# **Cleanup Action Plan**

Sterling Realty Organization Bellevue Corner Property 10605 and 10619 NE 8<sup>th</sup> Street Bellevue, Washington

for Sterling Realty Organization Bellevue, Washington

July 7, 2015



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File No. 9227-004-00

July 7, 2015

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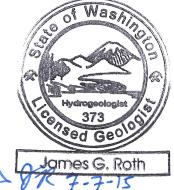
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## **ACRONYMS AND ABBREVIATIONS**

µg/L	micrograms per liter
AMSL	above mean sea level
AS/SVE	air sparging/soil vapor extraction
bgs	below ground surface
BETX	benzene, ethylbenzene, toluene, and total xylenes
COC	contaminant of concern
CAO	cleanup action objective
CAP	cleanup action plan
CFR	Code of Federal Regulations
CLARC	Cleanup Levels and Risk Calculation (Ecology)
CSM	conceptual site model
CVOC	chlorinated volatile organic compound
DCE	dichloroethylene
DRPH	diesel-range petroleum hydrocarbons
Ecology	Washington State Department of Ecology
EIM	Environmental Information Management
EMH	Environmental Materials Handling
EPA	U.S. Environmental Protection Agency
GRPH	gasoline-range petroleum hydrocarbons
HAZWOPER	Hazardous Waste Operations and Emergency Response
HCID	hydrocarbon identification
mg/kg	milligrams per kilogram
MTBE	methyl tert-butyl ether
MTCA	Washington State Model Toxics Control Act

NFA	No Further Action		
NWTPH	Northwest Total Petroleum Hydrocarbon		
0&M	operations and maintenance		
ORPH	oil-range petroleum hydrocarbons		
OSHA	Occupational Safety and Health Administration		
PCE	tetrachloroethylene		
PCS	petroleum-contaminated soil		
PQL	Practical Quantitation Limit		
RI/FS	remedial investigation/feasibility study		
ROW	right-of-way		
TCE	trichloroethylene		
TEE	Terrestrial Ecological Evaluation		
UST	underground storage tank		
VCP	Voluntary Cleanup Program		
VOC	volatile organic compound		
WAC Washington Administrative Code			



## **EXECUTIVE SUMMARY**

This cleanup action plan (CAP) was prepared for the Bellevue Corner Property (Property), located southeast of the intersection of NE 8<sup>th</sup> Street and 106<sup>th</sup> Avenue NE in Bellevue, Washington. Soil and groundwater at the Property have been contaminated by tetrachloroethene (PCE), and to a lesser extent other chlorinated volatile organics from a former dry cleaner that operated upgradient and across NE 8<sup>th</sup> Street from the Property. This upgradient site is referred to as the Thinker Toys property. An interim remedial action at the Thinker Toys property has been initiated by other parties with the installation and operation of an air sparging and soil vapor extraction (AS/SVE) system.

In addition to PCE, petroleum hydrocarbons have been detected in shallow soil at some locations on the Property, resulting from a former service station that operated on the Property. The shallow petroleum in soil represents residual contamination that remained after a soil cleanup was completed at the Property in the early 1990s. Except for low level detections of naphthalene and methyl tert-butyl ether (MTBE), petroleum-impacted groundwater has not been detected at the Property since the early 1990s cleanup.

This CAP includes an overview of the Property history and environmental conditions, description of the proposed cleanup action, proposed cleanup standards, cleanup action schedule, and institutional controls to be implemented following cleanup. This cleanup action is being performed to obtain a property-specific No Further Action (NFA) opinion from the Washington State Department of Ecology (Ecology), and is not intended to be a cleanup of any property other than the subject Property.

The Property consists of two of three parcels of land that are planned for redevelopment (Phase I) consisting of a high rise office building with up to seven levels of underground parking. The western parcel currently is a parking lot, and the central parcel houses a two-story building occupied by retail businesses. The eastern parcel is not part of the subject Property, but is part of the Phase I redevelopment.

The cleanup action will be implemented concurrently with Property redevelopment and consists of the following:

Soil Excavation and Off-site Disposal. Soil will be excavated to the Property boundaries during construction to varying depths required for the Property development. Excavation at the Property will be limited to a depth equivalent to an elevation of 84 feet above mean sea level (AMSL) (about 70 feet below the ground surface [bgs]) except for localized excavations for elevator pits to elevation 82 feet AMSL (hereinafter "Planned Development Excavation"). A large number of soil samples will be collected/analyzed for petroleum and PCE during construction excavation to provide additional site characterization information and guidance regarding soil segregation/disposal.

In order to minimize the potential for inadvertent effects on the aquifer, 1) construction dewatering will not be undertaken to lower groundwater levels in the regional aquifer except minor, localized dewatering for elevator pits/footings and 2) permanent drainage elements at the Property will be limited to no deeper than elevation 86 feet AMSL in the western and northern portions of the Property and no deeper than 84 feet AMSL in the eastern and southern portions of the Property. The depth of permanent drainage elements will be above the regional aquifer as identified in March 2013. Based on the Planned Development Excavation and considering available data, it is anticipated that soil exceeding MTCA cleanup levels will be removed from the Property during construction. The remedial



excavation will not extend beyond the limits of the construction excavation. Though unlikely, it is possible that PCE-contaminated soil will remain at the vertical limits (bottom) of the excavation in limited areas of the Property. If PCE-contaminated soil remains at the margins of the construction excavation, the garage's concrete bottom and sidewalls will eliminate the potential for direct contact with the impacted soil. Confirmation sampling will be completed at the final limits (base and sidewalls) of the excavation to document soil conditions. PCE- and petroleum-hydrocarbon contaminated soil will be excavated, segregated, and transported to off-site facilities for permitted disposal.

- Groundwater Capture System. A passive groundwater capture system for contaminated perched groundwater flowing toward the Property from the upgradient source property will be installed. The groundwater capture system will be incorporated into the subsurface perimeter building wall drains and will be designed to minimize downward migration of contaminated, perched groundwater. Captured groundwater will be discharged to the sanitary sewer in accordance with the Model Toxics Control Act (MTCA) and a sewer Discharge Authorization. The wall drain system, including the portion that will also act as the contaminated groundwater capture system, will be designed to function for the life of the building.
- Vapor Barrier. A vapor barrier will be installed on the base slab and sidewalls of the building. The vapor barrier will be designed to minimize potential intrusion of volatile organic vapors into the building from soil and groundwater contamination that will remain in place adjacent to the subsurface building walls at the Property.
- Institutional Controls. Institutional controls including maintenance requirements for engineered controls (groundwater capture system and vapor barrier) and restrictions on groundwater use at the Property will be documented in an environmental covenant.

An Environmental Materials Handling Plan (EMH Plan) will be presented in a separate document. The EMH Plan will provide procedures to excavate, manage and dispose contaminated soil that will be removed from the Property and discuss collection and analysis of characterization/compliance soil samples during the cleanup action. Procedures for managing and discharging stormwater and groundwater during construction that may be contaminated with PCE also will be discussed.

Construction of the Phase I redevelopment, and the concurrent cleanup action, is anticipated in the next 1 to 5 years. Following construction, cleanup actions will be documented in a cleanup action report and periodic compliance monitoring reports. A Post-Construction Environmental Management Plan will present procedures for monitoring and maintaining the engineered controls at the Property. A Compliance Groundwater Monitoring Plan also will be prepared.



## **1.0 INTRODUCTION**

This report presents the Cleanup Action Plan (CAP) for the Bellevue Corner Property located at 10605 and 10619 NE 8<sup>th</sup> Street in Bellevue, Washington. The Bellevue Corner Property (Property) is owned by Sterling Realty Organization (SRO) and consists of the two western parcels of a 3-parcel property that will be redeveloped. The location of the Property is shown on Figure 1. Boundaries of the Property are shown relative to surrounding properties and physical features on Figure 2. This document was prepared in accordance with our proposal for CAP preparation dated August 6, 2013 (GeoEngineers, 2013) and agreement with SRO dated October 26, 2012.

This CAP is intended to satisfy Washington State Department of Ecology's (Ecology) Voluntary Cleanup Program (VCP) requirements and the Model Toxics Control Act (MTCA, Washington Administrative Code [WAC] 173-340). SRO submitted a VCP application to Ecology along with a Draft of the Remedial Investigation and Feasibility Study (RI/FS) report (GeoEngineers, 2014) for the Property on December 30, 2013. Ecology accepted SRO's VCP application, completing and signing the VCP Agreement on January 14, 2014. The Facility/Site Number for the Property is 5569973, and the VCP Project Number for the Property is NW2817.

This CAP describes implementation of the cleanup action that was selected based on the FS. SRO's objective is to obtain a property-specific No Further Action (NFA) determination for the Property by conducting a MTCA-compliant cleanup action during construction of a multistory commercial building with up to seven levels of underground parking.

On the basis of data compiled and presented in the RI/FS (Finalized on December 15, 2014), soil and groundwater in portions of the Property are contaminated by tetrachloroethene (PCE) and associated chlorinated volatile organic compounds (CVOCs), including trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE). The source of the PCE and associated compounds has been identified as a former dry-cleaner that operated from 1976 through 1986 at 10610 NE 8<sup>th</sup> Street, directly north of the Property and across NE 8<sup>th</sup> Street (Figure 2). This source property is referred to as the (former) Thinker Toys property. PCE and TCE are present in soil at concentrations exceeding MTCA cleanup levels in portions of the SRO Property at depths ranging from approximately 12 to 65 feet below ground surface (bgs). Samples from shallow, perched groundwater encountered from approximately 25 to 35 feet bgs beneath some portions of the Property also contained PCE and TCE at concentrations exceeding MTCA cleanup levels.

Residual concentrations of petroleum hydrocarbons exceeding MTCA Method A cleanup levels are present in shallow soil in some areas on the Property, resulting from releases at a service station that operated there from 1958 to 1991. A partial cleanup of petroleum-contaminated soil was performed in 1991 and 1992 during underground storage tank (UST) removal activities.

**Special Note:** GeoEngineers, Inc. (GeoEngineers) did not conduct any of the field studies or explorations that are summarized in this document. Rather, GeoEngineers has included in this CAP a summary of information and data obtained from multiple historic environmental reports prepared by other consultants for the Property and adjacent properties. These previous reports were reviewed and assessed for completeness and consistency and deemed adequate to sufficiently characterize the Property. Any historic data that was considered to be non-defensible, incomplete, or not applicable to the Property were not included in this report. Information and data from these reports was used by GeoEngineers to prepare the RI/FS



(GeoEngineers, 2014), and this CAP. A list of environmental reports that were prepared by others for the Property and vicinity is presented at the end of this document (References, Section 10).

## **1.1. Statement of Objective**

The objectives of this document are to:

- Summarize the results of the RI/FS.
- Present proposed cleanup requirements for the property, including cleanup levels and points of compliance.
- Present the proposed cleanup action, to be completed concurrently with Property redevelopment, to address soil and groundwater contaminated by PCE and TCE exceeding MTCA cleanup levels, and soil contaminated by petroleum hydrocarbons exceeding MTCA cleanup levels.
- Present the proposed cleanup action on the Property to address potential vapor intrusion into the planned building.

## **1.2.** Project Description and Future Land Use

It is anticipated that the two parcels that make up the Property, and the adjacent parcel to the east (10635 NE 8<sup>th</sup> Street, tax parcel 154410-0215), will be redeveloped within 1 to 5 years with a high-rise commercial building including up to seven levels of underground parking. These three combined parcels are referred to as the Phase I development property. This land use is consistent with City of Bellevue zoning for the Property. A conceptual design of the redevelopment is shown on Figure 3. The two adjacent parcels to the south that are owned by SRO, 606 and 620 106<sup>th</sup> Avenue NE (tax parcels 154410-0214 and -0217), also are planned for similar redevelopment in the next 5 to 10 years with high-rise commercial buildings (Phase II and III development properties).

The planned Phase I development includes:

- A lot-line-to-lot line excavation with maximum depths equal to elevation 84 above mean sea level (AMSL) (approximately 70 feet bgs) to accommodate the building foundation and underground parking.
- Limited excavations for elevator pits to approximately elevation 82 (approximately 72 feet bgs).
- Shored excavation using a combination of soil nails and soldier piles.

## **1.3. Roles and Relationships of Involved Parties**

SRO has submitted plans to develop the Bellevue Corner Property and the east-adjacent parcel (Phase I development) for Administrative Design Review by City of Bellevue. SRO, or another Developer, will develop and maintain the Property and improvements. Current plans call for SRO to retain ownership of the land. Design details for the development and elements of the cleanup action including the contaminated groundwater capture system and the vapor barrier will be mutually agreed upon by the Developer and Property Owner (SRO) and included in the project plans and specifications. GeoEngineers has been retained by SRO to provide environmental services during development planning and construction. The PCE source property, known as the Thinker Toys property, is owned by BV Holdings, LLC. Consultants hired by BV Holdings collected data which was used for this analysis and is provided in this CAP. Roles and responsibilities of the involved parties are presented in Table 1.



## 2.0 BACKGROUND

The following sections summarize information presented in the RI/FS regarding current and historical land use, environmental setting, investigations performed on the Property and nearby properties, cleanup actions completed or in process, and the Conceptual Site Model.

## **2.1. Current and Historical Land Use**

The Bellevue Corner Property is owned by SRO and consists of King County tax parcels 154410-0221 (10605 NE 8<sup>th</sup> Street) and 154410-0216 (10619 NE 8<sup>th</sup> Street) (Figure 2). The Property does not include adjacent rights-of-way (ROW). Gravel- and asphalt-paved parking lots, a wood and masonry building with retail businesses and perimeter landscaping are present on the Property.

The Property is primarily surrounded by office buildings, retail businesses, and parking lots. According to the City of Bellevue's zoning map, the Property and adjacent properties are zoned Downtown-Office (DNTNO-1 and DNTNO-2) (City of Bellevue, 2013). This zoning eliminates the possibility of ground floor residential uses and therefore reduces potential residential exposure to contaminants of concern including volatile organic compound (VOC) soil vapors.

## 2.1.1. 10605 NE 8th Street, Parcel 154410-0221 (Property)

The parcel southeast of the intersection of NE 8<sup>th</sup> Street and 106<sup>th</sup> Street (10605 NE 8<sup>th</sup> Street, Parcel 154410-0221) was undeveloped until 1958, when a retail gasoline station was constructed on the parcel. The original service station had several underground storage tanks (USTs) for fuel and waste oil, a drywell, vehicle hoists, pump islands etc. The parcel was redeveloped in 1969 as a Union 76 station and retail gasoline sales and automotive repair activities continued on the Property until 1991 when the station was demolished. The USTs, product lines, associated equipment and 500 cubic yards of soil were removed during the first phase of excavation in 1991. A second phase of excavation was performed at the Property in April 1992 and an additional 1,500 cubic yards of petroleum-contaminated soil (PCS) were removed. Chemical analysis of soil samples obtained from the final limits of the remedial excavations did not detect petroleum contaminants at concentrations exceeding cleanup levels (EMCON Northwest, 1992). Subsequently, an opinion of No Further Action regarding the cleanup status for petroleum hydrocarbons on the parcel was issued by the Washington State Department of Ecology (Ecology, 1992).

# 2.1.2.10619 NE 8<sup>th</sup> Street and 10635 NE 8<sup>th</sup> Street, Parcels 154410-0216 (Property) and 154410-0215 (east-adjacent parcel)

Before 1953, these parcels were part of a nine acre-parcel that was occupied by the Cheriton Fruit Gardens. In 1963, the existing retail building was constructed on these parcels. Tenants have included a music store, furniture store, women's apparel store, automotive parts store, insurance agency, and travel agency. The basic features and land use of the parcels have remained unchanged since 1963.

## 2.1.3. 10610 NE 8th Street Thinker Toys (PCE Source Property)

This 0.3 acre parcel was initially developed in 1955 as a retail gasoline station and automotive repair facility. In 1968, the station was removed and replaced with a new retail gasoline station that operated until 1976. Between 1976 and 1986, a One-Hour Martinizing dry cleaning facility operated at the property. Between 1986 and 2007 the property was occupied by small retail businesses, including the Thinker Toys

store. In 2007, the remaining structures were demolished and the property was paved and developed as a private parking lot (Sound Earth Strategies, Inc., 2011).

This property has been identified as the source of the chlorinated solvents (PCE and associated compounds) that have contaminated soil and groundwater on the Bellevue Corner Property. As discussed in the RI/FS, soil and groundwater investigations to delineate contamination on the Property and on the adjacent Thinker Toys property have demonstrated how CVOCs released at the 10610 NE 8<sup>th</sup> Street property migrated passively with groundwater to the Bellevue Corner Property.

## 2.1.4. Additional Surrounding Properties

Properties to the south (Phase II and Phase III future redevelopment properties) are owned by SRO and house a Barnes and Noble bookstore and a Church. These properties were farmland prior to being developed. The bookstore building was constructed in 1957 as a bowling alley. The church building was originally constructed in 1961 as a theater. Parking areas were initially paved in 1963.

The parcel west of the Property across 106<sup>th</sup> Avenue NE is occupied by a Bank of America branch that includes a building and an asphalt-paved parking lot.

## 2.2. Remedial Investigation Summary

Multiple environmental studies and cleanups have been performed on the Property and adjacent properties from 1991 to 2011. A summary of selected information and data from these studies is presented in this section. Detailed information regarding these studies is presented in the RI/FS (GeoEngineers, 2014).

## 2.2.1. Environmental Setting

This section presents an overview of the environmental setting for the Property and surrounding area. Ground surface elevations at the Property range from approximately 153 to 165 feet AMSL. Ground surface slopes gently toward the south (King County iMAP, 2011). Lake Bellevue is located approximately 0.75 miles northeast of the Property. Lake Washington is located approximately 0.75 miles southwest.

The City of Seattle provides the main source of potable water for the City of Bellevue. The water is obtained from surface water from the Cascade Mountains (City of Bellevue 2005). Current water supply wells within the City of Bellevue serve less than 50 people a day on average and are located more than one mile from the Property. There are no designated aquifer recharge areas within one mile of the Property. Because of the availability of the municipal water supply in the vicinity of the Property, there is clearly a low probability that this aquifer would be used as a potable water source.

#### 2.2.1.1. Property Geology

Previous investigations on and adjacent to the Property encountered approximately 5 to 7 feet of fill material consisting of loose to medium dense silty sand with gravel. Fill is expected to be thicker in areas where USTs and petroleum-contaminated soil were removed during cleanup actions in the early 1990s. Below the fill material, the Property is underlain by Vashon Till (Pacific NW Geologic Mapping, 2007), a unit of dense to very dense glacially compacted, poorly sorted and locally cemented silt, sand, gravel, and cobbles with localized sand-rich zones (Figure 4). The glacial till typically extends to depths of 35 to 40 feet bgs. Two- to 5-foot thick sand-rich zones within the glacial till were encountered at depths of about 20 to 30 feet. Shallow, perched groundwater is associated with these sand-rich zones. The glacial till is underlain by the more permeable sand and gravelly-sand deposits of the Vashon Advance Outwash. Outwash extends



to depths of approximately 75 to 90 feet bgs (Terra Associates, 2008). Dense, silty sand to sandy silt was encountered beneath the Advance Outwash in the deepest explorations that extend to 101.5 feet bgs.

#### 2.2.1.2. Property Hydrogeology

Two water-bearing zones were identified beneath the Property during previous investigations. A shallow, discontinuous, perched water-bearing zone associated with sandy lenses within the Vashon Till was encountered from approximately 20 to 30 feet bgs. Seven shallow wells at the Property are screened in this perched water-bearing zone. Based on May 2010 groundwater depth measurements in these wells and shallow upgradient wells located on the Thinker Toys property, perched groundwater is inferred to flow to the south with a horizontal gradient of 0.046 feet per foot. Other groundwater data suggest a southwesterly component to groundwater flow on a seasonal basis. Depth to groundwater and groundwater elevations in monitoring wells on the Property are presented in Table 2. Perched groundwater elevation contours and inferred groundwater flow direction in May 2010 are shown on Figure 5.

A deeper regional aquifer is located in the lower portions of the underlying Vashon Advance Outwash. Two deep wells at the Property (URS-MW-8 [SB-11] and B2/MW-2) and two deep wells (B1/MW1, B4/MW4) on the adjacent parcel to the east were installed to monitor groundwater in the Advance Outwash deposits. Depths to groundwater in these monitoring wells ranged between 68 and 93 feet bgs from 2008 to 2011. Based on groundwater depth measurements in October 2011, groundwater in the Advance Outwash is inferred to flow to the south-southeast as shown on Figure 6.

## 2.2.2. Chemical Analytical Results Summary for Soil and Groundwater

Tables 3 and 4 present soil and groundwater chemical analytical data obtained during site characterization and petroleum cleanup actions completed between 1990 and 1992. Chemical analytical data for soil and groundwater samples from environmental studies completed at the Property between 2000 and 2011 are summarized in Tables 5 and 6, respectively. Exploration locations and analytical results are shown on Figures 7 through 15.

## 2.2.2.1. Soil Results for 1990-1992

A preliminary environmental site assessment (PESA) was performed at UNOCAL Service Station 4511 in July 1990. The findings of the PESA are presented in a report to UNOCAL (Sweet-Edwards/EMCON Inc., 1990). Five exploratory soil borings were drilled and groundwater monitoring wells were constructed in each of the borings (MW-1 through MW-5) at the approximate depth of the perched water zone. Selected soil samples from the borings were submitted for analysis of benzene, ethylbenzene, toluene, and xylenes (BETX) and total petroleum hydrocarbons (TPH). One soil sample collected from boring MW-5 located adjacent to former and existing waste oil USTs and an oil/water separator, was analyzed for chlorinated VOCs (CVOCs).

None of the soil samples contained detectable concentrations of benzene, toluene, or ethylbenzene. Xylenes were detected in MW-2 and MW-3 (northwest corner of the Property near fuel USTs) at concentrations less than the cleanup level. TPH was detected at concentrations less than current MTCA Method A cleanup levels in all 5 borings. CVOCs including PCE and TCE were not detected in the MW-5 soil sample from 7.5 feet bgs.

Supplemental site assessment and cleanup action activities were performed at the Property in 1991 and 1992. Soil chemical data for these activities are presented and discussed in the UST Closure Assessment report (EMCON Northwest, 1992) and summarized in this section.



Soil samples collected during Phase one of the cleanup action showed that soil near the east wall of the gasoline tank excavation, heating oil/waste oil tank, hydraulics hoist, and dry well excavations, and former gasoline tank complex contained volatile and/or semivolatile fuel hydrocarbons at concentrations exceeding MTCA Method A cleanup levels. Four of the soil samples collected beneath the former waste oil tank and near the dry well were analyzed for polychlorinated biphenyls (PCBs); PCBs were not detected. Thirteen samples collected in the vicinity of the hydraulic hoists, dry well and waste oil UST were analyzed for VOCs. Petroleum-related VOCs either were not detected or were detected at concentrations less than MTCA Method A cleanup levels in 11 out of 13 samples. BETX compounds were detected at concentrations exceeding cleanup levels in two soil samples collected beneath hoists. CVOCS were not detected in these samples except for methylene chloride (a common laboratory contaminant) detections in several dry well samples. These data are evidence that the hoists, dry well and waste oil UST were not a source of the PCE detected on the Property in later studies. Several samples from the vicinity of the gasoline USTs and product lines were analyzed for lead; lead was not detected. Soil samples were collected from the base and sidewalls of the remedial excavations following Phase two removal of the PCS to confirm that remaining soil met MTCA Method A cleanup levels. Petroleum contaminants either were not detected in these samples, or were detected at concentrations below cleanup levels.

#### 2.2.2.2. Soil Results for 2000-2011

Chemical analytical results for PCE in soil samples obtained from exploratory borings drilled on the Property ranged from not detected (or detected at estimated trace concentrations less than the 0.01 to 0.02 milligrams per kilogram [mg/kg] reporting limit) to 2.30 mg/kg. PCE was detected at concentrations exceeding the MTCA Method A cleanup level of 0.05 mg/kg in a portion of the soil samples obtained from 12 to 65 feet bgs. Most of the soil borings in which PCE concentrations exceeded the MTCA Method A cleanup level of the Property (Figure 12). TCE was detected at concentrations exceeding the MTCA Method A cleanup level of 0.03 mg/kg in two samples obtained from a cleanup level were located in the northwest portion of the Property (Figure 12). TCE was detected at concentrations exceeding the MTCA Method A cleanup level of 0.03 mg/kg in two samples obtained at depths between 47 and 50 feet bgs, and was co-located with soil samples containing PCE at concentrations exceeding cleanup levels. DCE, vinyl chloride, and other CVOCs were not detected in soil samples at concentrations exceeding MTCA cleanup levels.

Gasoline- or oil-range petroleum hydrocarbons were detected at concentrations exceeding MTCA Method A cleanup levels in four soil samples collected from 0.5 to 9 feet bgs in four soil borings located in the west-central portion of the Property (Figure 12). Three of the four samples were collected from less than two feet bgs at these locations. Petroleum either was not detected or was detected at concentrations well below cleanup levels in 66 out of 70 soil samples that were tested. The residual petroleum hydrocarbon impacts appear to be relatively shallow and localized on the Property. BETX, 1,2-Dichloroethane (1,2-DCA) and methyl tert-butyl ether (MTBE) were not detected in soil samples at concentrations exceeding MTCA cleanup levels.

#### 2.2.2.3. Groundwater Results for 1990

Groundwater samples from four of the monitoring wells installed in 1990 were analyzed for volatile and semivolatile hydrocarbon analyses. BETX and TPH were not detected in the groundwater samples from wells MW-1, MW-2 and MW-4. TPH was not detected in the groundwater sample from MW-3. BETX compounds were detected in the groundwater sample from MW-3 at concentrations less than MTCA Method A cleanup levels. Groundwater at the Property was encountered approximately 23 feet bgs; perched groundwater flow direction was interpreted to the southeast. Groundwater at the Property was not sampled during the supplemental site assessment and cleanup activities in 1991-1992.



## 2.2.2.4. Groundwater Results for 2000-2011

Chemical analytical results for groundwater samples collected from selected monitoring wells on the Property between 2000 and 2011 are presented in Table 6. Compounds analyzed include the following:

- Selected CVOCs including:
  - PCE, TCE, and cis-1,2-DCE,
  - 1,1,1-Trichloroethane (1,1,1-TCA) and 1,2-Dichloroethane (1,2-DCA);
- BETX, MTBE and naphthalenes; and
- Gasoline-, diesel-, and oil-range hydrocarbons.

The highest concentrations of PCE in groundwater samples from the perched zone were collected from monitoring well URS-MW-1 and ranged from 114 to 430 micrograms per liter (µg/L), exceeding the MTCA Method A cleanup level of 5 µg/L. Monitoring well URS-MW-1 is located in the northwest corner (upgradient portion) of the Property closest to the Thinker Toys source property. PCE was detected in groundwater samples from several monitoring wells installed in the perched groundwater zone in the western portion of the Property including B-3/MW-3 (up to 88  $\mu$ g/L), MW-19 (33  $\mu$ g/L), MW-20 (4.6  $\mu$ g/L), and URS-MW-3 (3.9 µg/L). PCE was detected in groundwater samples from nearby off-Property monitoring wells MW-17 (14  $\mu$ g/L) and MW-18 (830  $\mu$ g/L), located to the west, within the 106<sup>th</sup> Avenue NE right-of way in August 2010. TCE and cis-1,2-DCE also were detected in groundwater samples from these off-Property monitoring wells. Concentrations of PCE generally were highest in groundwater samples collected from shallow monitoring wells in the northern portion of the Property, and lowest in groundwater samples collected from the shallow monitoring wells in the southern portion of the property. TCE and cis-1,2-DCE typically were detected in groundwater samples in which PCE exceeded the MTCA Method A cleanup levels. However, with the exception of TCE in the groundwater sample from monitoring well URS-MW-1, the concentrations were less than the MTCA Method A or B cleanup level. PCE was not detected in groundwater samples collected from monitoring well URS-MW-2, in the north-central portion of the Property.

Chemical analytical results for PCE in groundwater samples collected from deep monitoring wells screened in the Advance Outwash on the Property, or the adjacent parcel to the east, ranged from not detected in monitoring wells B1/MW-1 and URS-MW-8 to 1.9 to 2.0  $\mu$ g/L in the groundwater samples from B2/MW-2 and B4/MW-4. The low level PCE detections in groundwater samples from B2/MW-2 and B4/MW-4 occurred in 2008. PCE was not detected in samples from wells B2/MW-2 and B4/MW-4 during more recent sampling events in 2010 and 2011. PCE either was not detected or was detected at estimated concentrations less than laboratory reporting limits in groundwater samples collected from deep soil borings URS-SB-9 and URS-SB-21. Concentrations of PCE detected in groundwater samples from the Advance Outwash aquifer are less than the MTCA Method A cleanup level of 5  $\mu$ g/L. However, the PCE detections in two deep wells in 2008 indicate there is hydraulic connection between the shallow perched water and the deeper groundwater and that the regional aquifer has been impacted by PCE to some extent.

BETX, and gasoline-, diesel-, and oil-range hydrocarbons were not detected in groundwater samples collected from monitoring wells on the Property between 2000 and 2011. Naphthalene was detected at an estimated concentration less than laboratory reporting limits in a deep groundwater sample collected from URS-SB-15. MTBE was detected at a concentration ( $1.0 \mu g/L$ ) well below the MTCA cleanup level ( $20 \mu g/L$ ) in a sample from deep well URS-MW-8 (SB-11).

## 2.3. Cleanup Actions

Remedial action to address petroleum-contaminated soil (PCS) was performed on the western parcel of the Property in 1991 and 1992. USTs, associated piping, equipment, and 500 cubic yards of PCS were removed from the Property in 1991. Following UST removal and follow-up explorations, an additional 1,500 cubic yards of PCS were removed from the parcel in 1992 (EMCON Northwest, 1992). Subsequently, an opinion of No Further Action regarding the cleanup status for petroleum hydrocarbons on the parcel was issued by the Washington State Department of Ecology (Ecology, 1992).

An air sparging-soil vapor extraction (AS/SVE) system is operating on the Thinker Toys source property, located north of the Bellevue Corner Property and NE 8<sup>th</sup> Street. We understand the system is operating as an interim cleanup action to prepare that property for a subsequent cleanup action that includes excavation and off-site disposal of PCE-contaminated soil. The Thinker Toys property is being cleaned up by other parties under the VCP program. SRO has no indication of the start date for implementing the subsequent cleanup action at the Thinker Toys property.

## 2.4. Conceptual Site Model

A Conceptual Site Model (CSM) was developed for the SRO Property RI/FS using information from historical research and explorations. The CSM includes a discussion of contaminant sources, chemicals and media of concern, fate and transport of those chemicals, and potential exposure pathways that could affect human health or the environment. As discussed in the RI/FS, the Property qualifies for an exclusion from a Terrestrial Ecological Evaluation (TEE) because there is less than 1.5 acres of contiguous undeveloped land on, or within 500 feet of, the Property. The CSM was the basis for developing cleanup options and selecting the preferred cleanup action. A summary of the CSM is presented in this section.

Explorations performed on the Property and surrounding properties indicate that PCE and associated chlorinated solvent contamination of soil and groundwater beneath the SRO Property resulted from releases at the dry cleaning facility that operated from 1976 to 1986 on the Thinker Toys source property. The CVOCs released on the Thinker Toys source property migrated passively to the south with groundwater and resulted in contamination on the SRO Property.

PCE has been detected at the Property in soils at depths ranging between 12 and 65 feet bgs and in perched groundwater from approximately 20 to 30 feet bgs, and historically at low concentrations in the deeper regional aquifer. The distribution of PCE in soil and groundwater indicates that the source of PCE at the Property is the upgradient Thinker Toys site. The former use of the SRO Property as a service station does not appear to have contributed to the PCE detected in soil and groundwater at the Property. PCE detections in soil at URS-MW-4 in the southeast portion of the Property represent a data gap that will be evaluated further during the cleanup action.

The dense glacial till and silty outwash soil overlying the Advance Outwash aquifer has relatively low permeability and appears to act as an aquitard to limit contaminant migration to the deeper groundwater beneath the Property. However, PCE detected at low levels in groundwater samples from two deep wells in 2008 indicate that there is hydraulic connection between the shallow perched water and the deeper groundwater in the regional aquifer. The potential still exists for the regional aquifer at the Property to be further contaminated by PCE in the future if effective remedial action is not taken at the source (Thinker Toys) property.



Petroleum releases from historic USTs and other gas station facilities impacted shallow soil at the Property. USTs, associated facilities and most of the PCS were removed during cleanup actions in 1991 and 1992. Residual PCS on the Property appears to be relatively shallow and localized.

With the exception of low level naphthalene and MTBE detections, groundwater contaminated by petroleum hydrocarbons has not been detected at the Property since the early 1990s cleanup. These groundwater data indicate that PCS impacts to shallow groundwater at the Property, if present, have not extended to on-Property locations downgradient of the former service station facilities.

The contaminants of concern (COC) for the Property include potentially hazardous or toxic compounds that have a history of use at or upgradient of the Property, or which were detected in environmental media during previous investigations. Based on these criteria, the COCs at the Property include PCE and its related degradation products (TCE, cis-1,2-DCE, trans-1,2-DCE and vinyl chloride), BETX, MTBE 1,2-dichloroethane, lead, and gasoline-, diesel-, and oil-range petroleum hydrocarbons.

Soil, groundwater, and soil vapor are the media of concern at the Property. Potential pathways of exposure from PCE-contaminated soil include volatilization and potential inhalation of PCE-contaminated air, dermal contact, and ingestion. Dermal contact/ingestion also is a potential exposure pathway for the residual petroleum-contaminated soil. Another potential pathway is leaching of PCE/PCE daughter compounds, petroleum and petroleum-related VOCs from contaminated soil to groundwater. However, the potential for petroleum and related VOCs leaching from soil to groundwater is relatively low, in our opinion. This is due to the shallow nature of the remaining soil contamination, data that shows petroleum has not been detected in groundwater at the Property, and the low concentrations of petroleum-related VOCs at the Property. Potential pathways of exposure from PCE-contaminated groundwater include volatilization and subsequent exposure through the vapor pathway, direct contact, or ingestion. These potential pathways were considered in the FS. Workers handling soil and groundwater with PCE levels exceeding MTCA cleanup levels, and petroleum-contaminated soil exceeding cleanup levels, will need to be Hazardous Waste Operations and Emergency Response (HAZWOPER) trained. The need for HAZWOPER training also will apply to workers who periodically maintain the wall drain groundwater capture system that is a long-term engineering control for the project.

According to Ecology's vapor intrusion guidance (Ecology, 2009), PCE concentrations in groundwater exceeding 24  $\mu$ g/L, or in soil vapor beneath a building structure exceeding 96 micrograms per cubic meter ( $\mu$ g/m<sup>3</sup>), have the potential to impact indoor air through a concrete floor slab. An exposure pathway could be created during future redevelopment of the Property, particularly in the northwest corner where PCE concentrations are highest in soil and groundwater. Therefore, the soil gas pathway was considered during evaluation of remedial cleanup alternatives.

## **3.0 CLEANUP REQUIREMENTS**

MTCA and the implementing regulations (Chapter 173-340 WAC) establish procedures for selecting cleanup standards, including cleanup levels and points of compliance. Cleanup standards developed under MTCA must also meet the statutory requirement to be at least as stringent as other applicable state and federal laws. The cleanup standards for the Property are discussed in this section and include cleanup levels, points of compliance, and additional regulatory requirements.



## **3.1. Cleanup Levels**

Cleanup levels for the cleanup action at the Property were selected to address PCE and related daughter compounds, BETX, MTBE, 1,2-DCA, lead and petroleum compounds. Cleanup levels to be used for soil characterization and confirmation sampling and compliance groundwater monitoring are presented in Table 7. The proposed soil cleanup levels are MTCA Method A for Unrestricted Land Use, except for the DCE isomers, vinyl chloride and 1,2-DCA that do not have Method A cleanup levels. Cleanup levels for these CVOCs are Method B based on protection of groundwater. The proposed groundwater cleanup levels are MTCA Method A, except for chlorobenzene and the DCE isomers that do not have Method A cleanup levels. The proposed cleanup levels for chlorobenzene and the DCE isomers are Method B Standard Formula for drinking water (noncarcinogen) from Ecology's cleanup levels and risk calculations (CLARC) database.

## **3.2. Points of Compliance**

Points of compliance are the points on the Property where soil and groundwater cleanup levels will be attained.

## 3.2.1. Point of Compliance for Soil

The standard point of compliance for direct contact with soil is from the ground surface to 15 feet bgs (per WAC 173-340-740[6](d)).

However, because contaminated groundwater is present at the Property, the point of compliance for soil is throughout the Property to all depths. Current redevelopment plans indicate that soil in the portion of the Property where PCE- and petroleum-contaminated soil has been identified will be removed to maximum depths equivalent to an approximate elevation of 84 feet AMSL.

## 3.2.2. Point of Compliance for Groundwater

The point of compliance for groundwater is defined as the uppermost level of the saturated zone extending vertically to the lowest depth that could potentially be impacted by the contaminants of concern (WAC 173 340-720[8]. The point of compliance for the SRO Property is applicable to groundwater within the Property boundaries for the full vertical extent of groundwater impacts.

## 3.2.3. Point of Compliance for Soil Vapor

Cleanup standards and points of compliance for soil vapor have not been established in Washington State. However, Ecology has published draft guidance that includes soil vapor screening levels (Ecology, 2009). The draft guidance identifies two points of compliance for soil vapor: sub-slab (immediately below a structure) and soil vapor that is 15 feet or more bgs. The sub-slab screening levels also are applicable to soil vapor samples obtained at depths between 5 and 15 feet bgs. It is possible that soil vapor exceeding Ecology screening levels will exist beneath the sub-slab and adjacent to the subsurface perimeter walls. A soil vapor barrier will be installed during construction to minimize possible vapor intrusion.

## **3.3. Additional Regulatory Requirements**

As required by WAC 173-340-710, the selected cleanup action for the Property will comply with applicable local, state and federal laws and regulations. MTCA (173-340 WAC) represents the primary regulation that establishes cleanup standards, cleanup levels and other requirements for cleanup of the Property.



In addition to MTCA, key requirements that are applicable to the cleanup action at the Property include:

- Washington Dangerous Waste Regulations; Chapter 173-303 WAC.
- Solid Waste Management Act; Revised Code of Washington (RCW) 70.95; WAC Chapters 173-304 WAC and 173-351 WAC.
- Occupational Safety and Health Administration (OSHA) Regulations, 29 CFR Parts 1910 and 1926.
- Washington Department of Labor and Industries Regulations, Chapter 296 WAC.
- Washington Minimum Standards for Construction and Maintenance of Wells, Chapter 173-160 WAC.
- City of Bellevue and King County regulations and codes.

## 3.4 Summary of Cleanup Alternatives Evaluated in the RI/FS

Based on the RI results, the following remedial alternatives were considered for the Property to address soil and groundwater contaminated with chlorinated solvents and petroleum:

- 1. No action;
- 2. Excavation of contaminated soil exceeding MTCA cleanup levels with on-site treatment and reuse;
- 3. Excavation of contaminated soil exceeding MTCA cleanup levels with off-site disposal at a permitted facility;
- 4. Capture of contaminated, perched groundwater using perimeter wells and permitted water discharge;
- 5. Capture of contaminated, perched groundwater using subsurface wall drains, and permitted water discharge;
- 6. Soil Vapor Extraction and Treatment system at the perimeter of the Property; and
- 7. Installation of a vapor barrier on subsurface, perimeter building walls and concrete slab at bottom of the underground parking structure.

As discussed in the FS, an evaluation of remedial alternatives was completed by comparing alternatives 1 through 7 against MTCA-specified threshold requirements and screening criteria. Based on the remedial alternatives evaluation, alternatives 1, 2, 4 and 6 would not achieve the cleanup action objectives of this project or satisfy the MTCA requirements for cleanup actions, in our opinion. As a result, alternatives 1, 2, 4 and 6 were eliminated from further consideration.

## 4.0 SELECTED CLEANUP ACTION

This section presents the rationale for selecting the cleanup action and an overview of the selected cleanup action. Section 6.0 presents a detailed discussion of the components of the selected cleanup action and the sequencing for cleanup action implementation.

## 4.1. Alternatives Analysis and Cleanup Action Selection Rationale

Based on the evaluation of remedial alternatives presented in the FS, the selected cleanup action consists of the following components:



- Excavation and off-site disposal of PCE- and petroleum-contaminated soil at a permitted facility;
- Capture of contaminated, perched groundwater with subsurface wall drains and permitted water discharge;
- Installation of a vapor barrier on the subsurface perimeter walls and concrete slab at bottom of the underground parking structure; and
- Institutional controls, including maintenance requirements for engineered controls (groundwater capture system and vapor controls) and restrictions on groundwater use.

This cleanup action was selected because it meets MTCA requirements for a permanent, protective cleanup action and can be implemented concurrently with Property redevelopment. Components of the selected cleanup action alternative have been implemented at other similar sites and are technically feasible within the redevelopment framework. It is anticipated that soil and shallow groundwater with contaminant concentrations that exceed MTCA cleanup levels will be removed from the Property. A vapor barrier will be installed to minimize potential intrusion of volatile organic vapors into the building. The proposed cleanup action does not result in a significant amount of additional short-term risk beyond what is typical for a large construction project in an urban setting. Except for long-term operation and maintenance of the groundwater capture system and post-cleanup compliance groundwater monitoring, the cleanup action is expected to be completed within a reasonable restoration timeframe of 1 to 2 years after construction of the proposed redevelopment begins.

## 4.2. Cleanup Action Description

The cleanup action will consist of the activities presented in the following subsections. Additional details regarding cleanup action implementation and sequencing are presented in Section 6.

## 4.2.1. Soil Excavation

Based on current development plans, soil will be excavated and removed from the Property and the east-adjacent Phase I parcel during excavation for the building foundation and below-grade parking garage. The planned area of excavation for the Phase I redevelopment is shown on Figures 2 and 16. Shoring will be installed at the Property boundaries to allow excavation of the Planned Development Excavation. The construction excavation is planned to extend from property-line to property-line to comply with City of Bellevue requirements. Contaminated soil will be excavated and transported from the Property to a permitted disposal facility, as discussed in Section 6.2.1, and in accordance with the Environmental Materials Handling Plan (EMH Plan) that will be provided in a separate document.

## 4.2.2. Perched Groundwater Capture System

A contaminated perched groundwater capture system will be incorporated in the Property's northern, western and southern portions of the engineered subsurface wall drains that will be designed to relieve hydrostatic pressure on the external building walls. As discussed in Section 6.2.2, the shallow groundwater capture system will be designed to minimize downward migration of shallow contaminated groundwater at the perimeter walls of the building at the Property. The location-extent of the portion of the perimeter wall drains that will capture the perched contaminated groundwater are shown on Figure 16. The location of the contaminated groundwater capture system is based on existing chemical data that defines the extent of PCE-contaminated soil and groundwater at, and immediately adjacent to, the Property. The lateral extent of the groundwater capture system is subject to revision based on chemical analytical results for soil



characterization/confirmation samples collected during construction. The subsurface wall drains will operate for the life of the building. Captured groundwater will be discharged to the sanitary sewer under a Discharge Authorization from King County if the concentration of PCE is less than the county's 240 µg/L discharge limit. If water samples collected from the capture system during construction exceed the PCE discharge limit, water treatment, with technologies such as granular activated carbon, will be required prior to discharge to the sanitary sewer. Design details for the groundwater capture system will be mutually agreed upon by the Developer and SRO and presented in the project plans and specifications package.

#### 4.2.3. Vapor Barrier

A vapor barrier will be installed on all of the subsurface perimeter walls and the concrete slab at the base of the parking structure, as discussed in Section 6.2.3. The intent of the vapor barrier is to minimize potential vapor intrusion into the underground parking structure. Design details for the vapor barrier will be mutually agreed upon by the Developer and SRO and presented in the project plans and specifications package.

#### 4.2.4. Institutional Controls

Institutional controls will be considered as part of the cleanup action to address contaminated soil that is expected to remain at some locations on other parcels and right-of-way immediately adjacent to the subject Property. Institutional controls also will be considered for contaminated shallow groundwater that likely will continue to migrate toward the Property from the upgradient source property. Institutional controls discussed in Section 6.3.4 include requirements for operation and maintenance of engineered controls, and post-construction monitoring requirements. In addition, financial assurances to maintain the institutional controls will be established as necessary.

## 5.0 CLEANUP ACTION OBJECTIVES

The overall objective is to complete a cleanup action, in conjunction with development of the planned high-rise commercial building, that is compliant with MTCA and protective of human health and the environment. The following Property-specific cleanup action objectives take into account the proposed Property redevelopment and media of concern:

- Avoid generating dangerous waste by obtaining a Contained-In Determination from Ecology for PCE-contaminated soil. The Contained-In Determination will allow for disposal of PCE-contaminated soils at permitted landfills that are protective but less costly than dangerous waste disposal facilities.
- Remove contaminated soil and groundwater throughout the Property, within the boundaries of construction excavation, to achieve cleanup levels for unrestricted land use.
- Develop and implement engineered controls to collect PCE-impacted perched groundwater that encounters the perimeter walls of the planned building at the Property. The wall drain system, including the portion that will also act as the contaminated groundwater capture system, will be designed to function for the life of the building.
- Develop and implement engineered controls as needed at the Property to mitigate risk of vapor intrusion into the proposed building and underground parking structure.
- Obtain a Property-specific No Further Action (NFA) opinion from Ecology.



## 6.0 CLEANUP ACTION IMPLEMENTATION AND SEQUENCING

The cleanup action for the Bellevue Corner Property will be performed concurrently with the Property redevelopment. The primary elements of the cleanup action include the following:

## **6.1. Pre-Construction Actions**

The following actions will be performed before construction activities begin on the Property.

#### 6.1.1. Contained-In Disposal Request

A 'Contained-In' determination will be requested from Ecology to authorize disposal of PCE-contaminated soil excavated at the Property. The 'Contained-In' determination is expected to authorize disposal of all PCE-contaminated soil excavated at the Property at a permitted Subtitle D solid waste landfill, rather than a Subtitle C hazardous waste facility. A 'Contained-In' determination is expected to be issued by Ecology for the cleanup because the highest concentrations of PCE detected in soil at the Property do not warrant management as a Dangerous Waste (Ecology communication, February 2013), and because one such determination has been issued previously by Ecology for investigative-derived wastes from the Property.

## 6.1.2. Monitoring Well Decommissioning

Monitoring wells located within the footprint of the planned Phase I construction excavation will be decommissioned by a Washington-licensed driller in accordance with Ecology requirements (WAC 173-160-460) before installation of shoring or soil excavation begins. The following monitoring wells are within the planned excavation footprint (Figure 13):

- Shallow monitoring wells URS-MW-1 through URS-MW-4, B3/MW-3, MW-19 and MW-20.
- Deep Monitoring Wells B1/MW-1, B2/MW-2, B4/MW-4 and URS-MW-8.

In addition, several wells located outside of, but close to, the Property boundary (MW-17, MW-18, URS-MW-5, URS-MW-6, and URS-MW-7), may need to be decommissioned to accommodate installation of soil nails or other shoring elements. The need for decommissioning these off-Property monitoring wells will be evaluated once design/construction details are available. Off-Property monitoring wells will be replaced if they are destroyed during construction. Monitoring well construction information and groundwater elevation information is presented in Table 2.

## 6.1.3. Building and Improvements Demolition

The buildings and improvements located on the Property and the parcel to the east will be demolished and removed before shoring installation and construction excavation begins. Environmental evaluations of the building materials and demolition procedures are expected to be within the normal range for such procedures and are not included in the scope of this document.

## **6.2. Cleanup Actions During Construction**

Cleanup actions to be implemented during construction include excavation and off-site disposal of soil containing CVOCs and petroleum hydrocarbons, construction of a contaminated perched groundwater capture system, and installation of a vapor barrier on the subsurface walls and bottom slab of the building.



#### 6.2.1. Soil Excavation and Disposal

Contaminated soil excavation will take place during construction of the Phase I development. Soil containing petroleum hydrocarbons and PCE will be excavated from the Property and disposed at a permitted facility as will be described in the EMH Plan. We estimate that approximately 26,000 tons of PCE-contaminated soil and 1,100 tons of PCS will be generated during excavation for the planned development on the Property based on chemical analytical results from previous environmental studies, interpretation of the lateral/vertical extent of the PCE plume and the cleanup action plan. These quantities should be considered preliminary estimates that are subject to significant change based on the results of supplemental soil characterization sampling that will be conducted during excavation, and changes in the construction plans for the Property, if any.

#### 6.2.1.1. General Soil Excavation Components

The following general soil excavation components will be implemented during construction:

- Implementation of erosion control and construction safety/security measures.
- Shoring to facilitate the planned Phase I construction excavation. Vertical shoring elements and soil nails are proposed to be installed in areas where PCE-contaminated soil and groundwater have been identified (Figure 16).
- Excavation of the upper 1 foot of soil/gravel from the gravel parking lot in the western parcel and disposal as PCS based on existing data and the high likelihood of petroleum contamination from many years of vehicle oil drips.
- Excavation of soil from PCS hot spot areas at depths shallower than 17 feet bgs (approximately Elevation 140) based on existing soil data. Segregation of PCS and clean soil, as discussed in Section 6.2.1.2.
- Soil sampling and analysis beginning at approximately 15 feet bgs (2 to 3 feet bgs in the southeast margin of the Property near MW-4) to refine the PCE-contaminated soil segregation approach as discussed in Section 6.2.1.3. Soil sampling during excavation will be guided by an approximately 20 foot by 20 foot sampling grid for each 5- to 6-foot vertical excavation 'lift' to maximum depths of approximately 70 feet bgs (the deepest PCE detections were 65 feet bgs). Dimensions of the grid that will guide excavation and sampling, and the vertical lift thickness, may be revised based on input from the Developer's contractors; final grid cell dimensions will be included in the EMH Plan.
- PCE has not been detected above depths of 17 feet bgs, except for a location in the southeast margin of the Property near URS-MW-4 where PCE was detected at a depth of approximately 12 feet bgs. Excavation of soil below 17 feet bgs within the Phase I redevelopment to maximum depths equal to elevation 84 feet (based on current project design), and segregation of PCE-contaminated soil and clean soil based on existing chemical data and supplemental chemical data that characterize the soil in the excavation grid cells.
- Temporary construction dewatering of the shallow perched zone may be performed below depths of about 20 feet bgs to reduce groundwater seepage from the excavation wall face and facilitate shoring installation and soil excavation. If temporary dewatering of perched water is needed, it is anticipated that vacuum wellpoints installed in the shoring wall will be used. Procedures for managing and discharging groundwater during construction that may be contaminated with PCE will be discussed in the EMH Plan.



- Transportation of excavated contaminated soil and disposal of the soil at one or more off-Property, permitted facilities. Soil management requirements for PCE-contaminated soil will be included in the 'Contained-In' determination letter from Ecology and will be discussed in the EMH Plan.
- Transportation of excavated clean soil (soil with no detected concentrations of petroleum or CVOCs at or above laboratory reporting limits) for disposal at off-Property soil receiving facilities to be agreed upon by SRO and the Developer. Reporting limits specified in Ecology Publication No. 10-09-057 ("Guidance for Remediation of Petroleum-Contaminated Sites") will be used for the petroleum analyses (gasoline-range 5 mg/kg; diesel-range 25 mg/kg; oil-range 100 mg/kg). Reporting limits of 0.02 mg/kg will be specified for PCE-TCE soil characterization analyses.
- Management and permitted discharge of stormwater and groundwater during excavation/construction activities.
- Collection/analysis of confirmation soil samples during excavation to document soil conditions at the lateral and vertical limits (sidewalls and base) of the excavation at the Property. Lateral confirmation samples will be collected at the limits of remedial excavations at depths where contamination was identified by previous environmental studies or identified during construction.

## 6.2.1.2. Shallow Petroleum-Contaminated Soil Excavation

Soil analytical results indicate that petroleum-contaminated soil will be encountered at concentrations greater than and less than MTCA cleanup levels at some locations on the Property at depths ranging from approximately ground surface to 20 feet bgs.

- Soil Exceeding MTCA Cleanup Levels. Soil with concentrations of petroleum hydrocarbons exceeding MTCA Method A cleanup levels has been detected in the central portion of the Property in four soil samples (Figure 8):
  - Shallow soil samples from borings SR0-3 (1 foot), SR0-13 (0.5 foot), and SR0-17 (1.8 feet) and
  - Boring SR0-7 (9 feet).
- Soil Less Than MTCA Cleanup Levels. Soil with concentrations of petroleum hydrocarbons less than MTCA cleanup levels was identified at several locations on the Property within or close to the footprint of the former service station. This soil is sometimes referred to as 'nuisance' soil because its disposal at a permitted facility is normally preferred even though contaminant levels are less than cleanup levels.

The upper 1 foot of soil/gravel will be excavated from the gravel parking lot in the western parcel at the Property and disposed as PCS based on existing data and the high likelihood of petroleum contamination in surface soil from many years of vehicle oil drips. A significant amount of soil that will be excavated from the top 15 feet of the Property does not appear to contain petroleum hydrocarbons or PCE and will be designated as clean based on the results of previous environmental studies.

Soil will be excavated from the PCS hot spot areas in the western parcel. The former service station operated on the western parcel and analytical results for soil samples collected from the Property indicate that PCS is limited to that area. Visual observations and field screening methods will be used during excavation to assist with soil characterization/segregation. Soil samples will be collected from the sidewalls and base of the hot spot excavations and analyzed for petroleum hydrocarbons (NWTPH-Gx and NWTPH-Dx)

and BETX to document soil conditions at the excavation limits. Additional information regarding confirmation sampling procedures and rationale will be presented in the EMH Plan.

Based on historic land use, it is possible that additional PCS hot spots will be identified during excavation in the upper 15 to 20 feet of the western parcel. Potential hot spot areas are often identified by petroleum odor, soil staining and/or field screening results. Characterization samples will be collected from previously unknown locations where field screening during excavation indicates the likely presence of contamination. After contaminated soil exceeding MTCA cleanup levels has been removed, confirmation samples will be collected directly beneath previously identified and previously unknown contaminated areas.

#### 6.2.1.3. PCE-Contaminated Soil Excavation

Based on existing data, excavation of PCE-contaminated soil is anticipated to start at approximately 10 feet bgs (elevation 144) in the vicinity of MW-4, and at 17 feet bgs (approximately elevation 140) in the remainder of the Property. Additional soil sampling will be conducted during construction in the upper 12 feet bgs in the vicinity of MW-4 because shallow PCE data does not exist in this area. As excavation for shoring installation proceeds in approximate 5- to 6-foot lifts, soil characterized as containing PCE will be segregated from soil characterized as clean. For the purposes of this cleanup, soil excavation cells that are characterized by samples that do not contain PCE at concentrations equal to or above the selected laboratory reporting limit (0.02 mg/kg) will be considered clean. The majority of the PCE-contaminated soil is anticipated in the northwest portion of the Property at depths of approximately 18 to 55 feet bgs (approximately elevations 100 to 137). The location of excavation grid cells that contain PCE-contaminated soil based on existing data, or are designated as containing PCE-contaminated soil based on adjacent grid cell data and interpreted plume extent, will be shown in the EMH Plan.

Soil samples for disposal characterization will be obtained using an approximately 20 foot by 20 foot grid before excavating each vertical lift, in accordance with sampling procedures to be presented in the EMH Plan. The target sampling depth will be two to three feet below the grid surface. The locations of soil disposal characterization samples will take into account existing chemical data and visual observations of soil conditions encountered during excavation. If existing soil analytical data are available within a grid cell, those data will be used to classify soil in that cell as clean or contaminated, and additional in-place soil characterization samples will not be collected. Grid cells that contain sample locations with both contaminated and clean chemical analytical results will be designated as contaminated for the purposes of soil segregation and disposal. Before excavating each vertical lift, the environmental consultant will mark grid cells where PCE-contaminated soil has been designated using methods such as stakes and survey tape and/or spray painting the ground surface. PCE-contaminated grid cells will be excavated first in each lift to avoid cross-contamination of clean soil. The contaminated soil will be trucked directly to a Subtitle D landfill or placed in steel containers that will be trucked to a local transfer station for transport by rail to a Subtitle D landfill.

In addition to excavated soil, drill cuttings generated below a depth of approximately 10 feet (southeast portion of Property) to 15 feet (remainder of Property) during installation of vertical shoring elements and soil nails in the PCE-contaminated area shown on Figure 16 will be designated as PCE-contaminated and require segregation, management, and permitted disposal at a Subtitle D landfill.

The remedial excavation will not extend beyond the limits of the construction excavation. Because PCE has migrated to the Property from an upgradient source property, PCE-contaminated soil and perched groundwater are expected to remain in place at some locations on other parcels and right-of-way



immediately adjacent to the subject Property. Though unlikely, it is possible that contaminated soil will remain at the vertical limits (bottom) of the excavation in limited areas of the Property. Confirmation sampling will be completed at the base and sidewalls of the remedial excavations to document post-cleanup soil conditions. As discussed in sections 6.2.1.1 and 6.2.1.2, lateral confirmation soil samples will be collected at depths where PCE-contaminated soil has been identified previously or during construction. Vertical confirmation samples will be collected directly beneath areas where PCE-contaminated soil identified prior to and during remedial excavation has been removed.

#### 6.2.1.4. PCE-Contaminated Water from Excavation

Water removed from the Property during construction that may contain PCE will be contained in on-site tanks for testing by the Contractor. It is anticipated that this water will be discharged directly to the sewer in accordance with a King County Discharge Authorization. If water samples collected from the storage tanks during construction exceed the county's 240  $\mu$ g/L PCE discharge limit, water treatment, with technologies such as granular activated carbon, will be required by the contractor prior to discharge to the sanitary sewer. Water that may contain PCE includes:

- Stormwater that accumulates in the excavation,
- Perched groundwater that seeps into the excavation,
- Perched groundwater pumped from temporary construction dewatering wellpoints/sumps, and
- Deep groundwater generated from sumps used for limited dewatering of elevator pit and core footing excavations.

#### 6.2.2. Perched Groundwater Capture System

A groundwater capture system will be constructed to collect PCE-contaminated perched groundwater that will flow toward the SRO Property boundary from the upgradient source property and adjacent contaminated areas to the west and south during and after construction. Estimated lateral extent of the proposed groundwater capture system is shown on Figure 16. The water capture system will be extended further to the east if soil characterization sampling during construction indicates the PCE plume extends further to the east than currently estimated. The capture system will collect contaminated water from the shallow perched water zone identified at depths of approximately 20 to 35 feet bgs at the Property. In addition, groundwater will be captured at depths of approximately 35 to 65 feet in portions of the Property where the presence of PCE-contaminated soil indicates that PCE-impacted groundwater seepage may be encountered during construction. These depths correspond to approximate elevations 140 to 98 (north wall), 140 to 98 (west wall) and 130 to 86 (south wall).

The groundwater capture system will be incorporated into the engineered wall drains that will be designed to relieve hydrostatic pressure on external building walls. The groundwater capture system will be designed to minimize downward migration of contaminated perched groundwater at the perimeter walls of the building at the Property. A key design objective is to capture the contaminated perched water that would otherwise drain down the walls to the footing drains at the bottom of the building. Design concepts include using horizontal tightline pipes to route captured water from several elevations along the wall drains to collection sumps. It is anticipated that water will be pumped from the collection sumps and discharged to the sanitary sewer. Design details for the contaminated groundwater capture system will be mutually agreed upon by the Developer and SRO and included in the project plans and specifications package.

Based on the relatively low permeability of the glacial till and silty outwash soil, long-term flow rates of perched groundwater to the capture system are anticipated to be 10 gallons per minute or less. The Developer's design team will estimate the flow/discharge rate of the capture system as part of drainage design for the planned building. The possible need to treat captured groundwater with technologies such as granular activated carbon prior to discharge in the sewer will depend on whether PCE concentrations in the captured water exceed King County's 240  $\mu$ g/L PCE discharge limit (to be determined during construction).

The groundwater capture system is expected to operate and discharge water to the sanitary sewer for the life of the building. Post-construction operation, maintenance, and monitoring requirements for the groundwater capture system are summarized in Section 8.3.

## 6.2.3. Vapor Barrier

An interim cleanup action consisting of in-situ air sparging and soil vapor extraction treatment of PCE-contaminated soil and perched groundwater is currently taking place at the source property (Thinker Toys). We understand that a cleanup action involving excavation/removal of PCE-contaminated soil is planned during re-development at the source property by other parties. However, PCE-contaminated soil and groundwater with high levels of PCE are expected to remain in place beneath the rights-of-way of NE 8<sup>th</sup> Street and 106<sup>th</sup> Avenue NE for many years after the source property cleanup is completed. PCE concentrations in groundwater samples from several wells located on and immediately west of the SRO Property exceeded Ecology's 24  $\mu$ g/L screening level for PCE levels in groundwater that represent a significant potential for vapor intrusion. A vapor barrier will be installed on all of the subsurface perimeter walls and the concrete slab at the base of the Phase I parking structure to minimize potential vapor intrusion into the underground parking structure and building.

The Phase I building design is important relative to vapor migration considerations because of the interconnectivity and preferential vapor pathways that will be created as part of the construction (for example interconnected subslab drainage piping and sand bedding). The detailed vapor barrier design/specifications will be mutually agreed upon by the Developer and SRO and will take into account this interconnectivity and preferential vapor pathways.

The vapor barrier will be designed and constructed to account for the following:

- Installation directly above the layer onto which the subslab is poured and behind subsurface perimeter walls, including portions of elevator shafts that extend below the subslab.
- Air-tight seal (fully sealed seams, sealing where utilities penetrate the concrete walls/slab etc.).
- Compatibility with CVOCs at concentrations exceeding the known maximum concentrations identified near the Property (for example, an asphalt emulsion type geomembrane vapor barrier, such as Land Science Technology's Geo-Seal®), which can withstand degradation caused by CVOCs.
- Compatibility with the groundwater capture system/wall drain design.
- Possible preferential pathways for vapor that may be created by nearby subsurface utilities.

The Developer's Contractor will be responsible for coordinating/managing the installation of the vapor barrier. A specialty subcontractor will install the vapor barrier in accordance with the design and



project/barrier manufacturer's specifications. Vapor barrier design details and specifications will be prepared once designs for the Phase I building foundation and other subgrade features are completed.

## **6.3. Post-Construction Actions**

Operation, maintenance, and monitoring of engineered controls, groundwater monitoring, and institutional controls following construction are described in the following sections.

## 6.3.1. Post-Construction Groundwater Monitoring

As part of the environmental covenant, long-term groundwater monitoring will be performed near and within the Property boundaries after construction to evaluate groundwater conditions in both the shallow, perched zone and the deeper Advance Outwash aquifer. It is anticipated that several off-Property shallow existing wells may be used to evaluate post-construction perched groundwater conditions near the Property perimeter. Additional monitoring wells will be installed to supplement existing monitoring wells. Because the subsurface parking garage will extend lot-line to lot-line, post-cleanup groundwater monitoring wells for sampling shallow, perched groundwater will be installed several feet outside the perimeter of the Property. Post-cleanup monitoring wells for sampling the deep groundwater in the Advance Outwash aquifer will be installed beneath the new building during construction so that deep water samples represent on-Property water. New monitoring wells will be installed in accordance with Ecology requirements (WAC 173-160). Groundwater samples will be submitted for chemical analysis of PCE and its degradation products, BETX, MTBE, 1,2-DCA, chlorobenzene and petroleum (gasoline-range petroleum hydrocarbons [GRPH], diesel-range petroleum hydrocarbons [DRPH] and oil-range petroleum hydrocarbons [ORPH]). Monitoring well installation and sampling will be conducted in accordance with a written groundwater monitoring plan.

## 6.3.2. Cap Monitoring and Maintenance

Cap monitoring and maintenance will be implemented following Phase I redevelopment. For the purpose of this cleanup action, the walls of the parking garage are considered a cap/barrier that isolates contamination remaining in place adjacent to the Property (and beneath the base slab if any contaminated soil remains at the bottom of the excavation). Cap monitoring and maintenance will be handled by the Developer as part of the general housekeeping and maintenance of the Property. The integrity of the cap and associated vapor barrier will need to be maintained consistent with standard building maintenance practices. Monitoring and maintenance activities will be described in detail in a "Post-Construction Environmental Management Plan" for the Property.

## 6.3.3. Groundwater Capture System Operation, Maintenance and Monitoring

Post-construction operation, maintenance, and monitoring will be required for the groundwater capture system. The following activities will be performed:

- Sampling of groundwater collected by the capture system for analysis of CVOCs to evaluate compliance with sewer discharge requirements.
- Operation and maintenance of groundwater treatment system components (if treatment of water from the capture system is required prior to sewer discharge).
- Sampling of groundwater from subslab drains and elevator sumps constructed at the base of the parking garage for analysis of CVOCs.



Details regarding these activities will be presented in the Post-Construction Environmental Management Plan.

#### 6.3.4. Institutional Controls

Institutional controls will be considered for part of the cleanup action and will likely include:

- Cap-vapor barrier maintenance (i.e., maintaining the building walls and foundation);
- Land use restrictions prohibiting the use of groundwater beneath the Property for drinking water;
- Description of areas at the limits of the excavation where soil exceeding cleanup levels remains; and
- Post-cleanup soil handling protocols that building/facility management staff can use to advise future utility/excavation contractors on the presence of residual contamination.

An environmental covenant for the Property will document the institutional controls, provide financial assurance for operation, maintenance, and monitoring of engineered controls, and address Ecology notification procedures.

## 7.0 SCHEDULE

Construction for the planned Phase I redevelopment and concurrent cleanup is anticipated to begin within 1 to 5 years. Excavation activities for the Phase I redevelopment are anticipated to be completed within 6 months of the start date. Installation of the contaminated groundwater capture system and chemical vapor barrier will take place during building construction and are anticipated to be completed within two years of the construction start date. An environmental covenant will be prepared after the Phase I redevelopment is completed. Quarterly compliance groundwater monitoring will be performed for one year once construction of the building is completed. The frequency of long-term groundwater monitoring will be re-evaluated based on the results of the first four quarters of data.

## **8.0 DOCUMENTATION**

Cleanup activities will be documented in field reports and a MTCA-compliant cleanup action report. A Post-Construction Environmental Management Plan and compliance groundwater monitoring reports also will be prepared.

## 8.1. Field Reports

Daily field reports will be prepared to document cleanup activities. Field reports will include the following:

- A description of soil characterization sampling activities (sample names, locations etc.), chemical analytical results, grid cell soil conditions, and final designation of each cell as contaminated or clean.
- A description of cleanup activities including estimated quantities (cubic yards/tons) and locations (grid cells) where contaminated soil was removed from the Property.
- Team members and their responsibilities.
- Time of arrival/entry on Site and time of departure.

- Other personnel present at the Site.
- Summary of pertinent meetings or discussions with contractor personnel or regulatory agency staff.
- Photographs documenting cleanup actions.
- Deviations from sampling plans, Site safety plans, etc.
- Levels of safety protection (PPE).
- Calibration readings for vapor field screening equipment used and equipment model.

## 8.2. Cleanup Action Report

At the completion of the Phase I redevelopment, a MTCA-compliant cleanup action report will be prepared per WAC 173-340-515(4)(a)-(b) and submitted to Ecology to document removal of contaminated soil and groundwater and installation of engineered controls. The report will include all chemical data generated during the cleanup action and those data will be submitted to Ecology's Environmental Information Management System (EIM) as required to obtain a NFA opinion from Ecology.

## 8.3. Post-Construction Environmental Management Plan

A written "Post-Construction Environmental Management Plan" (Plan) will be prepared for the Property and submitted to Ecology. The Plan will identify areas, if any, where previous study results and construction observations indicate that contaminated soil remains in-place. The Plan also will include operation, maintenance, and monitoring procedures for the engineered controls. Guidance on proper handling and disposal of potentially contaminated soil and groundwater that may be encountered during future Property maintenance or excavation for utilities will be provided.

## **8.4. Compliance Monitoring Reports**

Compliance monitoring reports summarizing operation and maintenance activities and water quality test results for the contaminated groundwater capture system will be prepared and submitted to Ecology. Groundwater monitoring reports describing post-construction water quality testing results for selected wells on/adjacent to the Property also will be prepared. These reports will be completed on a quarterly basis in the first year after cleanup/construction is completed; the frequency may be revised based on the results of the first four quarters of testing. Compliance monitoring data will be submitted to Ecology's Environmental Information Management System (EIM).

## 9.0 LIMITATIONS

We have prepared this Cleanup Action Plan for use by Sterling Realty Organization as part of their evaluation of and planning for environmental conditions at the subject Property.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this Plan was prepared. No warranty or other conditions, express or implied, should be understood. This Plan was prepared based on previous investigations and data collected by others. GeoEngineers is not responsible for any data that were inaccurately reported by others and reproduced here.



Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Please refer to Appendix A titled "Report Limitations and Guidelines for Use" for important additional information pertaining to the use of this report.

## **10.0 REFERENCES**

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# Table 1

# **Project Roles and Responsibilities**

## Sterling Realty Organization Property at 10605 and 10619 NE 8<sup>th</sup> Street Bellevue, Washington

Organization	Roles/Responsibilities
Sterling Realty Organization	Property owner. May be the Developer of Bellevue Corner Property and the adjacent parcel to the east (Phase I Re-Development).
GeoEngineers, Inc.	Environmental consultant for Sterling Realty Organization (SRO). Responsible for preparing Remedial Investigation/Feasibility Study and Cleanup Action Plan for Bellevue Corner Property. On behalf of SRO, will observe implementation of Cleanup Action Plan.
Developer (To be Determined)	SRO will enter into an agreement with a Developer to construct the project if SRO decides not to act as the Developer.

## Monitoring Well Groundwater Elevation Data, 2008 - 2011 Sterling Realty Organization Property at 10605 and 10619 NE 8<sup>th</sup> Street Bellevue, Washington

	Well.	Top of						Gr	oundwater D	epth (feet, b	gs)							Ground	lwater Eleva	tion (feet, NA	VD 88)			
Monitoring Well	Well Screen Interval (feet, bgs)	Casing Elevation (feet above datum)	Date Installed	Well Screen Elevation (feet above datum)	6/26/08	7/7/08	9/10/08	11/21/08	3/16/10	3/17/10	5/3/10	8/23/10	10/19/11	10/21/11	6/26/08	7/7/08	9/10/08	11/21/08	3/16/10	3/17/10	5/3/10	8/23/10	10/19/11	10/21/11
URS-MW-1	20-30	157.87	8/25/2008	137.87 - 127.87	NI	NI	26.41	27.21	22.50	22.66	22.49	22.95	NM	24.53	NM	NM	131.46	130.66	135.37	135.21	135.38	134.92	NM	133.34
URS-MW-2	20-30	160.22	8/27/2008	140.22 - 130.22	NI	NI	Dry	Dry	24.64	25.05	24.45	25.89	NM	28.61	NM	NM	Dry	Dry	135.58	135.17	135.77	134.33	NM	131.61
URS-MW-3	20-30	153.98	8/26/2008	133.98 - 123.98	NI	NI	27.36	28.75	22.28	22.54	22.40	23.24	NM	25.52	NM	NM	126.62	125.23	131.70	131.44	131.58	NM	NM	128.46
URS-MW-4	20-30	152.99	8/26/2008	132.99 - 122.99	NI	NI	Dry	Dry	NM	29.87	29.85	30.08	NM	29.89	NM	NM	Dry	Dry	NM	123.12	123.14	122.91	NM	123.10
URS-MW-5 <sup>3</sup>	25-35	152.13	11/18/2008	117.13 - 127.13	NI	NI	NI	Dry	Dry	Dry	NM	Dry	NM	34.66	NI	NI	NI	Dry	Dry	Dry	NM	Dry	NM	117.47
URS-MW-6 <sup>3</sup>	34-44	152.67	11/18/2008	108.67 - 118.67	NI	NI	NI	Dry	Dry	Dry	NM	Dry	42.58	42.41	NI	NI	NI	Dry	Dry	Dry	NM	Dry	110.09	110.26
URS-MW-7 <sup>3</sup>	26-36	152.91	11/18/2008	116.91 - 126.91	NI	NI	NI	Dry	Dry	Dry	NM	Dry	34.78	35.27	NI	NI	NI	Dry	Dry	Dry	NM	Dry	118.13	117.64
URS-MW-8	70-80	152.35	10/12/2008	82.35 - 72.35	NI	NI	NI	NM	NM	NM	NM	NM	68.62	68.40	NM	NM	NM	NM	NM	NM	NM	NM	83.73	83.95
B1/MW-1	70-90	169.63	6/22/2008	99.63 - 79.63	NM	NM	NM	NM	90.77	92.81	NM	NM	NM	85.49	NM	NM	NM	NM	78.86	76.82	NM	NM	NM	84.14
B2/MW-2	70-90	159.02	6/23/2008	89.02 - 69.02	74.30	74.62	NM	74.95	75.90	75.97	75.69	75.50	NM	73.15	84.72	84.40	NM	84.07	83.12	83.05	83.33	83.52	NM	85.87
B3/MW-3	20-30	158.89	6/24/2008	138.89 - 128.89	23.89	23.93	24.68	28.93	23.45	23.40	23.43	23.70	NM	23.79	135	134.96	134.21	129.96	135.44	135.49	135.46	135.19	NM	135.10
B4/MW-4	70-90	157.06	6/24/2008	87.06-67.06	82.31	82.29	NM	79.30	76.58	76.58	76.60	76.61	NM	75.12	123.14	122.91	NM	77.76	80.48	80.48	80.46	80.45	NM	81.94
MW-17 <sup>3</sup>	20-35	152.93	8/9/2010	133.00-118.00	NI	NI	NI	NI	NI	NI	NI	29.30	NM	29.30	NI	NI	NI	NI	NI	NI	NI	123.63	NM	123.63
MW-18 <sup>3</sup>	12.5-27.5	154.49	8/9/2010	142.20-127.20	NI	NI	NI	NI	NI	NI	NI	20.71	NM	20.98	NI	NI	NI	NI	NI	NI	NI	133.78	NM	133.51
MW-19	10-30	156.31	8/5/2010	146.31-126.31	NI	NI	NI	NI	NI	NI	NI	27.21	NM	29.18	NM	NM	NM	NM	NM	NM	NM	129.10	NM	127.13
MW-20	15-30	152.63	8/6/2010	137.63 - 122.63	NI	NI	NI	NI	NI	NI	NI	21.93	NM	23.40	NM	NM	NM	NM	NM	NM	NM	130.70	NM	129.23
Data Source	Farallon <sup>1</sup>	Farallon <sup>1</sup>		Farallon <sup>1</sup>	Farallon <sup>1</sup>	Farallon <sup>1</sup>	URS <sup>2</sup>	URS <sup>2</sup>	URS <sup>2</sup>	URS <sup>2</sup>	Farallon <sup>1</sup>	Farallon <sup>1</sup>	URS <sup>2</sup>	URS <sup>2</sup>	Farallon <sup>1</sup>	Farallon <sup>1</sup>	URS <sup>2</sup>	URS <sup>2</sup>	URS <sup>2</sup>	URS <sup>2</sup>	Farallon <sup>1</sup>	Farallon <sup>1</sup>	URS <sup>2</sup>	URS <sup>2</sup>

### Notes:

<sup>1</sup>As reported (SES, 2011)

<sup>2</sup>As reported (URS, 2011)

<sup>3</sup>Off-Property location

NM = not measured

NI = Monitoring well not yet installed

feet bgs = feet below ground surface

feet NAVD 88 = feet above datum

Vertical datum based on City of Bellevue - NAVD 88

Monitoring wells labeled "URS" were completed by URS Corporation.

 $\label{eq:monoscience} Monitoring wells {\tt B1/MW-1, B2/MW-2, B3/MW-3, and B4/MW-4} were completed by {\tt Terra Associates.}$ 

Monitoring wells MW-17 through MW-20 were completed by Farallon.

May 3, 2010, groundwater elevations in perched zone are shown on Figure 5.



### 1990 Soil and Groundwater Data, Preliminary Environmental Site Assessment, Unocal Station Number 4511

Sterling Realty Organization Property at 10605 and 10619 NE 8<sup>th</sup> Street

Bellevue, Washington

Soil Quality D	ata <sup>1</sup>								
Boring Number	Sample Number	Depth Collected	Benzene <sup>2</sup>	Toluene <sup>2</sup>	Ethyl- Benzene <sup>2</sup>	Total Xylenes <sup>2</sup>	TPH <sup>3</sup>	Purgeable Halogenated Volatile Organics <sup>4</sup>	Sample Jar Headspace Organic Vapor Concentrations <sup>5</sup>
		(ft bgs)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ppm)
MW-1	MW-1, S-2	7.5	< 0.050	< 0.050	< 0.050	< 0.050	7.5	NA	25.2
MW-2	MW-2, S-1	2.5	< 0.050	< 0.050	< 0.050	0.090	810	NA	28
MW-2	MW-2, S-2	7.5	< 0.050	< 0.050	< 0.050	0.240	203	NA	20
MW-3	MW-3, S-1	2.5	< 0.050	< 0.050	< 0.050	0.900	87.9	NA	22
MW-4	MW-4, S-2	7.5	< 0.050	< 0.050	< 0.050	< 0.050	65.3	NA	169
MW-5	MW-5, S-2	7.5	< 0.050	< 0.050	< 0.050	< 0.050	95.0	< 0.05	255
MTC	A Method A Cl	eaunup Level	0.03	7	6	9	2,000	See Table 5	

Water Quality D	Data <sup>6</sup>						
Boring Well/ Number	Sample Number	Benzene <sup>7</sup>	Toluene <sup>7</sup>	Ethyl- Benzene <sup>7</sup>	Total Xylenes <sup>7</sup>	TPH <sup>3</sup>	Well Headspace Organic Vapor Concentrations <sup>5</sup>
Number		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(ppm)
MW-1	U4511-79-1	< 1	< 1	< 1	< 1	< 1,000	NA <sup>8</sup>
MW-2	U4511-79-2	< 1	< 1	< 1	< 1	< 1,000	
MW-3	U4511-79-3	3	< 1	15	14	< 1,000	
MW-4	U4511-79-4	< 1	< 1	< 1	< 1	< 1,000	
MW-5	Not sampled		-				Î
MTCA	Method A Cleaunup Level	5	1,000	700	1,000	500	

Notes:

<sup>1</sup>Soil samples collected July 12, 13, and 17, 1990 by Sweet-Edwards/EMCON, Inc. Analyses by Sound Analytical, Tacoma, Washington.

<sup>2</sup>Analysis by EPA Method 8020.

<sup>3</sup>TPH = Total Petroleum Hydrocarbons, EPA Method 418.1.

<sup>4</sup>Analysis by EPA Method 8010.

<sup>5</sup>Volatile organic vapor concentrations measured with a photoionization detector (Photovac MP-100 microtip) calibrated to 100 ppm isobutylene.

Background reading = < 1 ppm.

<sup>6</sup>Water samples collected July 31, 1990 by Sweet-Edwards/EMCON, Inc. Analyses by Sound Analytical, Tacoma, Washington.

<sup>7</sup>Analysis by EPA Method 8020.

<sup>8</sup>Due to high water vapor (moisture) concentrations in the wellheads, PID measurements were not obtained.

< = Analyte Not Detected at or above the Method Reporting Limit

ft bgs = feet below the ground surface

mg/kg = milligrams per kilogram

MTCA = Model Toxics Cleanup Act

NA = Not Analyzed

ppm = parts per million

 $\mu$ g/L = micrograms per liter

**Bolded** value indicates analyte detected at the listed concentration.



# 1991-1992 Soil Analytical Data, Underground Storage Tank Closure Assessment, Unocal Station Number 4511

Sterling Realty Organization Property at 10605 and 10619 NE 8<sup>th</sup> Street

Bellevue, Washington

Sample ID	Date	Benzene <sup>1</sup>	Toluene <sup>1</sup>	Ethyl- benzene <sup>1</sup>	Total Xylenes <sup>1</sup>	TPH as Gasoline <sup>2</sup>	TPH as Diesel <sup>3</sup>	TPH as Other <sup>3</sup>	TPH <sup>4</sup>	Total Lead <sup>5</sup>	Total PCBs <sup>7</sup>	Benzo(a) pyrene <sup>8</sup>	PCE	TCE	cis-1,2 DCE	trans-1,2 DCE	1,1-DCE	1,2-DCA	Vinyl Chloride	Acetone	Methylene Chloride	Sampling Location
Campio is	Collected			Delizene	хутепез	dasonne	Diesei	ounci		LCau	1003	-					(VOCs)	9				-
0714144	0/10/1001					. =					1	(mg/kg)				<b></b>				1		
GTW-N1 Comp.	6/19/1991	< 0.05	< 0.1	< 0.1	< 0.1	< 5				< 3												N wall gas tank excavation
GTW-S1 Comp. GTW-E1 Comp.	6/19/1991	< 0.05 < 0.05	< 0.1 <b>0.3</b>	< 0.1	0.3 4.7	< 5 <b>101</b>				< 3												S wall gas tank excavation
GTW-E1 Comp.	6/19/1991 6/19/1991	< 0.05	< 0.1	<b>0.5</b> < 0.1	<b>4.</b> <i>1</i>	< 5				< 3 < 3												E wall gas tank excavation W wall gas tank excavation
GTF-TA	6/19/1991	< 0.05	< 0.1	< 0.1	< 0.1	< 5				< 3												below east tank fill
GTF-TB	6/19/1991	< 0.05	0.1	< 0.1	0.1	< 5				< 3		-										below west tank fill
ET-1	6/19/1991	< 0.05	< 0.1	< 0.1	< 0.1	< 5				< 3												E product line trench
ST-1	6/19/1991	< 0.05	< 0.1	< 0.1	< 0.1	< 5				< 3												S product line trench
NPI-1	6/20/1991	< 0.05	< 0.1	< 0.1	< 0.1	< 5				< 3												below N pump island
NUHOW-1	6/20/1991			-		< 10	< 10	17,400	35,400											-		N wall HO/WO tank excavation
EUHOW-1	6/20/1991	ND <sup>11</sup>	ND <sup>11</sup>	ND <sup>11</sup>	ND <sup>11</sup>	< 10	< 10	< 40	26													E wall HO/WO tank excavation
W/SUHOW-1	6/20/1991				-	< 10	< 10	< 40	90													Comp. W,S walls HO/WO exc.
U0F-1 <sup>10</sup>	6/20/1991	< 0.05	< 0.1	< 0.1	< 0.1	< 5	< 10	< 40	< 25		< 1											below WO tank fill
										-										-		
UOF-2 <sup>10</sup>	6/20/1991	< 0.05	< 0.1	< 0.1	< 0.1	< 5	< 10	< 40	90		< 1											below WO tank fill - duplicate
HOF-1 <sup>10</sup>	6/20/1991	ND <sup>11</sup>	ND <sup>11</sup>	ND <sup>11</sup>	ND <sup>11</sup>	< 10	< 10	< 40	< 25													below HO tank fill
DW-1 <sup>10</sup>	6/20/1991	< 0.05	< 0.05	0.12	2.08	1,940	< 10	< 40	1,260		< 1		< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05	< 0.5	< 1	< 0.5	W wall dry well excavation
DW-2 <sup>10</sup>	6/20/1991	< 0.05	< 0.05	< 0.05	1.45	2,050	< 10	< 40	1,690		< 1		< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05	< 0.5	< 1	< 0.5	base of dry well excavation
GTW-E2A	6/26/1991	< 0.05	< 0.1	< 0.1	< 0.1	< 5			< 25													N end of E wall g.t. excavation
GTW-E2B	6/26/1991	< 0.05	< 0.1	< 0.1	< 0.1	< 5			< 25													S end of E wall g.t. excavation
TP-1A	6/26/1991	<0.005	<0.005	<0.005	0.0072	< 10	< 10	< 40	< 25				< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.082	0.022	test pit S of dry well excav.
TP-1B	6/26/1991	<0.005	<0.005	<0.005	<0.005	< 10	< 10	< 40	< 25				< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.058	0.023	test pit S of dry well excav.
TP-2A	6/26/1991	<0.005	<0.005	<0.005	<0.005	< 10	< 10	< 40	< 25				< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.061	0.019	test pit SW of dry well excav.
TP-3A	6/26/1991	< 0.05	< 0.1	< 0.1	0.1	17			< 25										_	-		near SW corner of building
TP-3B	6/26/1991	< 0.05	< 0.1	< 0.1	< 0.1	< 5			32										-	-		near SW corner of building
TP-4A	6/26/1991	< 0.05	0.3	6.3	30.7	740			363											-		W end of former tank complex
TP-5A	6/26/1991	< 0.05	< 0.1	< 0.1	0.3	< 5			< 25													N of NW corner of building
TP-5B	6/26/1991	< 0.05	< 0.1	< 0.1	< 0.1	< 5			< 25													N of NW corner of building
TP-6A	6/26/1991	< 0.05	< 0.1	0.3	3.0	25			86										-			between N pump islands
TP-6B	6/26/1991	< 0.05	< 0.1	< 0.1	< 0.1	< 5			74											-		between N pump islands
U/D-SS-1 <sup>10</sup>	6/26/1991	< 0.014	< 0.014	< 0.014	0.029	77	< 10	154	431		< 1		< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.136	0.055	stockpile sample
SS-1C	6/27/1991	0.20	7.8	5.2	55.4	996			616	6												stockpile sample
SS-2C	6/27/1991	< 0.05	0.4	0.3	10	174			307	12												stockpile sample
STOCKPILE #1	8/8/1991	< 0.05	< 0.05	< 0.05	0.06	< 1				7									-	-		stockpile sample
STOCKPILE #2	8/8/1991	0.10	0.63	2.16	18.7	406				5									-	-		stockpile sample
STOCKPILE #3	8/8/1991	< 0.05	< 0.05	< 0.05	0.20	5				5									-			stockpile sample
STOCKPILE #4	8/8/1991	5.08	110	20.2	239	3,260				6												stockpile sample
STOCKPILE #5	8/8/1991	< 0.05	< 0.05	0.16	0.61	130				7												stockpile sample
STOCKPILE #6	8/8/1991	0.24	4.07	4.50	33.1	436	-			8										-		stockpile sample
STOCKPILE #7	8/8/1991	< 0.05	2.35	3.56	35.9	1,350	-			8										-		stockpile sample
STOCKPILE #8	8/8/1991	< 0.05	< 0.05	< 0.05	0.06	23	-			5									-	-	-	stockpile sample
HYD-1	8/16/1991	< 0.005	< 0.005	< 0.005	< 0.005	< 10	< 10	< 40	< 25				< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	base of hoist #1 (alignment)
HYD-2	8/16/1991	< 0.5	< 0.5 < 0.005	<b>0.8</b> < 0.005	<b>9.0</b> < 0.005	<b>394</b>	< 10 < 10	<b>261</b> < 40	<b>495</b> < 25				< 0.5	< 0.5 < 0.005	< 0.5	< 0.5	< 5	< 0.5	< 5	< 10	< 5	sidewall of hoist excavation
HYD-3A	8/19/1991	< 0.005				< 10		< 40 < 40					< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	below E hoist (alignment)
HYD-3B	8/19/1991	< 0.005	< 0.005	< 0.005	< 0.005	< 10 <b>162</b>	< 10		< 25				< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	<b>0.014</b>	below E hoist (alignment)
HYD-4	8/19/1991	1.44	<b>18.8</b>	5.21	23.8		< 10	26,700	61,200				< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05	< 0.5	< 1	< 0.5	below middle hoist
HYD-4B	8/19/1991	< 0.5	< 0.5	1.0	8.6	899 6.670	< 10	326	1,450				< 0.5	< 0.5	< 0.5	< 0.5	< 5	< 0.5	< 5	< 10	< 5	below middle hoist
HYD-6	8/19/1991	< 0.5	<b>4.9</b>	4.4	34	6,670	< 10	1,030	6,460 277				< 0.5	< 0.5	< 0.5	< 0.5	< 5	< 0.5	< 5	< 10	< 5	below west hoist
HYD-6B	8/19/1991	< 0.05	< 0.05	0.28	2.76	115 20 (A)	< 10	238	377				< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05	< 0.5	< 1	< 0.5	below west hoist
MTCA Cleanup L	eveis	0.03 (A)	7 (A)	6 (A)	9 (A)	30 (A)	2,000 (A)	∠,∪∪∪ (A)	2,000 (A)	25U (A)	1.U (A)	0.1 (A)	0.05 (A)	0.03 (A)	0.076 (B)	0.48 (B)	0.037 (B)	0.0023 (B)	0.0012 (B)	29 (B)	0.02 (A)	-



Sample ID	Date	Benzene <sup>1</sup>	Toluene <sup>1</sup>	Ethyl- benzene <sup>1</sup>	Total Xylenes <sup>1</sup>	TPH as Gasoline <sup>2</sup>	TPH as Diesel <sup>3</sup>	TPH as Other <sup>3</sup>	TPH <sup>4</sup>	Total Lead <sup>5</sup>	Total PCBs <sup>7</sup>	Benzo(a) pyrene <sup>8</sup>	PCE	TCE	cis-1,2 DCE	trans-1,2 DCE	1,1-DCE	1,2-DCA	Vinyl Chloride	Acetone	Methylene Chloride	Sampling Location
Sumple ib	Collected			Delizene	Aylelles	dasonne	Diesei	Utilei		Leau	FUD5	(mg/kg)					(VOCs)	)				
MW-11-12.5	8/27/1991	< 0.05	< 0.05	2.03	6.31	216						(III6/ KG) 										sample from boring MW-11
NPUMPE <sup>6</sup>	2/17/1992	< 0.05	< 0.05	< 0.05	0.06	1.0	-															E end of N pump island
NPUMPW <sup>6</sup>	2/17/1992	< 0.05	< 0.05	< 0.05	< 0.05	< 1																W end of N pump island
0H20	2/17/1992			-	-	< 10	< 10	< 40														below oil/water separator
SS-2	2/17/1992	< 0.05	0.43	0.53	4.84	202																stockpile sample
SS-3	2/17/1992	0.19	2.63	3.91	20.6	541																stockpile sample
SS-4	2/17/1992	0.26	2.90	3.71	20.9	481																stockpile sample
SS-5	2/17/1992	1.13	11.0	7.90	26.0	900																stockpile sample
WPUMPN <sup>6</sup>	2/18/1992	< 0.05	< 0.05	< 0.05	0.23	3		-														N end of W pump island
WPUMPS <sup>6</sup>	2/18/1992	< 0.05	< 0.05	< 0.05	< 0.05	< 1																S end of W pump island
WPUMPE <sup>6</sup>	2/24/1992	< 0.05	< 0.05	< 0.05	< 0.05	< 1		-														base of W pump island excav.
WPUMPEW <sup>6</sup>	2/24/1992	< 0.05	< 0.05	< 0.05	< 0.05	< 1																E wall of W pump island excav.
BHOISE <sup>6</sup>	2/28/1992					ND <sup>11</sup>	ND <sup>11</sup>	ND <sup>11</sup>														base of hoist excavation
SHOISW <sup>6</sup>	2/28/1992					ND <sup>11</sup>	ND <sup>11</sup>	ND <sup>11</sup>														S wall of hoist excavation
WHOISB <sup>6</sup>	3/2/1992					ND <sup>11</sup>	ND <sup>11</sup>	ND <sup>11</sup>														W wall of hoist excavation
SPILE1	3/2/1992					ND <sup>11</sup>	ND <sup>11</sup>	120			< 1	0.04										stockpile sample
SPILE2	3/2/1992					ND <sup>11</sup>	ND <sup>11</sup>	40			< 1	< 0.01		-								stockpile sample
SPILE3	3/2/1992					ND <sup>11</sup>	ND <sup>11</sup>	60			< 1	< 0.01										stockpile sample
BASE-0421-01 <sup>6</sup>	4/21/1992						< 25	< 100														base of dry well excavation
WWALL13-0421-02 <sup>6</sup>	4/21/1992						< 25	< 100														W wall of dry well excavation
WWALL17-0421-03 <sup>6</sup>	4/21/1992						< 25	< 100														W wall of dry well excavation
NWALL-0421-04 <sup>6</sup>	4/21/1992						< 25	< 100														N wall of dry well excavation
MTCA Cleanup Lo		0.03 (A)	7 (A)	6 (A)	9 (A)	30 (A)			2,000 (A)	250 (A)	1.0 (A)	0.1 (A)	0.05 (A)	0.03 (A)	0.076 (B)	0.48 (B)	0.037 (B)	0.0023 (B)	0.0012 (B)	29 (B)	0.02 (A)	-

### Notes:

<sup>1</sup>Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 5030/8020 or EPA Method 8240 (low level)

<sup>2</sup>Volatile fuel hydrocarbons (TPH as gasoline) by EPA Method 5030/8015 Modified

<sup>3</sup>Semi volatile fuel hydrocarbons (TPH as diesel, other) by EPA Method 3550/8015 Modified

<sup>4</sup>Total Petroleum Hydrocarbons (TPH) by EPA Method 418.1

<sup>5</sup>Total lead by EPA Method 7420

<sup>6</sup>Confirmation soil sample collected following soil excavation

<sup>7</sup>Total Polychlorinated Biphenyls (PCBs) by EPA Methods 3540/8080

<sup>8</sup>Polynuclear Aromatic Hydrocarbons (PAHs) by EPA Methods 3540/8310. Additional low level detections of several PAH analytes for samples SPILE 1 and SPILE 3. See lab reports for additional information.

<sup>9</sup>Volatile Organic Compounds (VOCs) by EPA Method 8240. Additional low level detections of several VOC analytes for sample HYD-4. See lab reports for additional information.

<sup>10</sup>Sample analyzed for Toxicity Characteristic Leaching Procedure (TCLP) by EPA Method 1311

<sup>11</sup>Based on our review of the 1992 laboratory data report obtained from Ecology on-line document repository for the Site, data sheets were not available for samples shown as Non Detect (ND) in this table. ND results are from the original data table in EMCON's 1992 report. - = analyte not tested

< = Analyte not detected at or above method reporting limit</p>

mg/kg = milligrams per kilogram

MTCA = Model Toxics Control Act (WAC 173-340).

(A) = MTCA Method A Cleanup Level

(B) = MTCA Method B cleanup for the protection of groundwater. See Table 8 for information on basis for cleanup levels.

DCA = dichloroethane

DCE = dichloroethene

PCE = perchloroethene (tetrachloroethene)

TCE = trichloroethene

Bolded value indicates analyte detected at the listed concentration.

Shaded value represents concentration that exceeded the MTCA cleanup level.



## Chemical Analytical Data for Soil Samples

Sterling Realty Organization Property at 10605 and 10619 NE  $\mathbf{8}^{\text{th}}$  Street

Bellevue, Washington

					VOCs (n	ng/kg) <sup>1</sup>	Gasoline-range Petroleum	Diesel-range Petroleum	Oil-range Petroleum	Exca	vation
	Sample		Depth	Elevation	PCE	TCE	Hydrocarbons	Hydrocarbons	Hydrocarbons	Lift	Grid Cell
Sample ID oil samples collected	Collected By	Sample Date	(feet bgs)	(feet NAVD 88)	PCE	ICE	(mg/kg) <sup>2</sup>	(mg/kg) <sup>3</sup>	(mg/kg) <sup>3</sup>	LITT	Ce
	111 2000 (0K3, 20	3/11/2000	6	148			< 5.6	< 28	< 56	3	H
URSSB-OP1		3/11/2000	18	136	< 0.056	< 0.056	< 5.6	< 28	< 56	5	H4
URSSB-0P2		3/11/2000	12	142	< 0.054	< 0.054	< 5.4	< 27	< 56	4	He
		3/11/2000	6	148			< 5.9	< 29	< 59	3	GG
URSSB-0P3		3/11/2000	18	136			< 5.6	< 28	< 56	5	GG
URSSB-0P4	URS	3/11/2000	8	151			< 5.4	< 27	< 54	2	A3
URSSB-OP5		3/11/2000	12	146	< 0.054	< 0.054	< 5.4	< 27	< 54	3	B3
URSSB-OP6	-	3/11/2000	20	140	< 0.054	< 0.054	< 5.4	< 27	< 54	5	AG
URSSB-OP7	-	3/11/2000	16	142			< 5.4	< 28	88	4	A2
		3/11/2000	8	149			< 5.6	< 28	< 56	3	D3
URSSB-OP8		3/11/2000	18	139			< 5.5	< 28	< 55	5	D4
oil samples collected	in 2008 (Terra, 20	008; URS, 2008)	-					-			
	Terra	6/23/2008	5	155			<22	<56	<110	2	AS
B2/MW-2	Associates	6/23/2008	15	145			<22	<55	<110	4	AS
	ASSOCIATES	6/23/2008	25	135			<22	<54	<110	6	A5
URS-MW-1	URS	8/25/2008	15	143	< 0.02		<10			4	A2
010-1010-1	01(5	8/25/2008	27.5	130.5	0.41		<10			6	A2
URS-MW-2	URS	8/27/2008	15	144	< 0.02		<10			4	Α7
	0110	8/27/2008	27.5	131.5	< 0.02		<10			6	A7
URS-MW-3	URS	8/26/2008	17.5	136.5	< 0.02		<10			5	G5
513-WW-3	сло	8/26/2008	27.5	126.5	< 0.02		<10			7	G5
URS-MW-4	URS	8/26/2008	12.5	141.5	0.17		<10			4	HS
01.01010/-4	Ghu	8/26/2008	30	124	0.12		<10			8	HS
URS-MW-5 <sup>4</sup>	URS	11/18/2008	24	129	< 0.02		<10			N/A	N//
C-WIVI-670	013	11/18/2008	31.5	121.5	< 0.02		<10			N/A	N//
URS-MW-6 <sup>4</sup>	URS	11/18/2008	21.5	131.5	< 0.02		<10			N/A	N//
0-910-0	01/3	11/18/2008	31.5	121.5	< 0.02		<10			N/A	N//
URS-MW-7 <sup>4</sup>	URS	11/18/2008	26.5	126.5	< 0.02		<10			N/A	N//
	01(5	11/18/2008	31.5	121.5	< 0.02		<10			N/A	N//
		8/25/2008	10	148	< 0.02		<10			3	B5
URS-SB-1	URS	8/25/2008	30	128	0.22		<10			7	B5
010-00-1	01(5	8/25/2008	45	113	0.05		<10			10	B5
		8/25/2008	75	83	< 0.02		<10			16	B5
URS-SB-2	URS	8/25/2008	10	147	< 0.02		<10			3	D5
010-00-2	0110	8/25/2008	27.5	129.5	0.07		<10			7	D5
URS-SB-3	URS	8/26/2008	17.5	137.5	0.05		<10			5	F2/I
010-00-0	0110	8/26/2008	22.5	132.5	0.07		<10			6	F2/F
URS-SB-4	URS	8/27/2008	17.5	150.5	< 0.02		<10			2	N//
010-00-4	01(5	8/27/2008	30	138	< 0.02		<10			5	N//
		11/19/2008	21.5	134.5	< 0.02		-			6	N//
URS-SB-8	URS	11/19/2008	29	127	< 0.02		-			7	N//
		11/19/2008	41.5	114.5	< 0.02 U					10	N//
oil samples collected	in 2010 (Farallon	,	•	•							-
		8/9/2010	10.5	143.5	<0.025	<0.03				4	N//
		8/9/2010	14	140	<0.025	<0.03	-			5	N//
		8/9/2010	19	135	<0.025	<0.03	-			6	N//
MW-17 <sup>4</sup>	Farallon	8/9/2010	24	130	<0.025	<0.03				7	N//
		8/9/2010	29	125	<0.025	<0.03				8	N//
		8/9/2010	34.5	119.5	0.031	<0.03				9	N//
		8/9/2010	39	115	<0.025	<0.03				10	N//
		8/9/2010	10	145	<0.025	<0.03				4	N/.
MW-18 <sup>4</sup>	Farallon	8/9/2010	14	141	<0.025	<0.03				4	N//
10	. aranon	8/9/2010	19	136	<0.025	<0.03				5	N//
	4	8/9/2010	24	131	<0.025	<0.03				6	N/.
		8/5/2010	4.5	152.5	<0.025	<0.03				2	D3
MW-19	Farallon	8/5/2010	9	148	<0.025	<0.03				3	D3
	. aranon	8/5/2010	24	133	<0.025	<0.03	<2	<50	<250	6	D3
		8/5/2010	29	128	<0.025	<0.03				7	D3
		8/6/2010	4.5	148.5	<0.025	<0.03				3	G2
		8/6/2010	10	143	<0.025	<0.03				4	G2
MW-20	Farallon	8/6/2010	14.5	138.5	<0.025	<0.03				5	G2
	. a. anon	8/6/2010	19.5	133.5	<0.025	<0.03				6	Gź
		8/6/2010	25	128	0.026	<0.03	<2			7	Gź
		8/6/2010	29.5	123.5	<0.025	<0.03				8	Gź
		8/5/2010	1	158	<0.025	<0.03	6			1	AB
		8/5/2010	11	148	<0.025	<0.03				3	A3
SRO-1	Farallon	8/5/2010	16	143	<0.025	<0.03				4	A3
	. aranon	8/5/2010	20	139	0.28	<0.03	<2	<50	<250	5	A3
		8/5/2010	22	137	0.43	<0.03	<2	<50	<250	5	A3
		8/5/2010	26	133	0.25	<0.03				6	A3
		8/5/2010	1	158	<0.025	<0.03	3	67	760	1	A
		8/5/2010	5.5	153.5	<0.025	<0.03				2	A
		8/5/2010	9	150	<0.025	<0.03	-			3	A
SRO-2	Farallon	8/5/2010	14	145	<0.025	<0.03				4	A4
		8/5/2010	19	140	<0.025	<0.03				5	AZ
		8/5/2010	23.5	135.5	0.12	<0.03	<2	<50	<250	5	A4
		8/5/2010	27	132	0.34	<0.03				6	A
				-	0.05 (A)	0.03 (A)	100 (A)	2,000 (A)	2,000 (A)		I/A



	Sample		Depth	Elevation	VOCs (r	ng/kg) <sup>1</sup>	Gasoline-range Petroleum Hydrocarbons	Diesel-range Petroleum Hydrocarbons	Oil-range Petroleum Hydrocarbons	Exca	avation Grie
Sample ID	Collected By	Sample Date	(feet bgs)	(feet NAVD 88)	PCE	TCE	(mg/kg) <sup>2</sup>	(mg/kg) <sup>3</sup>	(mg/kg) <sup>3</sup>	Lift	Ce
		8/5/2010	1	157	<0.025	<0.03	610	140	270	1	C4
		8/5/2010	3	155	<0.025	<0.03	<2	<50	<250	2	C4
		8/5/2010	7	151	<0.025	<0.03	-			2	C4
		8/5/2010	13	145	<0.025	<0.03	-			4	C2
SRO-3	Farallon	8/5/2010	18	140	<0.025	<0.03	-	-		5	C2
		8/5/2010	21	137	0.057	<0.03	<2	<50	<250	5	C2
		8/5/2010	22.5	135.5	0.06	<0.03	-			5	C4
		8/5/2010	27	131	0.17	<0.03	-	-		6	C4
		8/5/2010	30	128	0.16	<0.03	-	-		7	C
		8/6/2010	6	148	<0.025	<0.03	-	-		3	G
		8/6/2010	12	142	<0.025	<0.03				4	G
SRO-4	Farallon	8/6/2010	17	137	<0.025	<0.03				5	G
SRU-4	Farallon	8/6/2010	22	132	<0.025	<0.03	<2	<50	<250	6	G
		8/6/2010	27	127	<0.025	<0.03				7	G
		8/6/2010	30	124	0.038	<0.03				8	G
		8/6/2010	3	152	<0.025	<0.03				2	F
		8/6/2010	6	149	<0.025	< 0.03	-			3	F
	F	8/6/2010	11	144	<0.025	< 0.03	7	<50	<250	4	F
SRO-5	Farallon	8/6/2010	16	139	<0.025	< 0.03				5	F4
		8/6/2010	21	134	< 0.025	< 0.03				6	E4
		8/6/2010	30	125	< 0.025	< 0.03				8	F4
	+ +	8/6/2010	5.2	148.8	<0.025	< 0.03	<2	<50	<250	3	G
	l F	8/6/2010	12	148.8	< 0.025	< 0.03	<2	<50	<250	4	G
	F	8/6/2010	12	139	<0.025	< 0.03	<2	<50	<250 610	4 5	G
SRO-6	Farallon	8/6/2010	15	139	<0.025	< 0.03	<2	<50 <b>70</b>	870	5	G
510-0	FaidiiUII		-								-
		8/6/2010	20.5	133.5	< 0.025	< 0.03	<2	<50	<250	6	G
		8/6/2010	25	129	< 0.025	< 0.03				7	G
		8/6/2010	30	124	< 0.025	< 0.03	-			8	G
		8/6/2010	9	147	<0.025	<0.03	1,100	<50	<250	3	E
	l l	8/6/2010	12.5	143.5	<0.025	<0.03	<2	<50	<250	4	E
SRO-7	Farallon	8/6/2010	19	137	<0.025	<0.03	-			5	E
5110-1	raranon	8/6/2010	22.5	133.5	<0.025	<0.03	<2			6	E
		8/6/2010	26	130	0.046	<0.03				7	E
		8/6/2010	30	126	0.08	<0.03	-			7	E
		8/6/2010	4	152	<0.025	<0.03				2	C
		8/6/2010	8	148	< 0.025	< 0.03				3	С
		8/6/2010	13.5	142.5	<0.625	<0.03	4			4	С
		8/6/2010	14.5	141.5	< 0.625	< 0.03	<2.0	<50	<250	4	C
SRO-8	Farallon	8/6/2010	18	138	< 0.025	< 0.03	<2.0	-		5	C
		8/6/2010	22	134	< 0.025	< 0.03	3	<50	<250	6	C
	-	8/6/2010	23.5	132.5	0.15	< 0.03		-	-	6	C
	-	8/6/2010	26	130	0.16	< 0.03				7	C
		8/6/2010	29	127	0.10	< 0.03				7	C
		8/9/2010	3	155	< 0.025	< 0.03	<2			2	B3/
	-	8/9/2010	8	150	<0.025	< 0.03	<2			3	B3/
	-		13	145	< 0.625	< 0.03				4	
000	Forallan	8/9/2010					-				B3/
SRO-9	Farallon	8/9/2010	17.5	140.5	< 0.025	< 0.03	<2			4	B3/
		8/9/2010	21.5	136.5	< 0.025	< 0.03	<2			5	B3/
	-	8/9/2010	26	132	0.037	< 0.03	<2			6	B3/
		8/9/2010	29.5	128.5	0.057	<0.03	<2			7	B3/
		8/9/2010	1	153	<0.025	<0.03				2	G5/
		8/9/2010	7	147	<0.025	<0.03	-			3	G5/
		8/9/2010	10	144	<0.025	<0.03	<2			4	G5/
SRO-10	Farallon	8/9/2010	16	138	<0.025	<0.03	-			5	G5/
		8/9/2010	21	133	<0.025	<0.03	<2	-		6	G5/
		8/9/2010	23.5	130.5	<0.025	< 0.03				6	G5/
		8/9/2010	29	125	<0.025	<0.03	<2			8	G5/
		8/9/2010	1	153	<0.025	<0.03				2	G
	I T	8/9/2010	5	149	<0.025	<0.03				3	G
	I T	8/9/2010	10	144	<0.025	<0.03	<2			4	G
SR0-11	Farallon	8/9/2010	15	139	<0.025	<0.03				5	G
	l t	8/9/2010	20	134	<0.025	<0.03	<2			6	G
		8/9/2010	25	129	<0.025	< 0.03				7	G
	l ł	8/9/2010	28	126	< 0.025	< 0.03	<2			7	G
	1 1	8/9/2010	5	150	< 0.025	< 0.03				3	F
	I F	8/9/2010	8	147	<0.025	< 0.03	<2			3	F
	l F	8/9/2010	13	142	<0.025	< 0.03	-			4	F
SR0-12	Farallon	8/9/2010	13	142	< 0.025	< 0.03				4 5	F
12		8/9/2010	21	138	< 0.025	< 0.03	<2			5	F
	F										-
		8/9/2010	23.5	131.5	<0.025	< 0.03	-			6	F
		8/9/2010	29.5	125.5	< 0.025	< 0.03	<2			7	F
		8/9/2010	0.5	157.5	< 0.025	< 0.03	<2	280	3,100	1	C
		8/9/2010	5.5	152.5	< 0.025	< 0.03	<2	<50	<250	2	C
	L	8/9/2010	11	147	<0.025	<0.03	<2	<50	<250	3	C
SRO-13	Farallon	8/9/2010	15.5	142.5	<0.025	<0.03	<2	<50	400	4	C
	I [	8/9/2010	20.5	137.5	<0.025	<0.03	<2	<\$0	<250	5	C
	I Ī	8/9/2010	24.5	133.5	<0.025	<0.03				6	C
	l t	8/9/2010	29.5	128.5	<0.025	<0.03				7	C
	1	8/10/2010	1.5	158.5	< 0.025	< 0.03				1	A
	l t	8/10/2010	6.5	153.5	< 0.025	< 0.03				2	A
	l t	8/10/2010	12	148	< 0.025	< 0.03				3	A
SRO-14	Farallon	8/10/2010	17	143	< 0.025	< 0.03				4	A
		8/10/2010	22	138	< 0.025	< 0.03				5	A
		8/10/2010	25.2	134.8	0.025	< 0.03				6	A
				104.0	0.000	-0.05			-	0	
	- F	8/10/2010	29.8	130.2	< 0.025	< 0.03				6	A



	Sample		Depth	Elevation	VOCs (r	ng∕kg) <sup>⊥</sup>	Gasoline-range Petroleum Hydrocarbons	Diesel-range Petroleum Hydrocarbons	Oil-range Petroleum Hydrocarbons	Exca	avation Gri
Sample ID	Collected By	Sample Date	(feet bgs)	(feet NAVD 88)	PCE	TCE	(mg/kg) <sup>2</sup>	(mg/kg) <sup>3</sup>	(mg/kg) <sup>3</sup>	Lift	Ce
		8/10/2010	1	159	<0.025	<0.03				1	A6
		8/10/2010	5	155	<0.025	<0.03				2	AG
		8/10/2010	10	150	<0.025	<0.03				3	A
SR0-15	Farallon	8/10/2010	15	145	<0.025	< 0.03	-		-	4	A
		8/10/2010	20	140	< 0.025	< 0.03				5	A
		8/10/2010	25	135	< 0.025	< 0.03				6	A
		8/10/2010	29.5 2	130.5 157	< 0.025	<0.03 <0.03				6	A
		8/10/2010 8/10/2010	7	157	<0.025 <0.015	< 0.03				1	B
		8/10/2010	12	132	<0.015	< 0.03				2	E
SR0-16	Farallon	8/10/2010	17	147	<0.025	<0.03				4	
	raranon	8/10/2010	22	137	<0.025	<0.03	-			5	E
		8/10/2010	25.5	133.5	<0.025	< 0.03				6	E
		8/10/2010	29.5	129.5	0.039	< 0.03				7	E
		8/10/2010	1.8	155.2	< 0.025	< 0.03	2,800	130	<250	1	0
		8/10/2010	5.5	151.5	<0.025	<0.03	<2	<50	<250	2	D
		8/10/2010	10.5	146.5	<0.025	< 0.03	<2	<50	<250	3	D
SRO-17	Farallon	8/10/2010	16	141	<0.025	<0.03	<2	<50	<250	4	D
		8/10/2010	21	136	<0.025	<0.03	<2	<50	<250	5	D
		8/10/2010	25	132	<0.025	<0.03	<2	<50	<250	6	D
		8/10/2010	30	127	<0.025	<0.03	-			7	D
SR0-18	Farallon	8/10/2010	2	155	<0.025	<0.03	-			2	E
10		8/10/2010	5.5	151.5	<0.025	<0.03				2	E
SR0-19	Farallon	8/10/2010	2	155	<0.025	<0.03				2	D
00 20	. aranon	8/10/2010	5.5	151.5	<0.025	<0.03	-			2	D
SR0-20	Farallon	8/10/2010	2	155	< 0.025	< 0.03				2	D
		8/10/2010	6	151	< 0.025	< 0.03	-		-	2	
SR0-21	Farallon	8/10/2010	6.5	150.5	<0.025	<0.03				2	C
bil samples collected	in 2011 (Hart Crov	, , ,	,	100				[		_	Τ.
HC-1-1	-	8/13/2011	20	139	< 0.05	< 0.02	-			5	A
HC-1-2	_	8/13/2011	22.5	136.5	0.092	< 0.02				5	A
HC-1-3 HC-1-4	_	8/13/2011	25	134	0.36	< 0.02				6 6	A
HC-1-4 HC-1-5	-	8/13/2011 8/13/2011	27.5 30	131.5 129	0.46 0.43	<0.02 <0.02				6	A
HC-1-5 HC-1-6	-	8/13/2011	32.5	129	0.43	<0.02				7	A
HC-1-7	Hart Crowser	8/13/2011	32.5	120.5	0.38	<0.02				8	A
HC-1-8	That browser	8/13/2011	37.5	124	0.92	<0.02				8	A
HC-1-9	-	8/13/2011	40	119	1.10	<0.02	<5	<50		9	A
HC-1-10		8/13/2011	42.5	116.5	0.41	< 0.02	-	-		9	A
HC-1-11	-	8/13/2011	45	114	2.30	< 0.02				10	A
HC-1-12	-	8/13/2011	47.5	111.5	1.80	< 0.02				10	A
HC-1-13		8/13/2011	50	109	0.07	<0.02				11	A
HC-2-1		8/13/2011	20	137	<0.05	< 0.02				5	C4/
HC-2-2		8/13/2011	22.5	134.5	0.11	<0.02	-			6	C4,
HC-2-3		8/13/2011	25	132	0.29	<0.02				6	C4,
HC-2-4		8/13/2011	27.5	129.5	0.33	<0.02	-			7	C4,
HC-2-5		8/13/2011	30	127	0.31	<0.02	-			7	C4/
HC-2-6		8/13/2011	32.5	124.5	0.22	<0.02	-			8	C4/
HC-2-7	Hart Crowser	8/13/2011	35	122	0.23	<0.02	-			8	C4/
HC-2-8		8/13/2011	37.5	119.5	0.46	<0.02				9	C4,
HC-2-9		8/13/2011	40	117	0.60	<0.02	<5	<50		9	C4,
HC-2-10		8/13/2011	42.5	114.5	1.20	<0.02				10	C4,
HC-2-11	_	8/13/2011	45	112	0.58	<0.02	-			10	C4,
HC-2-12	_	8/13/2011	47.5	109.5	2.00	0.044				11	C4,
HC-2-13	┦	8/13/2011	50	107	0.11	< 0.02				11	C4,
HC-3-1	4	8/13/2011	20 22 F	136	< 0.05	< 0.02				5	
HC-3-2	-	8/13/2011	22.5	133.5	0.13	< 0.02				6	
HC-3-3 HC-3-4	-	8/13/2011	25 27.5	131 128.5	0.16	<0.02 <0.02				6 7	
HC-3-4 HC-3-5	-	8/13/2011 8/13/2011	27.5 30	128.5 126	0.061	<0.02				7	
HC-3-5 HC-3-6	-	8/13/2011 8/13/2011	30 32.5	126	0.18	<0.02				7	
HC-3-6 HC-3-7	Hart Crowser	8/13/2011 8/13/2011	32.5	123.5	0.13	<0.02				8	
HC-3-8		8/13/2011	37.5	118.5	0.10	<0.02				9	
HC-3-9		8/13/2011	40	118.5	0.37	<0.02	<5	<50		9	
HC-3-10		8/13/2011	40	113.5	0.27	<0.02	-	-		10	
HC-3-11		8/13/2011	45	111	0.05	<0.02				10	
HC-3-12	7	8/13/2011	47.5	108.5	< 0.05	< 0.02				11	1
HC-3-13	7 1	8/13/2011	50	106	0.91	0.087				11	
		10/10/2011	50	108	0.0218	<0.0213				11	4
		10/10/2011	55	103	0.276	0.00624 J	-			12	A
		10/10/2011	60	98	0.000720 J	<0.0204				13	A
URS-SB-9	URS	10/10/2011	65	93	<0.0126	<0.0189				14	ļ
		10/10/2011	70	88	<0.0143	<0.0214				15	A
		10/10/2011	75	83	<0.0151	<0.0226				16	/
		10/10/2011	80	78	<0.0142	<0.0213				N/A	/
		10/11/2011	50	106	<0.0117	<0.0175				11	[
		10/11/2011	55	101	<0.0111	<0.0167				12	[
URS-SB-10	URS	10/11/2011	60	96	0.00160 J	<0.00145	-		-	13	[
	01.0	10/11/2011	65	91	<0.0142	<0.0213	-		-	14	0
		10/11/2011	70	86	<0.0148	<0.0221				15	[
		10/11/2011	75	81	< 0.00952					16	



					VOCs (r	ng/kg) <sup>1</sup>	Gasoline-range	Diesel-range	Oil-range	Exca	vation
Sample ID	Sample Collected By	Sample Date	Depth (feet bgs)	Elevation (feet NAVD 88)	PCE	TCE	Petroleum Hydrocarbons (mg/kg) <sup>2</sup>	Petroleum Hydrocarbons (mg/kg) <sup>3</sup>	Petroleum Hydrocarbons (mg/kg) <sup>3</sup>	Lift	Grid Cell
•		10/12/2011	35	118	0.00148 J	<0.0190	-	-	-	9	H2
		10/12/2011	40	113	0.000383 J	<0.0164	-			10	H2
		10/12/2011	45	108	<0.0112	<0.0168				11	H2
		10/12/2011	50	103	<0.0124	<0.0186				12	H2
URS-MW-8	URS	10/12/2011	55	98	< 0.0124	<0.0186	-	-		13	H2
(SB-11)		10/12/2011	60	93	< 0.0105	< 0.0158				14	H2
		10/12/2011 10/12/2011	65 70	88 83	<0.0104 <0.0105	<0.0156 <0.0158				15 16	H2 H2
		10/12/2011	75	78	< 0.0103	<0.0138				N/A	H2
		10/12/2011	80	73	<0.0100	<0.0170	-			N/A	H2
		10/12/2011	35	119	< 0.0129	< 0.0193				9	G4
		10/12/2011	40	114	0.00436 J	<0.0192				10	G4
		10/12/2011	45	109	0.00479 J	0.000403 J				11	G4
URS-SB-12	URS	10/12/2011	55	99	0.00606 J	0.000460 J				13	G4
0.10 02 22	0110	10/12/2011	60	94	0.00901 J	0.00120 J				14	G4
		10/12/2011	65	89	< 0.0151	< 0.0227				15	G4
		10/12/2011	70	84	< 0.0159	< 0.0239				16	G4
		10/12/2011 10/13/2011	75 35	79 119	<0.0156 0.0142	<0.0235 <0.0175				N/A 9	G4 H9
		10/13/2011	35 40	119	0.0142 0.0140 J	<0.0175				9 10	Н9 Н9
		10/13/2011	40	109	0.00347 J	<0.0210				10	H9
URS-SB-13	URS	10/13/2011	60	94	0.0647	0.000382 J				14	H9
		10/13/2011	65	89	0.0861	<0.0204				15	H9
		10/13/2011	70	84	<0.0145	<0.0218				16	Н9
		10/13/2011	75	79	< 0.0149	<0.0223				N/A	Н9
		10/11/2011	35	121	<0.00954	<0.0143	-			8	E4
		10/11/2011	40	116	0.0541	0.000659 J				9	E4
		10/11/2011	45	111	0.0712	0.00114 J				10	E4
	1100	10/11/2011	50	106	0.166	0.00164 J				11	E4
URS-SB-14	URS	10/11/2011	55 60	101	0.105	0.00119 J				12	E4
		10/11/2011 10/11/2011	60 65	96 91	0.000312 J <0.00915	<0.0142 <0.0137				13 14	E4 E4
		10/11/2011	70	86	<0.00915	<0.0137				14	E4
		10/11/2011	75	81	<0.0104	<0.0156				16	E4
		10/11/2011	35	125	0.0331	< 0.0189				8	A6
		10/11/2011	40	120	0.00263 J	<0.0138				9	A6
		10/11/2011	45	115	<0.0128	<0.0191				10	A6
		10/10/2011	50	110	<0.0128	<0.0192				11	A6
URS-SB-15	URS	10/10/2011	55	105	<0.00851	<0.0128				12	A6
		10/10/2011	60	100	<0.0101	<0.0151				13	A6
		10/10/2011	65	95	< 0.0140	<0.0210				14	A6
		10/10/2011	70	90	< 0.0127	< 0.0190				15	A6
		10/10/2011 11/14/2011	75 30	85 123	<0.0119 0.00880 J	<0.0179 <0.0191				16 N/A	A6 N/A
		11/14/2011	35	118	0.00880 J	<0.0191				N/A	N/A
		11/14/2011	40	113	0.00310 J	<0.0196				N/A	N/A
		11/14/2011	45	108	0.00276 J	<0.0130				N/A	N/A
URS-SB-164	URS	11/14/2011	47.5	105.5	0.000318 J	< 0.0207	_	-		N/A	N/A
		11/14/2011	60	93	0.727	0.00308 J				N/A	N/A
		11/14/2011	65	88	0.772	0.000799 J				N/A	N/A
		11/14/2011	70	83	<0.0130	<0.0195				N/A	N/A
		11/14/2011	75	78	<0.0122	<0.0183				N/A	N/A
		11/15/2011	40	117	< 0.00937	<0.0141				9	N/A
		11/15/2011	45	112	< 0.00915	< 0.0137				10	N/A
URS-SB-17	URS	11/15/2011 11/15/2011	65 70	92 87	<0.0122 <0.0124	<0.0183 <0.0186				14 15	N/A N/A
		11/15/2011 11/15/2011	70	87	<0.0124	<0.0186				15 16	N/A N/A
		11/15/2011	30	128	<0.0156 0.00590 J	<0.0234				7	C7
		11/17/2011	35	128	0.00590 J	<0.0218				8	C7
		11/17/2011	40	118	< 0.0116	<0.0174				9	C7
		11/17/2011	45	113	< 0.0159	<0.0238				10	C7
		11/17/2011	50	108	< 0.0157	<0.0235	-	-		11	C7
URS-SB-21	URS	11/17/2011	60	98	<0.0104	<0.0156				13	C7
010-00-21	сло	11/17/2011	65	93	<0.0192	<0.0288				14	C7
		11/17/2011	70	88	<0.0203	<0.0304				15	C7
		11/17/2011	71.5	86.5	<0.0170	<0.0255				15	C7
		11/17/2011	73	85	< 0.0156	<0.0234				16	C7
		11/17/2011	74.5	83.5	< 0.0196	< 0.0294	-			16	C7
		11/17/2011	80	78	< 0.0143	< 0.0214				N/A	C7

	11/17/2011	80	78	<0.0143	<0.0214				N/A	C7
MTCA Method A Cleanup Levels				0.05 (A)	0.03 (A)	100 (A)	2,000 (A)	2,000 (A)	N	I/A

### Notes:

 $^{1}$  VOCs = Volatile organic compounds were analyzed using EPA SW-846 Method 8260B.

 $^2\ {\rm Gasoline}\ {\rm range}\ {\rm petroleum}\ {\rm hydrocarbons}\ {\rm were}\ {\rm analyzed}\ {\rm using}\ {\rm Ecology}\ {\rm Method}\ {\rm NWTPH-Gx}.$ 

 $^{\rm 3}$  Diesel- and oil-range petroleum hydrocarbons were analyzed using Ecology Method NWTPH-Dx.

 $^{\rm 4}$  Soil samples were collected from off-Property 5 to 20 feet to the west or south.

- Compound was not analyzed.

< Compound was not detected at a concentration equal to or greater than the listed laboratory practical quantitation limit.

PCE = Tetrachloroethene

TCE = Trichloroethene

VOCs = Volatile organic compounds

feet bgs = feet below ground surface

J = estimated concentration less than the listed laboratory Practical Quantitation Limit (PQL); For purpose of this report J-flagged concentrations are considered not detected.

mg/kg = milligrams per kilogram

MTCA = Model Toxics Control Act (WAC 173-340).

(A) = MTCA Method A Cleanup Level (unrestricted land use)

N/A = Not Applicable

Bold font indicates that the compound was detected at a concentration greater than the listed PQL.

 $\label{eq:shading} \textbf{Shading} \ \textbf{indicates that the concentration exceeds the MTCA cleanup level.}$ 



Chemical Analytical Data for Groundwater Samples

Sterling Realty Organization Property at 10605 and 10619 NE 8<sup>th</sup> Street

Bellevue, Washington

							VOCs (µg/L)	1						
Sample ID	Sample Date	Depth (feet bgs)	PCE	TCE	cis-1,2- DCE	1,1,1-TCA	1,2-DCA	Benzene	Toluene	Ethyl- benzene	Xylenes, total	Gasoline-range Petroleum Hydrocarbons (µg/L) <sup>2</sup>	Diesel-range Petroleum Hydrocarbons (µg/L) <sup>3</sup>	Oil-range Petroleum Hydrocarbons (µg∕L) <sup>3</sup>
	in 2000 (URS, 2000	J.										(F8/-/	(ra/ -/	(r.o/ -/
URSSB-OP1	03/11/2000	NA	2.1	<1.0	<1.0			<1.0	<1.0	<1.0	<1.0	<100	<25	<50
URSSB-OP3	03/11/2000	NA	1.7	<1.0	<1.0			<1.0	<1.0	<1.0	<1.0	<100	<25	<50
Samples collected	in 2008 and 2010 (	Terra, 2008; L	JRS, 2009; Fa	arallon 2010	; URS 2011, 9	SES, 2011)						-		
URS-SB-3	08/27/2008	NA	21	<1.0	<1.0			<1.0	<1.0	<1.0	<1.0	<100		
	09/10/2008	NA	340	3.5	<1.0			<1.0	<1.0	<1.0	<1.0	<100		
	11/21/2008	NA	210	3.4	<1.0		-	<1.0	<1.0	<1.0	<1.0			-
URS-MW-1	03/17/2010	NA	460	22	11			<1.0	<1.0	<1.0	<1.0	<50		-
	06/17/2010	NA	320	9.6	1.2		-	<1.0	<1.0	<1.0	<1.0	<50		-
	08/24/2010	NA	430	10	6.1					-				
	03/17/2010	NA	<1.0	<1.0	<1.0			<1.0	<1.0	<1.0	<1.0	<50	-	-
URS-MW-2	06/17/2010	NA	<1.0	<1.0	<1.0		-	<1.0	<1.0	<1.0	<1.0	<50		-
	08/25/2010	NA	<1.0	<1.0	<1.0		-	-	-	-				
	09/10/2008	NA	<1.0	<1.0	<1.0			<1.0	<1.0	<1.0	<1.0	<100		-
	11/21/2008	NA	3.9	<1.0	<1.0			<1.0	<1.0	<1.0	<1.0			
URS-MW-3	03/17/2010	NA	<1.0	<1.0	<1.0			<1.0	<1.0	<1.0	<1.0	<50		-
	06/17/2010 08/23/2010	NA NA	<1.0 <1.0	<0.2 <0.2	<1.0 <1.0			<1.0	<1.0	<1.0	<1.0	<50	-	-
<b>1 1 1 1 1</b>														
MW-17 <sup>4</sup>	08/24/2010	NA	14	1.8	2.2	-				-				
MW-184	08/24/2010	NA	830	15	10					-				
MW-19	08/25/2010	NA	33	1.1	<1.0	-						-		
MW-20	08/25/2010	NA	4.6	<1.0	<1.0					-		-		-
B1/MW1	03/17/2010	NA	<1.0	<1.0	<1.0			<1.0	<1.0	<1.0	<1.0	<50	-	-
	07/07/2008	NA	<0.2	<0.2			-	< 0.2	< 0.2	<1.0	<0.6	<100	<250	<500
B-2/MW-2	11/21/2008	NA	2.0	<1.0	<1.0			<1.0	<1.0	<1.0	<1.0			-
	03/17/2010	NA	<1.0 <1.0	<1.0	<1.0			<1.0	<1.0	<1.0 <1.0	<1.0	<50		-
	06/17/2010 07/07/2008	NA NA	<1.0 <b>80</b>	<1.0 <b>0.42</b>	<1.0			<1.0 <0.4	<1.0 <0.4	<1.0	<1.0 <1.2	<50 <100	 <250	- <500
	09/10/2008	NA	88	<1.0	<1.0			<0.4	<1.0	<2.0	<1.2	<100		
	11/21/2008	NA	20	<1.0	<1.0			<1.0	<1.0	<1.0	<1.0			
B-3/MW-3	03/17/2010	NA	68	<1.0	<1.0			<1.0	<1.0	<1.0	<1.0	<50		
	06/17/2010	NA	44	<1.0	<1.0			<1.0	<1.0	<1.0	<1.0	<50		-
	08/23/2010	NA	50	<1.0	<1.0				-	-		-		
	07/07/2008	NA	<0.2	<0.2				<0.2	<0.2	<1.0	<0.6	<100	<250	<500
5 4 4 5 4 4	11/21/2008	NA	1.9	<1.0	<1.0			<1.0	<1.0	<1.0	<1.0			
B-4/MW-4	03/17/2010	NA	<1.0	<1.0	<1.0			<1.0	<1.0	<1.0	<1.0	<50		-
	06/17/2010	NA	<1.0	<1.0	<1.0			<1.0	<1.0	<1.0	<1.0	<50		-
Samples collected	l in 2011 (URS, 2011	)										-		
URS-MW-1	11/22/2011	29	114	4.36	1.47	<1.0	<1.0			-		-		
URS-MW-2	11/21/2011	28.6	<1.0	<1.0	<1.0	<1.0	<1.0							-
URS-MW-3	11/22/2011	28	<1.0	<1.0	<1.0	<1.0	<1.0		-			-		-
URS-MW-64	10/19/2011	NA	<1.0	<1.0	1.33	<1.0	2.0			-				
URS-MW-74	10/19/2011	NA	12.4	<1.0	3.42	0.87 J	<1.0							
	10/19/2011	73	<1.0	<1.0	<1.0	<1.0	<1.0		-			-		-
	10/19/2011	77	<1.0	<1.0	<1.0	<1.0	<1.0							-
URS-MW-8	11/22/2011	70	<1.0	<1.0	<1.0	<1.0	<1.0					-	-	-
	11/22/2011	73	<1.0	<1.0	<1.0	<1.0	<1.0	-	-					-
	11/22/2011	75.5	<1.0	<1.0	<1.0	<1.0	<1.0	-						-
MW-19	11/21/2011	29.2	31.0	1.08	0.140 J	<1.0	<1.0							
MW-20	11/22/2011	25	1.03	0.140 J	<1.0	<1.0	<1.0							
B1/MW-1	11/29/2011	90	<1.0	<1.0	<1.0	<1.0	<1.0	-	-			-	-	-
	11/29/2011	95	<1.0	<1.0	<1.0	<1.0	<1.0					-	-	-
B2/MW-2	11/29/2011	75	<1.0	<1.0	<1.0	<1.0	<1.0	-	-			-		-
	11/29/2011	80	<1.0	<1.0	<1.0	<1.0	<1.0	-				-	-	-
B3/MW-3	11/22/2011	27	23.7	<1.0	<1.0	<1.0	<1.0							
B4/MW-4	11/29/2011	75	<1.0	<1.0	<1.0	<1.0	<1.0					-	-	
,	11/29/2011	80	<1.0	<1.0	<1.0	<1.0	<1.0							-
URS-SB-9	10/10/2011	77	0.270 J	<1.0	<1.0	<1.0	<1.0							
URS-SB-15	10/10/2011	75 74	<1.0	<1.0	<1.0	<1.0	<1.0 <1.0							-
URS-SB-21	11/17/2011		<1.0	<1.0	<1.0	<1.0			- 1 000 (4)			-	-	-
MICA Me	thod A or B Cleanup L	evei	5 (A)	5 (A)	16 (B)	200 (A)	5 (A)	5 (A)	1,000 (A)	700 (A)	1,000 (A)	800 / 1,000 <sup>°</sup> (A)	500 (A)	500 (A)

### Notes:

<sup>1</sup>VOCs = Volatile organic compounds were analyzed using EPA SW-846 Method 8260B.

<sup>2</sup>Gasoline-range petroleum hydrocarbons were analyzed using Ecology Method NWTPH-Gx.

<sup>3</sup>Diesel- and oil-range petroleum hydrocarbons were analyzed using Ecology Method NWTPH-Dx.

<sup>4</sup>Groundwater samples were collected from wells located 5 to 20 feet west or south of the Property.

 $^{5}$ The groundwater cleanup level is 1,000 µg/L if benzene is not detected. If benzene is detected, the cleanup level is 800 µg/L.

- Compound not analyzed.

< Compound not detected at a concentration equal to or greater than the listed laboratory practical quantitation limit (PQL). 1,1,1-TCA = 1,1,1-trichloroethane

1,2-DCA = 1,2-dichloroethane

cis-1,2-DCE = cis-1,2-dichloroethene

PCE = tetrachloroethene

TCE = trichloroethene

feet bgs = feet below ground surface

J = estimated concentration

 $\mu$ g/L = micrograms per liter

NA = not available

MTCA = Model Toxics Control Act (WAC 173-340).

(A) = MTCA Method A Cleanup Level (unrestricted land use)

(B) = Standard Method B cleanup levels from CLARC. Table 5 includes the basis for cleanup levels.

Bold font indicates that the compounds was detected at a concentration greater than the listed practical quantitation limit (PQL).

Shading indicates that the compound was detected at a concentration that exceeds the MTCA cleanup level.



### Soil and Groundwater Cleanup Levels

### Sterling Realty Organization Property at 10605 and 10619 NE $\mathbf{8}^{\text{th}}$ Street

### Bellevue, Washington

Contaminants of Concern	Media	Cleanup Level	Source
Gasoline-range Petroleum Hydrocarbons		100 (mg/kg)	
Diesel-range Petroleum Hydrocarbons		2,000 (mg/kg)	
Oil-range Petroleum Hydrocarbons		2,000 (mg/kg)	
PCE	Soil	0.05 (mg/kg)	MTCA Mathead A. Usuastriated
TCE	Soli	0.03 (mg/kg)	MTCA Method A, Unrestricted
Benzene		0.03 (mg/kg)	
Toluene		7 (mg/kg)	
Ethylbenzene		6 (mg/kg)	
Xylenes		9 (mg/kg)	
Lead		250 (mg/kg)	
MTBE		0.1 (mg/kg)	
1,2-dichloroethane		0.0023 (mg/kg)	
cis-1,2-dichloroethene		0.076 (mg/kg)	
trans-1,2-dichloroethene	Soil	0.48 (mg/kg)	MTCA Method B <sup>1</sup>
1,1-dichloroethene		0.037 (mg/kg)	
Vinyl chloride		0.00013 (mg/kg)	
Gasoline-range Petroleum Hydrocarbons		1,000 (µg/L)	
Diesel-range Petroleum Hydrocarbons		500 (µg/L)	
Oil-range Petroleum Hydrocarbons		500 (µg/L)	
MTBE		20 (µg/L)	
PCE	Crewe dwater	5 (µg/L)	
TCE	Groundwater	5 (µg/L)	MTCA Method A
Vinyl chloride		0.2 (µg/L)	
1,2-dichloroethane		5 (µg/L)	
1,1,1-trichloroethane		200 (µg/L)	
Benzene		5 (µg/L)	
Toluene		1,000 (µg/L)	
Ethylbenzene		700 (µg/L)	
Xylenes		1,000 (µg/L)	
Chlorobenzene		160 (µg/L)	
cis-1,2-dichloroethene	Groundwater	16 (µg/L)	MTCA Method B, Standard Formula <sup>2</sup>
trans-1,2-dichloroethene	7	160 (µg/L)	

### Notes:

<sup>1</sup>Based on Protection of Groundwater

<sup>2</sup>Based on Potable Groundwater (non-carcinogenic)

MTBE = methyl tert-butyl ether

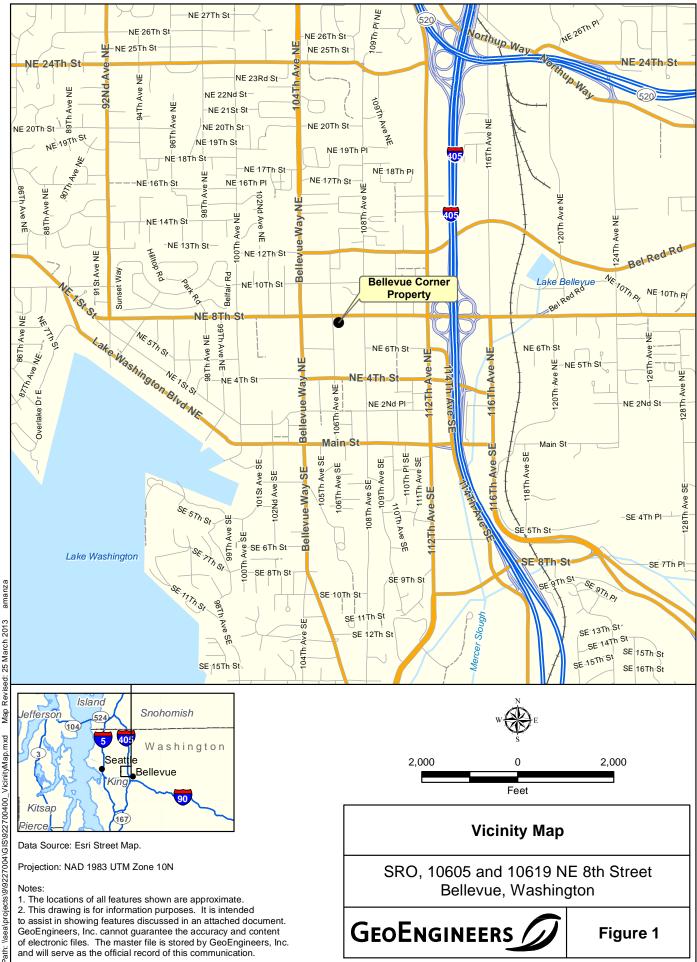
PCE = Tetrachloroethene

TCE = Trichloroethene

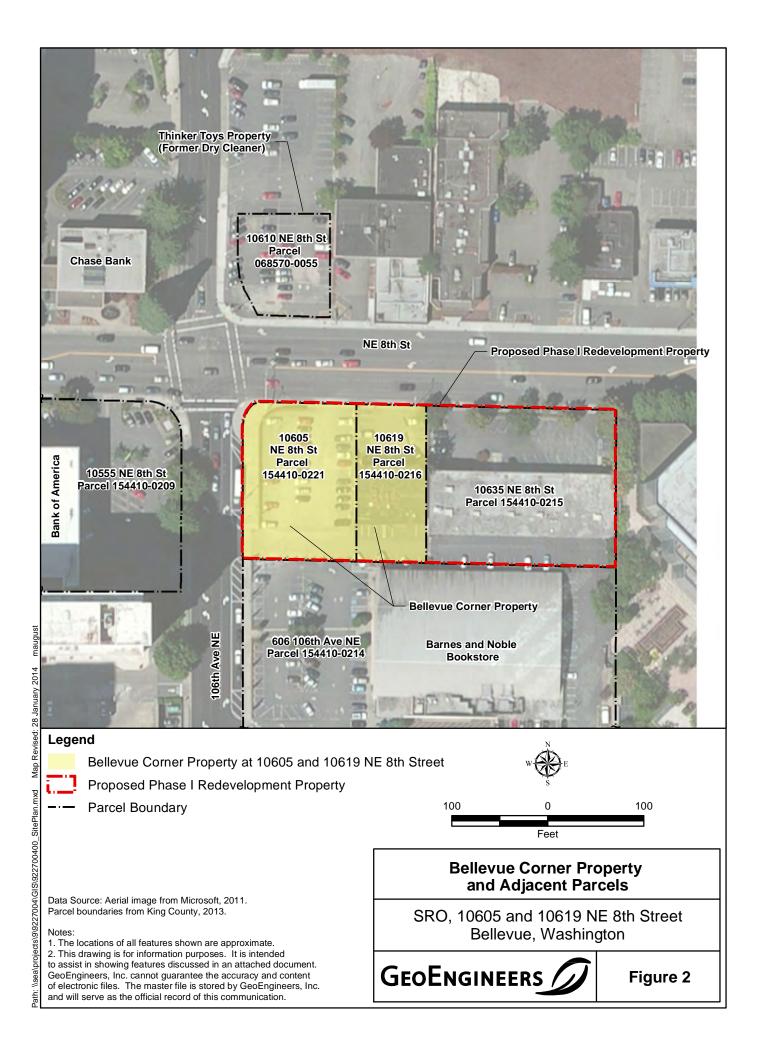
mg/kg = milligrams per kilogram

 $\mu$ g/L = micrograms per liter





25 March 2013 Revised Map VicinityMap. 9\9227004\GIS\922700400





### Notes

EET

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 The locations of all features shown are approximate.
 This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Masterplanning / Concept Design Package by Callison Architecture, February 2012.



Conceptual Design of Proposed Phase I Development and Subsequent Phases II and III

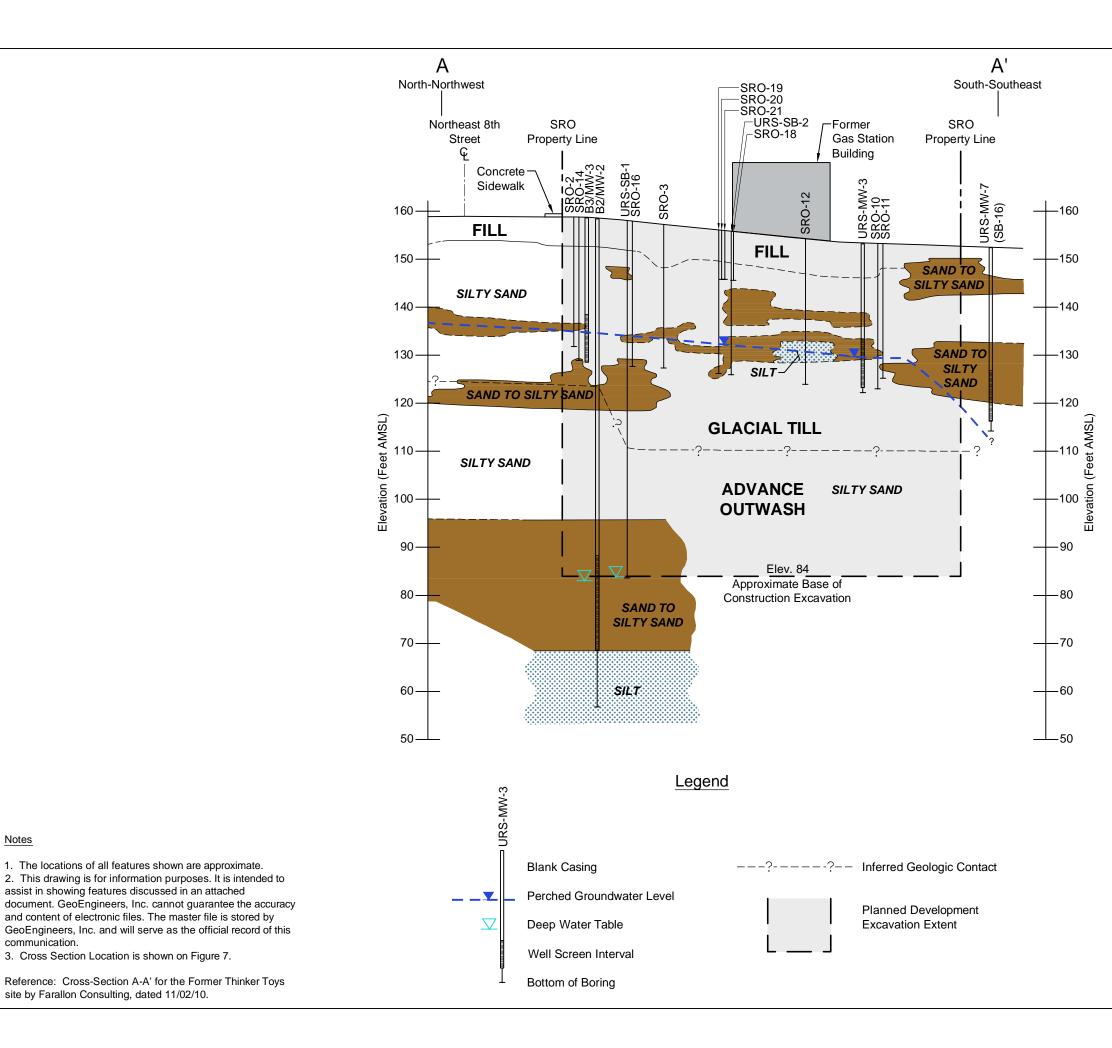
SRO, 10605 and 10619 NE 8th Street Bellevue, Washington

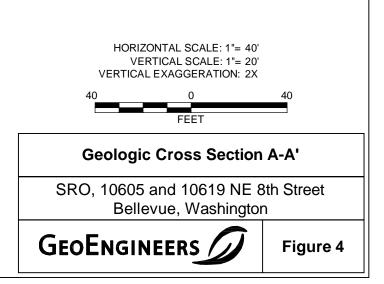
Figure 3

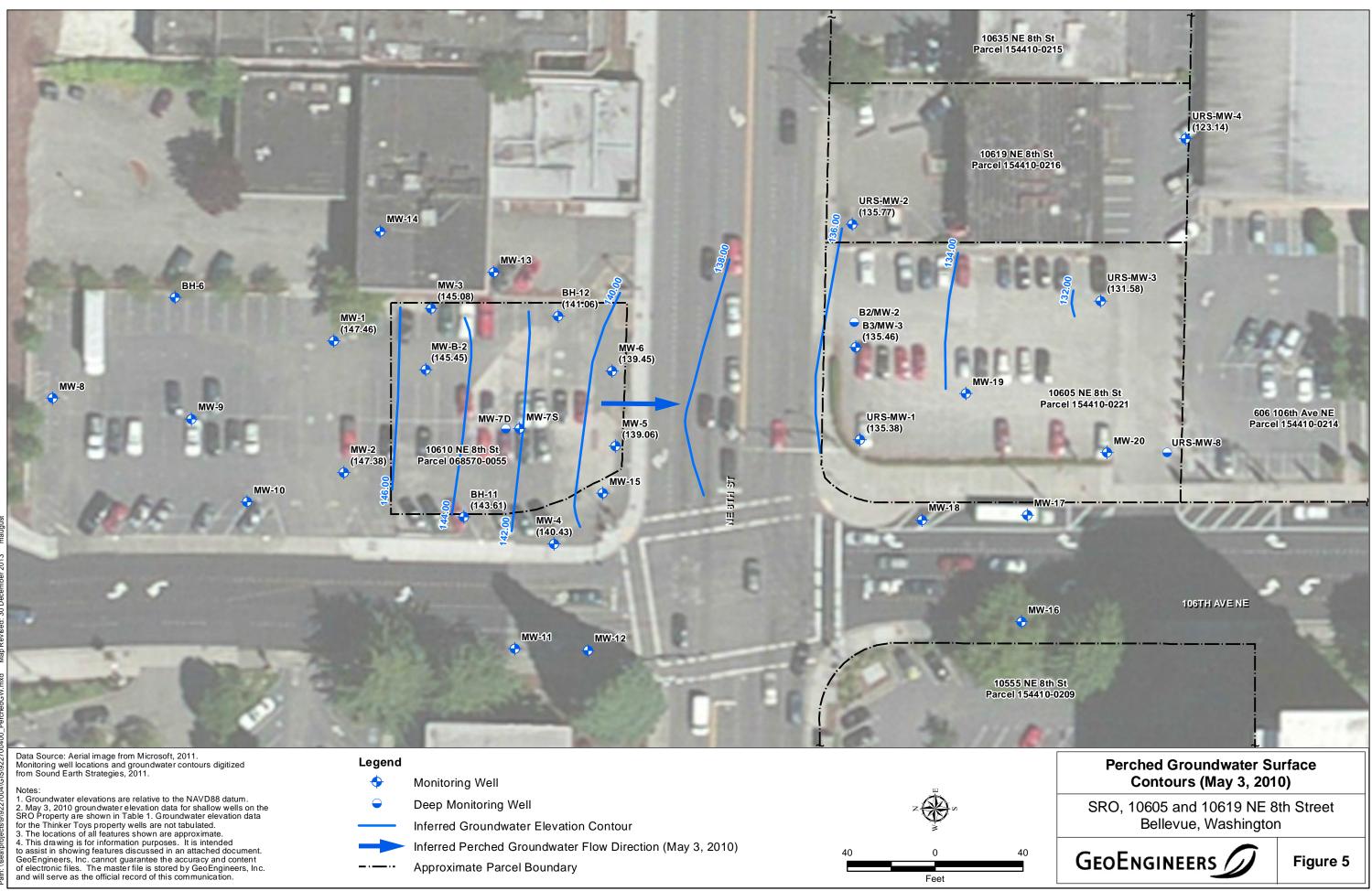
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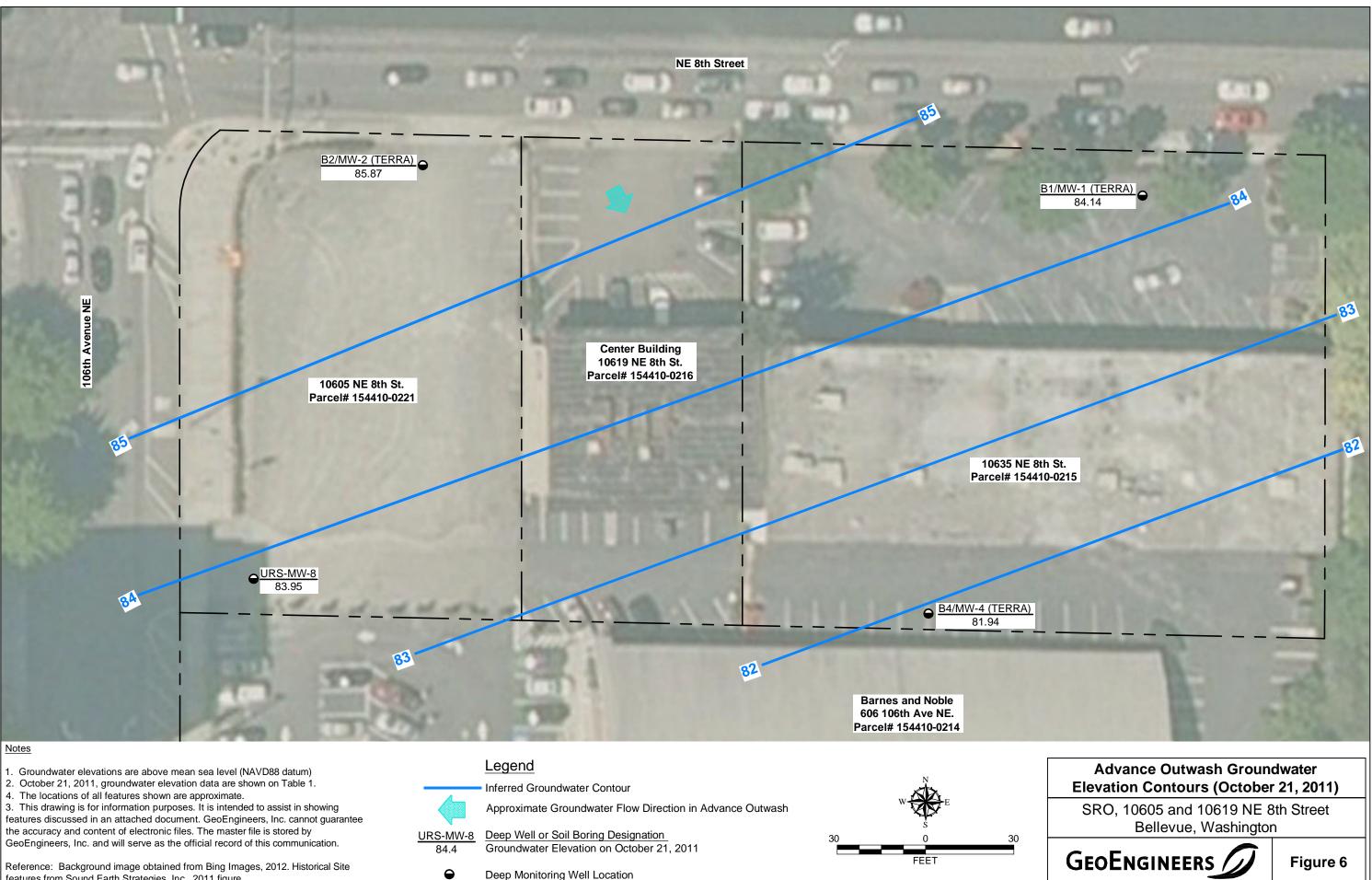
Notes

communication.





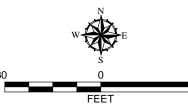


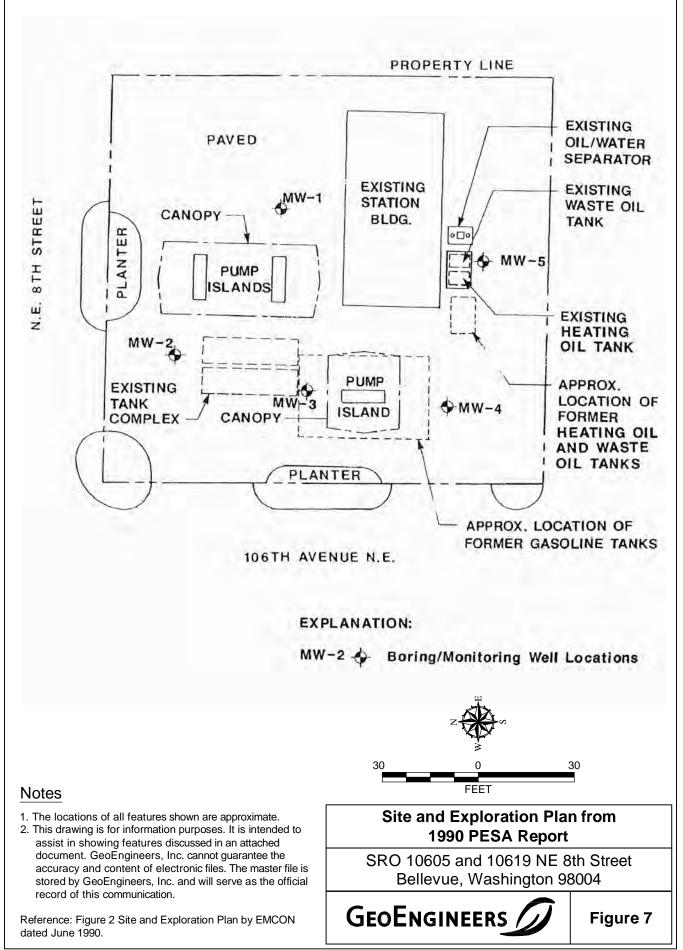


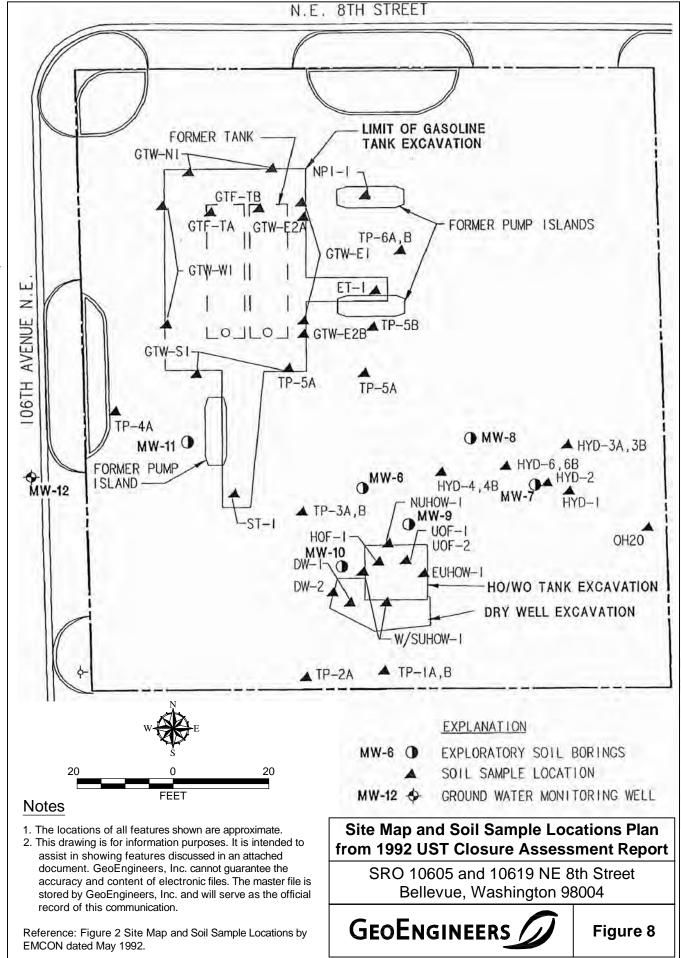
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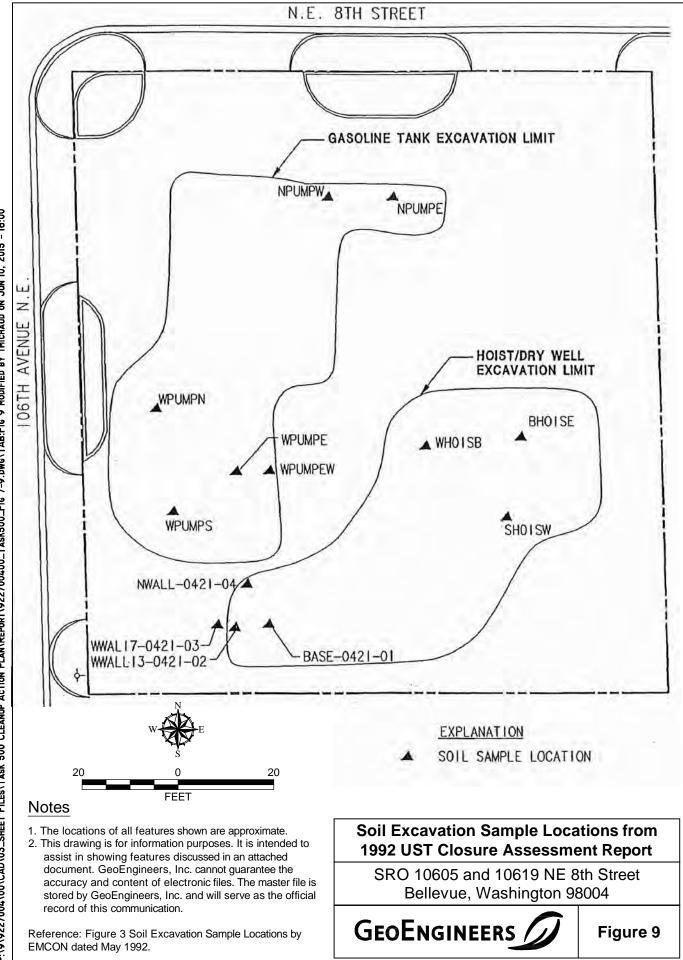
Reference: Background image obtained from Bing Images, 2012. Historical Site features from Sound Earth Strategies, Inc., 2011 figure.

Deep Monitoring Well Location

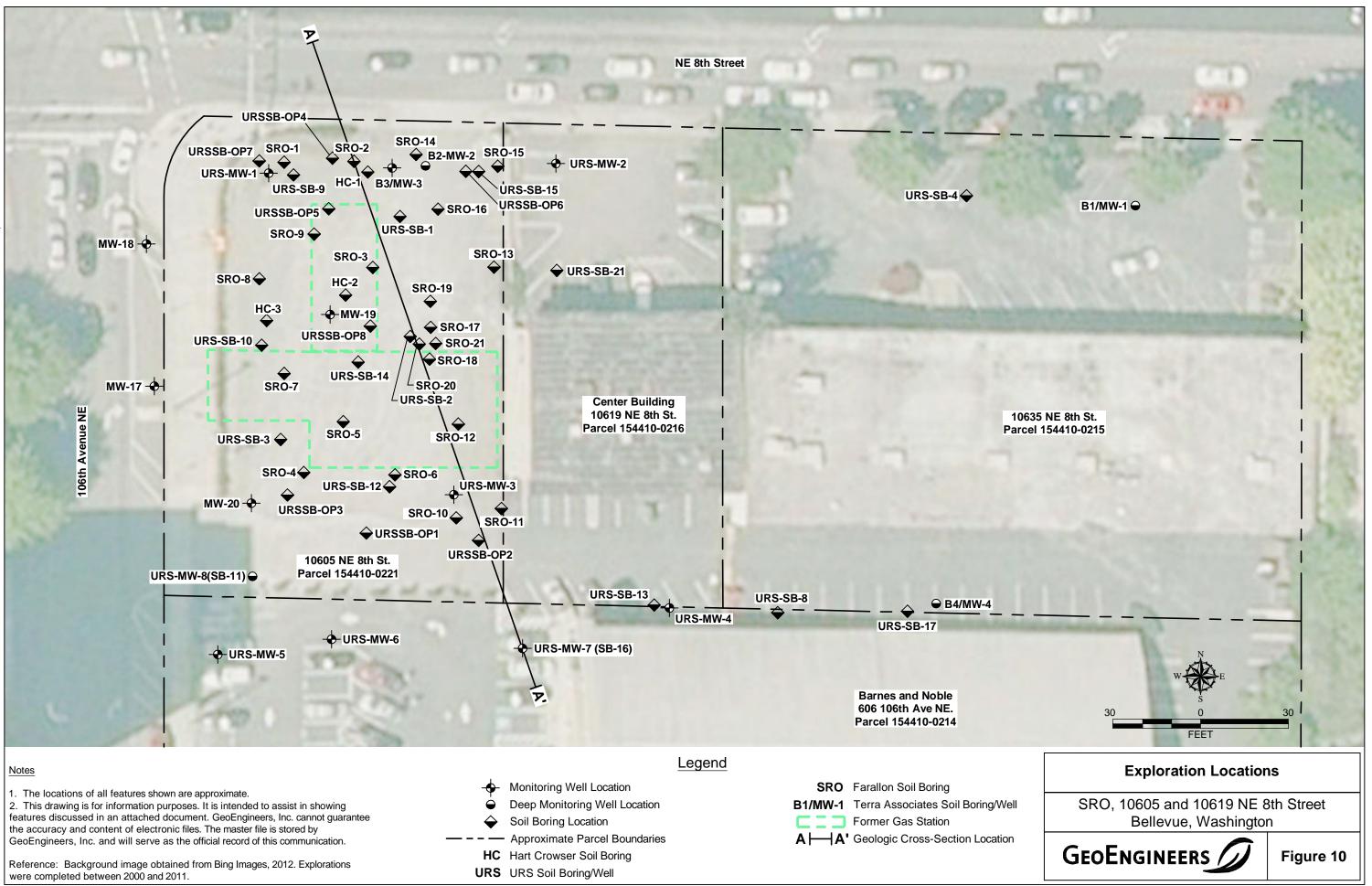


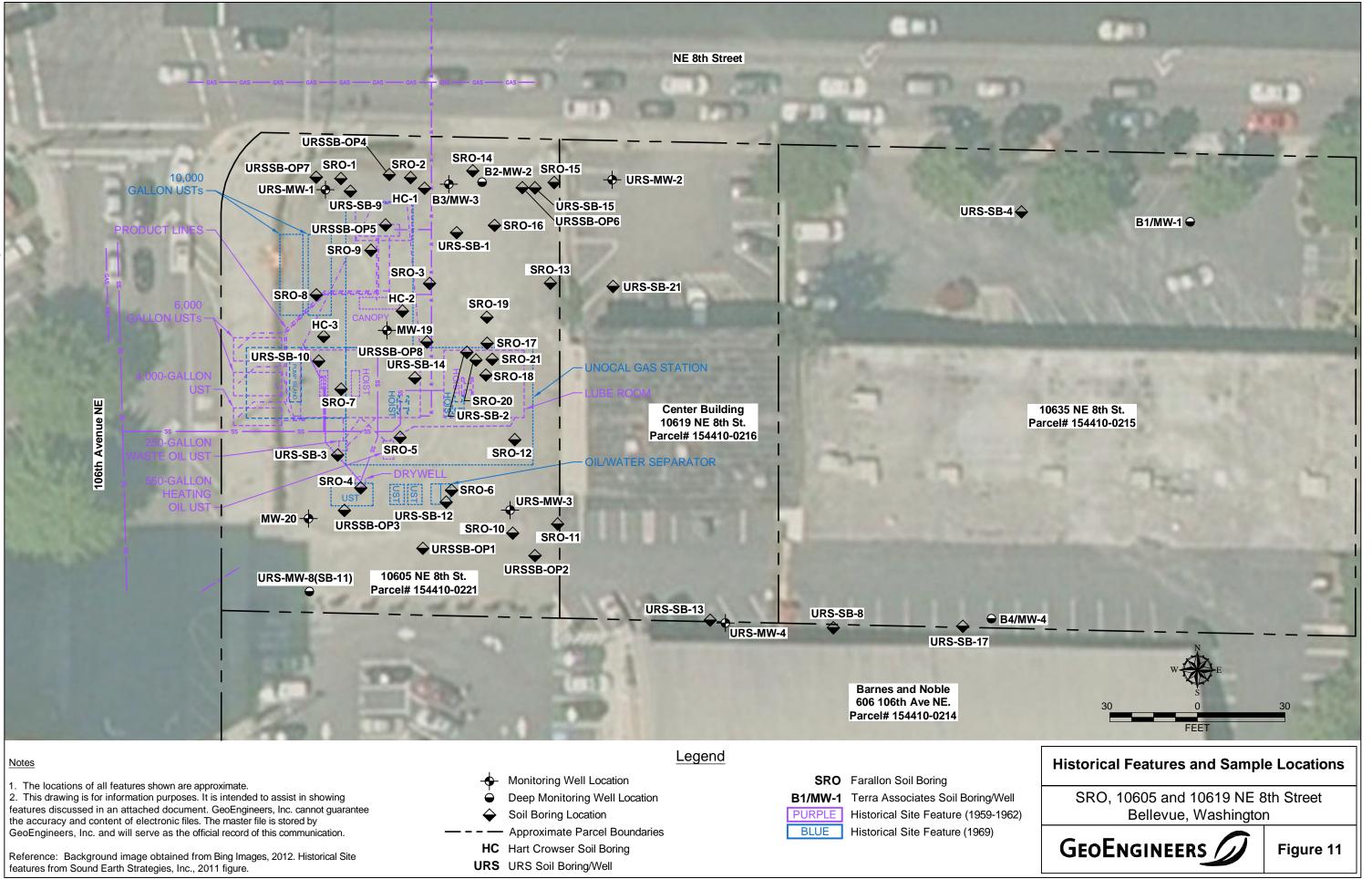


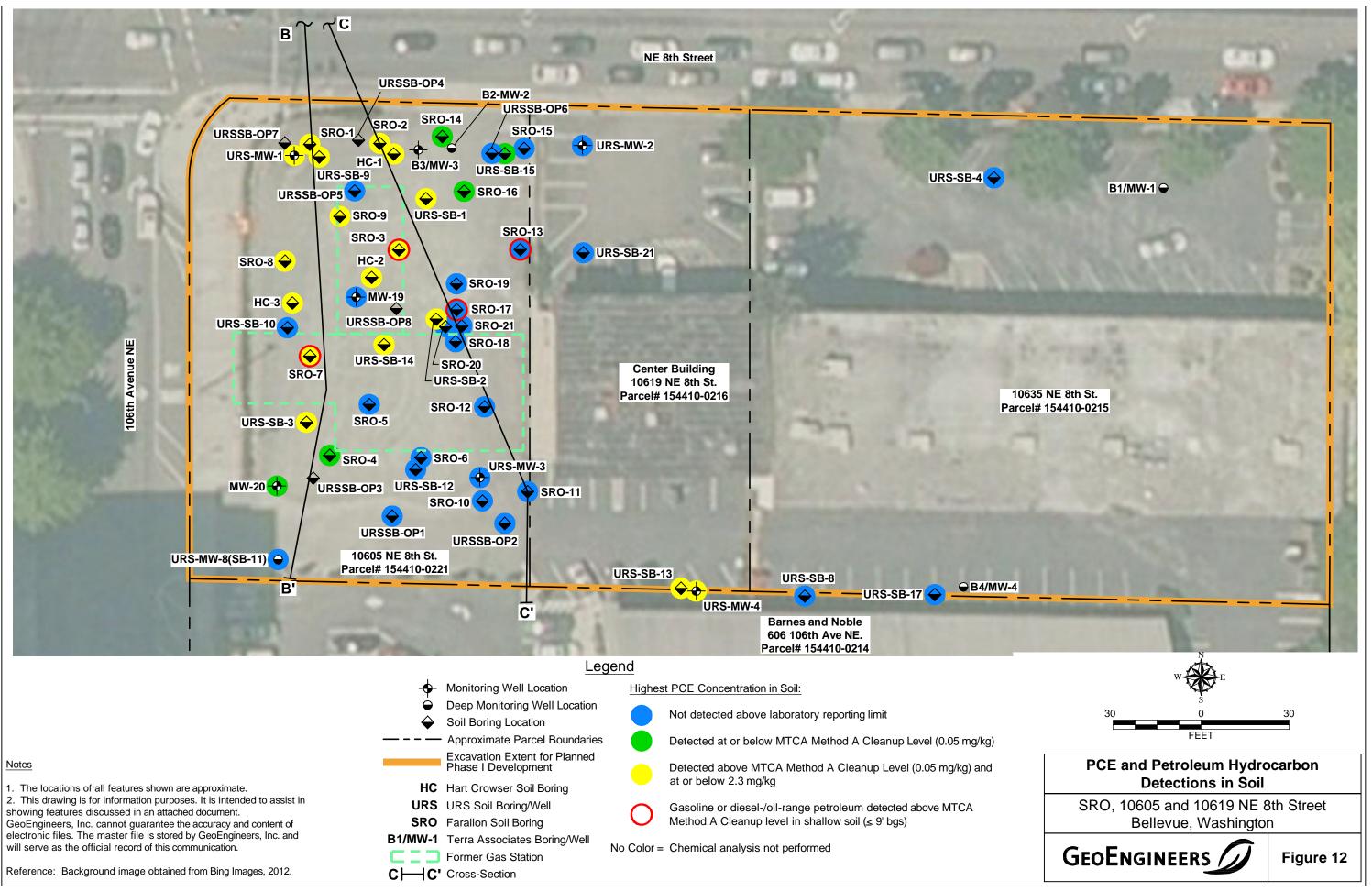


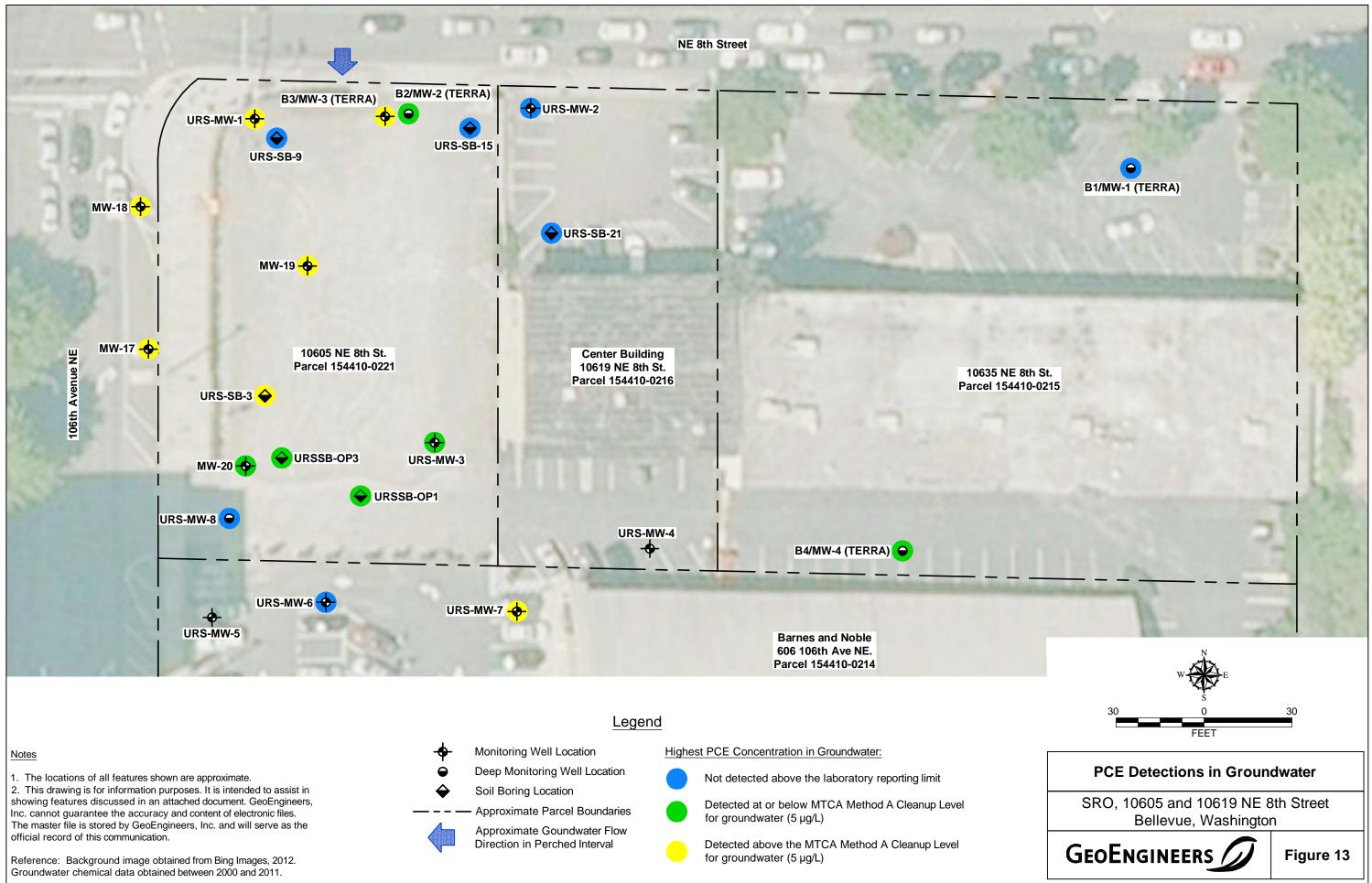


P:\9\9227004\00\CAD\03\_SHEET FILES\TASK 500 CLEANUP ACTION PLAN/REPORT\922700400\_TASK500\_FIG 7-9.DWG\TAB:FIG 9 MODIFIED BY TMICHAUD ON JUN 10, 2015 - 16:00





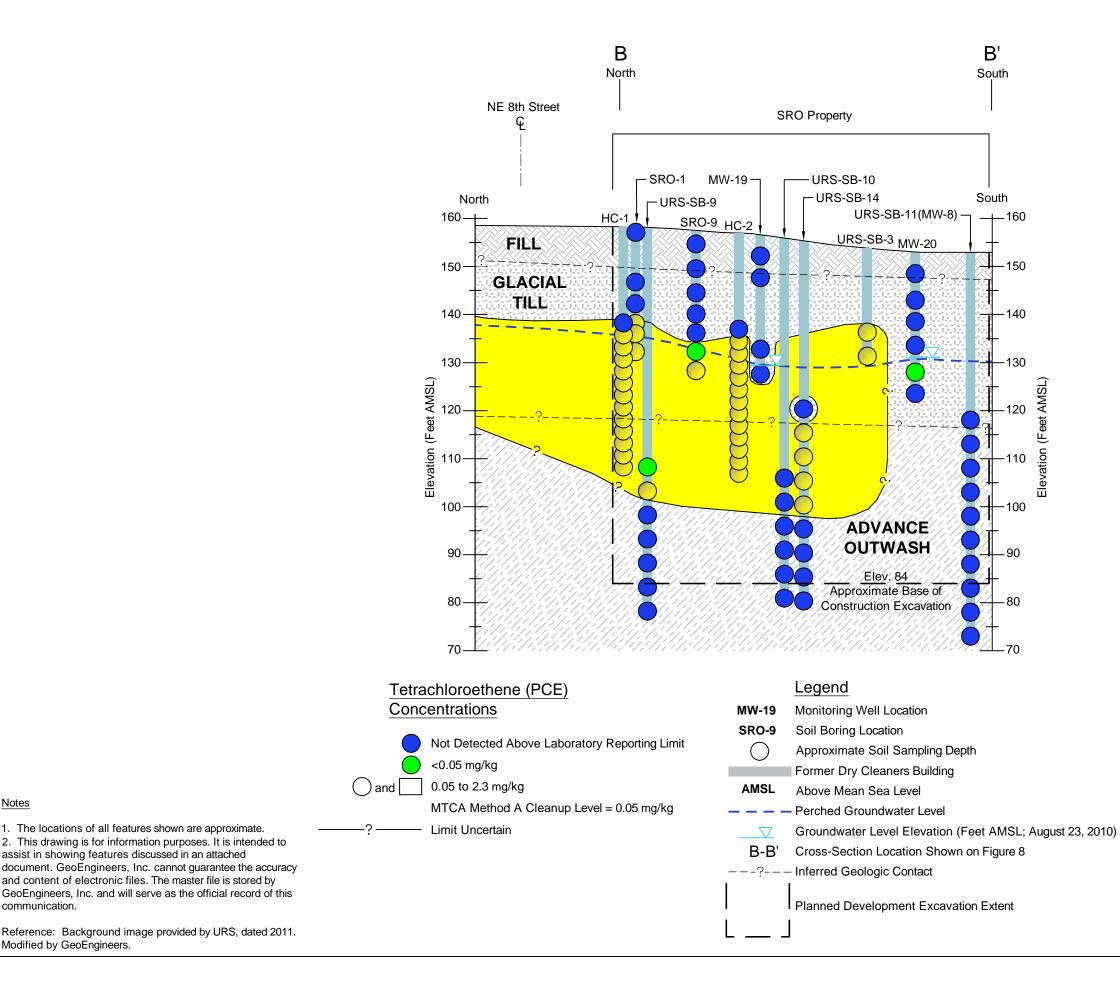


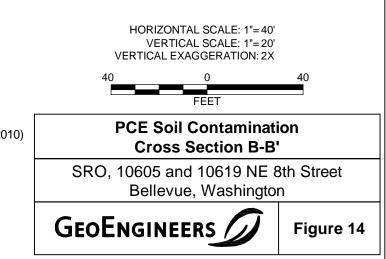


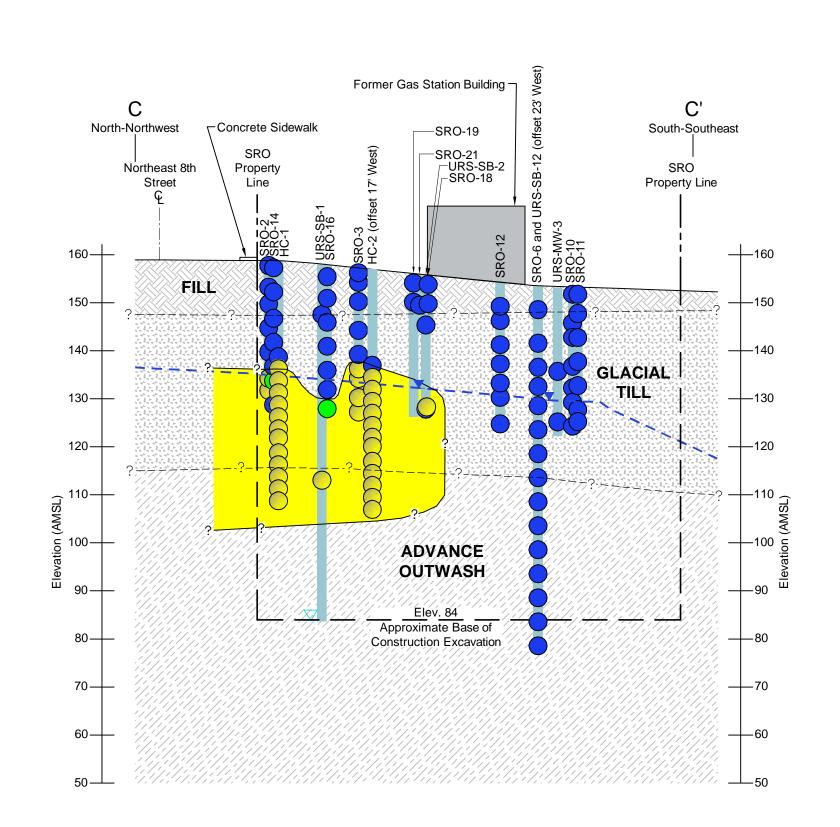
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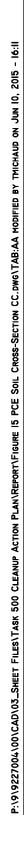
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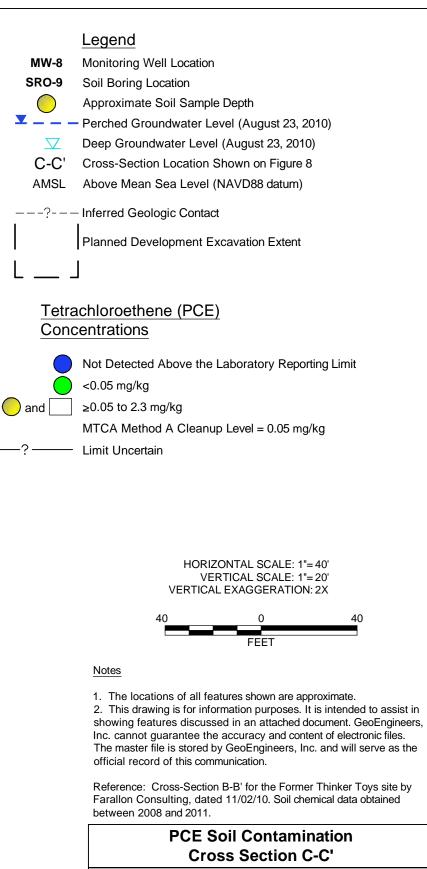
communication.







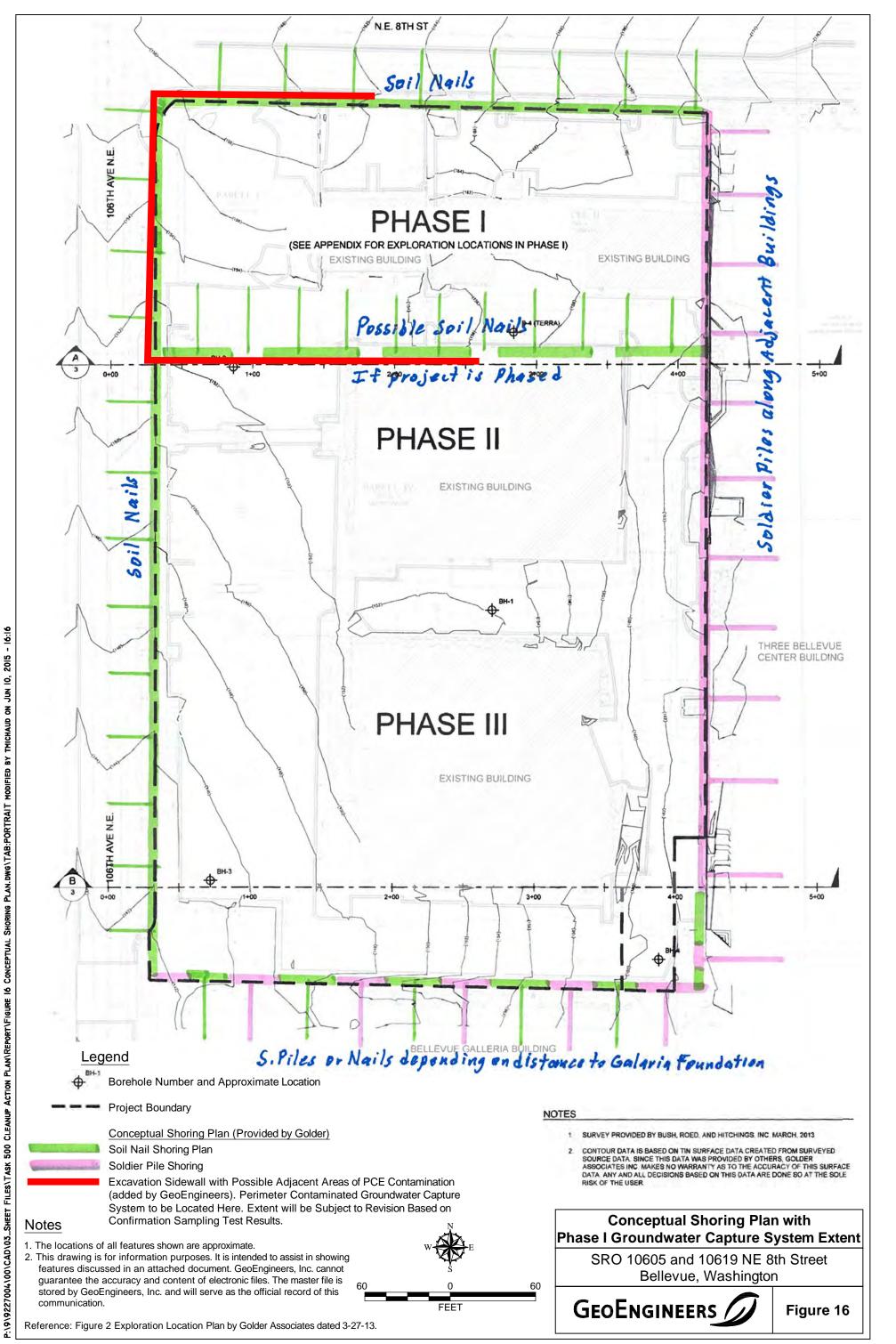




SRO, 10605 and 10619 NE 8th Street Bellevue, Washington



Figure 15





# **APPENDIX A** Report Limitations and Guidelines for Use

# APPENDIX A. REPORT LIMITATIONS AND GUIDELINES FOR USE

This appendix provides information to help you manage your risks with respect to the use of this report.

### **Environmental Services Are Performed for Specific Purposes, Persons and Projects**

GeoEngineers has completed this Cleanup Action Plan for the Bellevue Corner Property located at 10605 and 10619 NE 8<sup>th</sup> Street in Bellevue, Washington. This report has been prepared for the exclusive use of Sterling Realty Organization (SRO), their authorized agents and regulatory agencies. This report is not intended for use by others, and the information contained herein is not applicable to other properties.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and property. No one except Sterling Realty Organization, their authorized agents and regulatory agencies should rely on this environmental report without first conferring with GeoEngineers. Use of this report is not recommended for any purpose or project except the one originally contemplated.

## This Environmental Report is Based on a Unique Set of Project-Specific Factors

GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, it is important not to rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

If important changes are made to the project or property after the date of this report, we recommend that GeoEngineers be given the opportunity to review our interpretations and recommendations. Based on that review, we can provide written modifications or confirmation, as appropriate.

## **Reliance Conditions for Third Parties**

This report was prepared for the exclusive use of our Client SRO. No other party may rely on the product of our services unless we agree to such reliance in advance and in writing. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with SRO dated October 26, 2012 and generally accepted environmental practices in this area at the time this report was prepared.



### **Historical Information Provided By Others**

GeoEngineers makes no warranties or guarantees regarding the accuracy or completeness of information provided by others. The information presented in this report is based on the above-described research. GeoEngineers has relied upon information provided by others in our descriptions of historical conditions and in our review of regulatory databases and files. The available data do not provide definitive information with regard to all past uses, operations or incidents at the property or adjacent properties.

## **Uncertainty May Remain Even After This Study is Completed**

No study can wholly eliminate uncertainty regarding the potential for environmental conditions or contamination in connection with a property. There is always a potential that areas with contamination that were not identified during previous study exist at the Property or in the study area. Our interpretation of subsurface conditions is based on field observations and chemical analytical data from widely-spaced sampling locations. It is always possible that contamination exists in areas that were not explored, sampled or analyzed.

### **Environmental Regulations Are Always Evolving**

Some substances may be present in the vicinity of the subject property in quantities or under conditions that may have led, or may lead, to contamination of the subject property, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substances, change or if more stringent environmental standards are developed in the future.

### **Subsurface Conditions Can Change**

This plan is based on conditions that existed at the time the plan was prepared. The findings and conclusions of this plan may be affected by the passage of time, by man-made events such as construction on or adjacent to the subject property, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Please contact GeoEngineers before applying this report for its intended purpose so that GeoEngineers may evaluate whether changed conditions affect the continued applicability of the report.

### **Soil and Groundwater End Use**

The cleanup levels referenced in this plan are Property- and situation-specific. The cleanup levels may not be applicable for other properties or for other on-site uses of the affected soil and/or groundwater. Note that hazardous substances may be present in some of the on-site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject property or reuse of the affected soil or groundwater on-site to evaluate the potential for associated environmental liabilities. We are unable to assume responsibility for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject property to another location or its reuse on-site in instances that we did not know or could not control.



### **Most Environmental Findings Are Professional Opinions**

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the subject property. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an informed opinion about subsurface conditions throughout the property. Actual subsurface conditions may differ, sometimes significantly, from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

### An Environmental Report Could be Subject to Misinterpretation

Misinterpretation of this plan by other design team members can result in costly problems. You could lower that risk by having GeoEngineers confer with appropriate members of the design and construction team after submitting the plan. Also retain GeoEngineers to review pertinent elements of the design and construction team's plans and specifications. Contractors can also misinterpret an environmental plan. Reduce that risk by having GeoEngineers participate in pre-bid and preconstruction conferences, and by providing construction observation.

### **Biological Pollutants**

GeoEngineers' Scope of Services specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants, and no conclusions or inferences should be drawn regarding Biological Pollutants as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

A Client that desires these specialized services is advised to obtain them from a consultant who offers services in this specialized field.

## **Read These Provisions Closely**

It is important to recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are less exact than other engineering and natural science disciplines. Without this understanding, there may be expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you need to know more about how these "Report Limitations and Guidelines for Use" apply to your project or property.



Have we delivered World Class Client Service? Please let us know by visiting **www.geoengineers.com/feedback**.

