicable CULS in all of the probe locations *(See Section 3.0 — Previous Environmental Reports and Appendix A — Previous Environmental Reports - Site Cleanup Confirmation Investigation at the Highland Hills Shopping Center, by GEI, dated December 29, 2014).*

We estimate that there are approximately ten cubic yards of impacted soil to remove to achieve the applicable CULs in this area.

Bridgestone Firestone Retail Center

Soil samples collected from the limits of the remedial excavation at the BFRC in 2009 also exceeded MTCA CULs for "Direct Contact" under Method B in the sidewalls and bottom of the excavation for gasoline-range petroleum hydrocarbons (Gx). All other COCs concentrations were within their associated CULs.

Gx-range petroleum concentrations range from no detectable concentrations to 8,100 mg/kg in samples collected from eight to 15 feet bgs — The laboratory data sheets noted that the chromatograms for the samples were similar to mineral spirits. See Section 3.0 — Previous Environmental Reports and Appendix A.

The remedial excavation, which measured 15' wide by 15' long by 15 feet deep, was stopped due to concerns related to the potential destabilizing of the structural stability of the building and adjacent automobile lift. Based on observations made during the remedial activities and previous assessment data, we estimate that there are approximately 200 cubic yards (280 tons) of impacted soil remaining at this location of the Site.

7.1 ALTERNATIVE CLEANUP ACTIONS CONSIDERED

As required by MTCA, this evaluation of cleanup alternatives is targeted to protect human health and the environment by *"eliminating, reducing, or otherwise controlling risks posed through each exposure pathway and migration pathway"* (WAC 173-340-350).

The treatment and/or disposal options for responding to the Site, outlined above, must be identified and evaluated prior to selection. We will consider a range of remedial options, beginning with Ecology's preferred cleanup actions, and evaluate the approaches that meet selected criteria in more detail. Based on providing a cost-effective permanent solution that protects human health and the environment and allows beneficial use of the site, the following four criteria have been considered for this preliminary alternative screening.

- Technical feasibility
- Schedule and restrictions on Site use
- Regulatory and legal considerations
- Cost

Using MTCA (WAC 173-340-360, Selection of Cleanup Actions) as a guide, we have targeted our discussion of appropriate remedial technologies to protect human health and the environment; comply with the applicable cleanup standards; comply with relevant environmental regulations; and provide compliance monitoring. We understand an important goal of the remediation will be to provide permanent solutions for the cleanup.

The selected alternatives address remedial action objectives for the Site by providing adequate protection for human health and the environment, and by meeting regulatory cleanup levels at the points of compliance, where possible. Together, the preferred cleanup alternatives comprise the proposed cleanup action for the Site.

Site-specific cleanup action alternatives were developed and analyzed for the site to ensure the protection of human health and the environment. Specifically, the cleanup action for the site was based on a comparison of each potential cleanup action alternative with the following criteria (WAC 173-340-360(2) and (3) and consideration of the following MTCA remedy selection requirements:

- Overall Protection of Human Health and the Environment
- Compliance with Cleanup Standards
- Use of Permanent Solutions to the Maximum Extent Practicable
- Compliance with ARARs
- Provision of Compliance Monitoring
- Provision for Reasonable Restoration Time Frame

This section includes a summary of the remedial alternatives that were considered for the Site. Table 7-1 provides a comparative scoring of each of the alternatives with respect to MTCA remedy selection requirements.

The following remedial options were considered for the Site: 1) Protective Cap (with Institutional Controls), 2) InSitu chemical treatment (Bioremediation and /or Chemical Oxidation), 3) Vapor Extraction, and 4) Additional excavation. These remedial options are summarized for each area as follows.

7.1.1 Remedial Option 1— Protective Cap and Institutional Controls

Northwest Furniture Outlet

Since the estimated volume of the impacted soils is small (approximately 10 cubic yards) and the fact that they are easily accessible for removals (less than three feet belowground), we feel that a protective cap is not necessary for this area of solvent-impacted soil and excavation appears to be the best available option *(See discussion below).*

BFRC

As stated above, GEI estimates that there is approximately 200 cubic yards of contaminated soil remaining in the sidewalls and below the remedial excavation. The remaining impacted soils are completely covered by approximately eight feet of "clean" fill materials and the BFRC building's concrete floor. This (existing) eight foot thick soil and concrete "cap" serves to minimize potential exposures to the contaminants by: 1) Preventing direct human contact with the contaminated soils, 2) Eliminates the potential for the infiltration of precipitation to the impacted soils, and 3) It reduces the risk of potentially harmful vapors from migrating to the BFRC work areas – Note: A vapor intrusion investigation is planned to be performed as a part of this CAP.

With this remedial option, an initial inspection of the concrete floor will be conducted to document the condition of the concrete. If damage or other problems are noted during the initial inspection, they will be repaired and the concrete returned to good condition to establish a baseline condition against which future inspections can be compared. To maintain the integrity and effectiveness of the existing concrete, annual inspections will be conducted and repairs will be undertaken as necessary to correct the effects of the damage.

This alternative considers the previous impacted soil removals and the existing concrete cap covering the remaining impacted soils to be sufficient to ensure the protection of human health and the environment and that no additional remedial work is necessary at the Site. However, since the remaining impacted soils do not meet compliance with MTCA's Cleanup Standards and other ARARs, this remedial option requires that institutional controls (i.e. deed restrictions, cap maintenance and monitoring, etc.) are included to protect human health and the environment.

Therefore, this alternative considers the capping of the remaining impacted soils and maintaining the cap to be sufficient to protect human health and the environment from exposure to these COCs, provided institutional controls (i.e. Deed Restrictions, etc.) are implemented.

Costs

For costing purposes, it is assumed that the capital costs associated with Remedial Option 1 (design and installation) will be implemented in the first year.

- Capital costs will include initial concrete inspection and repair = **$2,000**

  It is assumed that future and recurring costs include the following costs commencing upon the completion of the initial cap inspection.

- Annual inspections and concrete maintenance, and annual reporting to document concrete inspections = (30 years @ $1000/year) = **$30,000**

The estimated initial costs for Remedial Option 1 are approximately $2,000. Annual O&M costs are estimated at approximately $1,000 per year. The total costs for this alternative approximately **$32,000.**

7.1.2 Remedial Option 2— InSitu Chemical Treatment (Bioremediation or Chemical Oxidation)

Northwest Furniture Outlet

Again, since the estimated volume of the impacted soils is small (approximately 10 cubic yards) and the fact that they are easily accessible for removals (less than three feet belowground), we feel that InSitu Chemical Treatment is not necessary for this area of solvent-impacted soil and excavation appears to be the best available option *(See discussion below).*

Bioremediation (Remedial Option 2a)

BFRC

Bioremediation is considered to be an effective remedial alternative for the treatment of soil impacted with gasoline-range petroleum compounds (mineral spirits). Bioremediation products (microbes and ORC compounds) would need to be injected at close enough intervals to allow an overlap of the penetration into the impacted soils.

Assuming that this InSitu treatment alternative can effectively treat a radius of approximately five feet (laterally from each injection point), 13 injection points would be installed at the perimeter of the previous remedial excavation and two installed below the central portion of the previous remedial excavation would be required to cover the entire area containing the residual impacted soils resulting in injection spacing of approximately every five feet. The injections would be re-applied annually and the injection points would need to be staggered midway between the previous injection points for each year of treatment.

For this alternative, we have assumed that a GeoProbe rig (or equivalent) would be used to penetrate the impacted soils to a total of depth of 25 feet below the concrete surface, using a 300 psi injection pump to inject the microbes and ORC compounds.

The COCs concentrations are estimated to be reduced by approximately 50% following each year of treatment. Therefore, this (bioremediation) alternative is estimated to require approximately seven years in order to achieve MTCA CULs — (15 injections/ treatment) x 7 treatments = 105 injection points.

Costs for bioremediation (Remedial Option 2a)

For costing purposes, it is assumed that the capital costs associated with Remedial Option 2 (design and installation) will be implemented in the first year. Capital costs will be the same for each injection treatment event and will include the following:

- Bench Scale/Pilot Studies/Work & Safety Plan = **$25,000**
- Mobilization and demobilization = (7 mobilizations @ $1,000 ea) = **$7,000**

- Injecting microbes/ORC compounds into the subsurface at 15 locations annually for seven years using Direct-Push (GeoProbe, or equivalent) penetrations to 25 feet of depth at 15 locations inside the structure = (15 injection points/event) x (7 events) x (day/4 injection points) x $3,000/day = **$78,750**
- Microbes & ORC compounds = **$40,000**
- Annual inspections, concrete maintenance and annual reporting – (7 inspections) x ($1,000/inspection) = **$7,000**
- Soil investigation to confirm the effectiveness of the treatments = **$30,000**
- BFRC's loss in revenue from not leasing units during treatments (2 work bays (vehicle lifts) not used during injections = 3 days of injection /event x $1,000 lost income/day/event x 7injection events = **$21,000**

The estimated total costs for Remedial Option 2a (bioremediation) = **$208,750**

Chemical Oxidation (Remedial Option 2b)

Northwest Furniture Outlet

Again, since the estimated volume of the impacted soils is small (approximately 10 cubic yards) and the fact that they are easily accessible for removals (less than three feet belowground), we feel that InSitu Chemical Treatment is not necessary for this area of impacted soil and excavation appears to be the best available option *(See discussion below).*

BFRC

Chemical Oxidation is considered to be an effective remedial alternative for the treatment of gasoline-range petroleum compounds.

InSitu Chemical Oxidation of the remaining impacted soils would require injection points spaced on a grid cell spacing of approximately five feet. This spacing would allow the necessary overlap of the chemicals (i.e. potassium permanganate, sodium permanganate, Fenton's Reagent, hydrogen peroxide, etc.) to be injected at optimal injection pressures (approximately 300 psi) throughout the nine foot (vertical) zone at each point. These compounds would need to be re-applied quarterly and each injection point would be placed approximately midway between the previous quarterly injections.

The COCs concentrations are estimated to be reduced by approximately 25% following each treatment. This alternative is estimated to require approximately four years to meet MTCA CULs — (15 injections/ treatment) x (4 treatments/year) x 4 years = 240 injection points.

Costs for chemical oxidation (Remedial Option 2b)

For costing purposes, it is assumed that the capital costs associated with Remedial Option 2 (design and installation) will be implemented in the first year. Capital costs will be the same for each injection treatment event and will include the following:

- Bench Scale/Pilot Studies/Work & Safety Plan = **$25,000**
- Mobilization and demobilization = (16 mobilizations @ $1,000 ea) = **$16,000**
- Injecting chemical oxidation compounds into the subsurface at 15 locations quarterly for four years using direct-push (GeoProbe, or equivalent - penetrations to 25 feet of depth = 80 injection points/event x 16 events)x day/4 injection points x $4,000/day = **$1,280,000**

- Chemical oxidation compounds = **$50,000**
- Annual inspections, concrete maintenance and annual reporting = (4 inspections) x ($1,000/inspection) = **$4,000**
- Soil investigation to confirm the effectiveness of the treatments = **$20,000**
- Owner's loss in revenue from not using two bays (lifts) during treatments = $1,000/day loss x 3 days/event x 16 events x = **$48,000**

The estimated total costs for Remedial Option 2b (chemical oxidation) = **$1,443,000**.

7.1.3 Remedial Option 3 — InSitu Treatment — Vapor Extraction/Ozonation

Northwest Furniture Outlet

Again, since the estimated volume of the impacted soils is small (approximately 10 cubic yards) and the fact that they are easily accessible for removals (less than three feet belowground), we feel that InSitu Chemical Treatment is not necessary for this area of solvent-impacted soil and excavation appears to be the best available option *(See discussion below).*

BFRC

Vapor Extraction (VEX) is considered to be an effective remedial alternative for the treatment of gasoline-range petroleum-impacted soils. We have included an option of treating the impacted vadose zone using ozone treatment with the VEX process — the additional of ozone (Ozonation) with ambient air may be necessary to provide flow of the affected/treated air through the impacted soils for delivery to the activated charcoal canister(s) or catalytic oxidizer unit(s). We have not itemized these ozone treatment costs because we feel that the incremental costs of including an ozone injection system with a typical VEX system will be offset by the reduced time of treatment (and associated costs) necessary to meet MTCA CULs.

Due to the relatively non-permeable nature of the impacted native soils, VEX treatment is expected to take longer than if the affected soils were covered with a more porous media, which would allow better penetration for the air to effectively treat the COCs to meet MTCA CULs.

VEX points would need to be placed at close enough spacing intervals to draw COCs into the system and at close enough intervals to allow an overlap of the extraction of the contaminants from the impacted soils. Assuming that VEX treatment can effectively treat a radius of approximately five feet (laterally from each treatment point), 13 injection/extraction points, at 5 foot grid cell spacing, would be required to be installed to 25 feet of depth to cover treatment for the impacted soils. Also, the concrete between the extraction points must be cut to accommodate shallow trenching of the soils to install the below ground piping for the contaminants to be flow to the above ground treatment system. The above ground treatment system would consist of a pumping system, manifolds, gauges, and either a catalytic oxidizing unit(s) or activated charcoal canister(s) to treat the affected exhaust air prior to its release to the atmosphere.

The COCs concentrations are estimated to be reduced by approximately 50% following each year of treatment (starting at 8,100 mg/kg Gx). Therefore, this alternative is estimated to require approximately seven years in order to achieve the MTCA CULs.

NOTE: Ozone treatment may be injected into alternating VEX wells to enhance treatment effectiveness (based on Pilot/Bench Studies).

Costs

For costing purposes, it is assumed that the capital costs associated with Remedial Option 3 (design and installation) will be implemented in the first month. Capital costs will include following:

- Bench Scale/Pilot Studies/Work & Safety Plan = **$30,000**
- Mobilization and demobilization (construction mob) = **$1,000**
- Cut concrete, dispose waste concrete and replace concrete = **$30,000**
- Direct-Push (GeoProbe, or equivalent) penetrations to 25 feet of depth at 15 locations inside the structure + install VEX screen & complete extraction wells with flush mount monuments (assume one extraction installed per day) = 15 extraction points x one extraction point/day x $4,000/day = **$60,000**
- Install treatment system (including all necessary piping) = **$60,000**
- Replace carbon canisters annually @ $3,000/replacement = 7 years x $3,000 = **21,000**

  It is assumed that future and recurring costs include the following costs commencing upon the completion of construction and installation activities in month 1.
- Weekly inspections (monthly inspections after 2 months of use) and treatment system maintenance = ((8 inspections) + (7 years of inspections x 4 inspections/year)) x $1,000/inspection = **$36,000**
- Quarterly air sampling and analysis (PSCAA permit requirement) = (4 sampling events/year) x (7 years) x ($2,000/event for sample collection, analysis & reporting) = **$56,000**
- Annual progress reporting = ($2,000/report) x (7 years) = **$14,000**
- Soil investigation to confirm the effectiveness of the treatment = **$20,000**
- Operations & maintenance = **$30,000**
- Owner's loss in revenue from not using bays during installation = (3 units/year) x 7 years x $1,200/unit = **$25,200**

  The total costs for this alternative is = **$383,200**

7.1.4 Remedial Option 4 — Additional Excavation

Northwest Furniture Outlet

As stated above, there is approximately 10 cubic yards (cys) of impacted soils (above MTCA CULs) remaining in the landscaped area in the footprint of the previous location of the Northwest Furniture Outlet.

This remedial option would require that the landscape vegetation and fill materials covering the impacted soil be removed to allow access to the 4-inch thick vein of impacted soils at

approximately 2½ feet below ground. Following the removals of the impacted soils, the landscape area would need to be restored.

The excavation of the affected soils is estimated to remove all of the affected soils with COC concentrations above the applicable CULs.

We estimate that these excavation and restoration activities will require approximately two weeks to complete.

Costs

- Mobilization and demobilization = **$1,000**
- Excavate "clean" soils & temporarily stockpile (50 cys @ 50 cys/day) backhoe & loader @ $1,920/day + environmental field tech @ $1,000/day = $2,920/day x 1 day = **$2,920**
- Excavate and dispose impacted soils - 10 cys @ 10 cys/day = 1 day (backhoe & loader @ $1,920/day) + (environmental field tech @ $1,000/day) = 1 day x $2,9200/day = **$2,920**
- Transport & disposal (10 cys (Class 1 landfill) x 1.5 tons/cy x $120/ton = **$1,800**
- Sample to confirm that MTCA CULs have been met = **$2,000**
- Backfill the excavation with "clean" soils (60 cys @ 60 cys/day = 1 days) backhoe & compacter @ $1,920/day + environmental field tech @ $1,000/day = 1 days x $2,920/day plus $600 fill materials (including delivery) = **$3,520**
- Replace the landscape vegetation = **$500**

The estimated total costs for Remedial Option 4 (Northwest Cleaners Outlet) = **$14,660**

BFRC

As stated above, there is approximately 200 cubic yards (280 tons) of Gx impacted soils (above MTCA CULs) remaining below the concrete floor and fill soils at the Site.

The BFRC facility has been in operation at the Site for many years and is expected to continue to operate at the property. The one-story structure is supported by perimeter footings and masonry walls, which would require shoring during the removals of the impacted soils. The losses in revenue — from not being able to operate in the two bays that would be affected with the removals and costs of shoring the walls and footings have been considered in order to remove these additional soils.

This remedial option would require that the concrete floor and fill materials covering the impacted soil be removed to allow access to the impacted soils. Following the removals of the impacted soils, the interior of the existing facility would need to be restored for reuse.

The excavation of the affected soils is estimated to remove 95% of the affected soils (soils beneath the support walls would need to be left in place), assuming that extensive shoring is used to support the structure while excavation is conducted in each work zone. In order to mitigate concerns regarding the structural support of the building during excavation activities, construction activities will be completed in areas bound by the structure's support columns and each area will be backfilled prior to advancing to the next excavation area.

This alternative require the following in each area: 1) Removing and temporarily stockpiling the "clean" soils, 3) Removing and transporting the impacted soils to a permitted disposal facility — temporary shoring will be used to support the footings until the area is backfilled,

4) Soil sampling to confirm that MTCA CULs have been met, 5) Backfill and compact soils in each area, and 6) Restore the concrete floor and restore the surface.

We estimate that these excavation and restoration activities will require approximately one month to complete.

Costs

- Mobilization and demobilization = **$1,000**
- Cut concrete and dispose waste concrete loader = $960 + concrete sawing = $880/day + 3 workers @ $1,000/day = $3,000 = **$4,840**
- Excavate (200 cys of "clean" and 200 cys of impacted soil – 10 days backhoe & loader @ $1,920/day + environmental field tech @ $1,000/day = $2,920/day x 10 days = **29,200**
- Transport and dispose impacted soils - 200 cys (280 tons) @ $80/ton = **$22,400**
- Provide necessary shoring = **$80,000**
- Sample to confirm that MTCA CULs have been met = **$20,000**
- Backfill the excavation with "clean" soils (400 cys @ 100 cys/day) = backhoe & compacter @ $2,450/day + environmental field tech @ $1,000/day = 4 days x $2,480/day = $13,800 plus fill materials (including delivery) = $20/cy x 400 cys = $8,000 = **$21,800**
- Replace the concrete (300 square feet @ $10.00/sf) = **$3,000**
- Owner's loss in revenue from not using lifts for 6 weeks = **$42,000**

The estimated total costs for Remedial Option 4 = **$224,240**

7.2 DISPROPORTIONATE COST ANALYSIS

A MTCA Disproportionate Cost Analysis (DCA) was used in accordance with WAC 173-340-360(e), comparing available remedial options for additional cleanup of the impacted soil at the Site. This DCA is used to evaluate which cleanup alternatives, among those that otherwise meet threshold requirements, are permanent to the maximum extent practicable. This analysis compares the relative benefits and costs of cleanup alternatives. Seven criteria are used in the disproportionate cost analysis as specified in WAC 173-340-360(3)(f):

- Protectiveness
- Permanence
- Costs
- Long-Term Effectiveness
- Short-Term Risk Management
- Implementability
- Considerations of Public Concerns

The analysis compares the relative benefits of each alternative against those provided by the most permanent alternative. The comparison of costs and benefits may be quantitative, but is more often qualitative, or subjective. Costs are disproportionate to benefits if the incremental costs of the more permanent alternative exceed the incremental degree of benefits achieved by the other lower-cost alternative (WAC 173-340-360(e)(ii)(c).

General descriptions of each of the seven MTCA criteria used in the disproportionate cost analysis are described below. Each of the seven MTCA criteria has been assigned a relative

scoring from 1 (for the least protective) to 10 (for the most protective alternative). For comparison of the alternatives, a weighting factor has been used to score each criterion. Table 7-1 presents a relative scoring of MTCA's evaluation criteria for the overall protectiveness of human health and the environment.

The estimated costs for each potential remedial option have been compared to determine whether the incremental costs of the alternative over the lower cost alternative exceed the incremental degree of benefits achieved by the alternative over that of the lower cost alternative(s).

Please see Section 7.1 — Description of Remedial Alternatives Considered for a summary of the alternatives, which were used to score the criteria listed below. Table 7-1 provides a summary of these scores.

7.2.1 Northwest Furniture Outlet Analysis

Protectiveness

Protectiveness considers the extent to which human health and the environment are protected and the degree to which overall risks at a site are reduced. It also considers the time required to reduce risk at the facility and attain cleanup standards. We feel that a weighting factor of 30% is appropriate for protectiveness at this site.

Remedial Option 1— Protective Cap and Institutional Controls — Score = 8

Remedial Option 2— InSitu Treatment (Bioremediation) — Score = 9

InSitu Treatment (Chemical Oxidation) — Score = 9

Remedial Option 3— InSitu Treatment (Vapor Extraction) — Score = 9

Remedial Option 4— Additional Excavation — Score = 9

Permanence

Each alternative's permanence has been measured by its relative reduction in toxicity, mobility or volume of hazardous substances, including both the original contaminated media, and to a lesser degree the residuals generated by the cleanup action as this is included in short term risk management. We feel that a weighting factor of 20% is appropriate for permanence at this site.

Remedial Option 1— Protective Cap and Institutional Controls — Score = 6

Remedial Option 2— InSitu Treatment (Bioremediation) — Score = 9

InSitu Treatment (Chemical Oxidation) — Score = 9

Remedial Option 3— InSitu Treatment (Vapor Extraction) — Score = 9

Remedial Option 4— Additional Excavation — Score = 9

Costs

The analysis of costs includes all costs associated with implementing each alternative, including design, construction, long-term monitoring and institutional controls. These costs are intended to be comparable among different project alternatives to assist in the overall analysis of relative costs and benefits of different alternatives. Costs are evaluated against

remedy benefits in order to assess cost-effectiveness and remedy practicability. No weighting factor is applied to this quantitative category.

Effectiveness over the long term

Long-term effectiveness is a parameter that expresses the degree of certainty that the alternative will be successful in maintaining compliance with cleanup standards over the long-term performance of the remedy. MTCA regulations contain a specific preference ranking for different types of technologies that is considered as part of the comparative analysis. The preference ranking places the highest preferences on technologies such as reuse/recycling treatment, immobilization/solidification, and disposal in an engineered, lined, and monitored facility. Lower preference rankings are applied for technologies such as on-site isolation/containment with attendant engineering controls, and institutional controls and monitoring. This weighting factor is associated with a measure of certainty related to the robustness of the action as well as the confidence in the technology used for protection of human health and the environment. We feel that a weighting factor of 20% is appropriate for long-term effectiveness at this site.

Remedial Option 1— Protective Cap and Institutional Controls — Score = 6

Remedial Option 2— InSitu Treatment (Bioremediation) — Score = 9

InSitu Treatment (Chemical Oxidation) — Score = 9

Remedial Option 3— InSitu Treatment (Vapor Extraction) — Score = 9

Remedial Option 4— Additional Excavation — Score = 9

Management of short-term risks

Short-term risk management is a parameter that measures the relative magnitude and complexity of actions required to maintain protection of human health and the environment during implementation of the cleanup action. Cleanup actions carry short-term risks such as potential mobilization of contaminants during construction, or safety risks typical to environmental remediation projects. We feel that a weighting factor of 10% is appropriate for the management of short-term risks at this site.

Remedial Option 1— Protective Cap and Institutional Controls — Score = 9

Remedial Option 2— InSitu Treatment (Bioremediation) — Score = 7

InSitu Treatment (Chemical Oxidation) — Score = 7

Remedial Option 3— InSitu Treatment (Vapor Extraction) — Score = 6

Remedial Option 4— Additional Excavation — Score = 6

Technical and administrative implementability

Implementability is an overall measurement expressing the relative difficulty and uncertainty of implementing the project. It includes technical factors such as the availability of mature technologies and experienced contractors to accomplish the work. It also includes administrative factors associated with permitting and completing the cleanup. We feel that a weighting factor of 10% is appropriate for implementability at this site.

Remedial Option 1— Protective Cap and Institutional Controls — Score = 8

Remedial Option 2— InSitu Treatment (Bioremediation) — Score = 7

InSitu Treatment (Chemical Oxidation) — Score = 7

Remedial Option 3— InSitu Treatment (Vapor Extraction) — Score = 6

Remedial Option 4— Additional Excavation — Score = 7

Consideration of public concerns

The public involvement process under MTCA is used to identify public concerns regarding alternatives. The extent to which an alternative addresses those concerns is considered as part of the remedy selection. Public involvement in remedy selection is an important factor at "Formal" cleanup actions (such as under Agreed Orders or Consent Degrees) and not commonly useful for routine cleanup actions, such as this site's cleanup alternative selection. Therefore we have not provided a relative weighting of public concerns is for this site.

The analysis of disproportionate costs is performed below, using the information from Section 7.1 and Table 7-1. First, the alternatives are compared to the most permanent remedial alternative evaluated (Alternative 4), and the benefits of each alternative are ranked under the non-cost criteria. Then the overall benefits and costs of the alternatives are compared. This analysis then defines which alternatives represent the most permanent, practicable alternatives under MTCA.

7.2.2 *BFRC Analysis*

Protectiveness

Protectiveness considers the extent to which human health and the environment are protected and the degree to which overall risks at a site are reduced. It also considers the time required to reduce risk at the facility and attain cleanup standards. We feel that a weighting factor of 30% is appropriate for protectiveness at this site.

Remedial Option 1— Protective Cap and Institutional Controls — Score = 8

Remedial Option 2— InSitu Treatment (Bioremediation) — Score = 9

InSitu Treatment (Chemical Oxidation) — Score = 9

Remedial Option 3— InSitu Treatment (Vapor Extraction) — Score = 9

Remedial Option 4— Additional Excavation — Score = 9

Permanence

Each alternative's permanence has been measured by its relative reduction in toxicity, mobility or volume of hazardous substances, including both the original contaminated media, and to a lesser degree the residuals generated by the cleanup action as this is included in short term risk management. We feel that a weighting factor of 20% is appropriate for permanence at this site.

Remedial Option 1— Protective Cap and Institutional Controls — Score = 6

Remedial Option 2— InSitu Treatment (Bioremediation) — Score = 9

InSitu Treatment (Chemical Oxidation) — Score = 9

Remedial Option 3— InSitu Treatment (Vapor Extraction) — Score = 9

Remedial Option 4— Additional Excavation — Score = 9

Costs

The analysis of costs includes all costs associated with implementing each alternative, including design, construction, long-term monitoring and institutional controls. These costs are intended to be comparable among different project alternatives to assist in the overall analysis of relative costs and benefits of different alternatives. Costs are evaluated against remedy benefits in order to assess cost-effectiveness and remedy practicability. No weighting factor is applied to this quantitative category.

Effectiveness over the long term

Long-term effectiveness is a parameter that expresses the degree of certainty that the alternative will be successful in maintaining compliance with cleanup standards over the long-term performance of the remedy. MTCA regulations contain a specific preference ranking for different types of technologies that is considered as part of the comparative analysis. The preference ranking places the highest preferences on technologies such as reuse/recycling treatment, immobilization/solidification, and disposal in an engineered, lined, and monitored facility. Lower preference rankings are applied for technologies such as on-site isolation/containment with attendant engineering controls, and institutional controls and monitoring. This weighting factor is associated with a measure of certainty related to the robustness of the action as well as the confidence in the technology used for protection of human health and the environment. We feel that a weighting factor of 20% is appropriate for long-term effectiveness at this site.

Remedial Option 1— Protective Cap and Institutional Controls — Score = 6

Remedial Option 2— InSitu Treatment (Bioremediation) — Score = 9

InSitu Treatment (Chemical Oxidation) — Score = 9

Remedial Option 3— InSitu Treatment (Vapor Extraction) — Score = 9

Remedial Option 4— Additional Excavation — Score = 9

Management of short-term risks

Short-term risk management is a parameter that measures the relative magnitude and complexity of actions required to maintain protection of human health and the environment during implementation of the cleanup action. Cleanup actions carry short-term risks such as potential mobilization of contaminants during construction, or safety risks typical to environmental remediation projects. We feel that a weighting factor of 10% is appropriate for the management of short-term risks at this site.

Remedial Option 1— Protective Cap and Institutional Controls — Score = 9

Remedial Option 2— InSitu Treatment (Bioremediation) — Score = 7

InSitu Treatment (Chemical Oxidation) — Score = 7

Remedial Option 3— InSitu Treatment (Vapor Extraction) — Score = 6

Remedial Option 4— Additional Excavation — Score = 6

Technical and administrative implementability

Implementability is an overall measurement expressing the relative difficulty and uncertainty of implementing the project. It includes technical factors such as the availability of mature technologies and experienced contractors to accomplish the work. It also includes administrative factors associated with permitting and completing the cleanup. We feel that a weighting factor of 10% is appropriate for implementability at this site.

Remedial Option 1— Protective Cap and Institutional Controls — Score = 8

Remedial Option 2— InSitu Treatment (Bioremediation) — Score = 7

InSitu Treatment (Chemical Oxidation) — Score = 7

Remedial Option 3— InSitu Treatment (Vapor Extraction) — Score = 6

Remedial Option 4— Additional Excavation — Score = 7

Consideration of public concerns

The public involvement process under MTCA is used to identify public concerns regarding alternatives. The extent to which an alternative addresses those concerns is considered as part of the remedy selection. Public involvement in remedy selection is an important factor at "Formal" cleanup actions (such as under Agreed Orders or Consent Degrees) and not commonly useful for routine cleanup actions, such as this site's cleanup alternative selection. Therefore we have not provided a relative weighting of public concerns is for this site.

The analysis of disproportionate costs is performed below, using the information from Section 7.1 and Table 7-1. First, the alternatives are compared to the most permanent remedial alternative evaluated (Alternative 4), and the benefits of each alternative are ranked under the non-cost criteria. Then the overall benefits and costs of the alternatives are compared. This analysis then defines which alternatives represent the most permanent, practicable alternatives under MTCA.

7.3 CRITERIA RANKING

Key to interpreting the final rankings of the alternatives is in understanding how these ranking were calculated. Table 7-1 contains the two critical elements used for the ranking calculations; the *weighting factors* assigned to each criterion (e.g. Protectiveness, etc.) and the *relative ranking* within that category for each alternative based upon a numerical (1-10) rank. The two factors are multiplied together for each alternative within each category and then summed resulting in a final numerical rank for that alternative.

7.4 COMPARISON OF ALTERNATIVES BY CRITERIA

The evaluation of disproportionate cost is based on a comparative analysis of costs against the other criteria. Relative rankings of each alternative for these criteria are summarized in Table 7-1 (Weighted Score). These rankings are described below.

7.4.1 Northwest Furniture Outlet Ranking

Protectiveness

The protectiveness rankings for Alternatives 2 through 4 are all the same and all assume that the each remedial option can achieve MTCA CULs and are protective to human health and the environment. Alternative option 1 is slightly lower than the other alternatives due to the facts that: 1) Long term cap inspection and maintenance are required to ensure the protection of human health and the environment, and 2) The COCs will remain in the soil (beneath the cap) and potential future development or other on-site construction activities may require additional remedial action to provide adequate protectiveness.

Permanence

The permanence rankings for Alternatives 2 through 4 are all the same and all assume that the each remedial option can achieve MTCA CULs and are permanently protective to human health and the environment. Alternative option 1 is slightly lower than the other alternatives due to the facts that: 1) Long term cap inspection and maintenance are required to ensure the protection of human health and the environment, and 2) The COCs will remain in the soil (beneath the cap) and potential future development or other on-site construction activities may require additional remedial action to provide adequate protectiveness.

Long Term Effectiveness

Alternatives 2 through 4 all received a ranking of 9 because each of the technologies permanently removes or reduces the COCs levels in the soil to achieve MTCA CULs. Alternative 1 received a lower score (6) because it does not permanently remove the impacted soils, however, provided that the cap is properly maintained and certain restrictive covenants (i.e. deed restrictions) are in place, this alternative will also be effective in the long term.

Short Term Risks

Inverse to the ranking discussed in the categories above, the lowest ranking for short-term risk management are earned by Alternatives 3 and 4, both of these alternatives received a score of 6. Alternative 3 received a score of 6 due to potential exposures resulting from releases of impacted air flowing from the extraction points, pipes, and/or the vapor extraction catalytic oxidizer(s) or charcoal canister(s). Alternative 4 also received a score of 6, primarily due to the risks of exposures during excavation and potential structural stability issues of the building during excavation.

Alternatives 2a and 2b both received scores of 7 due to concerns related to drilling the boreholes and injecting compounds into the subsurface. Alternative 1 received the lowest short-term risk score (9) because the risks of inspecting and maintaining the existing cap are minimal.

Implementability

Alternatives 2 through 4 are complex and require significant actions during design, permitting, and construction to achieve a successful project — Alternative 3 received a slightly lower score (6) than 2 and 4 — each received a score of 7 due to air permitting requirements. Alternative 1 received the highest score (8), since this alternative requires only annual inspections and maintenance.

7.4.2 BFRC Ranking

Protectiveness

The protectiveness rankings for Alternatives 2 through 4 are all the same and all assume that the each remedial option can achieve MTCA CULs and are protective to human health and the environment. Alternative option 1 is slightly lower than the other alternatives due to the facts that: 1) Long term cap inspection and maintenance are required to ensure the protection of human health and the environment, and 2) The COCs will remain in the soil (beneath the cap) and potential future development or other on-site construction activities may require additional remedial action to provide adequate protectiveness.

Permanence

The permanence rankings for Alternatives 2 through 4 are all the same and all assume that the each remedial option can achieve MTCA CULs and are permanently protective to human health and the environment. Alternative option 1 is slightly lower than the other alternatives due to the facts that: 1) Long term cap inspection and maintenance are required to ensure the protection of human health and the environment, and 2) The COCs will remain in the soil (beneath the cap) and potential future development or other on-site construction activities may require additional remedial action to provide adequate protectiveness.

Long Term Effectiveness

Alternatives 2 through 4 all received a ranking of 9 because each of the technologies permanently removes or reduces the COCs levels in the soil to achieve MTCA CULs. Alternative 1 received a lower score (6) because it does not permanently remove the impacted soils, however, provided that the cap is properly maintained and certain restrictive covenants (i.e. deed restrictions) are in place, this alternative will also be effective in the long term.

Short Term Risks

Inverse to the ranking discussed in the categories above, the lowest ranking for short-term risk management are earned by Alternatives 3 and 4, both of these alternatives received a score of 6. Alternative 3 received a score of 6 due to potential exposures resulting from releases of impacted air flowing from the extraction points, pipes, and/or the vapor extraction catalytic oxidizer(s) or charcoal canister(s). Alternative 4 also received a score of 6, primarily due to the risks of exposures during excavation and potential structural stability issues of the building during excavation.

Alternatives 2a and 2b both received scores of 7 due to concerns related to drilling the boreholes and injecting compounds into the subsurface. Alternative 1 received the lowest short-term risk score (9) because the risks of inspecting and maintaining the existing cap are minimal.

Implementability

Alternatives 2 through 4 are complex and require significant actions during design, permitting, and construction to achieve a successful project — Alternative 3 received a slightly lower score (6) than 2 and 4 — each received a score of 7 due to air permitting

requirements. Alternative 1 received the highest score (8), since this alternative requires only annual inspections and maintenance.

7.5 REMEDIAL ALTERNATIVE(S) SELECTION

Table 7-1 summarizes for each alternative the remedy costs and remedy benefits for each alternative. An itemized breakdown of the costs for each alternative is provided in Section 7.1. These estimates are considered based on average remedial costs in the Seattle area.

7.5.1 Northwest Furniture Outlet Analysis

Since the estimated volume of the impacted soils is small (approximately 10 cubic yards) and the fact that they are easily accessible for removals (less than three feet belowground), excavating the impacted soils for off-site disposal is the obvious remedial option selected for this contamination.

7.5.2 BFRC Analysis

Excluding project contingencies, the probable costs for Alternatives 2 through 4 ranged from a low value of $208,750 to a high value of $1,443,000. Alternative 1 is estimated to cost approximately $32,000 — this alternative consists primarily of annual inspections and cap maintenance costs. These costs are expressed in 2015 dollars without adjustments for future cost inflation and without present value discounting of future costs. Actual costs are expected to vary within a range of +/- 30% around these probable estimates.

Consistent with MTCA requirements, the relative benefits associated with each alternative are compared to Alternatives 2a and 2b — these alternatives received the highest relative scores, make the greatest use of high-preference remedial technologies, and represent the most permanent remedial alternatives evaluated. These alternatives therefore provide a benchmark against which the relationship between incremental remedy benefits and incremental costs are evaluated. Due to the lower cost of Alternative 2a (InSitu Bioremediation - $208,750) compared to Alternative 2b (InSitu Chemical Oxidation - $1,443,000), the bioremediation alternative is considered to be preferable to chemical oxidation.

The substantial increase in costs between Alternative 2a and those of Alternative 1 is readily apparent on Table 7-1 — Remedial Alternative Scoring Evaluation Summary. Because the increases in costs of Alternative 2 through 4 are not accompanied by a corresponding increase in remedy benefits, these incremental costs are considered disproportionate.

The DCA has confirmed that Alternative 1 is the preferred alternative, based on MTCA analysis of disproportionate costs. This alternative provides a high calculated ranking score while remaining practicable and is considered sufficient to protect human health and the environment. The alternative complies with MTCA cleanup standards, ARARs, and provides for compliance monitoring. The DCA showed that Alternative 1 is permanent to the maximum extent practicable and, because of significant costs to complete the other alternative remedial actions; they are considered to be disproportionate to their incremental potential benefits.

Under Alternative 1, Institutional Controls (Deed Restrictions) are necessary to ensure the adequate protection from exposure of the residual COCs remaining below the structure. These controls are measures undertaken to limit or prohibit activities that may interfere with the integrity of the cleanup action or result in exposure to hazardous substances at the site. Such measures are required to assure continued protection of human health and the environment when a cleanup action results in residual concentrations of hazardous substances that exceed MTCA CULS established for the site.

TABLE 7-1 REMEDIAL ALTERNATIVES SCORING EVALUATION SUMMARY

Description of Remedial Alternatives Considered for a summary of the alternatives used to score the criteria listed below. Scores are based on a relative ranking from 1 to 10, with 10 being best suited for each criterion

Northwest Furniture Outlet

REMEDIAL OPTION	COSTS	PROTECTIVENESS 30% Protective to Human Health & the Environment (yes or no?)	PERMANENCE 20%	LONG TERM EFFECTIVENESS 20%	SHORT TERM RISKS 20% Higher rank = lower short term risks	IMPLEMENT-ABILITY 10%	WEIGHTED SCORE Alternative relative ranking
Option 1- Protective Cap and Institutional Controls	N/A	Yes – 8	6	6	9	8	7.4
Option 2a - InSitu – Bioremediation	N/A	Yes – 9	9	9	7	7	8.4
Option 2b - InSitu – Chemical Oxidation	N/A	Yes – 9	9	9	7	**7**	8.4
Option 3 - InSitu – Vapor Extraction	N/A	Yes – 9	9	9	6	6	8.1
Option 4 – Additional Excavation	$32,000	Yes – 9	9	9	6	7	8.2

BFRC

REMEDIAL OPTION BFRC	COSTS	PROTECTIVENESS 30% Protective to Human Health & the Environment (yes or no?)	PERMANENCE 20%	LONG TERM EFFECTIVENESS 20%	SHORT TERM RISKS 20% Higher rank = lower short term risks	IMPLEMENT-ABILITY 10%	WEIGHTED SCORE Alternative relative ranking
Option 1- Protective Cap and Institutional Controls	$32,000	Yes – 8	6	6	9	8	7.4
Option 2a - InSitu – Bioremediation	$208,750	Yes – 9	9	9	7	7	8.4
Option 2b - InSitu – Chemical Oxidation	$1,443,000	Yes – 9	9	9	7	**7**	8.4
Option 3 - InSitu – Vapor Extraction	$383,200	Yes – 9	9	9	6	6	8.1
Option 4 – Additional Excavation	$224,240	Yes – 9	9	9	6	7	8.2

8.0 CLEANUP ACTION DESIGN

Prior to initiating any remedial design documents, GEI will prepare a Cleanup Work Plan to be submitted to the WDOE for its review and opinion regarding the Plan prior to initiating the Work.

8.1 VAPOR INTRUSION INVESTIGATION

Soil gas samples will be collected from near the outside wall of the western side of the BFRC building and inside of the building in the area of the previous remedial excavation to evaluate potential vapor intrusion risk posed by the volatile compounds in accordance with regulatory guidance protocols. Three gas samples (vapor intrusion sturdy) will be collected following the impacted soil removals from the Northwest Furniture footprint area at the approximately locations shown in Figure 7-1 — Soil Clearance and Vapor Intrusion Sample Locations. These probe locations may be adjusted based on their proximity to underground utilities. Since utility trench backfill materials often serve as preferential migration pathways for the gases, we will locate the holes as close as possible to utility trench(s).

At each location, a soil gas sample probe will be installed using a direct push drill rig to an approximate depth of 2 feet below the asphalt or concrete surface. After the probe is positioned at the targeted depth, a stainless steel probe connected to ⅛ inch to ¼ inch outer diameter, inert tubing will be installed with the probe tip positioned approximately six inches above the bottom of the hole (approximately 5 feet below the asphalt surface). A filter pack of clean sand will be placed in the hole to approximately 6 inches above the probe tip (4½ feet below the asphalt surface). Then one foot of hydrated bentonite will be carefully placed on top of the sand pack to avoid leaking into the filter pack. Finally, the remaining portion of the hole will be filled with cement to the surface.

The soil gas probes will be allowed to equilibrate for at least two hours prior to soil gas sampling. Prior to sampling, soil gas sample probes will be purged of any ambient or stale air within the system including the sand pack and tubing from the probe to the sample collection device. A minimum of three system volumes will be purged from each location prior to sample collection. Prior to sampling, leak tests will be conducted to test the integrity of the sampling train and vapor point in accordance with regulatory guidance protocols (California Department of Toxics Substance Control, EPSD 2012 protocol).

After purging, soil gas will be collected using a laboratory-supplied 3.2 Liter Suma canister at a rate not to exceed 200 ml/minute. The samples will be shipped to Environmental Analytical Services, Inc. in San Luis Obispo, California.

The soil gas samples will be analyzed for gasoline-range petroleum compounds using EPA Method 8015 Mod/ 8021B.

8.2 PERFORMANCE MONITORING

Performance monitoring will be used to verify that the remedial action has attained the desired cleanup standards [WAC 173-340-410(1)(b)] in the area of the Northwest Furniture Outlet excavation. Since all soils, with COC concentrations above the applicable CULs within 15 feet of the surface will be removed from the Northwest Furniture footprint area, compliance with soil cleanup levels for "Direct Contact" is assured. During the remedial action, performance monitoring will consist of collecting and analyzing soil samples of the excavation sidewalls and bottom to demonstrate compliance with the remediation levels.

Final performance soil samples shall be collected from both the sidewalls and bottom of the remedial excavation. At least one sidewall samples will be collected for each 10 linear feet of sidewall or in areas where the sidewalls exceed 5 feet in depth. One performance soil sample will be collected for each 100 square feet of excavation sidewall. One performance sample shall be collected for every 200 square feet of excavation bottom. Since the impacted zone is only approximately 4-inches thick, we do not expect to collect more than five soil "clearance" samples from the impacted soil removal area to verify that the impacted soil has been adequately removed.

Performance samples will be submitted for analysis of Halogenated Volatile Organics (HVOCs) by EPA Method 8260 SIM (fixed-base analytical laboratory). If the results of analyses for performance soil samples indicate that an area is not in compliance with remediation levels then additional excavation will be performed in that area and the area will be re-sampled.

All soil samples will be collected in laboratory supplied glass jars. Where possible, the samples will be collected directly from the excavation sidewall with a stainless steel spoon and placed directly into the glass jar. In areas where it is not safe to enter the excavation (i.e., deeper than about 5 feet, sidewall sloughing, etc.) the sample will be collected from the excavator bucket. For samples from the excavator bucket, the stainless steel spoon will be used to remove about 6 inches of slough from the soil in the bucket and then a sample will be collected from the soil beneath. No composite samples will be collected for performance monitoring purposes. All sampling equipment will be decontaminated between uses.

Field sampling quality assurance/quality control (QA/QC) will include the collection of field duplicate samples. Field duplicate samples will be collected from 10 percent of the final performance sampling locations. Field duplicates will be a split sample from the same location as the performance sample. Each duplicate will be submitted to the analytical laboratory as a blind sample with its own unique identification number.

Field duplicate sample results will be used as a qualitative measure of the reproducibility of soil sample results. If field duplicate sample analytical results fail to approximate the performance sample results, the laboratory QA/QC data for that batch of samples will be carefully checked and additional internal laboratory QA/QC verification may be required.

Field activities will be documented by on-site personnel with a field notebook. This notebook will document pertinent field activities as wells as the times, dates, identification

numbers and sampling locations of performance (and other) samples. This field notebook will also contain notations of pertinent observations, field screening and protection monitoring measurements and any other observations deemed important by the field personnel. All entries will be made in ink and dated. Photographs will be taken of unusual circumstances encountered during excavation.

8.3 PROTECTION MONITORING

Protection monitoring is intended to confirm that human health and the environment are protected during implementation of the remedial action [WAC 173-340-410(a)]. Protection monitoring will be performed through the implementation of a Health and Safety Plan (HASP) prepared in accordance with the requirements of the Occupational Safety and Health Administration (OSHA) and the Washington Industrial Safety and Health Administration (WISHA) standards for hazardous waste site operations (29 CFR 1910.120 and WAC 296-62 Part P). The HASP will establish the general health and safety practices for personnel performing the remedial action. These persons will be required to follow health and safety monitoring procedures contained in the HASP. The HASP will also be provided to subcontractor personnel for informational purposes. Implementation of this level of on-site health and safety monitoring is adequate to meet the requirements of WAC 173-340-410(1)(a) for the following reasons:

Site access will be limited to authorized personnel.

The field monitoring and mitigation measures called for in the HASP are protective of on-site worker health and should also be adequate to protect the health of workers in nearby buildings. The nearest potential exposure points for off-site workers are considerable distances from the affected soil excavation and handling areas.

Conditions imposed on the remedial action contractors by applicable federal and state regulations and laws require that specific measures be taken to prevent the occurrence of discharges that may pose a threat to human health or the environment (i.e., surface water runoff, earth moving equipment dragout, windblown dust emissions). These same regulations also require that contingency plans be prepared and implemented in the event of an accidental discharge of contaminants (i.e., overturned haul truck). Work will be conducted in accordance with applicable OSHA and WISHA regulations. Contractors on this project will be required to develop and implement their own health and safety procedures in accordance with applicable laws and regulations.

Soil excavation activities associated with this project will be of a relatively short duration and health risks associated with long-term exposures to on-site contaminants are not a concern. Considering the protection measures and monitoring called for during soil excavation, the risk of non-workers being subjected to appreciable short-term chemical exposure will be negligible.

The HASP will contain provisions for on-site worker protective equipment and for monitoring atmospheric concentrations of volatile compounds. The HASP will also provide the standards for upgrading personal protective equipment and the monitoring equipment to be used.

8.4 INSTITUTIONAL CONTROLS

Institutional controls will be implemented in order to ensure protection of human health and the environment in the area of the BFRC. Controls of this kind are required when residual concentrations of COCs will remain in place after remedial activities have been completed *(See WAC 173-340-440 — Institutional Controls).* These controls are required to remain active until the residual concentrations COCs no longer exceed cleanup levels at the selected points of compliance.

8.5 SCHEDULE

The anticipated schedule for tasks (outlined above) is summarized in the following table.

TABLE 8-1 — PROJECT TASK SCHEDULE

Project Component	*Estimated Duration*
Impacted soil removals & cap inspection	4 weeks

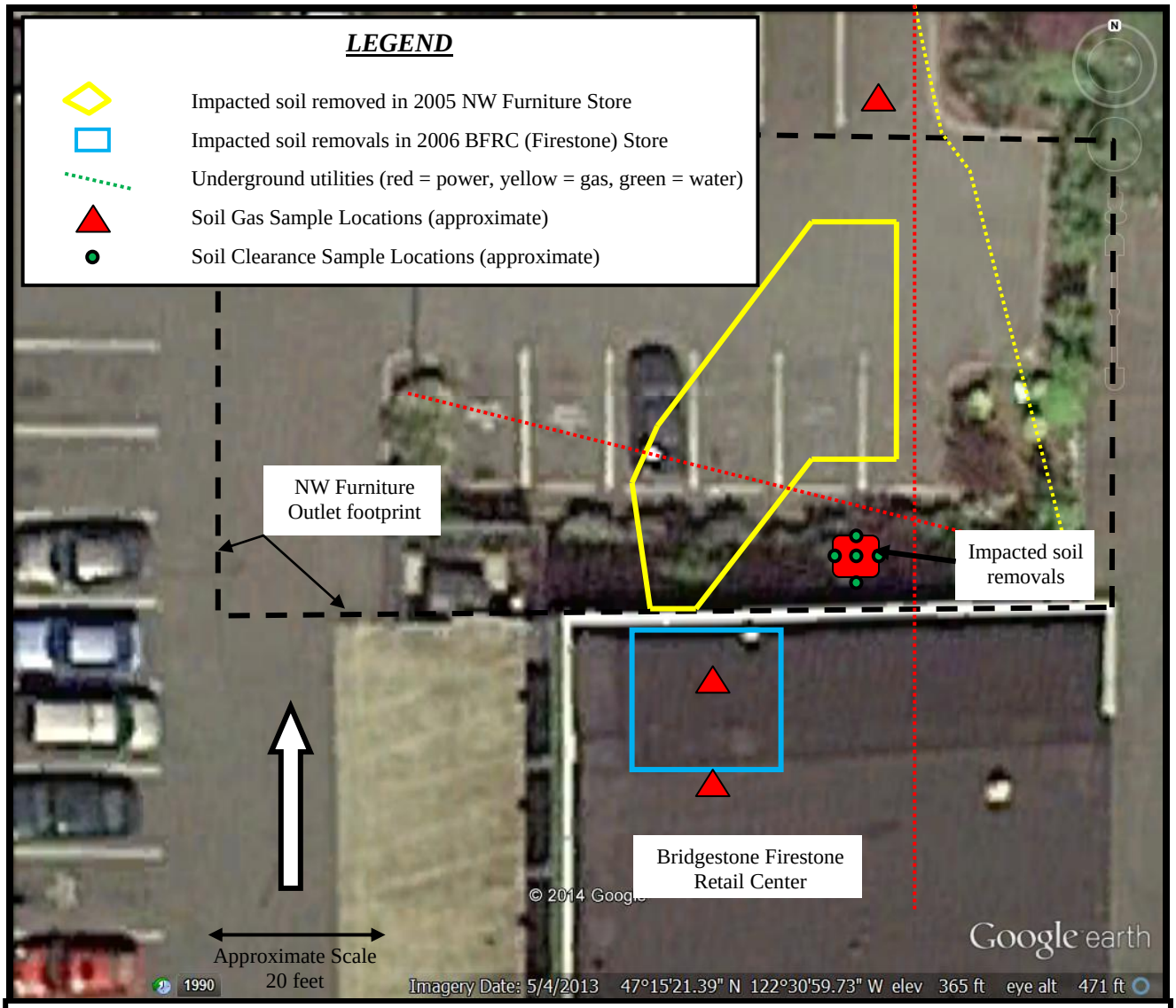


FIGURE 8-1 — SOIL CLEARANCE AND VAPOR INTRUSION SAMPLE LOCATIONS
Poulsbo Imperial Site, 19559 Viking Avenue NW, Poulsbo, Washington
Source: Modified after Google Maps 2014, GEI Project # 34042

9.0 LIMITATIONS

This CAP is based upon the application of scientific principles and professional judgment to certain facts with resultant subjective interpretations. Professional judgments expressed herein are based upon the facts currently available within the limits of the existing data, scope of work, budget and schedule and may undergo revision as additional data are obtained. To the extent that more definitive conclusions are desired by the client than are warranted by the currently available facts, it is specifically GEI's intent that the conclusions and recommendations stated in our report is intended as guidance and not necessarily a firm course of action except where explicitly stated as such. WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED INCLUDING WITHOUT LIMITATION, WARRANTIES AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

This CAP was prepared for the use of the Highland Sixth Associates, LP (“Client”) and the recommendations presented in this CAP are based upon the agreed scope of work outlined in the report and the Contract for Professional Services between Client and Galloway Environmental, Inc. ("Consultant"). Use or misuse of this report, or the reliance upon the findings hereof by any parties other than the Client, is at their own risk. Neither Client nor Consultant make any representations or warranty to such other parties as to the accuracy or completeness of this report or to the suitability of its use by such other parties for any purpose whatever, known or unknown to Client or Consultant. Neither Client nor Consultant shall have any liability to, or indemnifies or holds harmless third parties for any losses incurred by the actual or purported use or misuse of this report.

10.0 REFERENCES

BFRC Retail Store Number 015539, 5907 Sixth Avenue, Seacor International, Inc., Nov. 2, 2005

Cleanup Levels and Risk Calculations under the MTCA (CLARC), WDOE, 2005 and 2014

Dangerous Waste Regulations, Chapter 173-303 WAC, WDOE, Amended April 1991

Environmental Cleanup Status Report at the NW Furniture Outlet Property, by GEI, August 2005

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods - SW846, EPA, Amended April 2007

ESA Services at the BFRC, by GEI, August 16, 2006

Limited Level II ESA at the Northwest Furniture Outlet, 5909 Sixth Avenue, by GEI, July 2004

Model Toxics Control Act Cleanup Regulation, Chapter 173-303 WAC,, WDOE, February 2001 and 2005

Phase II ESA at the Highland Hills Shopping Center, 5907 - 6201 Sixth Avenue, by Environmental Partners, Inc, March 2005

Site Cleanup Confirmation Investigation at the Highland Hills Shopping Center, by GEI, dated December 29, 2014

Summary Status Letter to Scott Rose (WDOE) - NW Furniture Store/ BFRC, by GEI, March 30. 2009

APPENDIX A

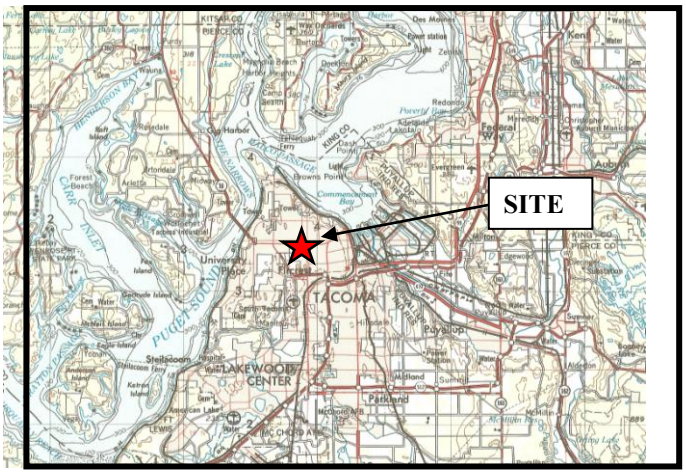
PREVIOUS ENVIRONMENTAL REPORTS
(Additional reports previously provided, also available upon request)

SITE CLEANUP CONFIRMATION INVESTIGATION

At the

HIGHLAND HILLS SHOPPING CENTER

NORTHWEST FURNITURE & BRIDGESTONE FIRESTONE RETAIL CENTER

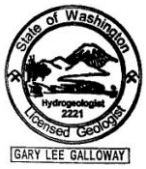


Prepared for

HIGHLAND SIXTH ASSOCIATES LP

C/o Koehler & Company
Attn: Doug McFadyen
1924 1st Avenue, 3rd Floor
Seattle, Washington 98101

Prepared by



Gary Galloway, LHG
President

GALLOWAY ENVIRONMENTAL, INC.
3102 — 220th Place SE
Sammamish, Washington 98075-9540
(425) 688-8852

December 29, 2014

CONTENTS *Page No.*

EXECUTIVE SUMMARY		*ES-I*
1.0	*INTRODUCTION*	*1-1*
1.0.1	*Site Location and Property Description*	*1-1*
1.0.2	*Background and General Facility Information*	*1-1*
1.0.3	*Previous Environmental Studies*	*1-1*
1.0.4	*Purpose and ESA Objectives*	*1-5*
1.1	*REGIONAL AND SITE GEOLOGY*	*1-5*
1.2	*REGIONAL AND SITE HYDROGEOLOGY*	*1-6*
1.2.1	*Groundwater Occurrence*	*1-6*
1.2.2	*Current Groundwater Use*	*1-6*
1.2.3	*Surface Water*	*1-7*
2.0	*FIELD INVESTIGATION ACTIVITIES*	*2-1*
2.1	*SOIL INVESTIGATION*	*2-1*
2.1.1	*GeoProbe Penetrations*	*2-1*
2.1.2	*Field Sampling and Screening of Soil Samples*	*2-2*
2.1.3	*Chemical Analysis of Soil Samples*	*2-2*
2.2	*GROUNDWATER INVESTIGATION*	*2-2*
2.3	*QUALITY ASSURANCE/QUALITY CONTROL*	*2-2*
2.4	*HEALTH AND SAFETY*	*2-3*
3.0	*CONTAMINATION ASSESSMENT*	*3-1*
3.0.1	*Soil Sample Results*	*3-1*
3.1	*CONCLUSIONS*	*3-1*
4.0	*SPECIAL TERMS AND CONDITIONS*	*4-1*
5.0	*REFERENCES*	*5-1*

CONTENTS (Continued) *Page No.*

FIGURES

1-1	*SITE LOCATION MAP*	*1-7*
1-2	*SITE PLAN & VICINITY MAP*	*1-8*
3-1	*GEOPROBE LOCATIONS*	*3-3*

TABLES

3-1	*SOIL SAMPLE RESULTS SUMMARY*	*3-2*
3-2	*BFRC SOIL SAMPLE RESULTS SUMMARY*	*3-3*

APPENDICES

A	*GEOPROBE SOIL LOGS*
B	*LABORATORY ANALYTICAL RESULTS*
C	*PREVIOUS ENVIRONMENTAL REPORTS*
D	*SAMPLING AND ANALYTICAL PROCEDURES*

EXECUTIVE SUMMARY

This report presents the results of Galloway Environmental, Inc.'s (GEI's) Site Cleanup Confirmation Investigation ("SCCI") at the Northwest Furniture & Bridgestone Firestone Retail Center property. The subject property is located at 5907 and 5909 6th Avenue in Tacoma, Washington 98406.

The property is approximately four miles west of Tacoma's central business district and 1½ miles east of The Narrows Passage of Puget Sound. The property is situated in the NW ¼ of Section 2, Township 20 North, Range 2 East. Surrounding properties consist primarily of commercial properties.

Report Purpose and Objectives

This investigation was targeted to determine whether remedial actions completed at the Site have successfully removed or treated the impacted soils to comply with current Model Toxics Control Act (MTCA) Cleanup Levels (CULs).

Several environmental reports have been completed at the subject property. These reports have provided information related to environmental site investigations and remedial actions at the Site. These reports are summarized in Section 1.0.3 Previous Environmental Studies.

Work Scope Performed by GEI during this SCCI

GEI performed environmental soil sampling and analysis at eight (8) shallow soil penetration test holes drilled at the property. The following summary is intended for introductory purposes and should be used in conjunction with the full text of the report.

Findings of the Investigation

- Soil samples — Laboratory analysis of GEI's recent soil samples resulted in elevated concentrations of Chemicals of Concern (COCs) above the currently allowable Washington State Model Toxics Control Act Method B (MTCA) Cleanup Levels (CULs) for Unrestricted Land Use (ULU) in one of the eight soil penetrations sampled during this investigation.
- Water samples — No groundwater was encountered during this study.

Conclusions

- Additional environmental investigation or remedial action is recommended to comply with current MTCA regulations in vicinity of the one soil penetration with elevated COC concentrations.

1.0 INTRODUCTION

Galloway Environmental, Inc. (GEI) on behalf of Highland Sixth Associates LP, has prepared this Work Plan for a focused Environmental Site Assessment (ESA) at the Northwest Furniture & Bridgestone Firestone Retail Center property, 5907 and 5909 6th Avenue, Tacoma, Washington.

The property comprises a portion of the Highland Hills Shopping Center in Tacoma, Washington. The primary goal of this study was targeted to determine whether remedial actions completed at the Site have successfully removed or treated the impacted soils to comply with current Model Toxics Control Act (MTCA) Cleanup Levels (CULs).

1.0.1 Site Location and Property Description

The subject property is located at 5907 and 5909 6th Avenue in Tacoma, Washington 98406. The property is approximately three miles west of Tacoma's central business district and 1½ miles east of The Narrows Passage of Puget Sound *(see Figure 1-1 Site Location Map)*.

The property is situated in the NW ¼ of Section 2, Township 20 North, Range 2 East. Surrounding properties consist primarily of commercial properties.

1.0.2 Background and General Facility Information

The single story, 5,000 square foot Northwest Furniture Outlet structure was constructed to house the Daisy Clothing Care business in 1969. The facility had washing machines, clothing dryers and seven dry cleaning units. Daisy Clothing Care was in operation at the site until 1985 and the cleaners ceased its operation at that time. Reportedly, the Northwest Furniture Outlet suite was vacant until circa 1993 when the Northwest Furniture Outlet occupied the structure. The structure was demolished in April 2008 and most of the footprint of the structure was capped with asphalt with a small area adjacent to the remaining BFRC structure planted with vegetation and small shrubs and trees *(See Figure 1-2 — Site Plan Map).*

A 6,820 square foot Bridgestone Firestone Retail Center (BRFC) auto service center was built adjoining the Northwest Furniture structure in 1969. There are six vehicle service bays situated in the north and western portions of the structure. Five of the service bays are equipped with hydraulic lifts and an aboveground alignment rack has replaced a hydraulic lift that had previously occupied the northern bay. There are six floor drains (one near each lift) that are connected by an underground line leading to an underground oil/water separator located adjacent to the northern wall of the facility.

Both businesses have been connected to City of Tacoma water and sewer services since 1969.

1.0.3 Previous Environmental Studies

Several environmental studies have been completed previously at the subject shopping center property. These investigations have provided information related to Environmental Site Investigation and Remedial Action Reports at the Northwest Furniture Outlet Facility (previously operated as Daisy Clothing Care) and the adjacent BFRC facility *(See Appendix C — Previous Environmental Reports).*

These investigations confirmed that concentrations of halogenated volatile organic compounds (HVOCs), gasoline-range petroleum compounds (mineral spirits), and total xylenes exceeded the allowable Washington State Model Toxics Control Act (MTCA) Method B cleanup limits in soil at the site. GEI has integrated the results of these investigations into the scope of work for this investigation. These reports are summarized as follows.

Limited Level II ESA at the Northwest Furniture Outlet, 5909 Sixth Avenue, GEI, July 2004

GEI completed a Limited Level II Environmental Site Investigation at the Northwest Furniture Outlet property in July 2004. GEI's field screening and follow up laboratory analysis of soil samples collected from hand auger borings resulted in solvent compound concentrations above the currently allowable Washington State Model Toxics Control Act (MTCA) limits.

Phase II ESA at the Highland Hills Shopping Center, 5907 - 6201 Sixth Avenue, by Environmental Partners, Inc, March 2005

Environmental Partners, Inc. (EPI) completed a Phase II Environmental Site Assessment (ESA) of portions of the site to test for the presence of potential contaminants of concern outside the excavation area.

Laboratory analysis of EPI's soil samples confirmed that contaminant concentrations exceeded the currently allowable MTCA Method A concentrations, but were within the allowable Method B levels for "Direct Contact" cleanup levels in all of the borings except at one boring (Boring No. B-8).

EPI submitted one soil sample from B-8. The soil sample was collected from approximately 11.5 feet below grade. Laboratory analysis of the sample resulted in 33 ppm PCE — the MTCA Method B Direct Contact limit in soil (MTCA 2005) was 19.6 ppm for PCE). This (EPI) sample also exceeded MTCA's limits for gasoline-range petroleum concentrations – the laboratory noted the following; *"Chromatogram indicates sample contains products which are likely mineral spirits, light oil and lube oil".*

EPI's Draft Phase II ESA Executive Summary also states the following.

"The Firestone shop contains a sub-floor oil/water separator in the proximity of a parts cleaning station, which likely involved the past use of chlorinated solvents. There is a potential that past practices may have introduced solvents or petroleum hydrocarbons into the shallow soil in the vicinity of the oil/water separator" (Draft Phase II ESA Executive Summary, Highland Hills Shopping Center, Environmental Partners, Inc., March 2005).

Environmental Cleanup Status Report at the NW Furniture Outlet Property, by GEI , August 2005

GEI completed a Limited Level II Environmental Site Investigation at the Northwest Furniture Outlet property in July 2004. GEI's field screening and follow up laboratory analysis of soil samples collected from hand auger borings resulted in solvent compound concentrations above the currently allowable Washington State Model Toxics Control Act Method A (MTCA (2004)) limits.

Based on these MTCA exceedences, the owner asked GEI to remove the impacted soil until: 1) the residual contaminant concentrations were within the currently allowable MTCA limits; or 2) continued removals of the affected soil would (potentially) jeopardize the structural integrity of the building.

Excavated soils with contaminant concentrations exceeding Ecology's Dangerous Waste limits were loaded directly into 20 cubic yard containers for disposal at Waste Management's RCRA-permitted (hazardous waste) facility and excavated soils with contaminant concentrations below the Dangerous Waste limits were loaded directly into Waste Management's 20 cubic yard containers for rail delivery to Waste Management's non-hazardous waste facility as per WDOE's "Contained In" authorization letter *(Disposal of Soils with F002-Listed Dangerous Waste Constituents, Letter from K. Seiler - WDOE SWRO Section Manager to Galloway Environmental, March 11, 2005)*

GEI removed approximately 175 tons of solvent-impacted soils from below the concrete floor of the facility and collected soil samples from the sidewalls and bottom of the excavation to test for potential residual contaminant concentrations in the excavation. The excavation was backfilled with pea gravel and a four-inch thick concrete slab will be poured over the gravel. GEI also installed a 20-mil, chemical resistant PVC liner at about three feet below grade to restrict potential residual vapors from entering the facility.

GEI collected interim soil samples from the sidewalls and excavation bottom for field screening and laboratory analysis during the removals to quantify the contaminant concentrations remaining in the soils. Field screening and laboratory tests of soil samples (collected from the excavation) that resulted in concentrations exceeding the targeted cleanup levels (MTCA Method B – Direct Contact levels) were subsequently excavated and the excavation was re-sampled.

Following the removals of as much of the impacted soils as possible, GEI collected representative soil samples from the sidewalls and bottom of the excavation to test for residual contaminant concentrations remaining in the excavation. Contaminant concentrations in soils exposed at the limits of the final excavation resulted in concentrations dry cleaning compounds above the WDOE-acceptable MTCA Method A and below the Method B Cleanup Levels for "Direct Contact" of the soils *(Environmental Cleanup Status Report, Galloway Environmental, Inc., August 2005).*

BFRC Retail Store Number 015539, 5907 Sixth Avenue, Seacor International, Inc. Nov. 2, 2005

SECOR International, Inc. completed a Limited Subsurface Assessment of the BFRC facility in November 2005. SECOR's assessment included the advancement of six Strataprobe penetrations to depths ranging from 13 to 19.5 feet bgs. Laboratory analysis of soil samples collected from the borings confirmed the presence of gasoline-range compounds, total xylenes and volatile organic compounds at concentrations exceeding the allowable MTCA Method A Cleanup Levels. No groundwater was encountered in any of the penetrations *(Limited Subsurface Assessment Report for BF Retail & Commercial*

Operations, LLC, BFRC Retail Store Number 015539, 5907 6th Avenue, Tacoma, Washington, by SECOR International, Inc., November 2, 2005).

ESA Services at the BFRC Services Facility, by GEI, August 16, 2006

GEI contracted Cascade Drilling to drill one soil boring near the furniture store to a maximum depth of 90 feet below the ground surface to investigate whether groundwater was present in the boring. If groundwater was encountered in the boring, then we planned to collect a water sample from the boring for chemical analysis for the contaminants of concern for the site.

GEI collected soil samples from the boring on five-foot intervals. The samples were field-screened for obvious signs of contamination (discolored soil or obvious odors, etc.), which are sometimes characteristic of environmental impacts to soil. The samples also were field-tested using a photoionization detector (PID – Mini-Rae), to screen for volatile compounds in the samples.

Since the field screening of the soils samples did not identify any indications of contamination in the samples, GEI submitted three soil samples from the boring for laboratory analysis. These samples were collected from approximately 15 feet, 30 feet and 60 feet of depth. The sampling protocols and procedures followed appropriate state and federal guidance documents, primarily EPA SW-846 and Washington State guidance documents (including EPA Method 5035A). OnSite Environmental Inc. analyzed the samples for the contaminants of concern using NWTPH-Gx/BTEX and Halogenated Volatiles (EPA Method 8260B).

Groundwater was not encountered in the soil boring - The boring was advanced to 90 feet belowground and the auger flight was lifted approximately 6-inches (off the bottom) to see if water would collect at the bottom of the boring – after waiting approximately 15 minutes no water was present in the boring. The Contaminants of Concern (COCs) were not detected in any of the samples submitted to the laboratory.

Summary Status Letter, NW Furniture Store/ BFRC, Letter correspondence to Scott Rose (WDOE VCP) from GEI, dated March 30, 2009

Gary Galloway summarized the environmental services completed at the BFRC and NW Furniture Outlet as follows.

Northwest Furniture Outlet Property

Based on MTCA exceedences identified during GEI's Phase II Environmental Site Investigation at the Furniture Store, the owner asked GEI to remove the impacted soil until: 1) the residual contaminant concentrations were within the currently allowable MTCA limits; or 2) continued removals of the affected soil would (potentially) jeopardize the structural integrity of the nearby buildings.

In 2005, GEI removed approximately 175 tons of solvent-impacted soils from below the concrete floor of the facility. Following the removals of as much of the impacted soils as possible, GEI collected representative soil samples from the sidewalls and bottom of the excavation to test for residual contaminant concentrations remaining in the excavation.

Also, Environmental Partners, Inc. (EPI) completed a Phase II Environmental Site Assessment (ESA) of portions of the site (including the BFRC -Firestone Store) to test for the presence of potential contaminants of concern outside the excavation area.

The Furniture Store building was demolished in April 2008 and in May 2008; GEI contracted ESN Drilling Company to inject chemical oxidation compounds (Potassium Permanganate) into the ground (to approximately 15 feet belowground) in the former footprint of the furniture store as shown in the attached figure - clearance soil sample data is provided in the attached table. Most of the former footprint of the furniture store has been capped with asphalt – with approximately ten feet of landscaped vegetation adjacent to the Firestone Store.

BFRC Property

Based on MTCA exceedences identified during EPI's Focused Phase II Environmental Site Investigation at the Firestone Store, the owner asked GEI to remove an underground oil/water separator and the impacted soil until: 1) the residual contaminant concentrations were within the currently allowable MTCA limits; or 2) continued removals of the affected soil would (potentially) jeopardize the structural integrity of the nearby buildings.

GEI removed the separator and impacted soil to a depth of 15 feet – the excavation measured 15'x15'x15'. Clearance soil samples were collected from the limits of the excavation and the excavation was backfilled with pea gravel and reinforced concrete was poured at the surface *(See attached figure and table).*

In September 2008 and in March 2009, GEI gravity feed approximately 300 gallons of 3% KMnO4 (Potassium Permanganate) into the backfilled gravel (former oil/water separator location) to further reduce contaminant concentrations in the soils. The owner has asked GEI to continue the chemical oxidation treatment in the pea gravel semi-annually at the site.

1.0.4 Purpose and ESA Objectives

This investigation was targeted to determine whether remedial actions at the Site have successfully treated the impacted soils and groundwater to comply with current Model Toxics Control Act (MTCA) Cleanup Levels (CULs).

Data reviewed or obtained during this ESA were compared to current Washington State Model Toxics Control Act (MTCA - WAC 73-340) and the US Environmental Protection Agency (EPA) cleanup regulations for exceedences of potential contaminants of concern (COCs).

1.1 REGIONAL PHYSIOGRAPHIC CONDITIONS

The site is situated in the lowlands of the Puget Sound basin in western Washington. The Puget Sound is a north-south trending trough between the Olympic Mountains to the west

and the Cascade Mountains to the east. Elevation in the lowlands ranges from sea level up to several hundred feet. North-south trending valleys dominate the topography and low, nearly flat-topped highlands cut by streams. The Puget Sound occupies a large part of the western portion of the basin; lakes and streams occur frequently throughout the remainder of the basin.

The subject site is at an elevation of about 340 feet above mean sea level and is situated near the top of a gently rolling elevated plain which was formed during the last period of continental glaciation that ended approximately 13,500 years ago.

Climate

Western Washington is characterized as having a mild marine climate. While the average total annual precipitation is approximately 37 inches, most of the rain falls between October and April.

1.2 REGIONAL AND SITE GEOLOGY

The uplands of the Puget Sound Basin are separated by large Pleistocene glacial troughs now occupied by tidal waters, large lakes, or have been alluviated by streams that inherited the troughs with the retreat of the most recent glaciation. Native soils in the area consist of glacial drift and non-glacial Pleistocene deposits.

Soils exposed in the sidewalls and bottom of the excavation completed during the removals of impacted soils for this project consisted mainly of artificial fill materials ranging from six to nine feet of depth. The fill materials were predominately silty sand with gravel, organics and silty fine sand.

Glacial till, a dense heterogeneous mixture of silt, sand, and gravel underlies the fill.

1.3 REGIONAL AND SITE HYDROGEOLOGY

1.3.1 Groundwater Occurrence

Based on the results of previous subsurface investigations, the depth of groundwater in vicinity of the subject property is greater than 90 feet below the ground surface *(See Section 1.0.3 — Previous Environmental Investigations).*

1.3.2 Current Groundwater Use

The subject property is supplied water from a local municipal source. On site drainage is handled through on site ground retention and storm drains. Surface drainage appears to be adequate as there is no evidence of standing water, streams or creeks in the vicinity of the site.

1.4 SURFACE WATER

On-site drainage is handled through on-site ground retention and storm drains. Surface drainage appears to be adequate and there is no evidence of standing water in vicinity of the site.

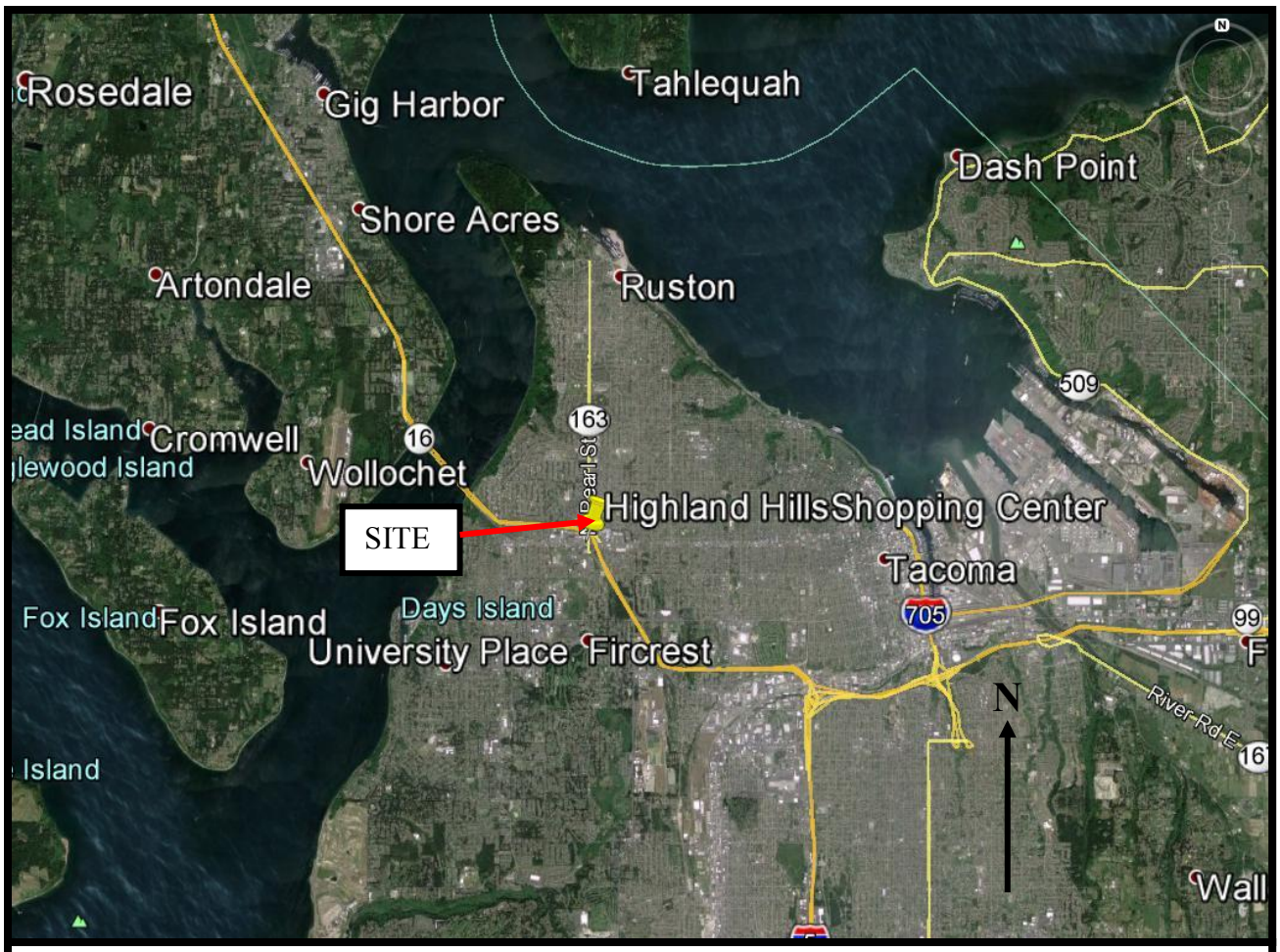


FIGURE 1-1 — SITE LOCATION
Highland Hills Property Focused SCCI
Source: Google Maps 2014, GEI Project #34045

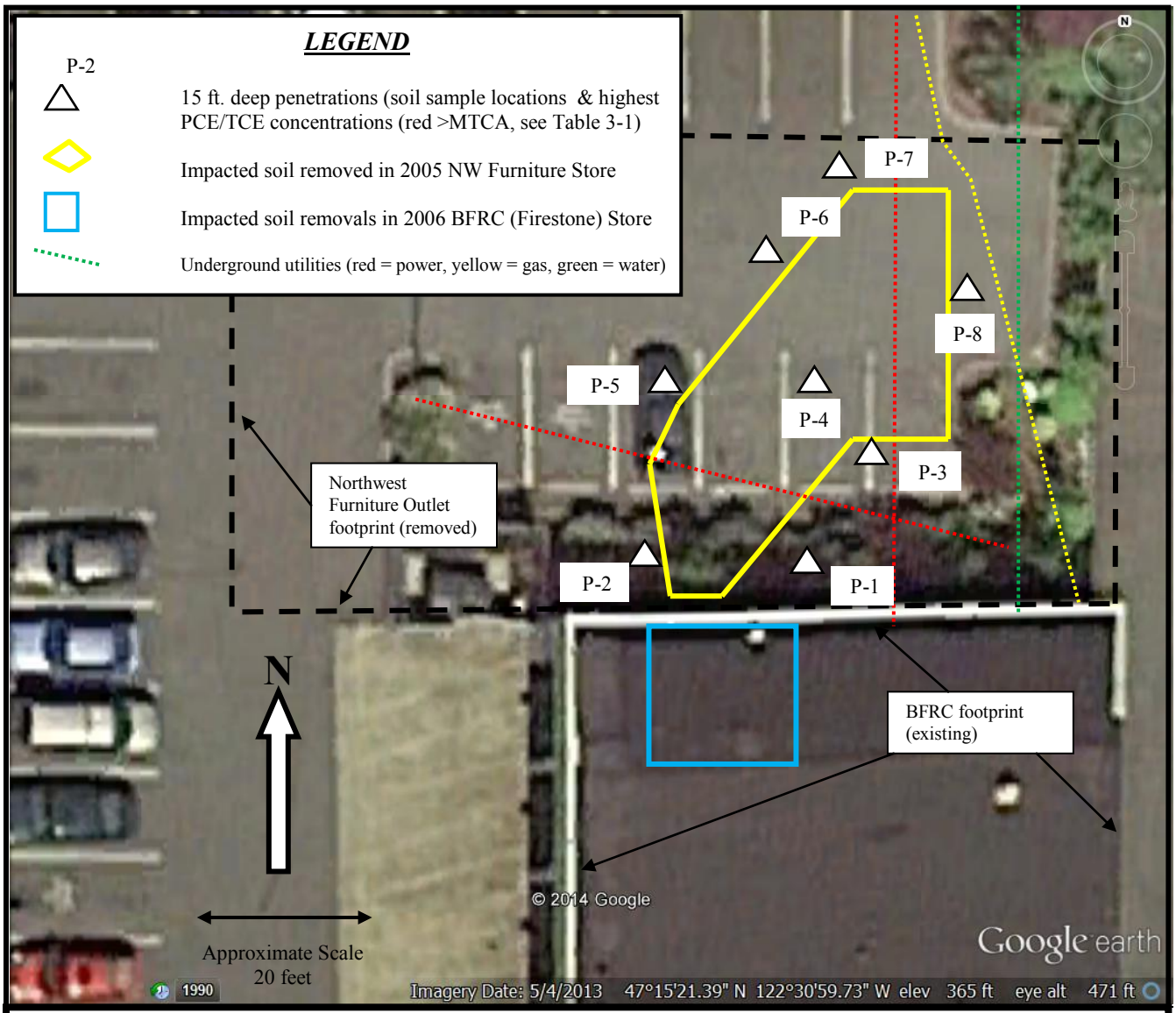


FIGURE 1-2 — SITE PLAN MAP

Northwest Furniture & Bridgestone Firestone Retail Center Property Focused SCCI

Source: Google Maps 2014, GEI Project #34045

2.0 FIELD INVESTIGATION ACTIVITIES

This investigation was targeted to determine whether remedial actions at the Site have successfully treated the impacted soils and groundwater to comply with current Model Toxics Control Act (MTCA) Cleanup Levels (CULs).

The Scope of Work consisted of collecting soil samples from six GeoProbe (direct push) penetrations in the vicinity of petroleum impacts that were identified in previous investigations and collecting groundwater samples from existing groundwater monitoring wells. The locations of the probe penetrations and groundwater wells are shown in Figure 3-1 — Sample Locations.

All of the samples collected during this investigation were placed in laboratory-supplied containers and properly labeled with the sample location, depth, and date and time of collection. The samples were stored in an iced cooler for delivery to the laboratory under standard chain-of-custody procedures *(See Appendix C — Sampling and Analytical Procedures).*

2.1 SOIL INVESTIGATION

2.1.1 GeoProbe Penetrations

Cascade Drilling Co. provided a truck mounted direct push rig (GeoProbe™) and crew to access subsurface soil samples for this study. The probe rig consisted of a hydraulically powered percussion/direct push machine that drives a tool string into the ground to access subsurface soils for sampling *(See Appendix A — GeoProbe Boring Logs).*

In order to reduce the potential for cross contamination of samples, the soil samples were collected in dedicated visqueen tube sample containers inside of a 1½ inch diameter, 5-foot long sampler attached to the end of the drive rods. The drive rods and other down hole equipment were thoroughly cleaned and decontaminated between probe locations as per EPA SW846 recommended decontamination guidelines.

2.1.2 Field Sampling and Screening of Soil Samples

The sampling protocols and procedures followed appropriate state and federal guidance documents, primarily EPA SW-846 and Washington State guidance documents (including EPA Method 5035A). Soil samples were collected continuously from the ground surface to the maximum penetration depths using standard penetration techniques from the ground surface to depths ranging from 11 feet to 15 feet for field screening and laboratory analysis.

Soil samples and cuttings were visually examined and classified according to the Unified Soil Classification System (USCS). The samples were field-screened for obvious signs of contamination (discolored soil, sheen, obvious odors, etc.), which are sometimes characteristic of petroleum compounds in the soil. Discrete soil samples were also field-tested using a photoionization detector (PID - Photovac 2010 or equivalent) to screen for volatile compounds in the samples. The PID was fully calibrated using a 100-ppm span

gas and ambient air and the battery was fully charged prior to its use on-site. Detailed descriptions of observations made at each boring/probe have been provided in boring logs *(See Appendices A – GeoProbe Boring Logs and D – Sampling and Analytical Procedures).*

Based on field observations and the objectives of this investigation, the field sampler selected representative soil samples from each location for laboratory analysis. The soil samples were collected according to EPA and Washington State Department of Ecology (Ecology) sampling and preservation guidelines including EPA Method 5035A procedures.

The samples were placed in laboratory supplied glass jars and 40-ml glass VOA vials with Teflon-lined septum caps. The samples were properly labeled, stored in a chilled container (with ice), and hand-delivered to a Washington State-certified laboratory (OnSite Environmental Laboratory in Redmond, Washington) for analysis.

2.1.3 Chemical Analysis of Soil Samples

Previous environmental studies at the Site have identified Halogenated Volatile Organic (HVOC) compounds as the primary Chemicals of Concern (COCs) beneath the footprint of the previous Northwest Furniture outlet. Therefore, representative soil samples were submitted to the OnSite Environmental Laboratory in Redmond, Washington for EPA Method 8260C (HVOC) analysis.

Samples collected by Seacor, Inc. in February of 2005 on the adjacent Bridgestone Firestone Retail Store (BFRC) identified gasoline-range petroleum and BTEX compound impacts to soil beneath the BFRC facility — OnSite Laboratory's Gasoline-range analysis of Seacor's samples states that the gasoline range compounds in the soil samples appear to be Mineral Spirits *(See Tables 3-1 and 3-2, Section 1.0.3 —Previous Environmental Studies, Appendix B — Laboratory Data).*

2.2 GROUNDWATER INVESTIGATION

No groundwater was encountered during this investigation.

The objective of the sampling program was to collect continuous soil samples from the ground surface to the bottom of the penetrations for field screening and confirmatory laboratory chemical analysis by OnSite Environmental Laboratory's facility in Redmond, Washington.

The sampling protocols and procedures followed appropriate state and federal guidance documents, primarily EPA SW-846 and Washington State guidance documents (including EPA Sampling Method 5035A).

2.3 QUALITY ASSURANCE/QUALITY CONTROL

Ecology- and EPA-recommended Quality Assurance/Quality Control Procedures (QA/QC) field sampling, decontamination of equipment, and shipping and handling procedures were followed throughout the field investigation. The analytical results indicate that the

sampling equipment was properly decontaminated and that no cross-contamination occurred between samples and laboratory results are within method-specified QA/QC limits.

2.4 HEALTH AND SAFETY

The field investigation activities at this site were conducted in accordance with GEI's Corporate Health and Safety Program. The health and safety program was successfully implemented and no adverse health and safety incidents were observed or reported.

3.0 CONTAMINATION ASSESSMENT

3.0.1 Soil Sample Results

Soil samples — Laboratory analysis of the soil samples resulted in concentrations of TCE and PCE compounds above the currently allowable Washington State Model Toxics Control Act Method B (MTCA) Cleanup Levels (CULs) for Unrestricted Land Use (ULU) in one of the eight soil penetrations sampled during this investigation *(See Table 3-1 — Sample Results Summary, below).*

3.1 CONCLUSIONS

Additional environmental investigation and/or remedial action is recommended to comply with current MTCA regulations.

Table 3-1 Soil Sample Results Summary

Sample No. & depths	PID Readings	Laboratory Analysis — mg/kg (ppm)					
		TCE	PCE	(cis) 1,2 Dichloro-ethene	1,1,1,2-Tetrachloro-ethane	1,2-Dichlorobenzene	Vinyl Chloride
P-1@2.6'	>50	**79**	**7900**	5.4	0.44	0.073	<0.058
P1@8'	0.0	0.010	0.80	0.39	<0.001	<0.001	<0.0009
P1@8' dup**	0.0	<0.086	0.12	2.4	<0.086	<0.086	0.086
P1@11'	0.0	0.0063	0.061	0.037	<0.001	<0.0009	0.0009
P2@11'	0.0	<0.0009	0.0054	0.002	<0.0009	<0.0009	0.0009
P3@2.6'	0.0	0.037	26	0.0023	<0.0007	<0.0007	0.0007
P-3@7'	0.0	0.0027	0.015	13	<0.0065	<0.0065	0.0011
P4@11'	1.8	0.83	0.16	45	<0.091	<0.091	0.0012
P5@7.5'	0.0	0.0023	0.0067	0.14	<0.001	<0.001	0.0010
P6@8'	0.0	0.010	0.0025	0.053	<0.001	<0.001	0.0010
P7@8'	0.0	0.26	0.0093	1.1	<0.0011	<0.061	0.0011
P8-11'	1.2	0.84	0.24	3.5	<0.063	<0.063	0.0009
B-1@13'***	0.0	0.32	1.5	0.29	<0.10	<0.10	<0.10
B-2@11'***	0.8	0.90	13	0.33	<0.08	<0.08	<0.08
B-3@17'***	0.0	0.36	2.0	<0.077	<0.077	<0.077	<0.077
B4@19'***	2.8	3.6	29	0.16	<0.11	<0.11	<0.11
MTCA Limits Method B Residential (top) Method C Industrial (bottom)		40 (12*) 1750 (2850*)	480 (476*) 21000 (62500*)	160 7000	2400 105000	160 315000	24 (0.67*) 10500 (87.5*)

* Method B & C values for carcinogenic compounds are listed in parenthesis
** Duplicate (laboratory) analysis for this sample
*** Collected by GEI during Seacor's Site Investigation in February 2005
Sample locations shown in Figure 3-1 (Also see Appendices)

*Table 3-2 BFRC Soil Sample Results Summary (Petroleum Compounds only)**

Sample No. & depths**	PID Readings	Laboratory Analysis — mg/kg (ppm)				
		Gx	Benzene	Toluene	Ethyl Benzene	Xylenes
B-1@13'	- - -	2400	<0.02	0.28	2.5	10.6
B-2@11'	- - -	7100	<0.02	0.26	7.0	27
B-3@17'	- - -	7900	0.059	1.3	5.5	31
B-4@19'	- - -	4600	0.052	0.47	3.9	15.4
MTCA Limits Method B Residential (top) Method C Industrial (bottom)		No CUL No CUL	320 14000	6400 280000	8000 350000	16000 700000

* Collected by GEI during Seacor's Investigation in February 2005 (See Appendices), See Table 3-2 for EPA 8260 results
**Sample locations shown in Figure 3-1

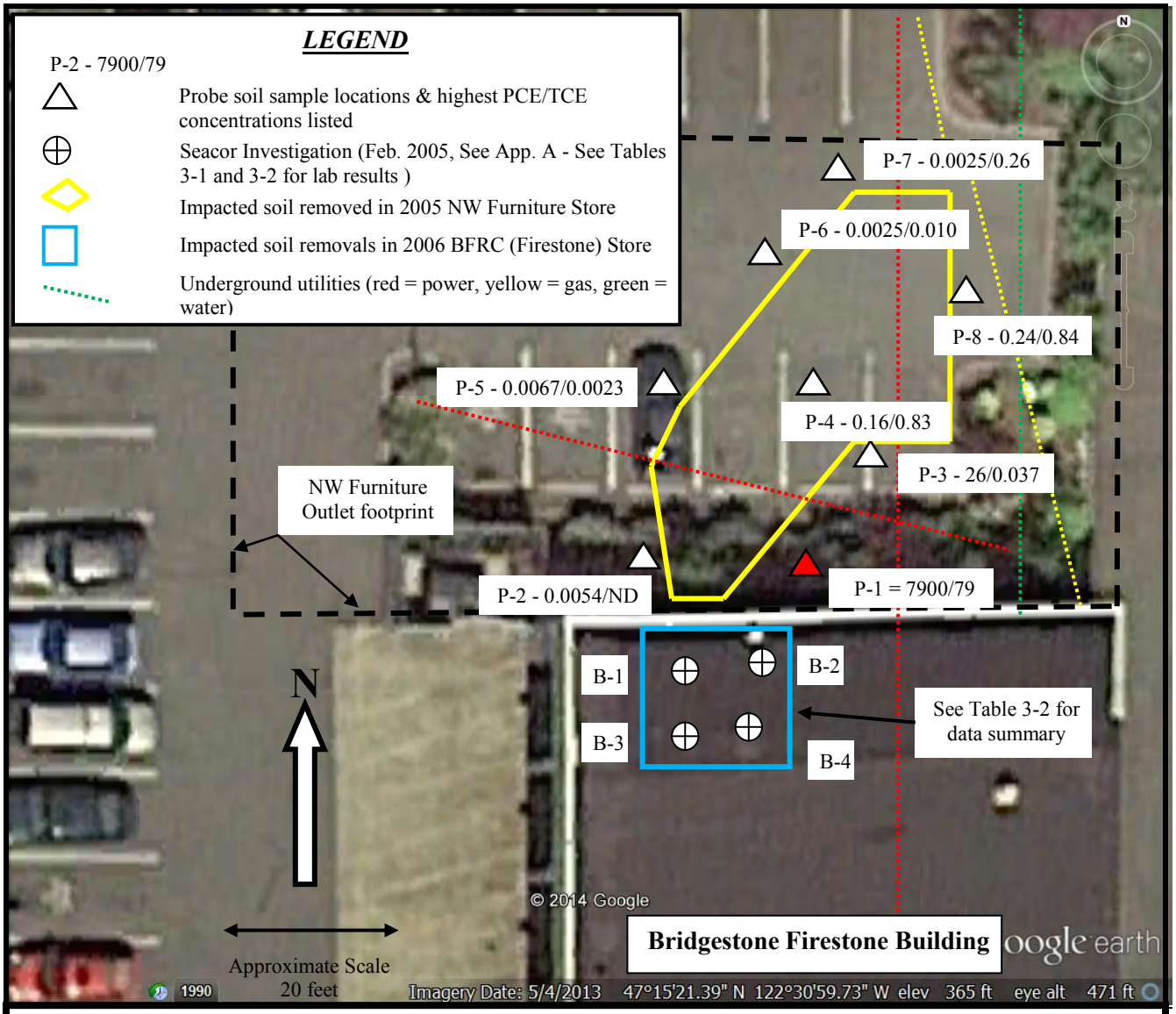


FIGURE 3-1 — SOIL SAMPLE LOCATIONS
Northwest Furniture & Bridgestone Firestone Retail Center Property Focused SCCI
Modified after Google May 2013, GEI Project #34045

4.0 SPECIAL TERMS AND CONDITIONS

This report is based upon the application of scientific principles and professional judgment to certain facts with resultant subjective interpretations. Professional judgments expressed herein are based upon the facts currently available within the limits of the existing data, scope of work, budget and schedule and may undergo revision as additional data are obtained. To the extent that more definitive conclusions are desired by the client than are warranted by the currently available facts, it is specifically GEI's intent that the conclusions and recommendations stated in our report is intended as guidance and not necessarily a firm course of action except where explicitly stated as such. WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED INCLUDING WITHOUT LIMITATION, WARRANTIES AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

GEI makes no claims or guarantees with regard to this environmental review. These environmental services have been completed in accordance with the degree of skill and care required by customarily accepted good practices and procedures. This report should not be considered as a complete environmental assessment of the areas in question, but rather a preliminary report of existing conditions.

This report was prepared for the use of Highland Sixth Associates, LP (“Client”) and the conclusions and recommendations presented in this report are based upon the agreed scope of work outlined in the report and the Contract for Professional Services between Client and Galloway Environmental, Inc. ("Consultant"). Use or misuse of this report, or the reliance upon the findings hereof by any parties other than the Client, is at their own risk. Neither Client nor Consultant make any representations or warranty to such other parties as to the accuracy or completeness of this report or to the suitability of its use by such other parties for any purpose whatever, known or unknown to Client or Consultant. Neither Client nor Consultant shall have any liability to, or indemnifies or holds harmless third parties for any losses incurred by the actual or purported use or misuse of this report.

5.0 REFERENCES

BFRC Retail Store Number 015539, 5907 Sixth Avenue, Seacor International, Inc., Nov. 2, 2005

Cleanup Levels and Risk Calculations under the MTCA (CLARC), WDOE, 2005 and 2014

Dangerous Waste Regulations, Chapter 173-303 WAC, WDOE, Amended April 1991

Environmental Cleanup Status Report at the NW Furniture Outlet Property, by GEI , August 2005

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods - SW846, EPA, Amended April 2007

ESA Services at the BFRC, by GEI, August 16, 2006

Limited Level II ESA at the Northwest Furniture Outlet, 5909 Sixth Avenue, by GEI, July 2004

Model Toxics Control Act Cleanup Regulation, Chapter 173-303 WAC,, WDOE, February 2001 and 2005

Phase II ESA at the Highland Hills Shopping Center, 5907 - 6201 Sixth Avenue, by Environmental Partners, Inc, March 2005

Summary Status Letter, NW Furniture Store/ BFRC, by GEI, March 30. 2009

APPENDIX A

GEOPROBE SOIL BORING LOGS

APPENDIX B

LABORATORY ANALYTICAL RESULTS

APPENDIX C

PREVIOUS ENVIRONMENTAL REPORTS

(These reports have previously been submitted, they are available upon request)

APPENDIX D

SAMPLING AND ANALYTICAL PROCEDURES

SAMPLING RATIONALE AND EQUIPMENT DECONTAMINATION

The sampling protocols and procedures followed appropriate state and federal guidance documents, primarily EPA SW-846 and Washington State guidance documents (including EPA Method 5035A).

Sampling Protocols and Procedures

GEI utilized the Laboratory Preservation option for soil sampling for volatiles under EPA Method 5035A. At each sample location, GEI collected approximately 5 grams of soil in one pre-weighed 4-mil VOA vial and one 4-ounce glass jar. Soil samples were collected and preserved in a 4-mil VOA vial using the laboratory-supplied Teflon coring device per EPA Method 5035A. Soil samples in the 4-ounce glass jar were collected with a decontaminated stainless steel spoon or directly into the glass container without the use of the spoon. Three VOA vials and one 4-ounce glass jar samples were hand-delivered to the laboratory on their collection date.

Handling, storage, and shipment

All of the samples were properly labeled, stored in a chilled container (preserved with ice to approximately 4 degrees Centigrade), and hand-delivered to a local Washington State-Certified laboratory on their collection date, under proper chain-of-custody protocols. A field logbook documented all of the field activities, problems encountered, and other relevant information regarding the sampling.

Equipment Decontamination

Decontamination procedures and activities were recorded in the site logbook. All equipment was decontaminated before starting work and between each sampling site. The soil samples were recovered at each sample location using procedures designed to minimize the risk of cross contamination of the samples. Laboratory-supplied glass jars, VOA vials, and Teflon tubes were used at each sample location – no sampling equipment will be used at more than one sample location.

Sampling equipment was decontaminated between sampling locations at a specific site. Other non-sampling equipment was decontaminated with high-pressure steam and scrubbed with laboratory detergent, if necessary. The following procedure will be used for cleaning all sampling equipment:

- Remove gross contamination by brushing.
- Wash and scrub with laboratory grade detergent, if necessary.
- Rinse with tap water.
- Rinse with de-ionized water.

Field Custody Procedures

Sample-tracking records include the sample labels and chain-of-custody seals to place over a container opening, and the Chain-of- Custody/Analysis Report forms. The samples taken were traceable from the time the samples were collected until they or their derived data are used in the final report. To maintain and document sample possession, the following field custody procedures shall be implemented.

The Site Manager was personally responsible for the care and custody of the samples collected until they were properly transferred or dispatched to the laboratory. A Chain of Custody/Analysis Report form accompanied samples. The custody record was completed using waterproof ink.

Drawing a line through and initialing and dating the change, then entering the correct information, made any corrections. Erasures or whiteouts were not permitted. When transferring possession of samples, the individuals relinquishing and receiving them signed, dated, and noted the time on the form. This form documents sample custody transfer from the sampler to the laboratory.

Sample Identification

All samples were individually labeled and noted in the field logbook. Information on the labels was filled out completely. The sample numbers were also used to complete the Chain-of-Custody forms. All sample coolers were affixed with a signed Custody Seal.

Field Reports and Forms

The Site Manager maintained a field logbook documenting all activity and samples during all phases of the investigation. The field logbook included the following information for each sample:

- Date
- Time
- Location
- Sample identification number
- How sample was collected
- Comments

The Site Manager kept the site logbook. This book summarized the daily activities, visitors, and problems encountered. Any entries made in the logbook were signed and dated by the individual. A telephone log was kept to document any project oriented phone conversations. The person holding the conversation made these entries. All forms (shipping, etc.) were kept, as necessary, in a binder with the field personnel. The logbooks were initiated at the start of the first on-site activity, and entries were made for everyday that site activities occur. The logbooks were weatherproof and bound with numbered pages.

LABORATORY ANALYSIS

Representative soil samples were be submitted to a Washington State-Certified Laboratory (OnSite Environmental Laboratory, Redmond, WA) for the following chemical analyses.

- Halogenated Volatile Organic Compounds (EPA Method 8260C)