Exhibit A Revised Cleanup Action Plan

REVISED CLEANUP ACTION PLAN

FORMER WESMAR PROPERTY SEATTLE, WASHINGTON

Issued by:

Washington State Department of Ecology Toxics Cleanup Program Northwest Regional Office Bellevue, Washington

TABLE OF CONTENTS

1	INT	ROD	UCTION	1
	1.1	Site 1	Background	1
	1.2	Site	Definition	2
	1.3	Purp	ose and Scope	3
2	CLI	EANU	JP REQUIREMENTS	3
	2.1	Site	Contaminants	3
	2.2	Clear	nup Levels	4
	2.3	Appl	icable or Relevant and Appropriate Requirements	5
3	RE	MEDI	AL ACTION SELECTION	6
	3.1	Sum	mary of Alternatives	6
	3.2	Ratio	onale for Selection of Proposed Cleanup Action	6
4	PRO	OPOS	ED CLEANUP ACTION	7
	4.1	Clear	nup Action for Area A – Excavation Within the Perimeter Shoring	7
	4.2	Clear	nup Action for Area B – Capping On-Property Arsenic- and PAH-Contaminated	
		Soil	Beyond the Perimeter Shoring	8
	4.3		nup Action for Area C – Capping PAH-Contaminated Soil Located Within the t-of-Way	9
	4.4	U	t of Compliance	
			tutional Controls	
5			CTIVITY SUMMARY AND SEQUENCE FOR REMEDIATION	
5			struction Setup	
		.1.1	Property Security and Public Notice	
		.1.2	Shoring Installation	
	-	.1.3	Stabilized Construction Entrance and Wheel Wash	
	-	.1.4	Construction Dewatering	
	-	.1.5	Health and Safety Protocol	
	-		INEERING DESIGN DOCUMENT FOR CAP IMPLEMENTATION	
		.2.1	Excavation of Arsenic- and PAH-Contaminated Soil	
	-	.2.2	Capping Area B and Area C	
		.2.3	Institutional Controls	
		.2.3	Site Restoration	
6			ANCE MONITORING	
0				
			ection Monitoring	
			ormance Monitoring	
		.2.1	Waste Profiling for Off-site Treatment or Disposal	
	0	.2.2	Confirming That Cleanup Levels Have Been Achieved	10

	6.3 Conf	irmation Monitoring	16
	6.4 Grou	Indwater Monitoring Requirements	17
	6.4.1	Permanent Dewatering System Monitoring	17
	6.4.2	Long Term Groundwater Monitoring	17
7	7 BIBLIOGRAPHY18		

LIST OF TABLES

Table 1: Cleanup Levels Proposed for Site Remediation Activities
--

LIST OF FIGURES

Figure 1	Vicinity Map
Figure 2	Site Boundary Definition
Figure 3a	Institutional Control Areas B & C
Figure 3b	Plan View Details of Shoring Wall, Property Boundary, and Remaining
	Contamination Conditions
Figure 3c	Partial Elevation South Shoring Wall
Figure 3d	Cross Sectional Detail: North Shoring Wall
Figure 3e	Cross Sectional Detail: North Shoring Wall
Figure 3f	Cross Sectional Detail: East Shoring Wall
Figure 3g	Cross Sectional Detail: South Shoring Wall
Figure 3h	Cross Sectional Detail: South Shoring Wall

APPENDIX

Appendix A – CT Engineering, Inc. and Weber Thompson – Selected Sheets from Project Plan Set, revised 2017

Revised Cleanup Action Plan - Former Wesmar Property, Seattle Washington

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, provide for a reasonable restoration time-frame, and consider public concerns raised during public comment.

9/18/17

Date

John Guenther Site Manager Toxics Cleanup Program Northwest Regional Office

Robert W. Warren, P.Hg., MBA Regional Section Manager Toxics Cleanup Program Northwest Regional Office 9-14-17

Date

1 INTRODUCTION

This *Cleanup Action Plan* (CAP) describes the cleanup action proposed by the Washington State Department of Ecology (Ecology) for the cleanup of contamination at the Wesmar Company, Inc., Site (Site) in Seattle, Washington. The plan was developed using information presented in the *Final Remedial Investigation Report, Feasibility Study, and Proposed Cleanup Action* (SES 2009) (hereinafter *RI/FS and PCA*) submitted by Bridge Group II, LLC (Bridge Group), the Potentially Liable Party (PLP) for the Site. This document has been prepared to satisfy the requirements of the Model Toxics Control Act (MTCA), Chapter 70.105D of the Revised Code of Washington (RCW), administered by Ecology under the MTCA Cleanup Regulation, Chapter 173-340 of the Washington Administrative Code (WAC).

A CAP was included in the Consent Decree, dated June 11, 2010. Changes to redevelopment plans for the Property and extensions to the construction schedule necessitated minor adjustments to the CAP.

The cleanup alternative analysis conducted in the *RI/FS and PCA* was reanalyzed considering the minor adjustments proposed for the redevelopment plans. This analysis indicated that the minor adjustments did not change the selection of the preferred remedial alternative and is not anticipated to significantly impact the implementation of the original CAP.

Below is a summary of the modifications made to this revised CAP:

- A sealed sheet-pile shoring wall will replace the secant piles previously identified in the CAP. The sheet piles are designed to provide a barrier to limit on-Property migration of the regional arsenic groundwater plume. The sheet pile system is anticipated to have a comparable permeability to the secant pile system.
- The location of the shoring system will be closer to the property line effectively reducing the footprint of Area B. Additional adjustments to the shoring system placement may be made for construction purposes but are expected to be very minor.
- There will only be one floor of underground parking so the depth of the construction excavation will not be as deep as previously identified in the CAP. However, polycyclic aromatic hydrocarbon- and arsenic-contaminated soil in Area A will still be removed until confirmation sampling demonstrates that the cleanup levels have been achieved.

1.1 Site Background

The Site is situated at and around the former Wesmar Company Inc. Property, located at 1401 and 1451 Northwest 46th Street in Seattle, Washington (herein referred to as the Property) (Figure 1).

The Property is currently vacant. Wesmar Company, Inc., a chemical distributor specializing in cleaners, sanitizers, and water treatment compounds, was the most recent occupant of the western portion of the Property. In addition, the eastern portion of the Property was recently occupied by Colortech[®], Inc., a company that provided coating services for metals and metal-formed products. The Property was formerly occupied by two single-story, slab-on-grade buildings that were constructed in 1905 and 1957, respectively. Both buildings were demolished

in 2008 with the concrete floors and retaining components of the foundations left in place. Prior to the most recent tenants, the Property operated as a pipe-treatment facility that utilized creosote. The floor grade of the buildings lies approximately 8 to 10 feet below the surrounding street grade, and a wastewater sump is located on the southern portion of the former Wesmar Company, Inc. building. The Property is scheduled to undergo redevelopment to a multi-story, mixed-use commercial/retail complex. Redevelopment plans include construction of a subsurface parking lot to an approximate depth of 14 feet (approximately elevation 13 feet North American Vertical Datum of 1988 [NAVD88]) below the surrounding street surface grade (approximate elevation 27 feet NAVD88).

The results of preliminary subsurface investigations conducted on the Property indicated that polycyclic aromatic hydrocarbon (PAH)-contaminated soil and arsenic-contaminated soil and groundwater are present beneath the Property. In January 2008, Bridge Group entered into an Agreed Order with Ecology. The Agreed Order required that Bridge Group complete a Remedial Investigation and Feasibility Study of the Site and submit a proposed draft cleanup action plan.

On January 27, 2009, Block at Ballard II purchased the Property from Bridge Group II. In February 2009, Ecology notified Block at Ballard II that it was a PLP for the Site based on its ownership of the Property. Block at Ballard II did not contest PLP status and on March 17, 2009, Ecology determined Block at Ballard II to be a PLP for the Site.

1.2 Site Definition

The Site has been defined to include the areas identified in the Site Boundary Definition (Figure 2). Based on the findings from the investigations conducted and historical research presented by Sound Environmental Strategies Corporation (SES) between September 2005 and August 2008, the Site has been defined to include the following criteria:

- Extent of PAH-contaminated soil both on and off of the Property associated with the historical use of the Property as a wood pipe treatment facility. The off-Property extent of PAH contamination is limited to Area C, identified in Figure 2.
- Arsenic-contaminated soil beneath the Property.
- Arsenic-contaminated groundwater beneath the Property. Ecology has determined that the groundwater contamination associated with the historical use of the Property is limited to Area A, identified in Figure 2.

Based on the location of the Property within the Ballard Interbay Northend Manufacturing and Industrial Center (BINMIC) area, the heavy railroad use in the rights-of-way adjacent to the Property, and the absence of historical uses on Property that would have contributed to the local and regional arsenic soil and groundwater contamination, the following criteria have been excluded from the Site definition.

- Arsenic in soil beyond the Property boundary.
- Arsenic in groundwater beyond the Property boundary.

1.3 Purpose and Scope

The main state law that governs the cleanup of contaminated sites is MTCA. MTCA regulations define the process for the investigation and cleanup of contaminated sites. MTCA regulations specify criteria for the evaluation and conduct of a cleanup action. The cleanup must protect human health and the environment, meet state environmental standards and standards in other laws that apply, and provide for monitoring to confirm compliance with site cleanup standards.

This CAP was developed using information presented in the *RI/FS and PCA*. Public comment on the *RI/FS and PCA* was combined with public comment on this CAP, as permitted by Chapter 173-340-600(13)(c) WAC.

The purpose of this CAP is to describe Ecology's proposed cleanup action for the Site, consistent with MTCA requirements. Consistent with the requirements of Chapter 173-340-380 WAC, this document provides the following information:

- Cleanup standards for each hazardous substance and medium of concern at the Site (Section 2)
- Applicable state and federal laws (Section 2)
- Brief summary of other cleanup action alternatives evaluated in *RI/FS and PCA* (Section 3)
- Summary of rationale for selecting the proposed alternative (Section 3)
- General description of proposed cleanup action (Section 4)
- Institutional controls required as part of the cleanup action (Section 4)
- Containment measures addressing hazardous substances remaining on Site (Section 6)

2 CLEANUP REQUIREMENTS

2.1 Site Contaminants

The results of subsurface investigations conducted at the Site between September 2005 and August 2008 indicate that PAH-contaminated soil and arsenic-contaminated soil and groundwater are present at the Site.

PAH-contaminated soil resulting from the former use of the Property as a wooden pipe treatment and storage facility generally appears to be limited to the Property and a portion of the Northwest 46th Street Right-of-Way (ROW). Soil in the vicinity of the former wood treatment operations contains elevated concentrations of carcinogenic PAHs (cPAHs). Concentrations of benzo(a)pyrene that exceeded the MTCA Method A cleanup level generally were observed at depths between 2.5 and 11.5 feet bgs and were confined to the fill layer beneath the Property and a portion of the Northwest 46th Street ROW. The equivalent cPAH exceedances at each location were correlative with the detection of benzo(a)pyrene. Groundwater was not impacted by cPAHs. Concentrations of arsenic detected in soil samples collected from within the ROWs and along the former BNSF railroad are likely a result of regional impacts and do not appear to be associated with activities conducted on the Property. Concentrations of arsenic exceeded the MTCA Method A cleanup level in soil on the eastern portion of the Property and along the northern Property boundary, although soil concentrations generally exceed the MTCA Method A Cleanup Level by less than 5 mg/kg. Two soil samples collected from the southern Property boundary also contained elevated arsenic concentrations.

Concentrations of arsenic in soil and groundwater collected from the North BINMIC area commonly exceed the MTCA Method A cleanup level. This is likely a result of the fill materials beneath the Property and vicinity and the ballast used in the construction of the railroads. Three of the ballast samples contained the highest arsenic concentrations relative to other soil samples collected from the Property and surrounding off-Property areas. In addition, arsenic is a common compound used in herbicides and is regularly used along roads and railways in an effort to reduce the growth of vegetation.

Based on the findings from the investigations conducted by SES and the historical research presented by it, the Site has been defined to include the following criteria:

- Extent of PAH-contaminated soil both on and off of the Property associated with the historical use of the Property as a wood pipe treatment facility. The off-Property extent of PAH contamination is limited to Area C, identified in Figure 2.
- Arsenic-contaminated soil beneath the Property.
- Arsenic-contaminated groundwater beneath the Property. Ecology has determined that the groundwater contamination associated with the historical use of the Property is limited to Area A, identified in Figure 2.

2.2 Cleanup Levels

On-Property soil is compared to MTCA Method A cleanup levels for unrestricted land uses, which are sufficient to address the Property, as much of the subgrade soil will be removed prior to the construction of a belowground parking garage. Preliminary soil cleanup levels for arsenic will be based on unrestricted land use as defined in MTCA. Soil cleanup levels for PAHs will be compared to the cleanup level established for benzo(a)pyrene (0.1 mg/kg). Using the toxicity equivalent methodology in Chapter 173-340-708(8) WAC, equivalent concentrations of the remaining PAHs, including benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, and dibenz(a,h)anthracene, will be calculated and summed to obtain the total toxicity soil concentration for the total cPAH mixture as it compares to the cleanup level for benzo(a)pyrene.

MTCA Method A Cleanup Levels for groundwater are proposed for benzo(a)pyrene and arsenic. The table below presents the cleanup levels proposed for the Site remediation activities. Arsenic in soil and groundwater, and benzo(a)pyrene (and associated TEFs) in soil are the COCs for the Site and will be addressed by the Site remediation.

Table 1: Cleanup	Levels Propose	ed for Site R	Remediation Activities
------------------	-----------------------	---------------	------------------------

СОС	Soil (mg/kg)	Groundwater (µg/L)
Arsenic	20^{a}	5 ^b
Benzo(a)pyrene	0.1 ^a	0.1 ^b

^aMTCA Cleanup Regulation 173-340-900, Table 740-1, Method A Soil Cleanup Levels for Unrestricted Land Uses.

^bMTCA Cleanup Regulation Chapter 173-340-900 WAC, Table 720-1 Method A Groundwater Cleanup Levels for Unrestricted Land Uses.

COC = chemical of concern

mg/kg = milligrams per kilogram

 $\mu g/L = micrograms \ per \ liter$

WAC = Washington Administrative Code

2.3 Applicable or Relevant and Appropriate Requirements

The cleanup conducted on a site must comply with applicable or relevant and appropriate requirements (ARARs). ARARs were screened in order to assess their applicability to the Site. The following list identifies the ARARs that may be applicable to the Site.

- State Environmental Policy Act (Chapter 43.21C RCW).
- Washington State Shoreline Management Act (Chapter 90.58 RCW; Chapters 173-18, 173-22, and Chapter 173-27 WAC).
- The Clean Water Act (33 United States Code (U.S.C.) 1251 et seq.).
- CERCLA of 1980 (42 U.S.C. 9601 et seq., and Part 300 of Title 40 of the Code of Federal Regulations (40 C.F.R. 300)).
- The Fish and Wildlife Coordination Act.
- Endangered Species Act (16 U.S.C. 1531 et seq.; 50 C.F.R. 17, 225, and 402).
- Native American Graves Protection and Repatriation Act (25 U.S.C. 3001–3013; 43 C.F.R. 10) and Washington's Indian Graves and Records Law (Chapter 27.44 RCW).
- Archaeological Resources Protection Act (16 U.S.C. 470aa et seq.; 43 C.F.R. 7).
- Washington Dangerous Waste Regulations (Chapter 173–303 WAC).
- Solid Waste Management Act (Chapter 70.95 RCW; Chapters 173-304 and 173-351 WAC).
- Water Quality Standards for Surface Waters of the State of Washington (Chapters 90.48 and 90.54 RCW; Chapter 173-201A WAC).
- Department of Transportation Hazardous Materials Regulations (40 C.F.R. Parts 100–185).
- Washington State Water Well Construction Act (Chapter 18.104 RCW; Chapter 173-160 WAC).

• City of Seattle and King County regulations, codes, and standards.

3 REMEDIAL ACTION SELECTION

Based on the information acquired during the RI, SES designated three remedial areas on the Site: those portions of the Property that are located within the proposed shoring system (Area A), those portions of the Property that are located outside the shoring system (Area B), and the portion of the Site located within the Northwest 46th Street ROW (Area C) (Figure 2). The shoring locations were chosen for cost and logistical reasons associated with the constructability of the planned development and in coordination with the disproportionate cost analyses conducted as part of the FS. Technologies reviewed for each of the areas (Area A, B, and C) are summarized below. Technologies are discussed in greater detail in *RI/FS and PCA* Section 5.6.

While revising the CAP, the technologies reviewed for each of the areas (Area A, B, and C) were reevaluated to include the modifications in the cleanup action activities.

3.1 Summary of Alternatives

In the FS, the following cleanup alternatives were evaluated for Area A:

- Cleanup Alternative 1a—Impervious wall shoring (secant or sealed sheet pile) combined with the excavation of the source area and discharge to the storm system of the water captured in the proposed subgrade water intrusion control system.
- Cleanup Alternative 2a—Pervious wall shoring (soldier pile or unsealed sheet pile) combined with excavation of the source area and installing a permeable reactive barrier to pre-treat the water captured in the proposed subgrade water intrusion control system.
- Cleanup Alternative 3a—Pervious wall shoring combined with excavation of the source area and installing a permanent system to treat the water captured in the proposed subgrade water intrusion control system.

In the FS, the following cleanup alternatives were evaluated for Area B:

- Cleanup Alternative 1b—Shored excavation with off-Site disposal.
- Cleanup Alternative 2b—Capping arsenic- and PAH-contaminated soil.

In the FS, the following cleanup alternatives were evaluated for Area C:

- Cleanup Alternative 1c—Shored excavation with off-Site disposal.
- Cleanup Alternative 2c—Capping PAH-contaminated soil.

3.2 Rationale for Selection of Proposed Cleanup Action

Based on the results of the FS, a combination of Cleanup Alternatives 1a, 2b, and 2c, which entail installing an impervious shoring wall, excavating contaminated soil from within Area A, capping contaminated soil within Areas B and C, and monitoring the direct discharge of arsenic-

contaminated groundwater within the building subgrade groundwater intrusion control system, were selected for the cleanup action.

Cleanup Alternatives 1a, 2b, and 2c meet the requirements set forth in Chapters 173-340-360(3) These cleanup alternatives received "favorable" scores for the and 173-340-370 WAC. permanence, evaluation criteria of protectiveness, cost, long-term effectiveness, implementability, and consideration of public concern. The rating of "average" was assigned for short-term risk management, as a result of possible dust issues associated with the excavation. The rating of "favorable" was assigned for implementation because the sealed sheet pile wall creates a physical barrier that reduces the likelihood that the regional arsenic groundwater plume will migrate beyond the boundary of the shoring barrier on the Property while the other two alternatives rely on treatment systems. Cleanup Alternatives 1a, 2b, and 2c received "very favorable" overall scores for the evaluation criteria of cost due to the significant cost savings over Alternatives 2a, 1b, and 1c. (Additional information available in RI/FS and PCA Tables 9a–9g; Charts 1–3.)

The selected cleanup alternative must comply with MTCA cleanup regulations specified in Chapter 173-340 WAC and with applicable state and federal laws. Under Chapters 173-340-350 and 173-340-710 WAC, applicable requirements include regulatory cleanup standards, standards of control, and other environmental requirements, criteria, or limitations established under state or federal law that specifically address a contaminant, remedial action, location, or other circumstances at a site.

Alternatives 1a, 2b, and 2c, hereafter referred to as Alternative A, Alternative B, and Alternative C, respectively, were selected as the most effective, feasible, and appropriate remedial options. These alternatives were reevaluated with respect to the modifications made to cleanup action activities. The evaluation indicated that the minor modifications would not significantly impact the cleanup alternatives. Therefore, the previously selected remedy would be selected as the cleanup action.

In the event that additional contaminants are discovered during the course of the cleanup activities, their concentrations will be compared to the MTCA Method A cleanup levels for soil and groundwater.

4 PROPOSED CLEANUP ACTION

4.1 Cleanup Action for Area A – Excavation Within the Perimeter Shoring

Prior to beginning the excavation, sheet piles will be installed and interlocked to create an impervious sheet pile shoring wall within the perimeter of the Property. The sheet pile shoring wall will extend through the water-bearing zone into a less-permeable geologic formation, the Vashon Till. The lowest elevation of the shoring wall will be at approximately -10 feet NAVD88, which is approximately 15 feet into the Vashon Till formation. As the excavation progresses soil tiebacks will be installed approximately eight feet below the street grade into Area B, Area C, and the surrounding ROW. A six inch auger will be used to install the tiebacks. Minimal Soil cuttings will be generated during installation of the sheet piles. The soil cuttings generated from sheet pile installation and soil tieback augers will be separately stockpiled and characterized for arsenic and PAHs prior to disposal. The approximate location of the shoring

system is shown in plan view on Figure 2. The location and extent of the shoring system is included on Sheets SS1 through SS5 of the Project Plan Set (CT Engineering, Inc. 2017).

Once the shoring system is in place, excavation of arsenic- and PAH-contaminated soil will be conducted within the limits of Area A depicted on Figure 2 and to an approximate depth of six feet below the grade of the former Wesmar Company, Inc. building and 9 feet below the grade of the former Colortech[®], Inc. building.. Analytical data collected during the RI and previous investigations, as well as profile samples collected during the excavation process, will be used to guide the removal of arsenic- and PAH-contaminated soil. Where possible, visual indications of contamination will be used to direct the excavation. Excavated soil will be placed in temporary stockpiles pending characterization. Soil containing concentrations of PAHs or arsenic above their respective cleanup levels will be disposed of at a permitted facility. An environmental scientist from SoundEarth Strategies, Inc. (SoundEarth) will be on Property during the remedial excavation activities to screen and segregate soil for disposal.

In addition to the extent of arsenic- and PAH-contaminated soil identified during the RI, it is possible that soil with high pH may be identified beneath the former caustic mixing area within the former Wesmar building. A soil pH meter will be used to identify and segregate soil containing elevated pH. Soil exhibiting elevated pH will be stockpiled and profiled prior to disposal at a permitted facility.

Contaminated soil within the shoring boundary (Area A) will be removed until field screening and profile sampling suggest soil with COCs above the respective cleanup levels have been removed or the native soil interface is exposed. Immediately following the presumed removal of the contaminated soil within Area A, confirmation soil samples will be collected in accordance with the procedures described below. Locations characterized by concentrations of COCs above their respective cleanup levels will be overexcavated in six inch to one foot depth intervals and resampled. Once confirmation data show that COCs in soil have been effectively removed from Area A, the construction excavation will either be backfilled or overexcavated to the planned construction grade elevation. Specific details regarding the sampling analysis and quality assurance programs are provided in the Sampling and Analysis Plan (SAP; *RI/FS and PCA* Appendix I) and the Quality Assurance Project Plan (QAPP; *RI/FS and PCA* Appendix J).

Locations within Area A that were identified as containing arsenic concentrations in soil exceeding the cleanup level will be excavated and consolidated into a stockpile for waste characterization and disposed of at an appropriate off-Site facility.

Profile samples will be collected from the remaining construction excavation-generated soils to determine appropriate soil handling methods and disposal options.

4.2 Cleanup Action for Area B – Capping On-Property Arsenic- and PAH-Contaminated Soil Beyond the Perimeter Shoring

The portion of the Property located beyond the shoring system for the proposed building will be capped with a combination of asphalt, landscaping, and concrete sidewalks. Formal deed restrictions will be recorded for the portions of the Property that exhibit concentrations of COCs in excess of cleanup levels.

4.3 Cleanup Action for Area C – Capping PAH-Contaminated Soil Located Within the Right-of-Way

As described in *RI/FS and PCA* Section 5.0, one area beyond the Property boundary—Area C has been confirmed to contain concentrations of PAHs in excess of the MTCA Method A cleanup level. The PAH contamination in Area C is limited to approximately 18 cubic yards in volume, and it is capped by the ROW improvements and approximately 11 feet of clean soil.

Due to the depth of the contaminated soil, any utility work or ROW improvement projects (street paving or sidewalk improvements) that may be conducted are not likely to extend to the contaminated zone. If a need arises to access the PAH-contaminated soil in the ROW for the installation or maintenance of deep utilities, the preliminary risk assessment included in *RI/FS and PCA* Section 4.7.2 suggests that the PAH concentrations in the ROW soil associated with the Site do not represent a direct exposure hazard to construction/utility workers who may come in contact with it.

An environmental covenant will be placed on the Property and will include the PAHcontaminated soil located within Area C (Figure 2). The covenant will include instructions for regulatory notification, waste handling, and disposal profiling if contaminated soil within Area C is accessed. In reference to the soil contamination within Area C, the covenant will extend from six feet bgs to below the maximum depth of soil contamination encountered (13 feet bgs, Figure 3). The City of Seattle (City) has been notified in writing of the Area C contamination and that a restrictive environmental covenant will be placed on Area C. Ecology has determined that the environmental covenant will be sufficiently protective of human health and the environment without subrogation of the City's ROW interest. If the City conducts any maintenance or repair of street and sidewalk surfaces, or any excavation for utility placement or repair, in Area C, the City is responsible for following appropriate health, safety, and soil management protocols, as described in the restrictive covenant.

4.4 Point of Compliance

While the Area A excavation will likely meet cleanup levels, because some contaminated soil will be left in place and contained by capping in Areas B and C, the conditional point of compliance for soil at the Site is "containment" per Chapter 173-340-740(6)(f) WAC. A standard point of compliance will be used for the arsenic-contaminated groundwater associated with the Site, per Chapter 173-340-720(8)(b) WAC. The Site is excluded from a terrestrial ecological evaluation because the contaminated soil beneath Areas B and C is currently, and will continue to be, covered by buildings, paved roads, and other physical barriers (Chapter 173-340-7491(b) WAC). Therefore, no point of compliance under the ecological risk assessment needs to be defined for the Site.

4.5 Institutional Controls

Following approval from Ecology, a specific deed restriction, which will include the survey limits for Areas B and C that contain soil exhibiting elevated concentrations of arsenic and PAHs, will be recorded with the King County Tax Assessor and attached to the title of the Property. The remainder of the Property will be covered by a mixed-use commercial/retail building, a below-grade parking garage, perimeter landscaping, and concrete or asphaltpavement. The surrounding ROWs are capped with asphalt or concrete. The extent of the deed-restricted area is depicted in Figure 3a, 3b, and 3d through 3h.

5 WORK ACTIVITY SUMMARY AND SEQUENCE FOR REMEDIATION

This section briefly describes Site preparation for the excavation and removal of the PAH- and arsenic-contaminated soil from within Area A.

5.1 Construction Setup

The excavation contractor will mobilize to the Property and set up operational areas necessary to implement the remedial and construction plans. Subsequent work will proceed generally as described in the following sections.

5.1.1 Property Security and Public Notice

The work will involve securing the Property from trespass and from entry by the unprotected public. The preparations will include installing temporary fencing around the perimeter of the Property, posting suitable warning signs every 50 feet along the temporary fence, posting a notice at Property entrances to convey information of the exposure hazards that are represented by the contamination on the Property, and submitting a written notice to the City of Seattle and regulatory agencies as prescribed in the private rights of action section of MTCA (Chapter 173-340-545 WAC).

5.1.2 Shoring Installation

The shoring system is to be constructed of impervious steel sheet piles that will be interlocked during installation. This will create an impervious steel wall within the perimeter of the Property. The sheet piles will be installed via vibratory sheet pile driving or static press methods. The shoring wall will extend approximately 15 feet into the Vashon Till and will terminate at an approximate elevation of -10 feet NAVD88. As the excavation progresses soil tiebacks will be installed at an approximate elevation of 20 feet NAVD88 to anchor the sheet piles in zones 3 and 10 as shown on Sheet SS2 of the Project Plan Set (CTI Engineering, Inc. 2017). A six inch auger will be used to installed according to Sheets SS1 through SS5 of the Project Plan Set (CTI Engineering, Inc. 2017).

The sheet-pile wall is to be constructed of interlocking steel sheets designed to have low permeability (i.e., hydraulic conductivity). The steel sheet piles are impervious; therefore, the only possible route for groundwater to pass through the shoring wall is via the interlocks. The sheet pile interlocks will be filled with a sealant material to limit this groundwater seepage. The groundwater seepage rate for the entire shoring wall system has been calculated at 0.10 gallons per minute (gpm).

5.1.3 Stabilized Construction Entrance and Wheel Wash

A 12-inch-thick, rock-stabilized construction access/decontamination pad and wheel wash will be constructed on the southern portion of the Property (Sheets C3.00 and C3.10 of the Project Plan Set; Weber Thompson 2017). The pad will limit off-Property migration of arsenic- and

PAH-contaminated soil from the Property by reducing contact between vehicles and Property soils and by providing an area to remove mud from truck tires. The pad will be constructed by excavating a shallow pit, which will be lined with a heavy-duty plastic liner and sloped toward the excavation interior in order to collect any rain or wash water. The liner will be covered with sand, pea gravel, and/or quarry spalls meeting Washington State Department of Transportation (WSDOT) Specification 9-13.6 (WSDOT 2006). Upon conclusion of the remediation, the access/decontamination pad will be excavated, transported, and disposed.

5.1.4 Construction Dewatering

Water that collects within the excavation will be pumped into a holding tank that will be stored on the Property. Dewatering details can be found on the Temporary Erosion and Sediment Control Sheet (Sheet C3.00 of the Project Plan Set; Weber Thompson 2017).

Groundwater flow into the excavated interior of the sheet pile shoring wall area (Area A) during construction will be limited. It is estimated that it will occur principally as seepage through the floor of the excavation via the native glacial till. Groundwater flow through the floor of the excavation is estimated to have a maximum rate of 12.3 gpm with a more probable flow rate of 2.2 gpm for the entire excavated area (SES 2008b). Groundwater flow is anticipated to occur as slow seepage through the sheet pile interlocks. The anticipated flow rates range from near zero to 0.10 gpm. During construction dewatering, arsenic-contaminated groundwater on the interior portion of the engineered containment system will be extracted.

The extracted water from construction is to be permitted and discharged to the King County Metro sewer system via the local sewer system or treated on-Site to Washington State surface water standards and discharged to the City of Seattle storm water system. The quantity and quality of water to be generated are expected to be acceptable for discharge to the Metro sewer system. The public storm drain (PSD) in 14th Avenue Northwest discharges to Lake Union. All discharges to the PSD must meet state water quality requirements for all regulated parameters, including, but not limited to, turbidity (reported as NTU), pH, and all contaminants (such as those listed above). Maximum levels and thresholds for these parameters are generally regulated by Ecology's Surface Water Quality Standards for Marine Waters (e.g., turbidity, pH, and some metals such as arsenic) under Chapter 173-201A WAC. For contaminants that do not have surface water quality standards, maximum levels in Property discharges shall not exceed Ecology's MTCA Method A Ground Water Cleanup Levels under Chapter 173-340 WAC.

It will be the Contractor's responsibility to understand the soil and groundwater COCs on the Property as well as the treatment methods and cleanup requirements for these COCs. It is also the Contractor's responsibility to sample, perform testing, and monitor all Property discharges to the PSD as needed to assure that state water quality requirements are being met for all construction discharges.

5.1.5 Health and Safety Protocol

A health and safety plan detailing cautionary procedures that will be followed by all personnel on-Site during construction excavation activities will be prepared prior to beginning field work. Daily health and safety meetings will be conducted as part of the protocol, as discussed below.

5.2 ENGINEERING DESIGN DOCUMENT FOR CAP IMPLEMENTATION

The following subsections present an engineering design document that specifies the activities required to implement the CAP.

5.2.1 Excavation of Arsenic- and PAH-Contaminated Soil

The following remedial work activities will be implemented by the excavation and general contractors in accordance with detailed plans and specifications included within the Project Plan Set (Appendix A).

- Install the perimeter shoring system using vibratory sheet pile driving or static press methods.
- Remove arsenic- and PAH-contaminated soil from Area A to an approximate depth of six to nine feet below the current on-Property grade (approximately elevation 13 feet NAVD88), and stockpile excavated soil on-Property pending characterization and disposal.
- Load and transport excavated soil to appropriate disposal facilities and fill sites.
- Collect confirmation samples from excavated portions of Area A.
- Cap Area B with concrete sidewalks, asphalt driveways, and landscaping surrounding the planned building.
- Cap Area C with asphalt as part of the Northwest 46th Street ROW.

5.2.1.1 Excavation Preparation

The excavation phase of the remediation will commence following the completion of the demolition phase. The sequence of excavation is designed to minimize vehicular traffic on impacted soil, thereby reducing the potential for cross-contamination of non-impacted areas of the Property. Prior to commencing excavation, utility locations that were identified during the demolition phase will be confirmed and remarked, if necessary, and the perimeter shoring system will be installed.

5.2.1.2 Excavation Sequence, Estimated Volume, and Methods

Approximately 27,300 tons of arsenic- and PAH-contaminated soil will be excavated following the installation of the shoring system. Excavation will commence in the eastern portion of Area A and progress westerly toward the stabilized construction entrance and decontamination pad. A track-mounted excavator will excavate soil and place it in a temporary stockpile. A rubber-tired front-end loader will pick up stockpiled contaminated soil and place it in dump trucks staged at the stabilized construction entrance on-Property or in the right-of-ways.

Guidance for the final vertical and lateral extent of the arsenic and PAH excavations shall be based upon data obtained during the RI and previous investigations conducted on the Site, field observations and screening, and the results of confirmation sampling and testing. If performance samples indicate that contamination remains after the initial excavation is completed, additional soil will be excavated and additional samples will be collected. This process will continue until confirmation sampling demonstrates that the cleanup levels have been achieved.

Profile samples will be collected from the remaining construction excavation-generated soil to evaluate appropriate soil handling methods and disposal options.

During excavation, the excavator operator will be escorted by at least one person functioning as a Spotter. The Spotter's responsibilities include:

- Enforcing a no-personnel zone within the swing radius of the excavator;
- Observing excavations for subsurface structures, such as unidentified utilities, artifacts, and sidewall stability;
- Abiding by all regulations pertaining to discovery and excavation of archaeological resources, including, but not limited to, Chapters 27.34, 27.53, 27.44, 79.01, and 79.90 RCW and Chapter 24-48 WAC, as applicable;
- Field screening of excavated soil with various techniques (e.g., photoionization detector, sheen test, visual observation) to assess impacts; and
- Notifying the Site Manager when a designated area of excavation has been completed and is ready for sampling.

A safety meeting will be conducted prior to the start of each workday to inform existing and new site personnel of changing work conditions and to reinforce key safety requirements. During the safety meeting, specific instructions will be given to each equipment operator that spillage of excavated soil is to be minimized. In particular, operators will be instructed to carry only 3/4-full buckets and travel at moderate speeds to prevent soil spilling during transport to the stabilized construction entrance or during placement in the dump trucks.

A Soil Loading Technician shall be present at all times during the loading of soil into dump trucks to help identify when each truck is fully loaded. Truck drivers will be specifically instructed that they are to remain in their trucks at all times with the windows closed. The Soil Loading Technician shall also be responsible for inspecting the truck after loading to confirm that spillage of soil has not occurred onto the outside structures of the trucks (e.g., running boards, tongue, etc.) and that the load is properly covered, if required. If spillage has occurred, the Soil Loading Technician shall collect the spillage and place it back into the truck. If spillage becomes a recurring problem, a wheel/vehicle wash area will be designated as a contingency to help prevent contaminated soils from being inadvertently tracked off-Site.

5.2.1.3 Transportation and Disposal

Truck drivers shall be instructed to keep hazardous waste manifests and bills of lading with them at all times while transporting impacted soil. Drivers will also be instructed that direct routes to the waste facilities are to be used and no overnight layovers are permitted while the trucks are loaded. Drivers will be provided the Site Manager's phone number as well as the 24-hour emergency contact number.

The Site Manager will maintain a log of soils disposed off-Property, including the number of trucks with date and time of departure from the Site, estimated weight and volume, destination, waste manifest numbers, and other appropriate documentation.

All soil waste manifests, weight tickets, and bill of lading shall be signed by the respective disposal facilities and returned to SoundEarth. These documents will be included as attachments to the Cleanup Action Report, which will be completed at the end of the project.

5.2.1.4 Previously Unidentified Contaminants

Monitoring of Site remediation activities will be limited to testing for arsenic and cPAHs. Therefore, the detection of unknown contaminants will rely solely on exhibition of field-screenable characteristics, such as odor and color. SoundEarth personnel will collect representative samples and submit them for laboratory analysis and identification prior to disposal at a permitted facility.

5.2.2 Capping Area B and Area C

The perimeter of the Property and a portion of Northwest 46th Street (Area C) will be capped per the design specifications on Sheets A1.00 through A1.00B of the Project Plan Set (Weber Thompson, 2017).

5.2.3 Institutional Controls

An institutional control will be applied to the portions of the Property located outside of the shoring walls (Areas B and C), which are depicted on Figures 3a through 3h.The approximate location of Area B is depicted on Figure 2.

5.2.4 Site Restoration

It is anticipated that Property development work will occur in conjunction with the cleanup action.

6 COMPLIANCE MONITORING

There are three types of compliance monitoring identified for remedial cleanup actions performed under MTCA (Chapter 173-340-410 WAC): Protection, Performance, and Confirmation Monitoring. A paraphrased definition for each is presented below (Chapter 173-340-410(1) WAC). Additional details regarding procedures for sample collection, handling, and quality assurance procedures are included in the Sampling and Analytical Plan and Quality Assurance Project Plan attached to the *RI/FS and PCA* Appendices I and J, respectively.

- **Protection Monitoring**—To determine if human health and the environment are adequately protected during construction and the operation and maintenance period of an interim action or cleanup action as described in the health and safety plan.
- **Performance Monitoring**—To document that the interim action or cleanup action has attained cleanup standards.

• **Confirmation Monitoring**—To evaluate the long-term effectiveness of the interim action or cleanup action once cleanup standards or other performance standards have been attained.

6.1 Protection Monitoring

A separate health and safety plan will be prepared for the remedial action that meets the minimum requirements for such a plan identified in federal (Title 29 C.F.R. Parts 1910.120, and 1926) and state regulations (Title 296 WAC). A complete job hazard analysis will be prepared for the health and safety plan that identifies all known physical, chemical, and biological hazards, hazard monitoring protocols, and administrative and engineering controls to mitigate the identified hazards.

6.2 Performance Monitoring

The objectives for performance monitoring are to document compliance with waste analysis profiles and that cleanup levels are achieved. To demonstrate compliance, the following separate performance monitoring activities are planned for the remedial action:

- Waste profiling for off-Site treatment or disposal.
- Confirming that cleanup levels have been achieved.

The performance monitoring activities are described in the following subsections.

6.2.1 Waste Profiling for Off-site Treatment or Disposal

Wastes generated during the remedial activities will require analytical testing before being offered for off-Site transportation and disposal. Generally, the treatment, storage, or disposal facility (TSDF) receiving the waste specifies the minimum number of samples and analytical tests before accepting wastes from the project. Wastes that will be generated from the remedial action destined for off-Site disposal include:

- Contaminated soil removed by installing the sheet pile shoring wall and through excavation;
- Contaminated groundwater from excavation dewatering;
- Contaminated personnel protective equipment;
- Decontamination solutions; and
- Miscellaneous solid wastes.

Each waste stream will be profiled separately in accordance with the minimum waste analyses requirements of the respective permitted TSDF. Excavated contaminated soil will be subjected to performance monitoring. Ecology guidance for remediation of petroleum-contaminated sites (Ecology 2016) suggests that samples of stockpiled excavated soil be collected from locations where field survey methods indicate that contamination is likely to be present, and to collect samples from a depth of six to 12 inches beneath the surface of the pile. The minimum number of samples for excavated soil is listed in Table 6.9 of Ecology's 2016 guidance document. The

number of samples collected for performance monitoring of soil destined for off-Property disposal will be the number shown in Table 6.9 (Ecology 2016) or the number required by the TSDF for waste profiling, whichever is greater. The required analytical tests for these samples will be the TSDF waste profiling requirements.

6.2.2 Confirming That Cleanup Levels Have Been Achieved

The excavation will be conducted based on the findings of the RI and previous investigations. Soil will be excavated to an approximate depth of 6 feet below the grade of the former Wesmar Company, Inc. building and 9 feet below the grade of the former Colortech[®], Inc. building (approximately elevation 13 feet NAVD88). (*RI/FS and PCA* Figures 12, 13, and 21a–21h). A 50-foot systematic sampling grid will be superimposed over the exposed excavation area being tested (sidewalls and floor). A grid size of 50 feet will result in a statistically valid number of at least 43 soil samples based on the size of Area A (*RI/FS and PCA* Figure 22). Confirmation soil samples will be collected from each grid node following excavation and submitted for analysis of arsenic and PAHs.

To confirm that cleanup levels have been achieved, the mean concentrations of specific cPAHs and arsenic will be compared to their respective cleanup levels in accordance with the statistical guidance provided by Ecology (Ecology 1992). As detailed in the guidance, confirming whether the Site is clean is based on a comparison of the 95th percent upper confidence limit on the mean (UCL₉₅) with the defined cleanup level. Each sample will be analyzed for the constituents of concern at a detection limit low enough to detect compliance with the cleanup level. The resulting data will then be tested for conformance with distributional assumptions (normal versus lognormal) and the UCL₉₅ calculated based on the methods described in Ecology's 1992 guidance document.

If the UCL₉₅ for a specific constituent does not exceed the cleanup level, then the Site is considered clean; otherwise, it is still considered contaminated. The Site is considered clean when the UCL₉₅ for each COC is less than its respective cleanup level. This statistical approach allows for post-sampling excavation to remove individual sample hot spots that cause exceedance of the cleanup levels and retesting to assess if the recalculated UCL₉₅ exceeds the cleanup level. In the event that utilities or other improvements are installed outside of the perimeter shoring system, soil samples will be collected from the floor and sidewalls of the excavations and submitted for analyses of arsenic and PAHs. Soil exhibiting elevated concentrations of COCs will be overexcavated and resampled.

6.3 Confirmation Monitoring

It is anticipated that on-Property groundwater quality will be substantially restored by virtue of installing the shoring barrier wall, dewatering the excavation, and removing the contaminated soil as implemented under the remedial action. Water accumulated during the construction process and captured in the permanent building dewatering system will require discharge as described below.

6.4 Groundwater Monitoring Requirements

6.4.1 Permanent Dewatering System Monitoring

The proposed alternative consists of installing a watertight shoring wall that extends approximately 30 to 40 feet below the street surface grade and approximately 20 feet below the soil/groundwater interface. These controls make it unlikely that the regional arsenic groundwater plume would infiltrate into the permanent subgrade water control system that is proposed to be installed beneath the building (Sheet C4.00 and C4.10; Weber Thompson 2017). Water collected in the subgrade water control system will be discharged to the storm system. The discharge from the building subgrade water control system will be monitored to confirm that arsenic- and PAH-contaminated groundwater is not migrating into the building area and that discharge water complies with surface water discharge standards, as described above.

Upon initial operation of the permanent building dewatering system discharge sampling will be conducted weekly for three weeks to monitor arsenic concentrations. Concentrations of arsenic detected in the discharge water over the three week sampling program will determine the following action items:

- 1. If arsenic concentrations in the discharge water in all three weekly sampling events contain concentrations between 0 and 5 μ g/L, then weekly sampling will be discontinued and quarterly monitoring as described below in Section 8.4.2 will be implemented.
- 2. If arsenic concentrations in the discharge water in any one of the three weekly sampling events contain concentrations greater than 5 μ g/L, then weekly sampling will be extended for an additional three weeks.
- 3. If arsenic concentrations in the discharge water in the six weekly sampling events contain an average concentration of less than 5 μ g/L, then weekly sampling will be discontinued and quarterly monitoring, as described below in Section 6.4.2, will be implemented.

If arsenic concentrations in the discharge water in the six weekly sampling events contain an average concentration greater than $5 \mu g/L$, then a treatment system, as described above in Section 5.6.1.1, will be added to the permanent dewatering system. Alternatively, the permanent dewatering system can be modified to discharge water to the sanitary sewer system. All required federal, state, and municipal permits and authorizations would be acquired prior to discharge. Discharge water would continue to be monitored per the requirements of the applicable permit. The weekly sampling program will be repeated upon installation of the treatment system.

6.4.2 Long Term Groundwater Monitoring

Per Chapter 173-340-410 WAC, compliance monitoring is required for any site that utilizes containment as a part of the cleanup action plan. Consequently, a groundwater monitoring program will be in place to evaluate whether the cleanup action proposed herein is sufficient for the protection of human health and the environment. Water discharged from the subgrade water control system will be sampled for total arsenic quarterly during the first year, semiannually during the second and third years, and annually during the fourth and fifth years. If arsenic is not detected above the applicable cleanup level in the groundwater after five years, then monitoring

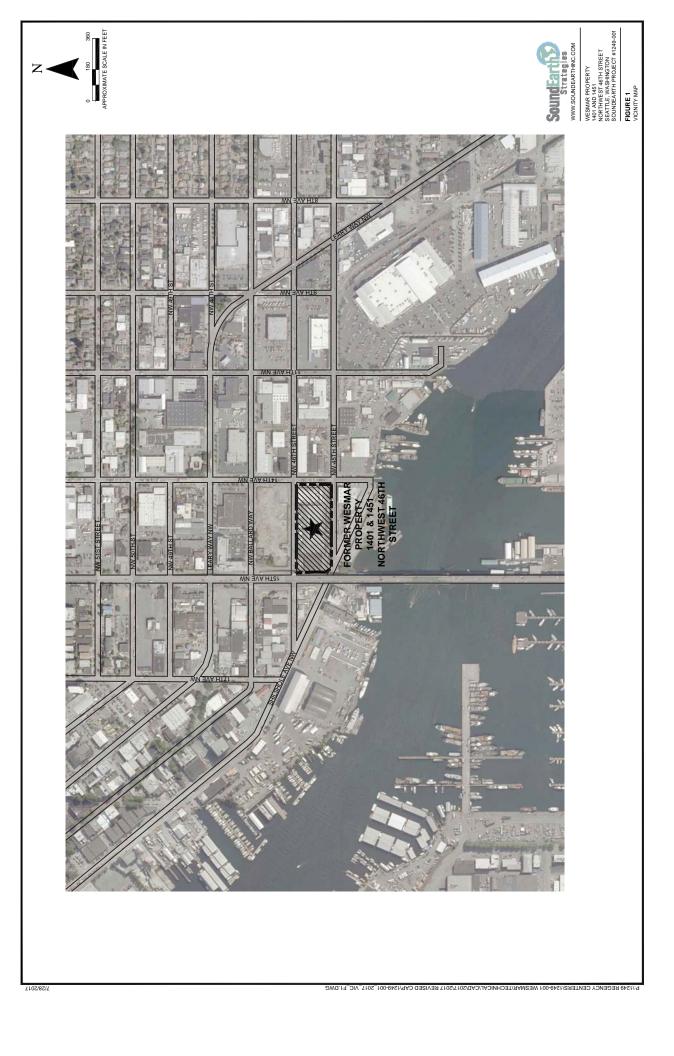
may be discontinued. If arsenic concentrations above 5 μ g/L are detected in any of the scheduled monitoring events beyond the initial three to six week monitoring program, the weekly program described above will be reinstated to evaluate the need for treatment.

Sampling for arsenic in the subgrade water control system will be initiated upon startup of the permanent dewatering system after construction of the building foundation. The results of the monitoring events will be submitted to Ecology.

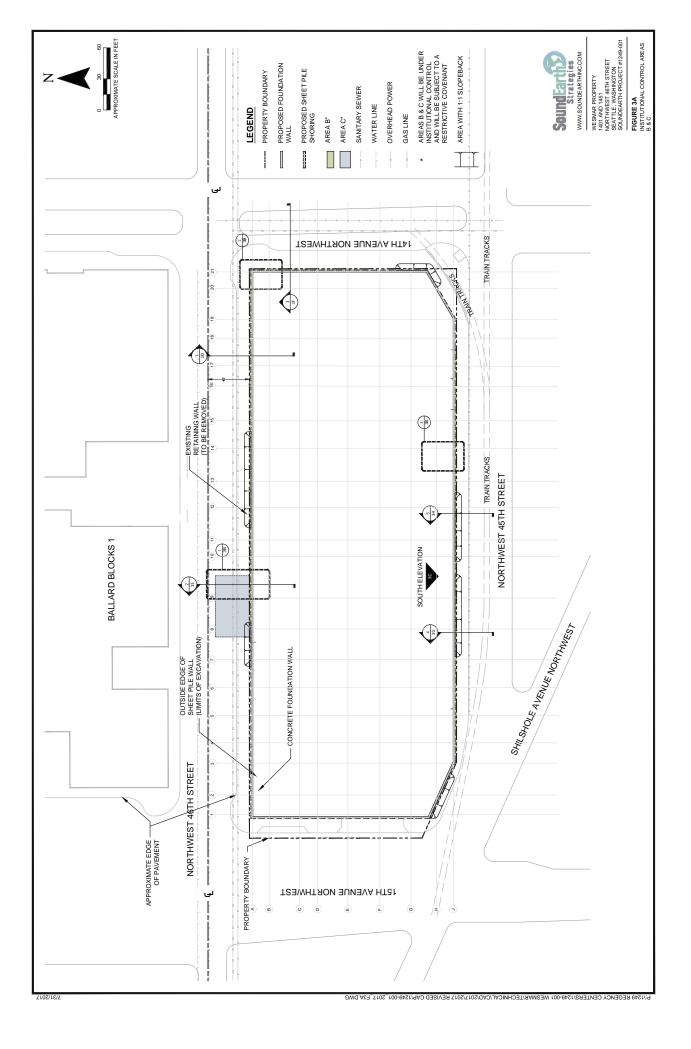
7 **BIBLIOGRAPHY**

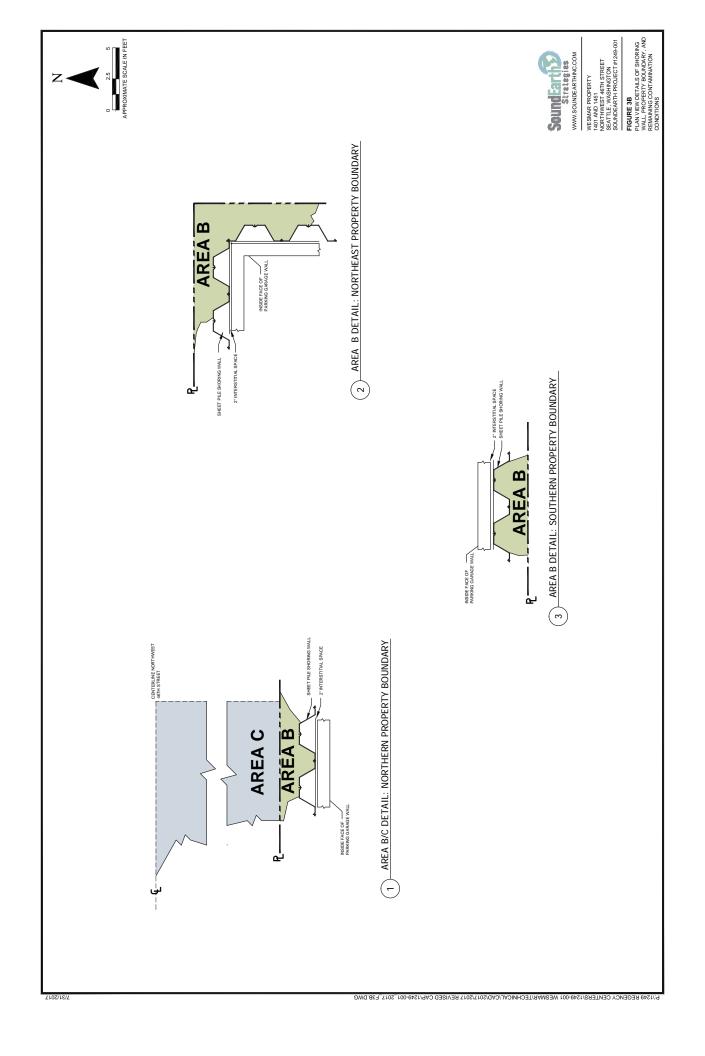
- Sound Environmental Strategies Corporation (SES). 2009. *Final Remedial Investigation Report, Feasibility Study, and Proposed Cleanup Action, Former Wesmar Property, 1401 & 1451 Northwest 46th Street, Seattle, Washington.* Prepared for Bridge Group II, LLC, and Block at Ballard II. December 28.
 - ______. 2008b. *Revised Hydrogeologic Report. Ballard Blocks 2. 1451 Northwest 46th Street, Seattle, Washington.* Prepared for Clark Design Group, PLLC. June 30.
- Washington State Department of Transportation. 2006. Standard Specifications for Road, Bridge, and Municipal Construction. M41-10.
- Washington State Department of Ecology (Ecology). 2016. *Guidance for Remediation of Petroleum Contaminated Sites*. Toxics Cleanup Program. Publication No. 10-09-057. Revised June 2016.

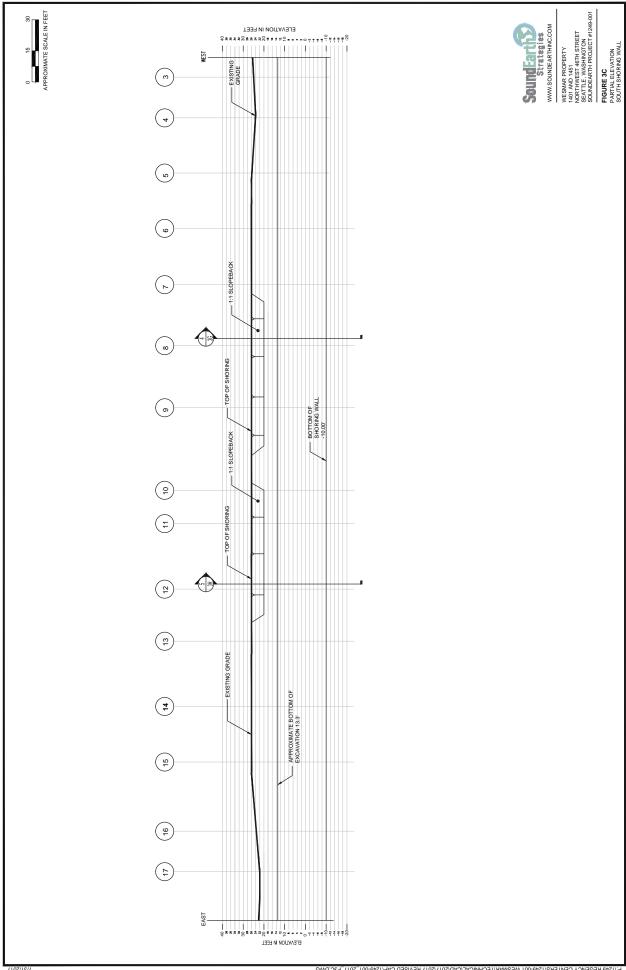
_____. 1992. *Statistical Guide for Ecology Site Managers*. Toxics Cleanup Program. Publication No. 92-54. August 1992.

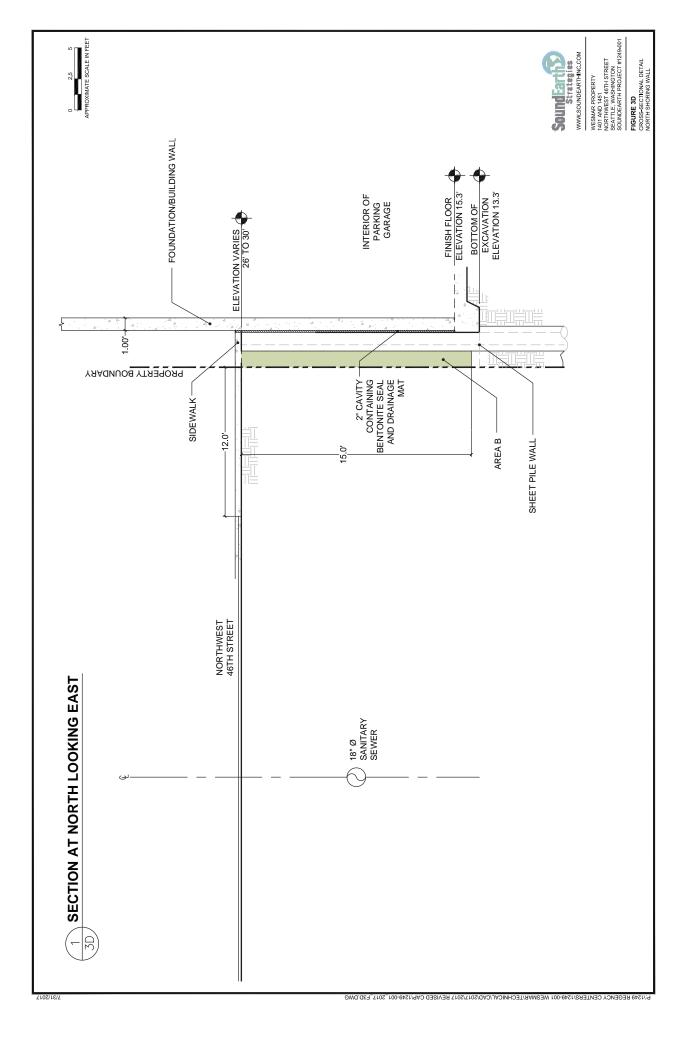


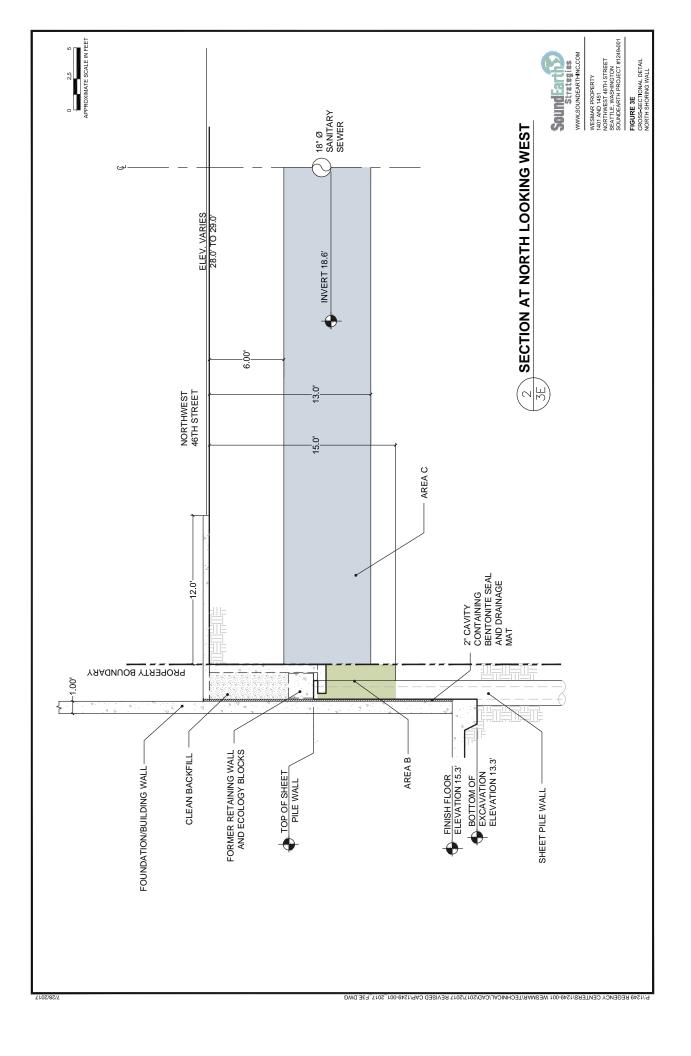


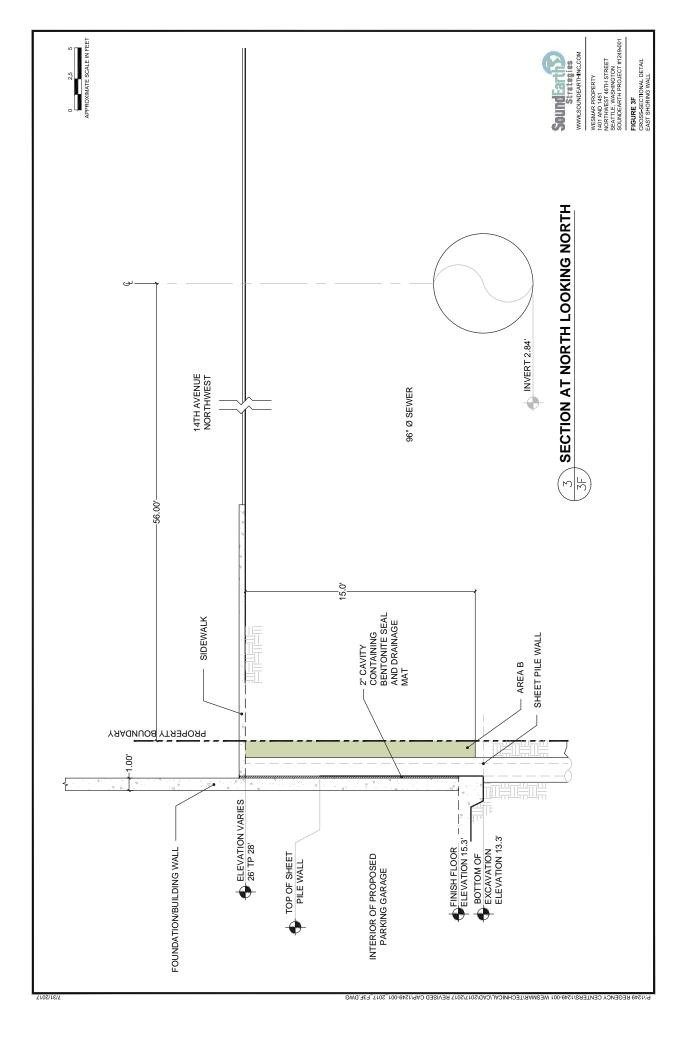


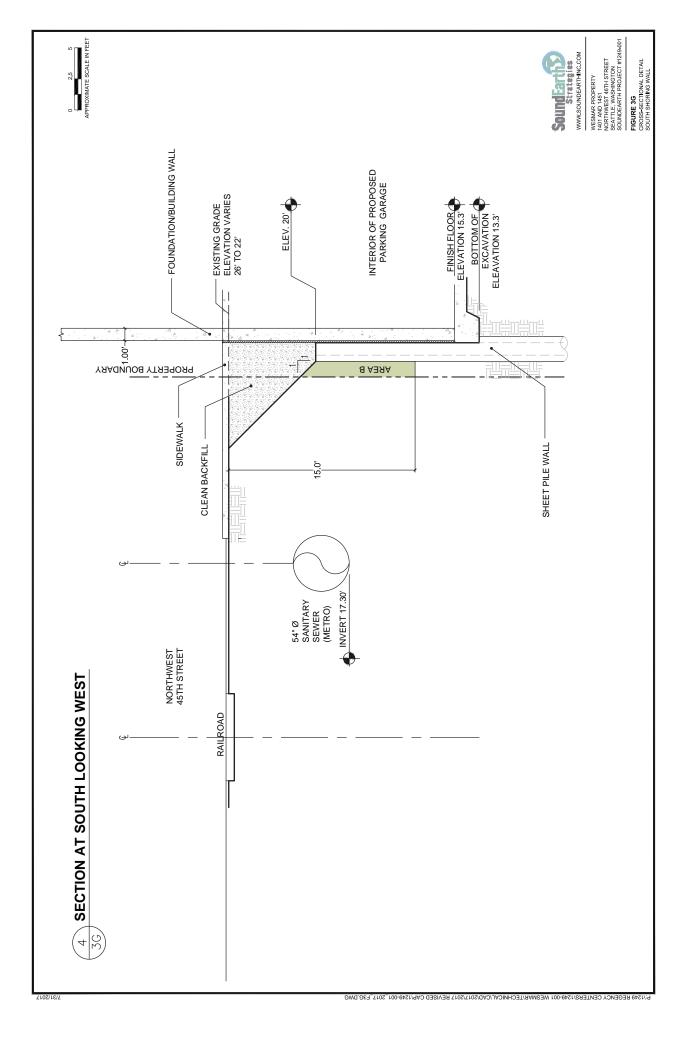


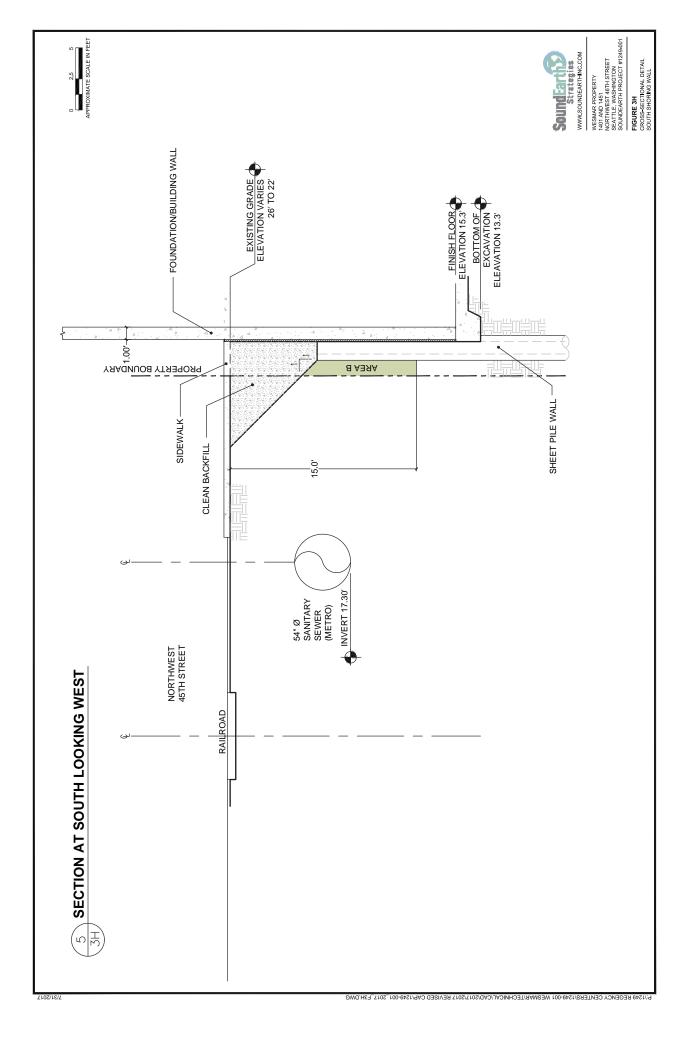












Placeholder for APPENDIX A to Exhibit A

Oversized Document Submitted for Filing in Paper Form

(Appendix A consists of 51 pages of AutoCAD diagrams)