

**Remedial Investigation/Feasibility Study and
Cleanup Action Report**

Rufus 2.0 Development
Block 20
Seattle, Washington

for
Acorn Development LLC

February 3, 2020



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Block 20
Seattle, Washington**

File No. 20434-001-24

February 3, 2020

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EXECUTIVE SUMMARY

This report documents the Remedial Investigation/Feasibility Study (RI/FS) and Cleanup Action completed for the Block 20 project site (Property), which is bounded by Lenora and Blanchard Streets, and 7th and 8th Avenues, in the Denny Triangle Neighborhood of Seattle, Washington.

Remedial Investigation

The historic sources for the contamination identified at the Property are the fill soil and debris imported from an unknown source or sources and placed in the 1900s, and former automotive repair and fueling stations, which included USTs, that operated on the Property at periods between the 1940s and 2016.

Site investigation and characterization completed between 2012 and 2016 evaluated and documented the nature and extent of the contamination resulting from the sources listed above. Based on the results of soil and groundwater sampling and analysis, concentrations of cPAHs, metals, and/or TPH greater than the MTCA Method A cleanup levels were identified in fill soil at depths between approximately 2.5 to 20 feet below ground surface (bgs), and the contaminated fill soil was the media of concern for the cleanup action at the Property. Two home heating oil USTs were also discovered at the location of a former residential building along with associated localized TPH-contaminated soil. TPH-contaminated fill soil identified on the north half of the property likely was not related to these USTs, but to historic site uses including automotive repair and fueling and the historic contaminated fill soil.

Groundwater at the Property was evaluated based on the laboratory analysis of samples collected from four groundwater monitoring wells installed on the property. The depth to regional groundwater in wells ranges between approximately 55 and 80 feet bgs, and isolated lenses of perched water was identified at approximately 12 feet bgs. Contaminants of concern were not detected at concentrations greater than the MTCA Method A cleanup levels in the groundwater samples from any of the four wells screened in the regional groundwater table.

Feasibility Study

The results of the feasibility study indicate that excavation and permitted off-site disposal was the most permanent and cost-effective cleanup remedy for the contaminated fill soil and met the MTCA remedy selection criteria. Excavation and off-site soil disposal of soil within the Property footprint was necessary for the planned Property redevelopment and allowed for effective integration of the construction and cleanup action activities for the Property.

Cleanup Action

The Cleanup Action was conducted in accordance with the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Cleanup Regulation [Chapter 173-340 Washington Administrative Code (WAC)], and included the removal and appropriate offsite disposal of soil with diesel- and heavy oil-range total petroleum hydrocarbons (TPH-D and TPH-O), carcinogenic polycyclic aromatic hydrocarbons (cPAHs), and metals (cadmium and lead) at concentrations greater than the MTCA Method A or B cleanup levels. The Cleanup Action was conducted from October 2016 to February 2017 and included the removal of two underground storage tanks. The excavation for project construction included removal of soil from the entire Property footprint to a depth of up to 85 feet below ground surface. The laboratory analytical results for soil samples collected at the limits of the excavations indicated that soil with concentrations of the contaminants of concern, including TPH, cPAHs, and metals (lead and cadmium) greater than the MTCA cleanup levels had been removed from the Property. The laboratory analytical results

for the groundwater samples collected from the on-property monitoring wells indicate that groundwater has not been impacted by the contaminants of concern.

This Executive Summary should be used only in the context of the full report for which it is intended.

1.0 REMEDIAL INVESTIGATION

1.1. Introduction

This report documents the remedial investigation, feasibility study, and cleanup action conducted to address soil contaminated with total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), and metals at the Rufus 2.0, Block 20 Property redevelopment project located in the Denny Triangle (also known as the Denny Regrade) neighborhood of Seattle, Washington (“Property”). The cleanup action was conducted in accordance with the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) (Chapter 173-340 Washington Administrative Code [WAC]). General Property information is summarized in Table I below.

TABLE I. GENERAL PROPERTY INFORMATION

Project Contacts	
Property Owner	Acorn Development LLC
Environmental Consultant	GeoEngineers – Tony Orme (Associate) and Chris Brown (Project Manager)
Property Information and Location	
Site Address	Block 20, Denny Triangle neighborhood, Seattle, Washington.
Approximate Surface Elevation	Site grades range from approximately 80 feet to 98 feet (NAVD88).
General Description	Full city block located between Lenora and Blanchard Streets, and 7 th and 8 th Avenues.
Parcel Numbers	066000-0270, 066000-0275, 06600-0280, 066000-0320
GPS Coordinates	47.616520° N, 122.338989° W
Quarter, Section, Township and Range	NE quarter of Section 31, Township 25N, Range 4E, Willamette Meridian
Geologic Setting and Subsurface Conditions	
Geologic Setting	Puget Sound Lowlands
Nearest Surface Water Body	Puget Sound is approximately 0.56-miles southwest, Lake Union is approximately 0.67-miles north
Soil and Geologic Conditions	Fill overlying glacially-deposited sediments (discussed further in Section 1.2.2)
Depth to Groundwater	Regional groundwater is anticipated to be located between approximate elevations 10 to 25 feet (NAVD88), or 55 to 88 feet below site grades. Localized and discontinuous perched groundwater was encountered during drilling at locations within 20-feet of ground surface (discussed further in Section 1.2.2).
Inferred Direction of Shallow Groundwater Flow	Regional groundwater likely flows to the west toward the Puget Sound, based on surface topography.

The Property is a 1.77-acre lot, which is comprised of four adjoining King County parcels (06000-0270, -0275, -0280 and -0320), that encompass the full city block bounded by Blanchard Street to the northwest, 8th Avenue to the northeast, Lenora Street to the southeast and 7th Avenue to the southwest. For the discussion in this report, project north is considered toward 8th Avenue. The Property is shown relative to surrounding physical features on the Vicinity Map (Figure 1) and Site Plan (Figure 2). Prior to construction excavation associated with the redevelopment of the property beginning in 2016, existing site grades sloped gently down to the east, ranging from approximate Elevation 98 feet in the northwest corner of the site to approximate elevation 80 feet near the southeast corner of the site. The Property is located in the Denny Triangle, an area with on-going development activities in downtown Seattle.



Figure 1.1 Rufus 2.0 Development. Block 20 (subject property) is indicated with hatch lines.

1.1.1. Site History

GeoEngineers completed a Phase I Environmental Site Assessment (ESA) for the entire Rufus 2.0 redevelopment (Blocks 14, 19, 20, 21), including the Property (GeoEngineers, 2012b). Pertinent information pertaining to the Property, Block 20, is summarized below.

Block 20 consists of four tax parcels and 12 historical lots with varying prior uses. The earliest identified development consisted of approximately 19 residential buildings and several associated sheds and outbuildings that are shown in a 1905 Sanborn map publication. Most of the residential buildings were located on the west half of the block. Many of these buildings were demolished by the 1910s, replaced by buildings on the various lots as described below. The numbered lots and historical features of Block 20 are shown on the Site Plan, Figure 2.

Lots 1 and 2

A 1940 city directory identifies “Berglund Chas A” gasoline station at a Lot 2 address (2110 7th Avenue); however, no tax archive or Department of Planning and Development (DPD) building plan documents confirm fuel sales or indicate gasoline stations on this lot. An unlabeled, but possible small gasoline station building, and pump island structure is visible near 7th Avenue on Lot 2 on a side sewer card dated to the approximate 1940s. All structures were removed from the property by the early 1950s, and the lots were used as parking lots thereafter.

Lots 3 through 6

Approximately 12 residential buildings and outbuildings were located on these four lots between the early 1900s and the 1960s. According to available tax archive documents, at least one of these buildings used an oil-burning heating system, but no information regarding associated oil tanks is included in the available documents. All of these residential buildings were demolished by the late 1960s and replaced with used car sales and parking lots.

Tax archive documents include information regarding two small used car sales office buildings on Lots 5 and 6, but do not include any information identifying USTs or auto fueling or service activities on the property. Previous reports identify the presence of a UST on Lot 6 near a concrete patch; while no historical information could be located regarding this UST, it was likely associated with one of the former used car sales businesses.

Lots 7 through 10

In 1962, the western portion of the recent Toyota sales and service building was constructed (Lots 7 through 9; 2121 8th Avenue). The eastern portion of the building (Lot 10) was a 1966 addition. Tax archive and DPD building plans indicate that the 1962 building included six hydraulic hoists in the repair bays, a wash rack area in the southwest corner, and a sump in the northeast corner of the repair area. One 1,000-gallon bulk oil UST was originally located outside the southwest corner of the building. This UST was relocated east of the building during the 1966 addition. The 1966 addition also added a rooftop bulk oil storage room, and 11 more hoists inside the building. Based on review of the available DPD building plans, the hoists were labeled as “hydraulic hoists,” however, the plans show them as on-slab models without hoist pits that were to be installed by the building tenant. Conventional in-ground hydraulic hoists with sump pits were observed upon removal of the concrete slab of this building during construction excavation in 2016. A long trench drain running down the center of the service area is original to the building.

An additional 2,000-gallon UST was installed along the south wall of the building in 1972. The building was used for sales and service by a variety of companies including a Volkswagen dealership in the 1960s and 1970s, Bjorkland Chrysler in the mid-1980s, University Chevrolet in the early 1990s, and Toyota of Seattle from the mid-1990s thereafter.

The City of Seattle Fire Marshal provided copies of a 1989 permit for removal of three USTs from the dealership property, which was then University Chevrolet. The three USTs (two 1,000-gallon, one 2,000-gallon) were for gasoline, diesel, and waste oil. No information regarding the specific location of the USTs or the condition of the soil surrounding the USTs at the time of removal was included with Fire Marshal documents. Physical evidence of the three USTs was not observed during preconstruction site visits.

Lots 11 and 12

According to tax archive documents and Sanborn maps, a single-story brick warehouse building was built on Lot 11 (2109 8th Avenue) in 1919. The building was used by Gray Line Bus Tours in at least the 1930s and 1940s. A photograph on the building included in the tax archive documents shows additional signage on the building reading “Texaco Fire-Chief” and “Fire Chief Gas”, but no additional indicators of USTs or fueling services are included in the available documents. The tax archive documents also state that a concrete “slab used as wash rack” was also located in the building, but no detailed site plan showing the location of this feature was included.

Tax archive documents also include information regarding a three-story hotel building built in approximately 1909 on Lot 12. This building was heated by a central steam heating system (possibly oil-burning). While the upper floors were hotel rooms for “Owings Hotel,” the ground floor was occupied by several tenants, including tire repairing and retreading (at least 1920 through 1944), “Therm Gas Gen Co” oil burners (at least 1930 through 1966, and a trucking/transfer company (1920s). No detailed information about building layout and improvements was available.

Buildings on Lots 11 and 12 were demolished in 1971 and the property became a parking lot associated with the west-adjacent auto sales and service building. All existing structures on the property were demolished from September through December of 2016 in preparation for redevelopment of the Property.

Undocumented fill soil was imported to the Property and surrounding properties at some time in the past, likely during the early 1900s concurrent with the historic Denny Regrade project. The source(s), dates, and quantities of fill imported are not known. Contaminants have been identified in the imported fill as described in this report.

1.1.2. Current Site Use

The Property is currently occupied as office and mixed-use commercial buildings. A 36-story tower with six levels of underground parking was completed in 2020. Redevelopment activities on Block 20 make up one phase of a multi-office-tower redevelopment project that spanned four and a half contiguous city blocks, known as the Rufus 2.0 Development.

1.2. Field Investigations

1.2.1. Previous Environmental Investigations

Based on the Phase I ESA findings described in Section 1.1.1 above, GeoEngineers, Inc. (GeoEngineers) completed a Phase II ESA for Block 20, in conjunction with the full Rufus 2.0 redevelopment (Blocks 14, 18, 19, 20, and 21) (GeoEngineers, 2012c). The Phase II environmental investigation at the Property was conducted to assess the potential presence of contamination in soil and/or groundwater. The Phase II explorations, completed in February and April of 2012, were executed in two stages as described below.

- Stage 1: Six hollow-stem auger (HSA) borings (MW20-1 through MW20-3 and B20-1 through B20-3) were advanced to depths of up to 86.5 feet below ground surface (bgs). Three of the borings (MW20-1 through MW20-3) were completed as monitoring wells. The borings were completed in areas of known recognized environmental conditions identified during the Phase I ESA, and/or locations selected to provide information for geotechnical engineering design.
- Stage 2: Eighteen direct-push technology (DPT) borings (MW20-4 through MW20-6 and B20-4 through B20-18) were advanced to depths of up to 30 feet bgs. Three of the borings (MW20-4 through MW20-6) were completed as monitoring wells. Boring locations were chosen as follows:
 - **Northern Half:** Eight borings were completed near the Toyota Auto Sales Center, and near the locations of three possible or known former USTs where contaminated soil (TPH, metals, PAHs and VOCs) was identified during the February 2012 investigation. Five borings were completed in the 8th Avenue and Blanchard Street rights-of-way to evaluate the potential for off-site contaminant migration.
 - **Southern Half:** Five borings were completed in the southern half of Block 20 to characterize the fill soil, and to identify the fill/native contact.

Supplemental subsurface explorations were completed in April 2015 to evaluate the extent of contaminated fill soil identified during the 2012 explorations, and to characterize previously unexplored areas in support of construction excavation. Fourteen DPT borings (B20-19 through B20-32) were advanced to depths up to 25 feet bgs.

Additionally, in November 2016, near the beginning of mass excavation activities, five test pits were completed on the south half of the Property to characterize fill soil in unexplored areas prior to construction excavation and off-site disposal. Test pits TP-W14S36, TP-W4S35, TP-W14S9, TP-W4S20, and TP-W3S5

were completed to depths of up to 15 feet bgs. The approximate locations of the 2012 and 2015 borings, and the 2016 test pits are shown on Figure 3. Field procedures and boring logs are presented in Appendix B.

The approaches for characterization of soil and groundwater at the subject property and for delineation of the Remedial Excavation Areas were based on the results of the 2012 and 2015 environmental drilling and soil and groundwater sampling, the 2016 test pit explorations, and soil sampling conducted during construction mass excavation. A summary of the soil and groundwater results from the environmental characterization explorations is provided in the subsequent sections, and analytical data are included on Tables 1 through 3. The laboratory reports and our review of the laboratory quality control data are presented in Appendix C.

1.2.2. Site Characterization

In addition to the 2012 Phase II ESA explorations and 2015-2016 supplemental environmental explorations described above, GeoEngineers completed geotechnical subsurface explorations for the Property that are described in our report titled, "Geotechnical Master Use Permit Report, Rufus 2.0 Development, Seattle, Washington," (GeoEngineers, 2012c). The following summary of subsurface conditions is based on our observations during the 2012 and 2015 geotechnical and environmental explorations, and observations and soil sample analysis during construction excavation on the Property in 2016 and 2017.

1.2.2.1. Soil Conditions

Soil encountered at the Property consists of imported fill overlying native material including recent deposits and competent glacially consolidated soils. Up to three soil units were observed including:

- **Fill** generally consists of silty sand and silt with variable gravel and cobble content and occasional charred wooden debris, brick, and rubble.
- **Recent deposits** generally consist of silt and clay with occasional sand interbeds and variable gravel content or sand with variable silt and gravel content. The recent deposits were typically observed below the fill. Where observed, the recent deposits typically ranged in thickness from 4 to 14 feet.
- **Glacially consolidated soils** were encountered below the fill and recent deposits, where present. Three glacially consolidated units were encountered in the explorations: cohesive silt and clay, cohesionless sand and gravel, and till-like deposits. Additionally, while not encountered during our drilling activities, occasional cobbles and boulders were observed in glacially consolidated soils.

The thickness of fill encountered in the explorations generally increased across the site from the southwest corner of the Property toward the northeast corner of the Property. Fill thickness ranged between approximately 2.5-5 feet in the southwest and approximately 15-20 feet in the northeast. Significant quantities of construction debris including charred wooden debris, brick, and rubble were observed in localized fill material.

Chemical analytical results for the soil samples collected from the fill and native soil units are summarized in Tables 1 through 3. Figures 4 through 6 show the locations of the characterization explorations and the contaminants (TPH, PAHs, and metals) detected in one or more soil samples at concentrations greater than the MTCA Method A cleanup levels.

Based on the results of the 2012 and 2015-2016 investigative activities, the likely source for the cPAHs and metals contamination is fill and debris-laden soil of unknown origin that had been historically imported to the property. Additionally, the former fueling station(s) and auto repair facility are possible sources for the TPH, metals, and cPAH contamination in soil on the Property.

February and April 2012, Initial Soil Characterization

In February and April 2012, the following contaminants of concern were detected at concentrations greater than the MTCA Method A cleanup levels in soil samples from the fill material:

- **Heavy-oil range TPH** from boring B20-3 (20 feet bgs);
- **Lead** in borings B20-3 (10 feet bgs) and B20-13 (7.5 feet bgs); and,
- **Total carcinogenic PAHs (cPAHs)** in borings MW20-1 (2.5 feet bgs), B20-3 (10 feet and 20 feet bgs), MW20-5 (5 feet bgs), and B20-8 (5 feet and 15 feet bgs).

CPAHs were detected in fill soil samples at locations and depths across the north half of the Property and appear to indicate the presence of contaminated fill with debris including brick, rubble, and charred wood.

Gasoline- and diesel-range TPH, non-carcinogenic PAHs, and/or VOCs were detected at concentrations less than the corresponding MTCA cleanup levels in soil samples from the fill material at borings MW20-1, MW20-3, MW20-4, MW20-5, B20-3, B20-4, B20-6, B20-8, and B20-13. Polychlorinated biphenyls (PCBs) were not detected at concentrations greater than the laboratory reporting limits in the soil samples tested. Refer to Figure 3 for the exploration locations from the 2012 through 2015 characterization activities.

April 2015 Supplemental Soil Characterization

Fourteen additional borings were advanced at the Property to further delineate the extent of TPH, cPAH-, and lead-contaminated fill soil identified by the 2012 soil investigation, and to characterize previously unexplored areas of the Property with fill soil that would be removed during construction excavation.

The following contaminants of concern were detected at concentrations greater than the MTCA Method A cleanup levels in soil samples from the fill material:

- **Heavy-oil range TPH** from boring B20-21 (10.5 feet bgs); and,
- **Total carcinogenic PAHs (cPAHs)** in borings B20-21 (10.5 feet bgs), B20-22 (7.5 feet bgs), B20-24 (3.5 feet bgs), and B20-27 (5 feet bgs).

CPAHs were not detected at concentrations greater than the laboratory reporting limits in the samples of the underlying native deposits. Similar to the results of the 2012 initial investigations, the detected cPAHs appear to be in samples of fill with charred wood and debris on the north half of the Property.

The VOC tetrachloroethene (PCE) was detected at a concentration of 0.0569 milligrams per kilogram in one soil sample (B20-24-3,5) collected from the fill soil at 3.5 feet bgs. PCE was not detected in any of the other soil samples from the fill or native deposits at the Property. Additionally, as discussed in Section 1.2.2.1, PCE was not detected in groundwater samples from the Property; therefore, direct contact is the potential exposure pathway for PCE in soil. The single detected concentration of PCE is much less than the

MTCA Method B cleanup level (480 mg/kg) based on direct contact. Contaminants of concern (gasoline-, heavy oil- and diesel-range total petroleum hydrocarbons, PAHs, metals, and VOCs) were not detected, or were detected at concentrations less than the MTCA cleanup levels in each of the remaining soil samples submitted for analysis.

November 2016 Supplemental Soil Characterization

Five test pits were completed on the Property to characterize the fill soil in unexplored areas of the south half of the Property prior to construction excavation and off-site disposal of the excavated soil.

The following contaminants of concern were detected at concentrations greater than the MTCA Method A cleanup levels in soil samples from the fill material:

- **Cadmium and Lead** in test pit TP-W14S9 (5.0 feet bgs); and,
- **Total carcinogenic PAHs (cPAHs)** in test pits TP-W14S9 (5.0 feet bgs) and TP-W3S5 (5.0 feet bgs).

Debris laden fill soil was identified in test pits TP-W14S9 and TP-W3S5 from the ground surface to approximately 10 feet bgs. Like the observations made of fill soil from the north half of the Property, cPAHs and metals (cadmium and lead) appear to be associated with debris. This debris including historic rubble and charred wood appears to be present within the fill at localized areas throughout the Property.

Construction Phase Soil Characterization (September 2016 through February 2017)

During mass excavation activities, additional soil samples were collected to characterize soil for off-site disposal. Soil samples were also collected in areas where soil had not previously been characterized, or in areas where incidental soil with field screening evidence of contamination was encountered during mass excavation.

The following contaminants of concern were detected at concentrations greater than the MTCA Method A cleanup levels in soil samples from the fill material:

- **Diesel range TPH** from soil sample W25N9-10.0 (10 feet bgs);
- **Lead** in soil samples W30N33-8.5 (8.5 feet bgs) and W29UN2-8.5 (8.5 feet bgs); and,
- **Total carcinogenic PAHs (cPAHs)** in 15 soil samples, primarily from the NE quadrant of the Property.

Diesel range TPH and CPAHs were not detected at concentrations greater than the laboratory reporting limits, and lead was not detected at concentrations greater than the MTCA Method A cleanup level, in samples of underlying native soil obtained from the excavation.

December 2016 UST Discovery, Closure, and Removal

In December 2016, during mass excavation activities, two previously unknown and undocumented USTs were discovered adjacent to one another in the southwest quadrant of the Property (shown on Figures 4 through 6). These tanks were considered exempt from Ecology UST notification requirements based on their contents (heating oil), capacity (less than 1,000 gallons each), and previous residential site use on Lots 4 and 5 (see Figure 2) where the tanks were discovered. UST information, site assessment observations, and the soil sampling conducted during tank removal are described below. The locations of the characterization and confirmation soil samples collected during the initial UST site assessments, and at the extents of the removal areas are shown on Figures 4 through 9. Chemical analytical data for the soil samples collected are shown on Tables 1 and 2. UST removal documentation, and the site assessment checklist are provided in Appendix D.

UST-1

UST-1 was cylindrical, welded steel construction measuring approximately 6-feet long and 3.5 feet in diameter, and was oriented north-to-south at a depth of approximately 7 feet bgs (top of tank). Based on the measured dimensions, the estimated capacity of the tank was approximately 450 gallons.

The tank exterior appeared to be moderately rusted, and was partially crushed and split open, possibly due to contact with construction equipment during discovery. No piping was observed attached to the tank or in nearby soil. Field screening of soil surrounding the tank indicated a potential petroleum release associated with the UST; one characterization sample (W13S29-10.0) was collected for laboratory analysis. Total cPAHs and lead were detected at concentrations greater than the MTCA Method A cleanup levels, and diesel-range TPH was detected at a concentration less than the MTCA Method A cleanup level in soil sample W13S29-10.0, which was collected at the base of the tank.

UST-2

UST-2 was discovered just below and to the east of UST-1 (approximately 10 feet bgs). This UST was also cylindrical, and welded steel measuring approximately 9-feet long and 4 feet in diameter with an estimated capacity of 900 gallons.

The tank exterior appeared to be moderately rusted and corroded with holes up to 1 square inch. No piping was observed attached to the tank or in nearby soil, which appeared to be native material consisting of grey, very dense silt. At the time of discovery, approximately 800 gallons of product was present in the tank; a product sample (UST-2-Product) was obtained and confirmed the contents as fuel oil No. 2 (home heating oil). Field screening evidence of a petroleum release to soil was observed beneath UST-2 at approximately 14 feet bgs, and one characterization sample (W12S28-14.0) was collected for laboratory analysis. Diesel- and heavy oil-range TPH and total cPAHs were detected at concentrations greater than the MTCA Method A cleanup levels, and total xylenes were detected at concentrations less than the MTCA Method A cleanup level in soil sample W12S28-14.0, which was collected at the base of the tank.

UST-1 and UST-2 were removed on December 19, 2016. A remedial excavation was completed to remove soil with field screening evidence of contamination surrounding the tanks; significant quantities of charred wood, brick, and concrete were observed during the excavation. Groundwater was not observed in the tank excavation, which measured approximately 36 feet (east to west) by 24 feet (north to south) and extended approximately 3 feet below the base of UST-2 (17 feet bgs). Six confirmation soil samples were collected at the extents of the excavation for laboratory analysis: one from each sidewall of the excavation, and one beneath each tank. Diesel- and heavy oil-range TPH, total cPAHs, BTEX, and lead were not detected at concentrations greater than the laboratory reporting limits in any of the confirmation samples with one exception: diesel-range TPH was detected in sample W13S30-13.0 (west sidewall of the excavation) at 95.9 mg/kg, which is less than the MTCA Method A cleanup level of 2,000 mg/kg.

UST-1 and UST-2 were removed from the Property for recycling prior to the remedial excavation. All soil surrounding the USTs was removed and transported off-site. Soil was profiled for permitted disposal based on the characterization soil samples described above, and direct-loaded for off-site disposal, so no stockpile samples were collected as part of the UST site assessment.

1.2.2.1. Groundwater Conditions

Static groundwater is present beneath the Property (Block 20) at depths of approximately 55 to 88 feet bgs. Based on monitoring well data, which is described below, the conditions observed during drilling and construction excavation, and data from monitoring wells in the vicinity, discontinuous zones of shallow perched water are present in isolated locations beneath the Property.

Three monitoring wells (MW20-1 through MW20-3) were installed at the northwest, southeast, and northeast corners of the Property, respectively, to investigate deep regional groundwater conditions for construction planning purposes. These wells were completed to approximately 84.5 feet bgs to allow for fluctuations in the elevation of the deep regional groundwater and were equipped with automated dataloggers to provide continuous groundwater level measurements over time. One shallow monitoring well, MW20-5, was installed near a suspected former UST associated with the historic Toyota building. MW20-5 was completed to approximately 20 feet bgs to evaluate potential perched water present at the Property. The approximate locations of the monitoring wells are shown on Figure 3. The boring logs and well construction details are presented in Appendix B. These wells were decommissioned prior to the beginning of construction excavation.

Groundwater was sampled from each of the four wells in March through April 2012 during the Phase II ESA investigation. The depth to groundwater during the March monitoring event was approximately 60 to 69 feet below ground surface in MW20-1 through MW20-3. The depth of perched water present in MW20-5 during the April monitoring event was approximately 12 feet below ground surface. Contaminants of concern including gasoline-, diesel-, and heavy oil-range TPH, PAHs, and VOCs were not detected at concentrations greater than the laboratory reporting limits in groundwater from MW20-1 through MW20-3 (regional groundwater), or in MW20-5 (perched water). Metals were either not detected at concentrations greater than the laboratory reporting limits or were detected at concentrations less than the MTCA Method A cleanup levels in the four groundwater samples. Chemical analytical results for the groundwater samples are summarized in Table 3.

1.2.2.2. Soil Vapor Conditions

As discussed in Section 1.3., Soil vapor was not considered a pathway of concern for the Property based on the following: 1) only limited detections of volatile compounds were identified in the soil and groundwater samples collected during the 2012 through 2016 investigation; 2), the contaminated fill soil on the Property, which was the source of the contaminants of concern at the Property was removed and disposed off-site.

1.2.2.3. Contaminants of Concern

The Remedial Action Area was identified as those areas on the Property where hazardous substances had come to be located due to the undocumented fill placed at the property, or historical releases associated with past Property use.

The identified cPAH and metals (lead and cadmium) contamination was likely related to the undocumented fill soil placed at the property for previous development, which contained significant quantities of charred wood, brick, and other construction and miscellaneous debris. The CPAHs, metals (lead), and diesel and heavy-oil range TPH in soil may also be related to the historical operation of automotive repair and fueling stations at the Property.

Based on the soil data obtained as part of the 2012 through 2016 investigations and during construction mass excavation, the extent of the contamination on the Property was limited to the fill soil.

Based on the chemical analytical results (Tables 1 through 3) for the soil samples obtained during our investigations and construction mass excavation, the contaminants of concern for the Property are the contaminants that were detected at concentrations greater than the MTCA Method A or B cleanup levels as summarized in Table II below.

TABLE II. CONTAMINANTS OF CONCERN

Characterization Soil Samples with One or More COCs at Concentrations Greater than MTCA CULS	Contaminants of Concern (COCs)	Potential Source
25 soil samples – see Table 2 and Figure 6	cPAHs	Imported fill from unknown sources and past site use including automotive repair and fueling activities
B20-3-10.0 MW20-5-5.0 B20-13-7.5 TP-W14S9-5.0 W13S29-10.0 W30N33-8.5 W29UN2-8.5	Metals (cadmium or lead)	
B20-3-20.0 B20-21-10.5 W25N9-10.0	Diesel- or heavy oil-range total petroleum hydrocarbons	

1.3. Conceptual Site Model

The results of the field investigations indicate that the Property contamination consists of cPAHs, metals (cadmium and lead), and diesel- and heavy oil-range TPH, likely included in the undocumented contaminated fill soil imported to the Property during the Denny Regrade, and historic site uses, including automotive repair and fueling activities. Building debris (brick, concrete, and lumber) observed in the fill may have been related to demolition of buildings historically located on or near the Property. Section 1.3.1 presents potential exposure pathways and receptors for the Property.

Based on the results of the remedial investigation, two potential receptors and/or pathways were determined to be **incomplete** and were **not evaluated further**:

- Terrestrial wildlife is not included as a receptor. The Property qualifies for an exclusion from the Terrestrial Ecological Evaluation (TEE) (Appendix E) because the site is less than 1.5 acres of contiguous undeveloped land and does not lie within 500 feet of such land. WAC 173-340-7491(c)(i) and (c)(ii).
- The soil vapor to indoor air pathway is incomplete because the selected remedy (remedial excavation) resulted in the removal of soil with the limited detections of volatile contaminants at concentrations greater than the laboratory reporting limits

1.3.1. Potential Exposure Pathways and Receptors

Exposure pathways describe the mechanisms by which an individual or population is exposed, or has the potential to be exposed, to hazardous substances at or originating from a Site [WAC 340-350 (7)(e)(ii)]. The following sections summarize our evaluations of the potential exposure pathways for the Property.

1.3.1.1. Soil to Groundwater

Contamination identified in soil samples on the Property was associated with fill and debris, and was situated above the laterally continuous regional water table. However, locally the contamination in soil at the Property, which is present at depths ranging from approximately 2.5- to 20-feet bgs, intersects shallow isolated perched groundwater that was encountered at approximately 12-feet bgs. The excavation and off-site disposal of soil to approximately 85 feet bgs across the Property that was completed as part of redevelopment activities, and that included the removal of the identified areas of contaminated soil, has

eliminated the soil to groundwater pathway. In addition, the contaminants of concern were not detected at concentrations greater than the laboratory reporting limits in the samples collected of deep regional groundwater or shallow perched water in the March through April 2012 sampling events.

1.3.1.2. Soil Direct Contact

Prior to the cleanup action, contaminated fill soil at the Property was present at depths ranging from 2.5 to 20 feet bgs. This contaminated fill soil presented a direct contact risk after the existing building and overlying soil were removed as part of preparation for Property redevelopment. The soil direct contact pathway was eliminated by construction soil excavation that extended to approximately 85 feet bgs, which included the removal of the contaminated soil from the Property. Therefore, following the cleanup action, the soil to direct contact pathway is no longer complete.

1.3.1.3. Soil to Surface Water (Runoff)

As stated above, contaminated soil was present at the Property beginning at approximately 2.5 feet bgs. This potential exposure pathway was not complete, and the contaminated soil did not pose a threat to surface water because there was formerly approximately 2.5 feet of concrete and asphalt paving, and clean soil between the ground surface and the contamination. This pathway was eliminated by construction soil excavation that extended to approximately 85 feet bgs, which included removal of the contaminated soil from the Property. Therefore, the soil to surface water pathway is not a concern for the Property.

1.4. Cleanup Standards

1.4.1. Terrestrial Ecological Evaluation

GeoEngineers completed a Terrestrial Ecological Evaluation (TEE) for the Property in accordance with MTCA. The Property qualifies for an exclusion from the TEE because there is “less than 1.5 acres of contiguous undeveloped land on the site or within 500 feet of the site” (WAC 173-340-7491(c)(i)). No further evaluation relative to the TEE is necessary. The basis for this exclusion is documented by the completed Terrestrial Ecological Evaluation Form and associated figure, included as Appendix E.

1.4.2. Cleanup Levels and Point of Compliance

The soil cleanup levels for contaminants identified in Section 1.2.2.3 are as follows.

■ Cadmium	2 mg/kg
■ Lead	250 mg/kg
■ cPAHs TEQ	0.1 mg/kg (Method A cleanup level for benzo(a)pyrene)
■ Diesel-Range TPH	2,000 mg/kg
■ Heavy Oil-Range TPH	2,000 mg/kg

These cleanup levels are the MTCA Method A or B soil cleanup levels for unrestricted land uses, which are based on direct contact or protection of groundwater (WAC 173-340-900, Table 740-1). The cleanup level for total cPAHs is calculated using the Toxic Equivalency (TEQ) methodology specified in WAC 173-340-708(8) and based on the Method A cleanup level for benzo(a)pyrene. The point of compliance is soil throughout the Property, which is the standard point of compliance for soil cleanup levels that are based on the protection of groundwater (WAC 173-340-740[6][b]). This point of compliance also meets the requirements for the point of compliance for soil cleanup levels based on direct contact (WAC 173-340-740[6][d]).

2.0 FEASIBILITY STUDY

2.1. Remedial Action Goals

The objective of the cleanup action completed at the Property was to:

- Remove soil containing contaminant concentrations greater than the applicable MTCA cleanup levels for unrestricted land uses to support a no further action (NFA) determination for the Property from Ecology.

2.2. Cleanup Remedy Alternatives and Selection of Preferred Cleanup Remedy

The redevelopment plan for the Property included property-wide soil excavation to a maximum depth of approximately 85 feet bgs. Because the contaminated soil identified beneath the Property was located within the construction boundary, soil excavation and appropriate off-site disposal as part of construction for Property redevelopment was identified as the most effective and permanent remedy to address the contaminated soil at the Property. Therefore, soil excavation and off-site disposal were selected as the cleanup remedy in compliance with applicable MTCA requirements, for the following reasons:

- The selected alternative meets the “minimum requirements for cleanup actions” (WAC 173-340-360(2)). Specifically, the alternative:
 - Could be completed within a relatively short period of time;
 - Meets threshold requirements described by MTCA (e.g. protects human health and the environment, complies with the cleanup standards, complies with state and federal laws and provides for compliance monitoring);
 - Is expected to be more effective than other available methods in achieving concentrations that are protective of human health and the environment;
 - Is permanent; and,
 - Considers public concerns.
- Excavation and off-site disposal of the contaminated soil is considered to be the most permanent and cost effective cleanup option for the Property.
- Excavation and off-site soil disposal of soil within the Property footprint was necessary for the planned Property redevelopment and allowed for effective integration of the construction and cleanup action activities at the Property.

The soil cleanup action was conducted by the owner concurrent with construction excavation from October 2016 to February 2017. The remaining sections of this report describe the cleanup action plan, remedial excavation activities, cleanup confirmation soil sampling, and off-site permitted disposal of the contaminated soil.

3.0 CLEANUP ACTION PLAN

This section summarizes the cleanup action plan that was implemented for the Property. Acorn implemented the cleanup action plan as an independent cleanup in accordance with MTCA and associated implementing regulations (i.e., Chapter 173-340 WAC).

3.1. Cleanup Action Plan Summary

The cleanup action plan consisted of excavation and permitted off-site disposal of contaminated soil as the selected cleanup remedy (discussed in Section 2.2) and the cleanup action was implemented concurrent with property redevelopment activities. Remedial excavation areas were delineated based on the results of the 2012 through 2016 Property investigation and contaminant characterization activities that identified cPAHs, metals, and TPH in fill soil at concentrations greater than the MTCA Method A cleanup levels. Confirmation soil samples were collected at the limits of the remedial excavation areas to verify the removal of the contaminated soil from the Property and document that the cleanup standards and points of compliance discussed in Section 1.4 have been attained.

The monitoring wells at the subject property were decommissioned in accordance with the requirements in WAC 173-160-460. The USTs discovered during Property redevelopment were removed in accordance with WAC 173-360 and Ecology Publication No. 91-30 “Guidance for Site Checks and Site Assessments for Underground Storage Tanks” by the Washington State Department of Ecology dated April 2003.

3.1.1. Soil Excavation and Disposal

1. Remedial excavation activities occurred during the soil excavation for Property redevelopment between October 2016 and February 2017. Excavated soil was segregated based on the soil quality categories presented in the Environmental Construction Contingency Plan (ECCP) for the subject property titled, “Block 20 Environmental Construction Contingency Plan, Soil and Groundwater Management, Rufus 2.0 Development, Block 20 Denny Triangle, Seattle, Washington, 98101,” (GeoEngineers, 2013). GeoEngineers prepared the ECCP based on the results of the 2012 investigation and characterization of soil and groundwater conditions at the Property; however, soil quality categories were updated prior to soil excavation based on the results of the 2015 additional investigation and characterization activities at the Property. GeoEngineers was on site during the construction soil excavation at the Property to assist the contractor in segregating the fill soil for appropriate disposition based on the soil categories presented in the ECCP, and on field screening observations and characterization soil samples collected during soil excavation.
2. Contaminated soil identified during construction excavation at the Property was transported to an approved facility for permitted disposal. As noted in the ECCP (GeoEngineers, 2016), “contaminated” soil is defined as soil that has contaminant concentrations greater than the MTCA cleanup levels. A GeoEngineers’ representative was on site to assist in identifying the horizontal and vertical extent of the contaminated soil using water sheen and headspace vapor field screening methods, and to collect confirmation soil samples at the limits of the excavation.
3. Fill soil excavated from areas where contaminants of concern were detected at concentrations less than the MTCA Method A or B cleanup levels was transported to a permitted facility as “impacted” soil. As noted in the ECCP (GeoEngineers, 2016), “impacted” soil is defined as soil that has contaminant concentrations greater than natural background, but less than the MTCA cleanup levels. This soil was defined as “impacted” because it requires special off-site disposition.

Soil excavated during the remedial excavation, including during UST removal, was loaded directly into trucks and hauled off-site for permitted disposal at one of the following disposal facilities, at the discretion of the owner (Acorn):

- Waste Management's Columbia Ridge Landfill in Arlington, Oregon. A transfer station for this landfill is located in Seattle, Washington.
- CEMEX's treatment and disposal facility located in Everett, Washington; operating as Cadman since June 2017.

4.0 CLEANUP ACTION

4.1. Purpose and Scope

This section summarizes the successful independent MTCA cleanup action conducted at the Property between October 2016 and February 2017. The cleanup action consisted of the excavation and permitted off-site disposal of contaminated soil with cPAHs, metals, and/or diesel- and heavy oil-range TPH concentrations greater than the MTCA cleanup levels. The remedial excavation areas are shown on Figures 7 through 9.

GeoEngineers was on-site to field screen soil, document the removal of the cPAH-, metals-, and diesel- and heavy oil-range TPH-contaminated soil from the Property and collect cleanup confirmation soil samples for laboratory analysis. GeoEngineers' scope of services included the following activities:

- Observed soil excavation and the segregation of contaminated soil.
- Obtained characterization and confirmation soil samples from the limits (base and sidewalls) of the remedial excavation and field screened soil from the excavation for evidence of contaminants using visual and water sheen screening methods.
- Submitted selected soil samples obtained from the limits of the remedial excavation to an Ecology-accredited laboratory, Fremont Analytical, for chemical analysis for the contaminants of concern described in Section 1.2.
- Evaluated field and laboratory data relative to the MTCA Method A and B cleanup levels.
- Prepared this cleanup action report documenting the remedial action at the Property.

4.2. Remedial Excavation Activities

Based on the results of the 2012 through 2016 investigation and characterization activities at the Property, the remedial excavation areas were delineated, and the soils were profiled for permitted off-site landfill disposal. Characterization and cleanup confirmation samples were collected in the remedial action excavation areas where previous sampling and analysis had identified soil with contaminant concentrations greater than the cleanup levels. In the northeast quadrant of the Property where widespread cPAH contamination was identified in soil, cleanup confirmation samples were collected near previous sample locations that identified cPAH concentrations greater than the cleanup level. Figures 7 through 9 show the final Remedial Excavation Areas and confirmation soil sample locations.



Photo 1: Remedial excavation area, January 25, 2017. Standing near the southeast Property boundary looking northwest across the Property. Excavated fill soil pending transport off-site is shown in center right; excavated native glacial soil is shown in the center.

Pre-construction site elevations ranged from approximately Elevation 98 feet in the northwest corner of the Property at the intersection of 8th Avenue and Blanchard Street, to approximate Elevation 80 feet downslope to the southeast at the intersection of 7th Avenue and Lenora Street. The upper soil layer comprised entirely of fill soil, had previously been characterized as containing localized areas contaminated with cPAHs, metals (cadmium and lead), and/or diesel- and heavy oil-range TPH. The contaminated fill soil was primarily localized in the northeast quarter of the Property. The fill was overlaying non-impacted native soil. The fill/native soil contact was observed during exploratory soil borings and during the mass excavation from approximately 5 to 20 feet bgs. The remedial excavation areas (illustrated in Figures 7 through 9) included the cPAH, metals-, and/or TPH -contaminated fill soil that was present from ground surface to varying depths across the Property. Soil from each remedial excavation area was excavated as a part of the larger construction mass excavation at the Property, and was transported off-site for permitted disposal as outlined in Section 4.2.3 below. Underlying native material was excavated for construction purposes to depths ranging from 65 to 80 feet deeper than the fill-native boundary. Installation of shoring elements and construction excavation allowed for the removal of soil up to the property lines.

During installation of the temporary shoring wall, drill cuttings showed field screening evidence of petroleum contamination. Two characterization soil samples (one discreet sample from the auger drill flights, and one stockpile sample collected from drill cuttings during soldier pile installation) from the western Property boundary had cPAH concentrations greater than the MTCA Method A cleanup level: W30-2.5 (fill soil) and W9-SP-25 (fill and native soil). The cPAH concentrations greater than the MTCA cleanup level in these two samples are not considered to be of concern, and localized, based on analytical data for other samples collected at or near the Property boundary in the same locations as samples W30-2.5 and W9-SP-25. Contaminants of concern were not detected at concentrations greater than the laboratory reporting limits or were detected at concentrations less than the MTCA Method A cleanup levels, in deeper samples representative of soil at or near the Property boundary in the same locations as W30-2.5 (samples B20-14-7.5, and B20-14-12.5) and W9-SP-25 (samples W9-27.0 and W9-31.0). Contaminated soil within the shored perimeter of the Property was excavated and transported off site for permitted disposal.

Based on the laboratory analytical results for the confirmation soil samples obtained at the limits of the remedial excavation areas, the contaminated soil identified by the characterization soil samples described in Section 1.2 and listed in Tables 1-3 was successfully excavated for appropriate off-site disposal. The excavation contractor excavated approximately 38,714 tons of contaminated soil from the Property during excavation for Property redevelopment construction. GeoEngineers obtained soil samples at the horizontal and vertical limits of the remedial excavation areas to confirm the removal of the contaminated soil, as described in the Section 3.2.1. The final limits of the remedial excavation areas are shown on Figures 7 through 9.

4.2.1. Remedial Excavation Confirmation Soil Samples

Discrete confirmation soil samples were obtained during the remedial excavation activities to document the removal of contaminated soil from the Property. The approximate locations of the confirmation soil samples are shown on Figures 7 through 9, and the chemical analytical data are summarized in Tables 1 and 2. Tables 4, 5 and 6 summarize each of the confirmation soil samples relative to each of the samples exceeding MTCA Method A cleanup levels for petroleum, total metals and cPAHs. Cleanup confirmation samples were submitted to Fremont Analytical in Seattle, Washington, for chemical analysis for one or more of the following:



Photo 2: Remedial excavation area, December 15, 2016. Excavated fill soil, typical at the Property, and pending transport off-site. Fill soil contains significant quantities of debris, including charred wood, brick, and concrete.

- Resource Conservation and Recovery Act (RCRA) Metals by U.S. Environmental Protection Agency (EPA) Methods 6020 and 7471;
- cPAHs by EPA Method 8270D/SIM;
- VOCs by EPA Method 8260B;
- Gasoline-range total petroleum hydrocarbons by Northwest Method NWTPH-Gx;
- Diesel- and heavy oil-range total petroleum hydrocarbons by Northwest Method NWTPH-Dx; and,
- PCBs by EPA Method 8082.

Field procedures and sampling methods are described in Appendix B.

As noted above, confirmation soil samples from the excavation sidewalls and base were collected near the locations where previous soil characterization samples indicated contaminant concentrations greater than the MTCA cleanup levels. Confirmation soil samples were obtained per the sampling plan described in Section 3.2 and are representative of the concentrations in soil from the excavation base and sidewalls.

Contaminants of concern were not detected at concentrations greater than the laboratory reporting limits, or the detected concentrations were less than the MTCA cleanup levels in the confirmation soil samples collected from the limits (base and sidewalls) of the remedial excavation areas.

Chemical analytical results for the cleanup confirmation soil samples are summarized in Tables 1 and 2; locations are shown on Figures 7 through 9. The laboratory reports and our review of the laboratory quality control data are presented in Appendix C.

4.2.2. Groundwater

Groundwater was not encountered during soil excavation.

4.2.3. Contaminated Soil Disposal

Contaminated soil removed from the remedial excavation areas was transported off the Property to Waste Management's transfer station in Seattle, Washington for permitted disposal at their Subtitle D landfill in Arlington, Oregon. Approximately 38,714 tons of soil as documented by weight tickets provided by the owner's general contractor, Northwest Construction, was removed from the Property during remedial and mass excavation.

Fill soil excavated from areas where contaminants of concern were detected at concentrations less than the MTCA Method A or B cleanup levels ("impacted" soil) was transported off the Property to CEMEX's treatment and disposal facility for permitted disposal in Everett, Washington. Approximately 17,048 tons of "impacted" soil was removed from the Property during construction excavation. The "impacted" soil was not of regulatory significance, but was managed to facilitate soil handling during the much larger mass construction excavation.

Total soil tonnage weight tickets provided by the disposal facilities are included as Appendix F.

5.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1. Remedial Investigation

The historic sources for the contamination identified at the Property are the fill soil and debris imported from an unknown source or sources and placed in the 1900s, and former automotive repair and fueling stations, which included USTs, that operated on the Property at periods between the 1940s and 2016.

Site investigation and characterization completed between 2012 and 2016 evaluated and documented the nature and extent of the contamination resulting from the sources listed above. Based on the results of soil and groundwater sampling and analysis, concentrations of cPAHs, metals, and/or TPH greater than the MTCA Method A cleanup levels were identified in fill soil at depths between approximately 2.5 to 20 feet bgs, and the contaminated fill soil was the media of concern for the cleanup action at the Property. Two home heating oil USTs were also discovered at the location of a former residential building along with associated localized TPH-contaminated soil. TPH-contaminated fill soil identified on the north half of the property likely was not related to these USTs, but to historic site uses including automotive repair and fueling and the historic contaminated fill soil.

Groundwater at the Property was evaluated based on the laboratory analysis of samples collected from four groundwater monitoring wells (MW20-1, MW20-2, MW20-3, and MW20-5) installed on the property. The depth to regional groundwater in wells MW20-1 through MW20-3 was approximately 60 to 69 feet bgs in March 2012, and the depth of perched water identified in MW20-5 was approximately 12 feet bgs in April 2012. The contaminants of concern were not detected at concentrations greater than the MTCA Method A cleanup levels in the groundwater samples from any of the four wells. Refer to Figure 3 for the monitoring well locations.

5.2. Feasibility Study

The results of the feasibility study presented in Section 2.0 indicate that excavation and permitted off-site disposal was the most permanent and cost-effective cleanup remedy for the contaminated fill soil, and met the MTCA remedy selection criteria. Excavation and off-site soil disposal of soil within the Property footprint was necessary for the planned Property redevelopment, and allowed for effective integration of the construction and cleanup action activities for the Property.

5.3. Cleanup Action

A cleanup action consisting of excavation and appropriate off-site disposal was conducted to remove contaminated soil between October 2016 and February 2017 concurrent with Property redevelopment. A total of 38,714 tons of soil, including soil contaminated with cPAHs, metals, and TPH, was removed from the Property and transported to Waste Management's transfer station in Seattle, Washington for permitted disposal at their Subtitle D landfill in Arlington, Oregon.

Based on the chemical analytical results for the soil samples obtained at the final limits of the remedial excavations, the soil with contaminants of concern at concentrations greater than the MTCA cleanup levels was successfully removed from the Property. As discussed in Section 4.1, two sidewall samples of fill soil from the western Property boundary had cPAH concentrations greater than the MTCA cleanup level: W30-2.5 and W9-SP-25. However, contaminants of concern were not detected or were detected at concentrations less than the MTCA cleanup levels in deeper samples representative of soil at or near the same locations: W9-27.0, W9-31.0, B20-14-7.5, and B20-14-12.5. The cPAH concentrations greater than the MTCA cleanup level in sidewall samples W30-2.5 and W9-SP-25 are not considered to be of concern, and localized, based on analytical data for the other samples collected at or near the Property boundary in the same locations. All contaminated soil within the shored perimeter of the Property was excavated and transported off site for permitted disposal.

5.4. Conclusion

The excavation of the contaminated fill soil on Block 20 was conducted as part of the Property-wide larger construction mass excavation of soil for construction associated with the Property redevelopment project that includes an office tower with underground parking. The excavation for project construction included removal of soil from the entire Property to a depth of up to 85 feet below ground surface; therefore, focused soil excavation and permitted transport and off-site disposal was selected as the most cost-effective and permanent remedy to address the contaminated fill soil at the Property. The laboratory analytical results for soil samples collected at the limits of the excavations indicate that the soil with concentrations of the contaminants of concern, including TPH, cPAHs, and metals (lead and cadmium) greater than the MTCA cleanup levels has been removed from the Property. The laboratory analysis of groundwater samples collected from the on-site monitoring wells for the contaminants of concern indicate that groundwater has not been impacted. The results of the cleanup action indicate that the cleanup is complete, that the MTCA cleanup requirements have been met, that conditions at the property are protective of human health and the environment, and that no further action is warranted for the Property.

6.0 REFERENCES

- GeoEngineers, 2012a. Geotechnical Master Use Permit Report, Rufus 2.0 Development, Seattle, Washington, dated May 11, 2012
- GeoEngineers, 2012b. Phase I Environmental Site Assessment, Rufus 2.0, Denny Triangle, Blocks 14, 19, 20, 18 and 21, Seattle, Washington dated June 7, 2012.
- GeoEngineers, 2012c. Phase II Environmental Site Assessment, Rufus 2.0, Blocks 14, 19 and 20, Denny Triangle, Seattle, Washington 98101, dated June 7, 2012.
- GeoEngineers, 2013. Block 20 Environmental Construction Contingency Plan, Soil and Groundwater Management, Rufus 2.0 Development, Block 20 Denny Triangle, Seattle, Washington, 98101, dated November 13, 2014.
- Washington State Department of Ecology (Ecology). 1994. Natural Background Soil Metals Concentrations in Washington State. Toxics Cleanup Program, Department of Ecology. Publication #94-115. October 1994.

Table 1
Soil Field Screening and Chemical Analytical Data (Petroleum Hydrocarbons, PCBs and Metals)

Project Rufus 2.0
 Block 20, Denny Triangle, Seattle, Washington
 GeoEngineers File No. 20434-001-24

Sample Date	Exploration Location ¹	Sample ID	Depth (feet bgs)	Location of Sample Relative to Fill/Native Soil	Field Screening ²		Petroleum Hydrocarbons (mg/kg)			PCBs (mg/kg)	RCRA 8 Metals ⁵ (mg/kg)							TCLP-Pb ⁶ (mg/L)	
					Sheen	Headspace (ppm)	Gasoline Range ³	Diesel Range ⁴	Heavy Oil Range ⁴		Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver		Mercury
Hollow-Stem Auger Borings Completed February 27 - 28, 2012																			
02/27/12	MW20-1	MW20-1-2.5	2.5	Fill	ns	<1	<4.23	<17.9	130	<0.102	4.28	231	0.377	25.5	49.7	<0.421	0.0998	<0.268	--
		MW20-1-5.0	5	Fill	ns	<1	--	<18.9	<47.2	--	--	--	--	--	--	--	--	--	--
		MW20-1-12.5	12.5	Native	ns	<1	<4.47	<18.6	<46.5	--	2.06	45.7	<0.163	25.8	2.26	<0.408	<0.0815	<0.250	--
		MW20-1-70.0	70	Native	ns	<1	<5.27	<18.7	<46.8	--	--	--	--	--	--	--	--	--	--
02/28/12	MW20-2	MW20-2-5.0	5	Fill	ns	<1	<6.33	<26.5	<66.3	--	6.57	218	<0.192	67.4	9.63	<0.480	<0.0959	<0.272	--
		MW20-2-15.0	15	Native	ns	<1	<6.85	<23.4	<58.5	--	4.06	134	0.238	51	5.89	<0.485	<0.0970	<0.272	--
02/27/12	MW20-3	MW20-3-2.5	2.5	Fill	ns	<1	--	<19.5	74.5	--	--	--	--	--	--	--	--	--	--
		MW20-3-5.0	5	Fill	ns	<1	<3.86	<17.7	346	<0.107	3.74	70	0.22	23.8	27.9	<0.385	<0.0769	<0.225	--
		MW20-3-7.5	7.5	Fill	ns	<1	--	<18.5	<46.2	--	--	--	--	--	--	--	--	--	--
		MW20-3-15.0	15	Native	ns	<1	<6.17	<18.1	<45.4	<0.100	1.49	56.7	<0.164	22.5	1.69	<0.410	<0.0819	<0.233	--
02/28/12	B20-1	B20-1-5.0	5	Fill	ss	<1	<4.38	<21.4	<53.4	--	2.26	57.5	<0.157	23.2	3.82	<0.392	<0.0784	<0.256	--
		B20-1-12.5	12.5	Native	ns	<1	<4.84	<21.9	<54.8	--	4.37	68.4	<0.173	28.3	3.1	<0.433	<0.0865	<0.258	--
02/27/12	B20-2	B20-2-2.5	2.5	Fill	ns	<1	<4.59	<18.4	<45.9	<0.108	5.28	103	0.337	31.3	113	<0.386	0.126	<0.252	--
		B20-2-15.0	15	Native	ns	<1	<6.74	<22.0	<55.0	--	4.75	132	0.302	51.1	5.63	<0.491	<0.0982	<0.291	--
		B20-2-40.0	40	Native	ns	<1	<4.76	<20.2	<50.6	--	--	--	--	--	--	--	--	--	--
02/27/12	B20-3	B20-3-5.0	5	Fill	ns	<1	<7.57	<24.8	1,190	--	--	--	--	--	--	--	--	--	--
		B20-3-7.5	7.5	Fill	ns	<1	--	<21.1	1,570	--	--	--	--	--	--	--	--	--	--
		B20-3-10.0	10	Fill	ms	<1	28.9	<21.7	266	<0.111	5.79	207	2.04	33.3	471	<0.433	0.115	<0.242	0.599
		B20-3-12.5	12.5	Fill	ss	<1	--	39.5	305	--	--	--	--	--	--	--	--	--	--
		B20-3-15.0	15	Fill	ns	<1	--	<23.8	1,610	--	--	--	--	--	--	--	--	--	--
		B20-3-20.0	20	Native	ss	<1	46.2	74.4	2,780	<0.102	2.67	59.2	<0.181	23.7	6.01	<0.452	<0.0904	<0.281	--
		B20-3-22.5	22.5	Native	ss	<1	--	<20.2	85.4	--	--	--	--	--	--	--	--	--	--
		B20-3-25.0	25	Native	ns	<1	<5.37	<17.9	<44.8	--	--	--	--	--	--	--	--	--	--
B20-3-50.0	50	Native	ns	<1	<5.00	<19.7	<49.1	--	--	--	--	--	--	--	--	--	--		
Direct-Push Borings Completed April 9 - 19, 2012																			
04/11/12	MW20-4	MW20-4-7.5	7.5	Fill	ss	<1	<4.18	<20.1	127	--	2.44	49.2	<0.179	23.6	34.6	<0.447	<0.0893	<0.230	--
		MW20-4-12.5	12.5	Fill	ss	<1	<3.64	<21.5	<53.8	--	--	--	--	--	--	--	--	--	--
		MW20-4-17.5	17.5	Fill	ns	<1	<4.83	<22.7	<56.9	--	5.85	114	<0.204	49.1	4.33	<0.510	<0.102	<0.297	--
		MW20-4-22.5	22.5	Fill	ms	<1	<5.45	<21.7	196	--	--	--	--	--	--	--	--	--	--
04/15/12	MW20-5	MW20-5-5.0	5	Fill	ns	<1	<6.57	75.5	<52.2	--	9.28	469	1.01	35.1	524	<0.487	0.492	1.65	--
		MW20-5-15.0	15	Fill	ns	<1	<5.20	<20.9	<52.2	--	--	--	--	--	--	--	--	--	--
04/09/12	MW20-6	MW20-6-5.0	5	Fill	ns	<1	<4.55	<18.2	<45.5	--	2.34	49.4	0.159	19.1	10.8	<0.349	0.246	<0.243	--

Sample Date	Exploration Location ¹	Sample ID	Depth (feet bgs)	Location of Sample Relative to Fill/Native Soil	Field Screening ²		Petroleum Hydrocarbons (mg/kg)			PCBs (mg/kg)	RCRA 8 Metals ⁵ (mg/kg)							TCLP-Pb ⁶ (mg/L)	
					Sheen	Headspace (ppm)	Gasoline Range ³	Diesel Range ⁴	Heavy Oil Range ⁴		Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver		Mercury
04/15/12	B20-4	B20-4-5.0	5	Fill	ns	<1	<4.66	<18.6	<46.4	--	2.39	70.9	0.172	32.6	3.11	<0.410	<0.0819	<0.230	--
		B20-4-12.5	12.5	Fill	ns	<1	<4.89	<13.7	103	--	4.06	114	0.303	39.3	73.3	<0.406	0.0917	<0.273	--
04/15/12	B20-5	B20-5-10.0	10	Fill	ns	<1	<4.37	<19.3	<48.2	--	4.49	108	0.251	48.5	18.4	<0.375	<0.0751	<0.226	--
		B20-5-20.0	20	Native	ns	<1	<5.65	<18.6	<46.4	--	--	--	--	--	--	--	--	--	--
04/15/12	B20-6	B20-6-10.0	10	Fill	ns	<1	<6.95	<23.0	<57.5	--	8.50	291	0.359	94.5	191	<0.527	<0.105	1.86	--
		B20-6-20.0	20	Native	ns	<1	<5.22	<14.6	<36.5	--	--	--	--	--	--	--	--	--	--
04/15/12	B20-7	B20-7-7.5	7.5	Fill	ns	<1	<6.19	<21.4	<53.6	--	6.32	122	0.201	54.9	4.48	<0.465	<0.0931	<0.248	--
		B20-7-15.0	15	Native	ns	<1	<5.16	<15.2	<38.1	--	2.78	64.5	<0.161	44.1	2.31	<0.402	<0.0805	<0.207	--
04/15/12	B20-8	B20-8-5.0	5	Fill	ss	<1	<4.25	<15.1	<37.9	--	3.08	70.0	0.285	28.0	83.3	<0.377	<0.0755	<0.204	--
		B20-8-15.0	15	Fill	ns	<1	<4.59	<15.8	771	--	3.88	51.5	0.191	19.5	29.4	<0.424	<0.0848	<0.259	--
04/09/12	B20-9	B20-9-5.0	5	Fill	ns	<1	<4.49	<18.9	<47.2	--	2.66	53.4	0.154	22.1	4.76	<0.349	<0.0698	<0.234	--
04/09/12	B20-10	B20-10-7.5	7.5	Fill	ns	<1	<5.19	<22.1	<55.1	--	13	147	0.209	38.4	4.99	<0.434	<0.0868	<0.242	--
04/09/12	B20-11	B20-11-5.0	5	Fill	ns	<1	<5.00	<22.3	<55.7	--	7.74	129	0.454	29.2	46.8	<0.373	<0.0746	<0.211	--
04/09/12	B20-12	B20-12-7.5	7.5	Fill	ns	<1	<4.50	<21.4	<53.6	--	4.03	76.1	0.262	22.7	21.9	<0.418	<0.0837	<0.206	--
04/09/12	B20-13	B20-13-7.5	7.5	Fill	ns	<1	<5.28	<18.8	195	--	5.84	294	1.22	31.1	421	<0.401	0.161	0.355	--
04/19/12	B20-14	B20-14-7.5	7.5	Native	ns	<1	<6.14	<23.4	<58.5	--	4.2	83.1	<0.165	36	4.35	<0.413	<0.0826	<0.282	--
		B20-14-12.5	12.5	Native	ns	<1	<4.65	<22.2	<55.4	--	1.34	53	<0.165	26.6	2.02	<0.413	<0.0826	<0.275	--
04/19/12	B20-15	B20-15-5.0	5	Fill	ns	<1	<4.83	<22.0	<55.0	--	3.47	83.4	<0.162	32.4	3.11	<0.404	<0.0808	<0.281	--
		B20-15-15.0	15	Fill	ns	<1	<4.55	<21.2	<53.0	--	2.84	66.9	0.171	38.8	10.9	<0.419	<0.0839	<0.210	--
04/19/12	B20-16	B20-16-10.0	10	Fill	ns	<1	<5.93	<24.4	<61.0	--	4.87	157	0.237	50.7	6.62	<0.518	<0.104	<0.298	--
		B20-16-15.0	15	Fill	ns	<1	<6.90	<22.7	<56.7	--	6.19	95.2	<0.179	38.3	3.6	<0.447	<0.0894	<0.305	--
04/19/12	B20-17	B20-17-10.0	10	Fill	ns	<1	<6.22	<20.8	<51.9	--	4.08	95	<0.180	37	6.74	<0.451	<0.0901	<0.232	--
		B20-17-15.0	15	Native	ns	<1	<5.72	<22.3	<55.8	--	4.73	121	<0.177	51.5	5.57	<0.442	<0.0883	<0.288	--
04/19/12	B20-18	B20-18-7.5	7.5	Fill	ns	<1	<7.11	<24.5	<61.3	--	6.68	159	0.238	50.7	8.85	<0.470	<0.0941	<0.278	--
		B20-18-15.0	15	Fill	ns	<1	<6.26	<23.4	<58.5	--	8	185	<0.185	64.9	8.51	<0.463	<0.0927	<0.288	--
Direct Push Borings Completed April 15 - 16, 2015																			
04/15/15	B20-21	B-20-21-10.5	10.5	Fill	hs	>1,000	60.7	<26.3	8,120	--	4.85	--	0.603	32.4	155	--	--	<0.289 ⁷	<0.5
		B-20-21-13.0	13	Native	ns	<1	9.36	<25.1	1,170	--	--	--	--	--	--	--	--	--	--
04/15/15	B20-22	B-20-22-7.5	7.5	Fill	ns	<1	--	<22.3	<55.7	--	--	--	--	--	--	--	--	--	
04/15/15	B20-23	B-20-23-3.0	3	Fill	ms	75	<7.55	<19.6	934	--	3.67	--	<0.171	38.2	9.82	--	--	<0.274	--
04/16/15	B20-24	B-20-24-3.5	3.5	Fill	ns	<1	<5.21	<22.4	<55.9	--	14.7	--	0.853	37.8	216	--	--	0.452	--
		B-20-24-8.5	8.5	Native	ns	<1	<3.49	<26.6	<66.6	--	5.68	--	<0.210	49.6	3.71	--	--	<0.333	--
04/15/15	B20-25	B-20-25-2.0	2	Fill	ms	25	<2.76	<20.8	1,510	--	2.34	--	<0.158	30.7	7.94	--	--	<0.253	--
		B-20-25-12.5	12.5	Fill	ns	<1	--	<20.3	<50.7	--	--	--	--	--	--	--	--	--	--
04/16/15	B20-26	B-20-26-3.5	3.5	Fill	ns	<1	<2.46	<22.2	<55.6	--	6.65	--	<0.181	44.4	3.81	--	--	<0.277	--
04/15/15	B20-27	B-20-27-5.0	5	Fill	ns	<1	<4.53	<20.5	226	--	--	--	--	--	--	--	--	--	--
		B-20-27-17.5	17.5	Native	ns	<1	<4.22	<18.7	<46.6	--	--	--	--	--	--	--	--	--	--
04/16/15	B20-28	B-20-28-6.0	6	Fill	ns	<1	--	--	--	--	--	--	--	--	94.5	--	--	--	<0.5
		B-20-28-8.5	8.5	Fill	ns	<1	--	--	--	--	--	--	--	--	10.2	--	--	--	<0.5
04/16/15	B20-29	B-20-29-8.5	8.5	Native	ns	<1	--	--	--	--	--	--	--	8.32	--	--	--	--	
04/16/15	B20-30	B-20-30-8.5	8.5	Native	ns	<1	--	--	--	--	--	--	--	5.71	--	--	--	--	
04/16/15	B20-31	B-20-31-8.0	8	Fill	ns	<1	--	--	--	--	--	--	--	26.5	--	--	--	--	
04/16/15	B20-32	B-20-32-8.5	8.5	Fill	ns	<1	--	--	--	--	--	--	--	6.65	--	--	--	--	

Sample Date	Exploration Location ¹	Sample ID	Depth (feet bgs)	Location of Sample Relative to Fill/Native Soil	Field Screening ²		Petroleum Hydrocarbons (mg/kg)			PCBs (mg/kg)	RCRA 8 Metals ⁵ (mg/kg)							TCLP-Pb ⁶ (mg/L)	
					Sheen	Headspace (ppm)	Gasoline Range ³	Diesel Range ⁴	Heavy Oil Range ⁴		Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver		Mercury
Construction Phase Sampling Completed September 2016 through February 2017																			
09/30/16	TB-W14S15	TB-W14S15-5.0	5	Fill	ss	<1	<4.57	<22.6	<56.4	<0.111	10.4	131	<0.190	57.2	19.4	1.81	<0.0950	<0.297	--
			TB-W14S15-15.0	15	Native	ns	<1	<5.82	<56.4	525	<0.135	6.05	134	<0.211	79.5	6.08	2.10	<0.106	<0.332
10/10/16	W6	W6-15	15	Fill	ns	<1	<2.41	<23.0	<57.5	--	5.10	84.3	<0.180	35.8	9.04	1.38	<0.0899	<0.300	--
			W6-25	25	Native	ns	<1	<1.51	<23.0	<57.6	--	3.73	108	<0.193	51.7	4.13	1.69	<0.0964	<0.298
10/04/16	W9	W9-SP-25	25	--	ss	<1	39.8	<22.9	<57.1	--	3.64	--	<0.175	38.4 ⁵	8.08	--	--	<0.265	--
10/07/16	W10	W10-25	25	Fill	ns	<1	<1.62	<23.4	<58.4	--	5.43	100	<0.183	50.9	4.47	1.86	<0.0914	<0.276	--
			W10-45	45	Native	ns	<1	<2.79	<20.8	<52.0	--	1.78	32.0	<0.164	30.8	1.38	0.835	<0.0821	<0.260
10/11/16	W6S46	W6S46-15	15	Fill	ns	<1	<3.66	<22.3	<55.7	--	6.63	93.4	<0.183	43.2	3.88	1.51	<0.0917	<0.292	--
			W6S46-30	30	Native	ns	<1	<3.08	<24.7	<61.7	--	2.51	65.1	<0.192	39.3	2.44	1.21	<0.0962	<0.313
10/11/16	W9S46	W9S46-15	15	Fill	ns	<1	<3.34	<23.2	<58.1	--	9.23	135	<0.192	88.5	9.24	1.82	<0.0958	<0.282	--
11/08/17	W1S15	W1S15-2.5	2.5	Fill	ns	<1	<4.93	<21.6	<53.9	--	3.06	53.9	<0.180	46.6	2.52	1.23	<0.0902	<0.258	--
11/15/16	W3S30	W3S30-4.5	4.5	Fill	ss	<1	--	--	--	--	--	--	--	--	57.0	--	--	--	--
11/15/16	W3S25	W3S25-4.5	4.5	Fill	ss	<1	--	--	--	--	--	--	--	--	59.6	--	--	--	--
11/15/16	W6S27	W6S27-4.5	4.5	Fill	ss	<1	--	--	--	--	--	--	--	--	42.4	--	--	--	--
11/15/16	S28	S28-4.5	4.5	Fill	ss	<1	--	--	--	--	--	--	--	--	3.79	--	--	--	--
11/15/16	W2S10	W2S10-10.0	10	Native	ns	<1	--	<24.1	<60.3	--	--	--	--	--	--	--	--	--	--
11/15/16	W2S13	W2S13-5.0	5	Fill	ss	<1	--	<22.2	<55.6	--	--	--	--	--	--	--	--	--	--
11/15/16	W4S10	W4S10-5.0	5	Fill	ss	<1	--	<22.2	<55.4	--	--	--	--	--	--	--	--	--	--
11/15/16	S10	S10-5.0	5	Fill	ss	<1	--	<23.0	<57.6	--	--	--	--	--	--	--	--	--	--
11/15/16	W2S7	W2S7-5.0	5	Fill	ss	<1	--	<21.4	<53.4	--	--	--	--	--	--	--	--	--	--
11/21/16	W3S5	TP-W3S5-5.0	5	Fill	ss	<1	<5.57	<21.2	<52.9	--	6.47	204	0.293	55.1	165.00	1.41	0.129	<0.290	0.237
11/21/16	W4S20	TP-W4S20-5.0	5	Fill	ss	<1	<5.09	<23.2	<58.0	--	6.03	111	0.317	43.4	89.0	1.38	<0.0911	<0.298	--
11/21/16	W4S35	TP-W4S35-10.0	10	Fill	ss	<1	<4.70	<20.9	<52.4	--	2.49	49.7	<0.172	24.1	6.93	1.10	<0.0860	<0.280	--
11/21/16	W14S9	TP-W14S9-5.0 ⁹	5	Fill	ns	<1	<7.78	<27.1	<67.7	--	15.0	6,100 ¹⁰	57.9 ¹¹	145 ¹²	9,190	1.32	3.54	0.528	0.918
			TP-W14S9-7.5	7.5	Fill	ss	<1	--	--	--	--	--	--	--	--	3.03	--	--	--
11/21/16	W14S36	TP-W14S36-7.5	7.5	Fill	ss	<1	<5.99	<21.5	<53.8	--	3.34	54.9	<0.185	25.8	7.04	1.01	<0.0923	<0.281	--
12/05/16	W14S7	TP-W14S7-4.0	4	Fill	ss	<1	--	--	--	--	2.75	66.7	<0.163	34.3	14.7	1.00	<0.0815	<0.257	--
12/05/16	W14S15	TP-W14S15-4.0	4	Fill	ss	<1	--	--	--	--	5.49	96.2	<0.179	43.7	41.6	1.06	<0.0897	<0.285	--
12/05/16	W12S9	TP-W12S9-4.0	4	Fill	ss	<1	--	--	--	--	9.28	197	0.296	73.7	238	1.49	0.129	<0.315	--
12/05/16	W16S9	TP-W16S9-4.0	4	Fill	ss	<1	--	--	--	--	3.58	71.8	<0.164	34.8	21.2	0.935	<0.0818	<0.259	--
12/16/16	W14S9	W14S9-10.0	10	Fill	ns	<1	--	--	--	--	--	--	<0.215	--	--	--	--	--	--
12/16/16	W3S5	W3S5-10.0	10	Fill	ns	<1	--	--	--	--	--	--	--	--	7.11	--	--	--	--
12/20/16	W13S30	W13S30-13.0	13	Fill/Native	ss	<1	--	<25.5	95.9	--	--	--	--	--	8.02	--	--	--	--
12/28/16	W27N22	W27N22-5.0	5	Fill	ss	<1	<5.47	<20.2	62.3	--	5.71	240.0	0.222	40.8	102	1.53	0.136	<0.284	--
12/28/16	W24N23	W24N23-5.0	5	Fill	ss	<1	<5.51	<20.4	52.8	--	5.47	158.0	<0.0957	41.6	79.5	1.29	0.104	<0.271	--
12/28/16	W32N21	W32N21-5.0	5	Fill	ss	<1	<5.45	<21.7	126	--	5.10	138.0	<0.185	42.0	70.5	1.5	0.105	<0.286	--
12/29/16	W34N29	W34N29-11.0	11	Fill	ss	<1	43.9	<23.6	968	--	5.06	92.7	0.334	41.4	175	1.08	0.138	<0.300	1.10
12/29/16	W33N31	W33N31-11.0	11	Fill	ss	<1	<5.04	<20.6	52.5	--	5.21	91.2	<0.181	37.6	113	1.20	<0.0904	<0.278	<0.500
12/29/16	W34N33	W34N33-11.0	11	Fill	ns	<1	<4.69	<21.9	103	--	5.53	96.6	<0.191	63.0	62.8	1.33	<0.0953	<0.290	--
12/29/16	W23N30	W23N30-17.5	17.5	Native	ns	<1	<3.87	<21.2	<53.1	--	2.68	83.6	<0.183	33.3	21.3	0.821	<0.0915	<0.293	--
12/29/16	W24N33	W24N33-17.5	17.5	Native	ns	<1	<4.65	<22.4	<56.0	--	2.40	76.2	<0.179	35.6	3.29	0.791	<0.0896	<0.291	--
12/29/16	W27N36	W27N36-17.5	17.5	Native	ns	<1	<4.95	<23.5	<58.9	--	3.95	63.6	<0.185	44.6	2.79	1.20	<0.0924	<0.300	--

Sample Date	Exploration Location ¹	Sample ID	Depth (feet bgs)	Location of Sample Relative to Fill/Native Soil	Field Screening ²		Petroleum Hydrocarbons (mg/kg)			PCBs (mg/kg)	RCRA 8 Metals ⁵ (mg/kg)							TCLP-Pb ⁶ (mg/L)		
					Sheen	Headspace (ppm)	Gasoline Range ³	Diesel Range ⁴	Heavy Oil Range ⁴		Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver		Mercury	
12/29/16	W22N27	W22N27-8.5	8.5	Fill	ns	<1	<3.56	<23.4	<58.4	-	2.23	70.2	<0.185	35.8	25.8	0.919	<0.0923	<0.292	-	
12/29/16	W24N28	W24N28-8.5	8.5	Fill	ns	<1	<4.57	<21.9	<54.8	-	3.46	66.9	<0.191	36.2	32.7	1.59	<0.0954	<0.278	-	
12/29/16	W26N29	W26N29-8.5	8.5	Fill	ns	<1	<5.06	<23.6	127	-	4.81	65.1	<0.186	54.5	20.4	1.73	<0.0928	<0.294	-	
12/29/16	W28N31	W28N31-8.5	8.5	Fill	ns	<1	<5.32	<22.7	<56.7	-	4.93	73.7	<0.172	45.3	83.7	1.44	<0.0860	<0.277	-	
12/29/16	W30N33	W30N33-8.5	8.5	Fill	ns	<1	<4.01	<22.1	60.7	-	6.79	97.3	0.216	42.0	369	1.05	<0.0872	<0.274	<0.500	
12/29/16	W29UN2	W29UN2-8.5	8.5	Fill	ss	<1	<4.57	<22.0	73.4	-	4.84	96.5	0.209	44.9	321	1.04	<0.0959	<0.271	<0.500	
01/27/17		W29UN2-15.0	15	Native	ns	<1	-	-	-	-	-	-	-	-	3.62	-	-	-	-	
12/29/16	W26UN4	W26UN4-8.5	8.5	Fill	ns	<1	<3.60	<24.2	<60.4	-	3.10	62.1	<0.184	34.2	3.71	1.37	<0.0920	<0.306	-	
12/29/16	W21UN7	W21UN7-8.5	8.5	Fill	ns	<1	<3.94	<21.6	<54.0	-	2.82	75.4	<0.199	39.0	17.0	0.90	<0.0993	<0.286	-	
12/29/16	W20N30	W20N30-8.5	8.5	Fill	ns	<1	<5.69	<23.1	<57.8	-	6.47	99.3	<0.180	56.0	4.19	1.82	<0.0899	<0.291	-	
12/29/16	W20N34	W20N34-8.5	8.5	Fill	ns	<1	<6.48	<24.6	<61.4	-	9.78	109	<0.208	62.2	4.49	1.84	<0.104	<0.316	-	
12/29/16	W20UN1	W20UN1-8.5	8.5	Fill	ns	<1	<7.27	<23.7	<59.3	-	4.86	128	<0.212	83.9	5.32	1.97	<0.106	<0.321	-	
12/29/16	W20UN6	W20UN6-8.5	8.5	Fill	ns	<1	<6.49	<24.1	<60.2	-	6.37	132	<0.211	106	6.48	2.98	<0.106	<0.326	-	
01/03/17	W35N3	W35N3-2.5	2.5	Fill	ns	<1	-	<20.4	<50.9	-	6.69	129	0.324	46.6	81.6	1.39	0.126	<0.280	-	
01/03/17	W30N3	W30N3-2.5	2.5	Fill	ns	<1	-	<22.5	<56.1	-	2.4	43.4	<0.181	32.5	2.53	0.82	<0.0907	<0.269	-	
01/03/17	W27N11	W27N11-4.0	4	Fill	ns	<1	-	<22.5	<56.3	-	4.23	137	0.742	60.8	34.9	0.971	0.182	<0.291	-	
01/03/17	W27N15	W27N15-4.0	4	Fill	ss	<1	-	<19.1	80	-	3.84	134	0.32	38.7	57.7	0.861	0.185	<0.258	-	
01/03/17	W23N11	W23N11-4.0	4	Fill	ns	<1	-	<19.1	<47.7	-	4.55	63.3	<0.159	44.2	2.97	0.889	<0.0795	<0.248	-	
01/03/17	W23N15	W23N15-4.0	4	Fill	ns	<1	-	<18.2	<45.4	-	5.07	431	<0.164	37.1	34.7	0.861	<0.0820	<0.251	-	
01/05/17	W25N13	W25N13-3.5	3.5	Fill	ns	<1	-	-	-	-	-	-	-	2.67	-	-	-	-	<0.200	
01/05/17	W30	W30-2.5	2.5	Fill	ns	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	
01/05/17	W35	W35-2.5	2.5	Fill	ns	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	
01/06/17	W33N9	W33N9-6.0	6	Fill/Native	ns	<1	-	<19.6	<49	-	4	113	<0.176	41	23.7	1.37	<0.0881	<0.268	-	
01/06/17	W24N6	W24N6-6.0	6	Fill/Native	ns	<1	-	<21.4	<53.5	-	5.51	115	<0.173	42.1	18.7	1.32	0.0918	<0.277	-	
01/12/17	W20N25	W20N25-8.5	8.5	Fill	ns	<1	-	-	-	-	-	-	-	2.06	-	-	-	-	-	
01/18/17	W25N9	W25N9-10.0	10	Fill	ns	<1	<5.30	5,820	<59.6	-	-	-	-	-	2.90	-	-	-	-	
01/19/17	W25N9	W25N9-15.0	15	Fill	ns	<1	-	<20.5	<51.2	-	-	-	-	-	-	-	-	-	-	
01/20/17	W9S47	W9S47-30.0	30	Fill	hs	25	<4.84	431	<48.1	-	6.72	-	<0.186	54.4	4.07	-	-	<0.277	-	
01/27/17	W30N33	W30N33-14.5	14.5	Native	ns	<1	-	-	-	-	-	-	-	11.0	-	-	-	-	-	
01/27/17	W35N32	W35N32-16.0	16	Native	ns	<1	-	<21.4	<53.5	-	-	-	-	-	-	-	-	-	-	
01/20/17	W9	W9-27.0	27	Native	hs	<1	-	<22.6	<56.6	-	-	-	-	-	-	-	-	-	-	
02/08/17	W9	W9-31.0	31	Native	ns	<1	-	<23.1	<57.7	-	-	-	-	-	-	-	-	-	-	
02/08/17	N31	N31-11.0	11	Fill	ns	<1	-	<21.9	<54.7	-	-	-	-	-	-	-	-	-	-	
UST Sampling Completed December 2016																				
12/14/16	W13S29	W13S29-10.0	10	Fill/Native	hs	130	<7.57	662	<85.8	-	-	-	-	-	757	-	-	-	-	
12/20/16		W13S29-17.0	17	Native	ns	<1	-	<23.0	<57.6	-	-	-	-	-	4.47	-	-	-	-	
12/19/16	W10S28	W10S28-13.0	13	Native	ns	<1	-	<22.8	<57.0	-	-	-	-	-	4.05	-	-	-	-	
12/19/16	W14S28	W14S28-13.0	13	Native	ns	<1	-	<24.2	<60.6	-	-	-	-	-	2.94	-	-	-	-	
12/19/16	W12S24	W12S24-13.0	13	Native	ns	<1	-	<25.4	<63.5	-	-	-	-	-	5.21	-	-	-	-	
12/20/16	W12S28	W12S28-14.0	14	Native	hs	>1,000	-	11,800	8,180	-	-	-	-	-	3.16	-	-	-	-	
		W12S28-17.0	17	Native	ns	<1	-	<22.7	<56.9	-	-	-	-	-	5.01	-	-	-	-	
MTCA Method A or B Cleanup Level for Unrestricted Land Use							30/100 ¹³	2,000	2,000	1	20	16,000	2	2,000 ¹⁴	250	400	400	2	-	
Notes on last page							Puget Sound Natural Background Concentration				7	0.6	1	48	24	ne	ne	0.07	na	

Notes:

- ¹Approximate exploration locations shown on the attached figures. Chemical analytical testing by Fremont Analytical in Seattle, Washington.
- ²Field screening methods are described in Appendix B.
- ³Gasoline-range hydrocarbons analyzed by Northwest Method NWTPH-Gx.
- ⁴Diesel- and heavy oil-range hydrocarbons analyzed by Northwest Method NWTPH-Dx.
- ⁵Total metals analyzed by EPA Method 6010B/7471A.
- ⁶Lead TCLP extraction using EPA Method 1311.
- ⁷This sample was also submitted for Mercury with TCLP extraction using EPA Method 1311; mercury was not detected above laboratory reporting limits (0.002 mg/L).
- ⁸The chromium detected in this sample was also submitted for Chromium Speciation using EPA Method 7196. Hexavalent Chromium (Chromium VI) was not detected above laboratory reporting limits (0.567 mg/kg).
- ⁹This sample was submitted for pH by EPA Method 9045; the pH was 7.21.
- ¹⁰This sample was also submitted for barium with TCLP extraction using EPA Method 1311; barium was detected at a concentration of 1.63 mg/L.
- ¹¹This sample was also submitted for cadmium with TCLP extraction using EPA Method 1311; cadmium was detected at a concentration of 0.251 mg/L.
- ¹²This sample was also submitted for chromium with TCLP extraction using EPA Method 1311; chromium was not detected above laboratory reporting limits (0.100 mg/L). The chromium detected in this sample was submitted for Chromium Speciation using EPA Method 7196. Hexavalent Chromium (Chromium VI) was not detected above laboratory reporting limits (0.675 mg/kg).
- ¹³When benzene is present, the gasoline range cleanup level is 30 mg/kg. When benzene is not present the gasoline range cleanup level is 100 mg/kg.
- ¹⁴MTCA Method A cleanup level for Chromium III (Trivalent Chromium).

mg/kg = milligrams per kilogram

ns = no sheen, ss = slight sheen, ms = moderate sheen, hs = high sheen

bgs = below ground surface

-- = not tested

na = not applicable

ne = not established

Bolding indicates analyte was detected.

Shading indicates analyte was detected at a concentration greater than the MTCA Method A cleanup level.

Sample Date	Exploration Location ¹	Sample ID	Depth (feet bgs)	Non-Carcinogenic PAHs ² (µg/kg)											Total cPAHs ³ (µg/kg)	VOCs ⁴ (mg/kg)																		
				Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(g,h,i)perylene		TEQ	Chloroform	1,1,1-Trichloroethane (TCA)	Benzene	Toluene	Tetrachloroethene (PCE)	Ethylbenzene	m,p-Xylene	o-Xylene	n-Propylbenzene	1,3,5-Trimethylbenzene	1,2,4-Trichlorobenzene	sec-Butylbenzene	4-Isopropyltoluene	n-Butylbenzene	1,2-Dichlorobenzene	1,2,4-Trimethylbenzene	Naphthalene	
Construction Phase Sampling Completed September 2016 to February 2017																																		
09/30/16	TB-W14S15	TB-W14S15-5.0	5	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	nd	<0.0183	<0.0183	<0.0183	<0.0183	<0.0183	<0.0274	<0.0183	<0.0183	<0.0183	<0.0183	<0.0457	<0.0183	<0.0183	<0.0183	<0.0183	<0.0183	<0.0274	
		TB-W14S15-15.0	15	<53.3	<53.3	<53.3	<53.3	<53.3	<53.3	<53.3	<53.3	<53.3	<53.3	<53.3	<53.3	nd	<0.0233	<0.0233	<0.0233	<0.0233	<0.0233	<0.0349	<0.0233	<0.0233	<0.0233	<0.0233	<0.0582	<0.0233	<0.0233	<0.0233	<0.0233	<0.0233	<0.0349	
10/10/16	W6	W6-15	15	<46.4	<46.4	<46.4	<46.4	<46.4	<46.4	<46.4	<46.4	<46.4	<46.4	<46.4	<46.4	nd	<0.00965	<0.00965	<0.00965	<0.00965	<0.00965	<0.0145	<0.00965	<0.00965	<0.00965	<0.0241	<0.00965	<0.00965	<0.00965	<0.00965	<0.00965	<0.0145		
		W6-25	25	<45.2	<45.2	<45.2	<45.2	<45.2	<45.2	<45.2	<45.2	<45.2	<45.2	<45.2	<45.2	nd	<0.00602	<0.00602	<0.00602	<0.00602	<0.00602	<0.00904	<0.00602	<0.00602	<0.00602	<0.0151	<0.00602	<0.00602	<0.00602	<0.00602	<0.00602	<0.00904		
10/04/16	W9	W9-SP-25	25	<43.3	<43.3	<43.3	<43.3	<43.3	<43.3	<43.3	727	108	1,890	1,520	319	1123.60	<0.0223	<0.0223	<0.0223	<0.0223	<0.0223	<0.0335	0.0268	<0.0223	0.0402	0.0324	<0.0558	0.0469	0.0441	0.0849	<0.0223	0.131	0.127	
10/07/16	W10	W10-25	25	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	nd	<0.00646	<0.00646	<0.00646	<0.00646	<0.00646	<0.00970	<0.00646	<0.00646	<0.00646	<0.0162	<0.00646	<0.00646	<0.00646	<0.00646	<0.00646	<0.00970		
		W10-45	45	<42.1	<42.1	<42.1	<42.1	<42.1	<42.1	<42.1	<42.1	<42.1	<42.1	<42.1	<42.1	nd	<0.0112	<0.0112	<0.0112	<0.0112	<0.0112	<0.0167	<0.0112	<0.0112	<0.0112	<0.0112	<0.0112	<0.0112	<0.0112	<0.0112	<0.0112	<0.0112	<0.0167	
11/15/16	W2S7	W2S7-5.0	5	--	--	--	--	--	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/11/16	W6S46	W6S46-15	15	<42.4	<42.4	<42.4	<42.4	<42.4	<42.4	<42.4	<42.4	<42.4	<42.4	<42.4	<42.4	nd	<0.0147	<0.0147	<0.0147	<0.0147	<0.0147	<0.0220	<0.0147	<0.0147	<0.0147	<0.0147	<0.0366	<0.0147	<0.0147	<0.0147	<0.0147	<0.0147	<0.0220	
		W6S46-30	30	<45.2	<45.2	<45.2	<45.2	<45.2	<45.2	<45.2	<45.2	<45.2	<45.2	<45.2	<45.2	nd	<0.0123	<0.0123	<0.0123	<0.0123	<0.0123	<0.0185	<0.0123	<0.0123	<0.0123	<0.0308	<0.0123	<0.0123	<0.0123	<0.0123	<0.0123	<0.0123	<0.0185	
10/11/16	W9S46	W9S46-15	15	<43.1	<43.1	<43.1	<43.1	<43.1	<43.1	<43.1	<43.1	<43.1	<43.1	<43.1	<43.1	nd	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0200	<0.0134	<0.0134	<0.0134	<0.0334	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0200		
11/21/16	W3S5	TP-W3S5-5.0	5	<44.0	<44.0	<44.0	<44.0	<44.0	<44.0	<44.0	<44.0	<44.0	<44.0	<44.0	<44.0	109.30	<0.0223	<0.0223	<0.0223	<0.0223	<0.0223	<0.0334	<0.0223	<0.0223	<0.0223	<0.0557	<0.0223	<0.0223	<0.0223	<0.0223	<0.0223	<0.0334		
11/21/16	W4S20	TP-W4S20-5.0	5	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	nd	<0.0203	<0.0203	<0.0203	<0.0203	<0.0203	<0.0305	<0.0203	<0.0203	<0.0203	<0.0509	<0.0203	<0.0203	<0.0203	<0.0203	<0.0203	<0.0305		
11/21/16	W4S35	TP-W4S35-10.0	10	<38.8	<38.8	<38.8	<38.8	<38.8	<38.8	<38.8	<38.8	<38.8	<38.8	<38.8	<38.8	nd	<0.0188	<0.0188	<0.0188	<0.0188	<0.0188	<0.0282	<0.0188	<0.0188	<0.0188	<0.0470	<0.0188	<0.0188	<0.0188	<0.0188	<0.0188	<0.0282		
11/21/16	W14S9	TP-W14S9-5.0	5	<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	83.4	<49.8	120	113	<49.8	128.59	<0.0311	<0.0311	<0.0311	<0.0311	<0.0311	<0.0467	<0.0311	<0.0311	<0.0311	<0.0311	<0.0778	<0.0311	<0.0311	<0.0311	<0.0311	<0.0311	<0.0467	
11/21/16	W14S36	TP-W14S36-7.5	7.5	<49.3	<49.3	<49.3	<49.3	<49.3	<49.3	<49.3	<49.3	<49.3	<49.3	<49.3	<49.3	nd	0.03776	<0.0239	<0.0239	<0.0239	<0.0239	<0.0359	<0.0239	<0.0239	<0.0239	<0.0239	<0.0239	<0.0239	<0.0239	<0.0239	<0.0239	<0.0239	<0.0359	
12/05/16	W14S7	TP-W14S7-4.0	4	--	--	--	--	--	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/05/16	W14S15	TP-W14S15-4.0	4	--	--	--	--	--	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/05/16	W12S9	TP-W12S9-4.0	4	--	--	--	--	--	--	--	--	--	--	--	--	123.12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/05/16	W16S9	TP-W16S9-4.0	4	--	--	--	--	--	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/13/16	S5	S5-4.0	4	--	--	--	--	--	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/13/16	E17	E17-4.0	4	--	--	--	--	--	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/14/16	W13S29	W13S29-10.0	10	--	--	--	--	--	--	--	--	--	--	--	--	122.32	--	--	<0.0303	<0.0303	--	<0.0454	<0.0303	<0.0303	--	--	--	--	--	--	--	--	--	
12/16/16	W14S9	W14S9-10.0	10	--	--	--	--	--	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/16/16	W3S5	W3S5-10.0	10	--	--	--	--	--	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/28/16	W27N22	W27N22-5.0	5	<45.8	<45.8	<45.8	<45.8	86.6	66.9	744	149	754	867	280	512.72	0.0523	<0.0219	<0.0219	<0.0219	<0.0219	<0.0328	<0.0219	<0.0219	<0.0219	<0.0219	<0.0547	<0.0219	<0.0219	<0.0219	<0.0219	<0.0219	<0.0328		
12/28/16	W24N23	W24N23-5.0	5	<38.4	<38.4	<38.4	<38.4	<38.4	<38.4	82.1	<38.4	105	124	46.9	89.60	0.0525	<0.0221	<0.0221	<0.0221	<0.0221	<0.0331	<0.0221	<0.0221	<0.0221	<0.0551	<0.0221	<0.0221	<0.0221	<0.0221	<0.0221	<0.0221	<0.0331		
12/28/16	W32N21	W32N21-5.0	5	<40.4	48.8	<40.4	<40.4	<40.4	<40.4	180	<40.4	240	281	159	244	0.0512	<0.0218	<0.0218	<0.0218	<0.0218	<0.0327	<0.0218	<0.0218	<0.0218	<0.0218	<0.0218	<0.0218	<0.0218	<0.0218	<0.0218	0.047	<0.0327		
12/29/16	W34N29	W34N29-11.0	11	709	1,190	852	<50.6	<50.6	<50.6	124	<50.6	229	292	172	254.29	<0.0186	<0.0186	<0.0186	<0.0186	<0.0186	<0.0279	<0.0186	<0.0186	0.135	<0.0186	<0.0465	0.0331	<0.0186	0.159	<0.0186	0.308	0.261		
12/29/16	W33N31	W33N31-11.0	11	<41.3	<41.3	<41.3	<41.3	<41.3	<41.3	84.5	<41.3	126	148	72.3	106.60	<0.0202	<0.0202	<0.0202	<0.0202	<0.0202	<0.0302	<0.0202	<0.0202	<0.0202	<0.0504	<0.0202	<0.0202	<0.0202	<0.0202	<0.0202	<0.0302			
12/29/16	W34N33	W34N33-11.0	11	<45.7	<45.7	<45.7	<45.7	<45.7	<45.7	<45.7	<45.7	77	87.6	<45.7	75.98	<0.0188	<0.0188	<0.0188	<0.0188	<0.0188	<0.0282	<0.0188	<0.0188	<0.0188	<0.0469	<0.0188	<0.0188	<0.0188	<0.0188	<0.0188	<0.0282			
12/29/16	W23N30	W23N30-17.5	17.5	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	nd	<0.0155	<0.0155	<0.0155	<0.0155	<0.0155	<0.0232	<0.0155	<0.0155	<0.0155	<0.0387	<0.0155	<0.0155	<0.0155	<0.0155	<0.0155	<0.0232		
12/29/16	W24N33	W24N33-17.5	17.5	<40.4	<40.4	<40.4	<40.4	<40.4	<40.4	<40.4	<40.4	<40.4	<40.4	<40.4	<40.4	nd	<0.0186	<0.0186	<0.0186	<0.0186	<0.0186	<0.0279	<0.0186	<0.0186	<0.0186	<0.0465	<0.0186	<0.0186	<0.0186	<0.0186	<0.0186	<0.0279		
12/29/16	W27N36	W27N36-17.5	17.5	<42.8	<42.8	<42.8	<42.8	<42.8	<42.8	<42.8	<42.8	<42.8	<42.8	<42.8	<42.8	nd	<0.0198	<0.0198	<0.0198	<0.0198	<0.0198	<0.0297	<0.0198	<0.0198	<0.0198	<0.0495	<0.0198	<0.0198	<0.0198	<0.0198	<0.0198	<0.0297		

Table 3
Groundwater Chemical Analytical Data
 Project Rufus 2.0
 Blocks 20, Denny Triangle, Seattle, Washington
 GeoEngineers File No. 20434-001-23

Monitoring Well and Sample ID ¹	Sample Date	Well Screen Depth (feet bgs)	Petroleum Hydrocarbons (µg/L)			PAHs ⁴ (µg/L)			VOCs ⁵ (µg/L)			RCRA 8 Metals ⁶ (µg/L)							
			Gasoline Range ²	Diesel Range ³	Heavy Oil Range ³	2-Methylnaphthalene	1-Methylnaphthalene	Phenanthrene	Methyl tert-butyl ether (MTBE)	1,1-Dichloroethene	Tetrachloroethene (PCE)	Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver	Mercury
MW20-1	03/05/12	64.5 - 84.5	<50.0	<50.0	<100	<0.100	<0.100	<0.100	<1.00	<1.00	<1.00	2.66	58.9	0.204	7.27	<1.00	3.44	2.4	<0.100
MW20-2	03/05/12	64.5 - 84.5	<50.0	<50.0	<100	<0.100	<0.100	<0.100	<1.00	<1.00	<1.00	3.8	140	0.252	13.6	<1.00	9.47	0.482	<0.100
MW20-3	03/05/12	64.5 - 84.5	<50.0	<50.0	<100	<0.100	<0.100	<0.100	<1.00	<1.00	<1.00	2.25	132	0.223	9.22	<1.00	3.31	0.244	<0.100
MW20-5	04/19/12	4.75 - 19.75	<50.0	<50.0	<100	<0.100	<0.100	<0.100	<0.100	<0.100	<1.00	<1.00	80.3	<0.200	6.62	<1.00	<1.00	<0.200	0.238
MTCA Method A or B Cleanup Level for Unrestricted Land Use			800/1000 ⁷	500	500	ne	ne	ne	2	ne	5	5	3,200	5	50	15	80	80	2

Notes:

¹Approximate exploration locations shown on the attached figures. Chemical analytical testing by Fremont Analytical in Seattle, Washington.

²Gasoline-range hydrocarbons analyzed by petroleum hydrocarbon identification using Northwest Method NWTPH-HCID.

³Diesel- and heavy oil-range hydrocarbons analyzed by Northwest Method NWTPH-Dx Extended with a silica gel cleanup or petroleum hydrocarbon identification using Northwest Method NWTPH-HCID.

⁴Polycyclic aromatic hydrocarbons (PAHs) analyzed by EPA Method 8270D/SIM. For PAHs, only detected compounds are presented in the table. See the laboratory report for the full list of compounds analyzed and detection limits.

⁵Volatile organic compounds (VOCs) and benzene (B), ethylbenzene (E), toluene (T) and total xylenes (X) analyzed by EPA Method 8260B. For VOCs, only detected compounds are presented in the table. See the laboratory report for the full list of compounds analyzed and detection limits.

⁶Total metals analyzed by EPA 6010B/7471A.

⁷When benzene is present, the gasoline range cleanup level is 800 µg/kg. When benzene is not present the gasoline range cleanup level is 1000 µg/kg.

bgs = below ground surface

µg/L = micrograms per liter

ne = not established

Bolding indicates analyte was detected.

Shading indicates analyte was detected at a concentration greater than the MTCA cleanup level.

Table 4
Soil Chemical Analytical Data - Petroleum Hydrocarbons
MTCA Exceedances and Corresponding Vertical Confirmation Samples
Project Rufus 2.0
Block 20, Denny Triangle, Seattle, Washington
GeoEngineers File No. 20434-001-24

Sample Date	Exploration Location ¹	Sample ID	Depth (feet bgs)	Petroleum Hydrocarbons (mg/kg)		
				Gasoline Range ²	Diesel Range ³	Heavy Oil Range ³
02/27/12	B20-3	B20-3-20.0	20	46.2	74.4	2,780
		B20-3-25.0	25	<5.37	<17.9	<44.8
04/15/15	B20-21	B-20-21-10.5	10.5	60.7	<26.3	8,120
		B-20-21-13.0	13	9.36	<25.1	1,170
01/18/17	W25N9	W25N9-10.0	10	<5.30	5,820	<59.6
01/19/17		W25N9-15.0	15	--	<20.5	<51.2
12/20/16	W12S28	W12S28-14.0	14	--	11,800	8,180
		W12S28-17.0	17	--	<22.7	<56.9
MTCA Method A Cleanup Level for Unrestricted Land Use				100 ⁴	2,000	2,000

Notes:

¹Approximate exploration locations shown on the attached figures. Chemical analytical testing by Fremont Analytical in Seattle, Washington.

²Gasoline-range hydrocarbons analyzed by Northwest Method NWTPH-Gx.

³Diesel- and heavy oil-range hydrocarbons analyzed by Northwest Method NWTPH-Dx.

⁴When benzene is not present the gasoline range cleanup level is 100 mg/kg. Benzene was not detected in samples B20-3-20.0 or B-20-21-10.5, and was not tested in sample B20-21-13.0.

MTCA = Model Toxics Control Act

bgs = below ground surface

mg/kg = milligrams per kilogram

Bolding indicates analyte was detected.

Shading indicates analyte was detected at a concentration greater than the MTCA Method A cleanup level.

Table 5
Soil Chemical Analytical Data - Total Metals
MTCA Exceedances and Corresponding Vertical Confirmation Samples
Project Rufus 2.0
Block 20, Denny Triangle, Seattle, Washington
GeoEngineers File No. 20434-001-24

Sample Date	Exploration Location ¹	Sample ID	Depth (feet bgs)	RCRA 8 Metals ² (mg/kg)							
				Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver	Mercury
02/27/12	B20-3	B20-3-10.0	10	5.79	207	2.04	33.3	471	<0.433	0.115	<0.242
		B20-3-20.0	20	2.67	59.2	<0.181	23.7	6.01	<0.452	<0.0904	<0.281
04/15/12	MW20-5	MW20-5-5.0	5	9.28	469	1.01	35.1	524	<0.487	0.492	1.65
12/29/16	W23N30	W23N30-17.5	17.5	2.68	83.6	<0.183	33.3	21.3	0.821	<0.0915	<0.293
04/09/12	B20-13	B20-13-7.5	7.5	5.84	294	1.22	31.1	421	<0.401	0.161	0.355
04/16/15	B20-28	B-20-28-8.5	8.5	--	--	--	--	10.2	--	--	--
11/21/16	W14S9	TP-W14S9-5.0	5	15.0	6,100 ³	57.9 ⁴	145 ⁵	9,190	1.32	3.54	0.528
		TP-W14S9-7.5	7.5	--	--	--	--	3.03	--	--	--
12/16/16	W14S9	W14S9-10.0	10	--	--	<0.215	--	--	--	--	--
12/29/16	W30N33	W30N33-8.5	8.5	6.79	97.3	0.216	42.0	369	1.05	<0.0872	<0.274
01/27/17		W30N33-14.5	14.5	--	--	--	--	11.0	--	--	--
12/29/16	W29UN2	W29UN2-8.5	8.5	4.84	96.5	0.209	44.9	321	1.04	<0.0959	<0.271
01/27/17		W29UN2-15.0	15	--	--	--	--	3.62	--	--	--
12/14/16	W13S29	W13S29-10.0	10	--	--	--	--	757	--	--	--
12/20/16		W13S29-17.0	17	--	--	--	--	4.47	--	--	--
MTCA Method A or B Cleanup Level for Unrestricted Land Use				20	16,000	2	2,000 ⁶	250	400	400	2
Puget Sound Natural Background Concentration				7	0.6	1	48	24	ne	ne	0.07

Notes:

¹Approximate exploration locations shown on the attached figures. Chemical analytical testing by Fremont Analytical in Seattle, Washington.

²Total metals analyzed by EPA Method 6010B/7471A.

³This sample was also submitted for barium with TCLP extraction using EPA Method 1311; barium was detected at a concentration of 1.63 mg/L.

⁴This sample was also submitted for cadmium with TCLP extraction using EPA Method 1311; cadmium was detected at a concentration of 0.251 mg/L.

⁵This sample was also submitted for chromium with TCLP extraction using EPA Method 1311; chromium was not detected above laboratory reporting limits (0.100 mg/L). The chromium detected in this sample was submitted for Chromium Speciation using EPA Method 7196. Hexavalent Chromium (Chromium VI) was not detected above laboratory reporting limits (0.675 mg/kg).

⁶MTCA Method A cleanup level for Chromium III (Trivalent Chromium).

MTCA = Model Toxics Control Act

mg/kg = milligrams per kilogram

Bolding indicates analyte was detected.

ne = not established

mg/L - milligrams per liter

Shading indicates analyte was detected at a concentration greater than the MTCA Method A cleanup level.

Table 6
Soil Chemical Analytical Data - CPAHs
MTCA Exceedances and Corresponding Vertical Confirmation Samples
Project Rufus 2.0
Block 20, Denny Triangle, Seattle, Washington
GeoEngineers File No. 20434-001-24

Sample Date	Exploration Location ¹	Sample ID	Depth (feet bgs)	Total cPAHs ² (µg/kg)
				TEQ
02/27/12	MW20-1	MW20-1-2.5	2.5	120.17
		MW20-1-5.0	5	nd
04/15/15	B20-21	B-20-21-10.5	10.5	13,013
02/27/12	B20-3	B20-3-10.0	10	217.65
		B20-3-20.0	20	205.62
		B20-3-25.0	25	nd
04/15/12	MW20-5	MW20-5-5.0	5	2843.70
12/29/16	W23N30	W23N30-17.5	17.5	nd
04/15/12	B20-8	B20-8-5.0	5	153.88
		B20-8-15.0	15	179.48
12/29/16	W24N33	W24N33-17.5	17.5	nd
01/05/17	W30	W30-2.5	2.5	126.24
04/19/12	B20-14	B20-14-7.5	7.5	nd
04/15/15	B20-22	B-20-22-7.5	7.5	111.37
12/29/16	W27N36	W27N36-17.5	17.5	nd
04/16/15	B20-24	B-20-24-3.5	3.5	3306.60
		B-20-24-8.5	8.5	nd
04/15/16	B20-27	B-20-27-5.0	5	164.26
		B-20-27-17.5	17.5	nd
10/04/16	W9	W9-SP-25	25	1123.60
01/20/17		W9-27.0	27	nd
11/21/16	W3S5	TP-W3S5-5.0	5	109.30
12/16/16		W3S5-10.0	10	nd
11/21/16	W14S9	TP-W14S9-5.0	5	128.59
12/16/16		W14S9-10.0	10	nd
12/05/16	W12S9	TP-W12S9-4.0	4	123.12
01/27/17		W12S9-18.0	18	nd
12/14/16	W13S29	W13S29-10.0	10	122.32
12/20/16		S13S29-17.0	17	nd
12/28/16	W27N22	W27N22-5.0	5	512.72
01/12/17	W25N16	W25N16-6.0	6	nd
01/12/17	W30N22	W30N22-10.0	10	nd
12/28/16	W32N21	W32N21-5.0	5	244
01/12/17	W30N22	W30N22-10.0	10	nd
04/15/12	B20-5	B20-5-10.0	10	nd
12/29/16	W34N29	W34N29-11.0	11	254.29
01/27/17		W34N29-19.0	19	nd
12/29/16	W33N31	W33N31-11.0	11	106.60
01/27/17		W33N21-16.0	16	nd
12/29/16	W22N27	W22N27-8.5	9	136.87
01/12/17	W23N27	W23N27-11.0	11	nd
12/29/16	W24N28	W24N28-8.5	8.5	123.08
12/29/16	W26N29	W26N29-8.5	8.5	nd
01/12/17	W23N27	W23N27-11.0	11	nd
12/29/16	W30N33	W30N33-8.5	9	130.11
01/27/17		W30N33-14.5	14.5	nd
12/29/16	W29UN2	W29UN2-8.5	9	120.08
01/27/17		W29UN2-15.0	15.0	nd
01/03/17	W35N3	W35N3-2.5	3	163.59
01/12/17		W35N3-10.0	10.0	nd
01/03/17	W27N15	W27N15-4.0	4	692.09
01/12/17		W27N15-6.0	6.0	nd
12/20/16	W12S28	W12S28-14.0	14	738.25
		W12S28-17.0	17	nd
MTCA Method A Cleanup Level for Unrestricted Land Use				100

Notes:

¹Approximate exploration locations shown on the attached figures. Chemical analytical testing by Fremont Analytical in Seattle, Washington.

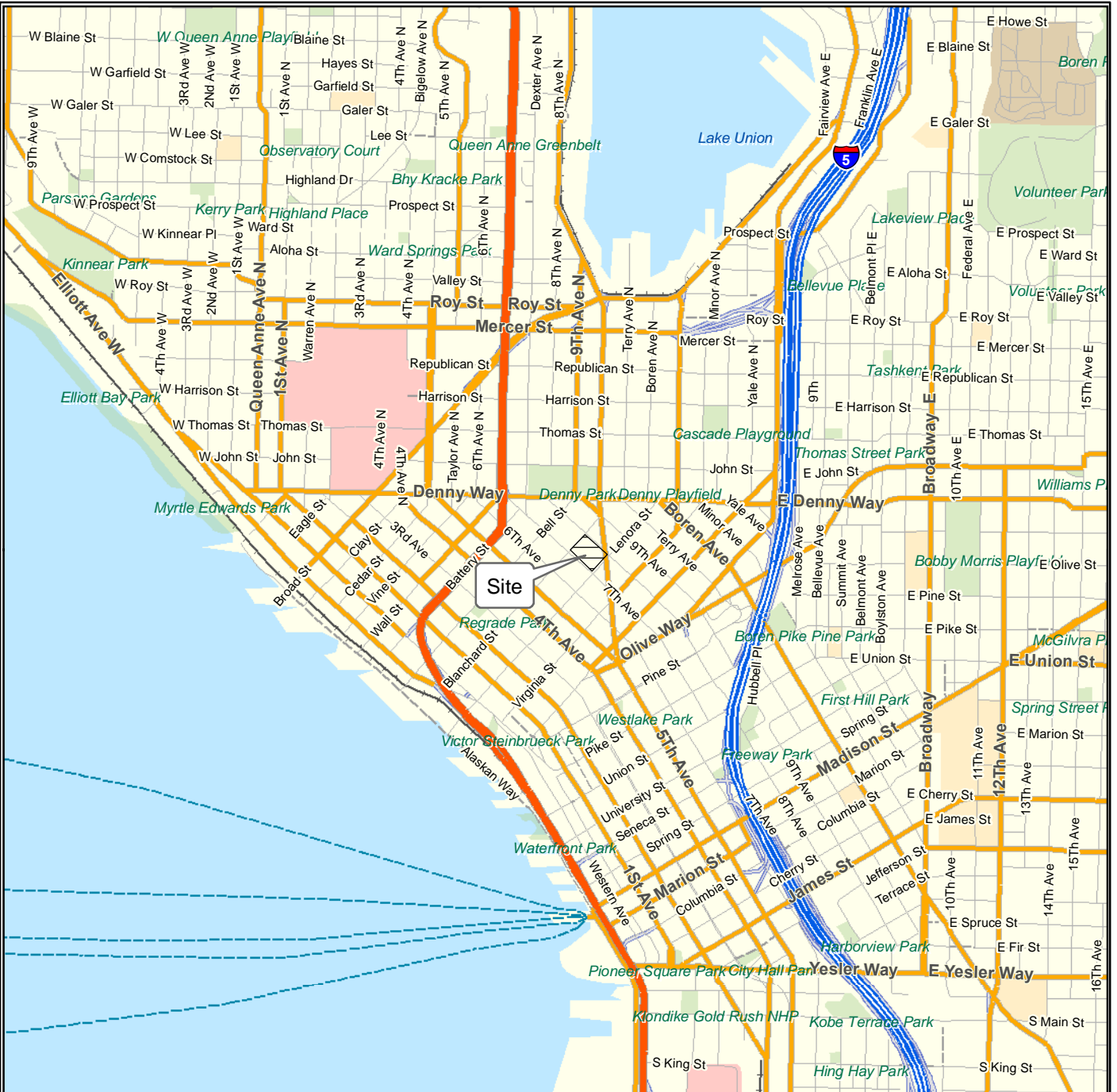
²Polycyclic Aromatic Hydrocarbons (PAHs) including carcinogenic PAHs (cPAHs) analyzed by EPA Method 8270D/SIM. Total cPAHs calculated using the toxicity equivalency (TEQ) methodology specified in WAC 173-340-780(8). cPAHs that were not detected were assigned half the value of the detection limit for these calculations.

µg/kg = micrograms per kilogram

bgs = below ground surface

Bolding indicates analyte was detected.

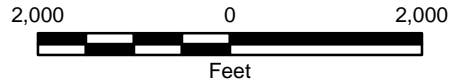
Shading indicates analyte was detected at a concentration greater than the MTCA Method A cleanup level.



Notes:

1. The locations of all features shown are approximate.
2. 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.
3. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission.

Data Sources: ESRI Data & Maps, Street Maps 2005
 Transverse Mercator, Zone 10 N North, North American Datum 1983
 North arrow oriented to grid north



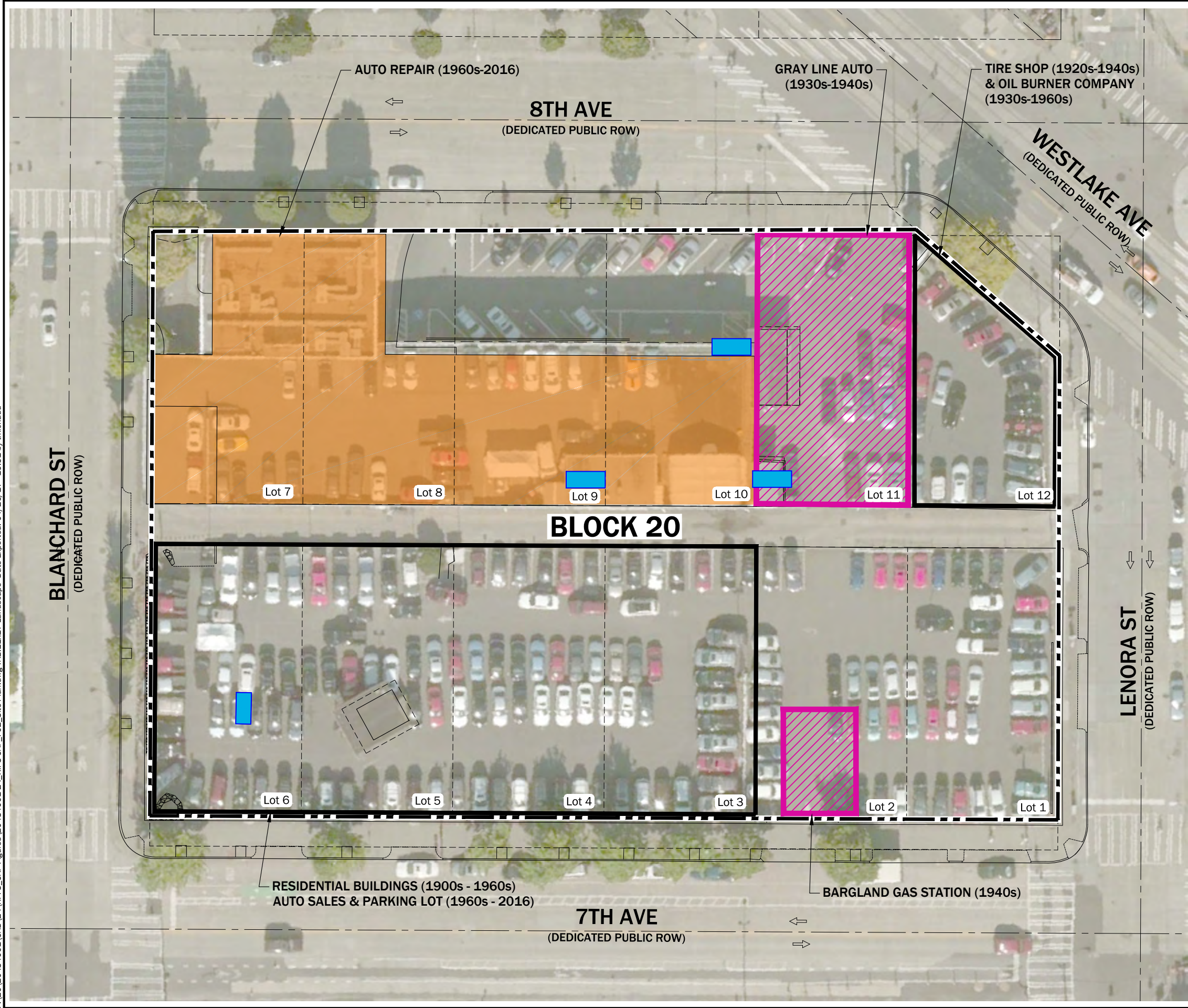
Vicinity Map

Rufus 2.0 Development - Block 20
 Seattle, Washington








Figure 1

P:\20_20434001\CAD\24\RFIS_CAP Figures\20434001.24_RFIS_CAP_F02_Site Plan.dwg TAB:1:1x17 Landscape Date Exported: 04/26/17 - 19:51 by tmichaud



Legend

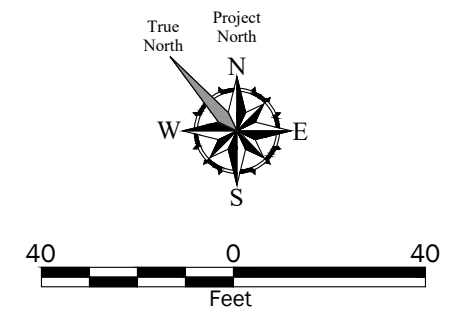
-  Subject Property Boundary
-  Historical Auto Repair Building Footprint
-  Former Gas Station General Location
-  Possible or Known Former (Removed) UST Location
-  Site Use of Potential Concern as Indicated


Notes:

- The locations of all features shown are approximate.
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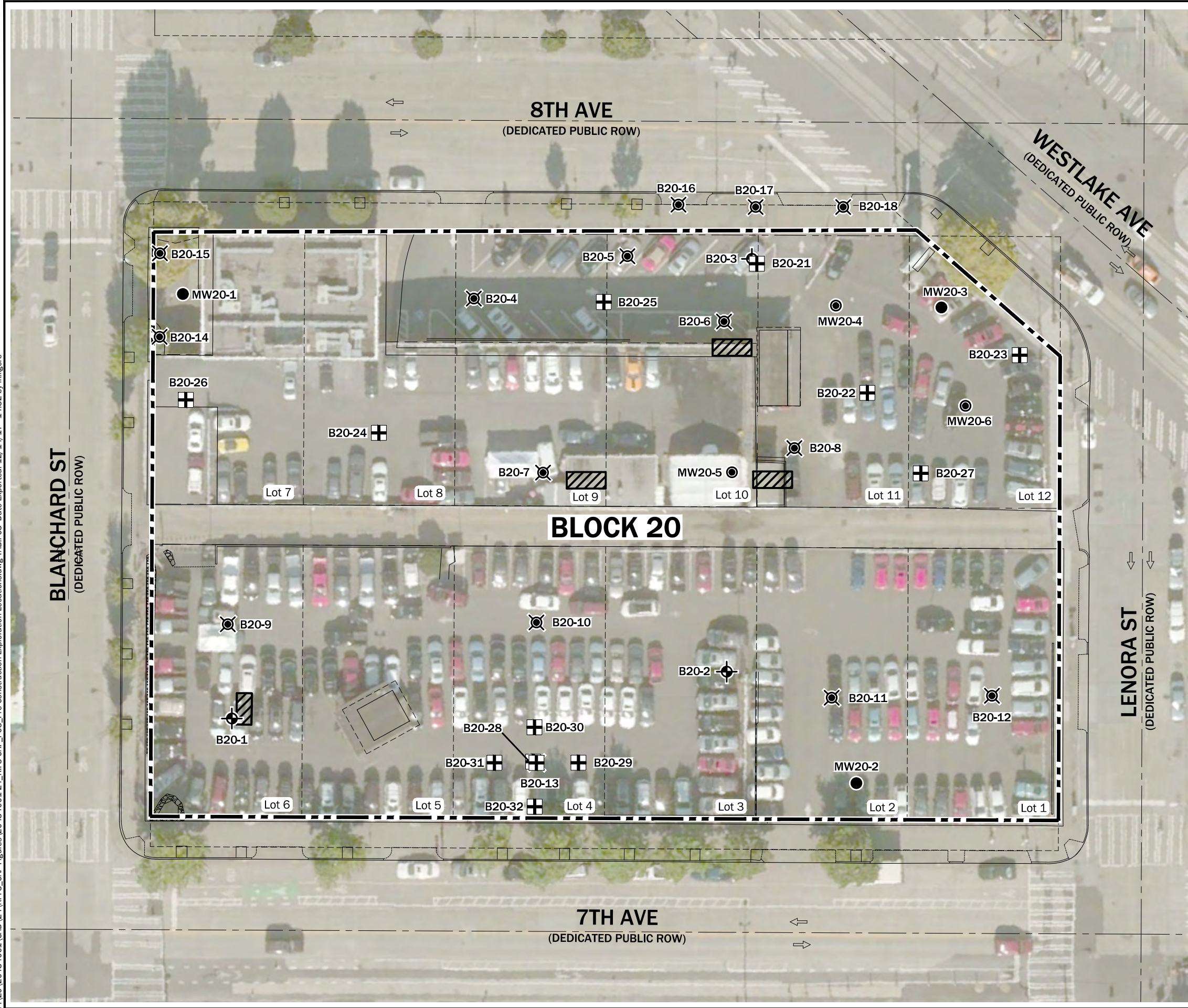
Data Source: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings, Inc., dated March 2012. Aerial photo from Microsoft Bing server.

Projection: NAD83 WA State Planes, N Zone, US Foot



Site Plan	
Rufus 2.0 Development - Block 20 Seattle, Washington	
	Figure 2

P:\20\20434001\CAD\24\RI-FS_CAP Figures\20434001.24_RIFS-CAP_F03_Pre-Construction Exploration Locations.dwg TAB:F03 Date Exported: 12/14/17 - 14:32 by klligore



Legend

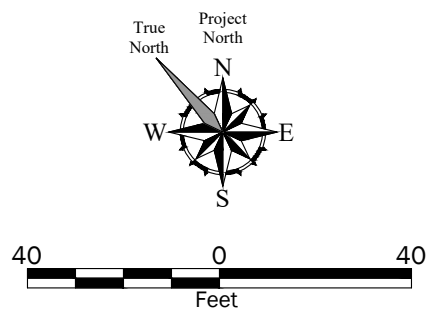
- Subject Property Boundary
- B20-21 Direct Push Borings Completed in April 2015
- MW20-3 Shallow Monitoring Wells Completed in April 2012
- B20-6 Direct-Push Borings Completed in April 2012
- B20-1 Hollow-stem Auger Borings Completed in February 2012
- MW20-1 Monitoring Well Completed in February 2012
- Possible or Known Former UST Location

Notes:

- 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.

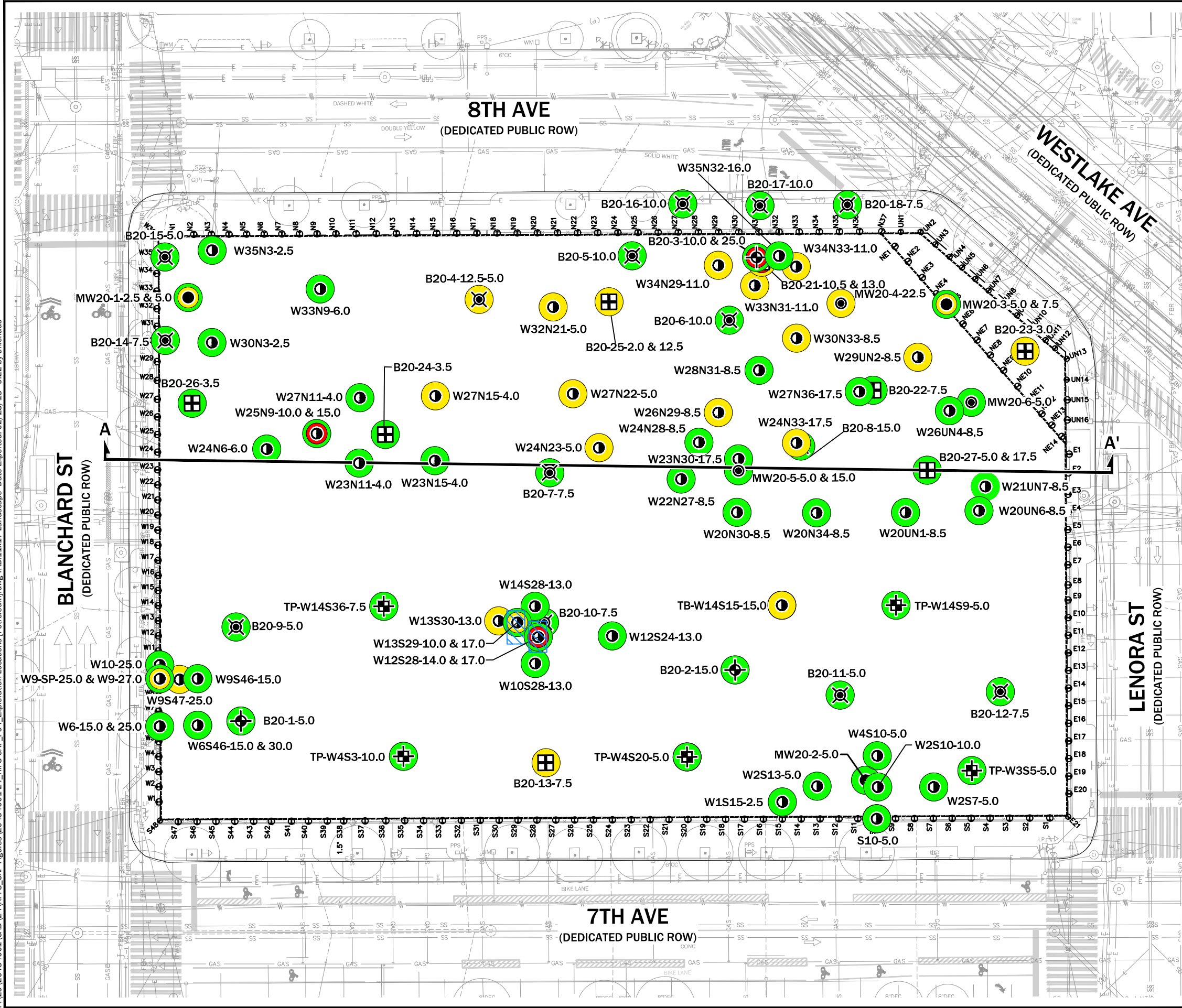
Data Source: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings, Inc., dated March 2012. Aerial photo from Microsoft Bing server.

Projection: NAD83 WA State Planes, N Zone, US Foot



Pre-Construction Exploration Locations	
Rufus 2.0 Development - Block 20 Seattle, Washington	
	Figure 3

P:\20_20434001\CAD\24\RI-FS-CAP_Figures\20434001.24_RIFS-CAP_F04_Exploration Locations (Petroleum).dwg:TAB:11x17 Landscape Date Exported: 02/23/18 - 9:22 by tmchaud



Legend

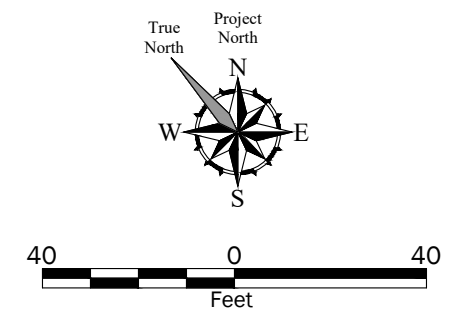
- W27N22-5.0 ● Approximate Location of Soil Sample Obtained During Construction, 2016-2017
- TP-W14S36-7.5 ⊕ Approximate Location of Test Pit Completed in November, 2016
- B20-21 ⊕ Direct Push Borings Completed in April 2015
- MW20-4 ● Shallow Monitoring Wells Completed in April 2012
- B20-4 ⊕ Direct-Push Borings Completed in April 2012
- B20-1 ⊕ Hollow-stem Auger Borings Completed in February 2012
- MW20-1 ● Monitoring Well Completed in February 2012
- Petroleum Hydrocarbons detected at concentrations above MTCA CUL.
- Petroleum Hydrocarbons detected at concentrations below MTCA CUL.
- Petroleum Hydrocarbons were not detected
- CUL Cleanup Level
- ▨ Approximate location of USTs encountered during construction (removed in 2016)
- A A' Cross-Section Location

Notes:

1. Sample nomenclature for construction phase soil samples and test pits used a project-specific grid system based on soldier pile IDs from the temporary shoring design (ex. N9 is a soldier pile along the north shoring wall). Soldier pile IDs are shown along the Property boundary. The final number in all sample IDs represents the depth the sample was obtained from (ex. W32N21-5.0 was obtained from a depth of 5.0 ft below ground surface).
2. The locations of all features shown are approximate.
3. 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.

Data Source: Base survey and shoring design CAD files provided by Sellen on 8-10-2016.

Projection: NAD83 WA State Planes, N Zone, US Foot



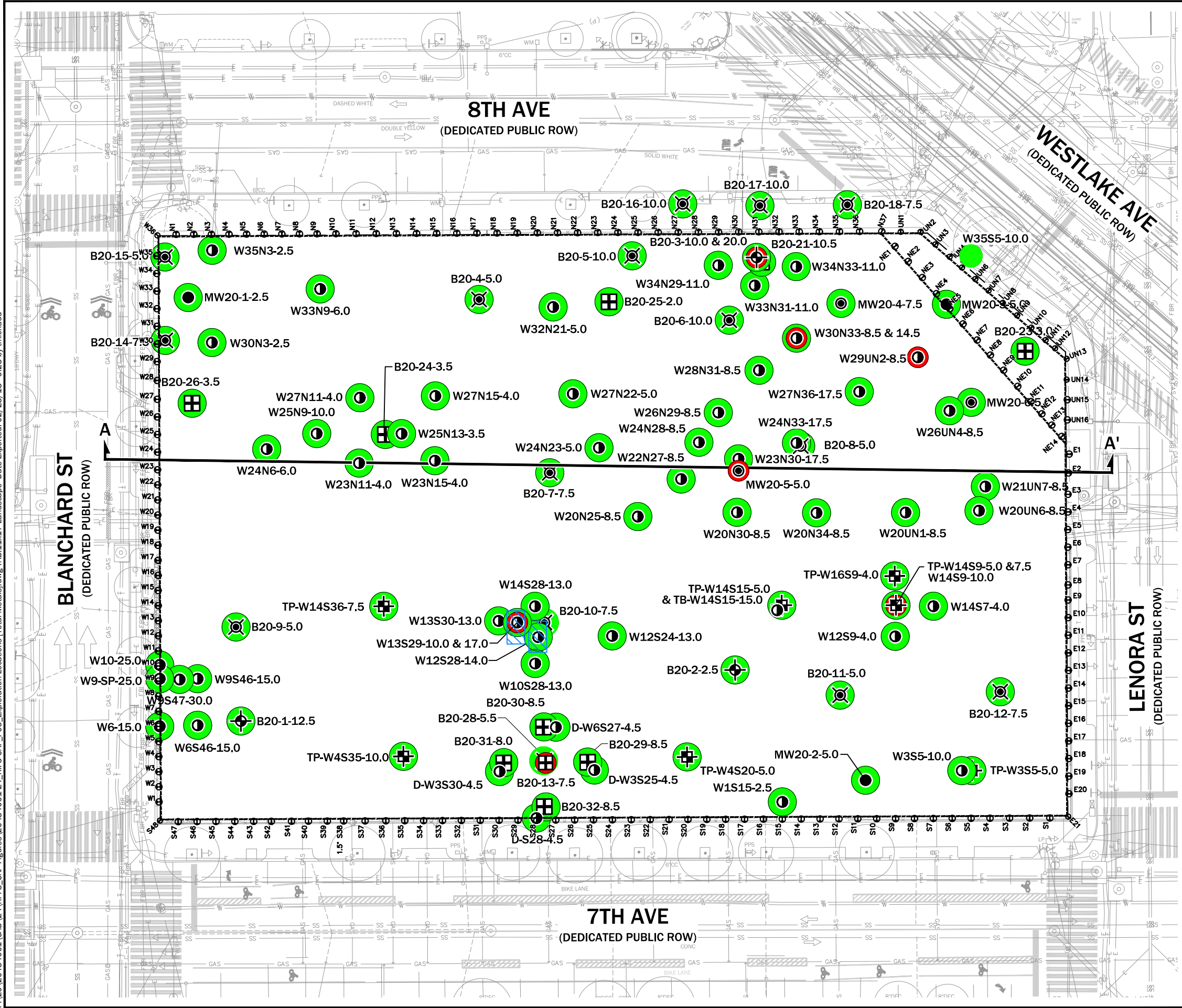
**Exploration Locations and
Petroleum Hydrocarbons Analytical Results**

Rufus 2.0 Development - Block 20
Seattle, Washington

GEOENGINEERS

Figure 4

P:\20_20434001\CAD\24\RIFS_CAP_Figures_20434001.dwg - RIFS-CAP_F05_Exploration Locations [Total Metals].dwg - TAB:11x17 Landscape Date Exported: 02/23/18 - 9:23 by tmichaud



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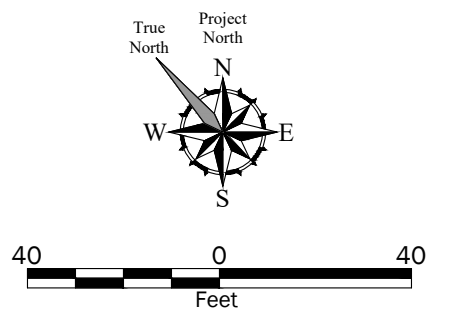
- W27N22-5.0 ● Approximate Location of Soil Sample Obtained During Construction, 2016-2017
- TP-W14S36 ⊕ Approximate Location of Test Pit Completed in November, 2016
- B20-21 ⊕ Direct Push Borings Completed in April 2015
- MW20-4 ● Shallow Monitoring Wells Completed in April 2012
- B20-4 ⊕ Direct-Push Borings Completed in April 2012
- B20-1 ⊕ Hollow-stem Auger Borings Completed in February 2012
- MW20-1 ● Monitoring Well Completed in February 2012
- Total Metals detected at concentrations above MTCA CUL
- Total Metals were not detected or were detected at concentrations below MTCA CUL
- CUL Cleanup Level
- ▨ Approximate location of USTs encountered during construction (removed in 2016)
- A A' Cross-Section Location

Notes:

- Sample nomenclature for construction phase soil samples and test pits used a project-specific grid system based on soldier pile IDs from the temporary shoring design (ex. N9 is a soldier pile along the north shoring wall). Soldier pile IDs are shown along the Property boundary. The final number in all sample IDs represents the depth the sample was obtained from (ex. W32N21-5.0 was obtained from a depth of 5.0 ft below ground surface).
- 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.

Data Source: Base survey and shoring design CAD files provided by Sellen on 8-10-2016.

Projection: NAD83 WA State Planes, N Zone, US Foot



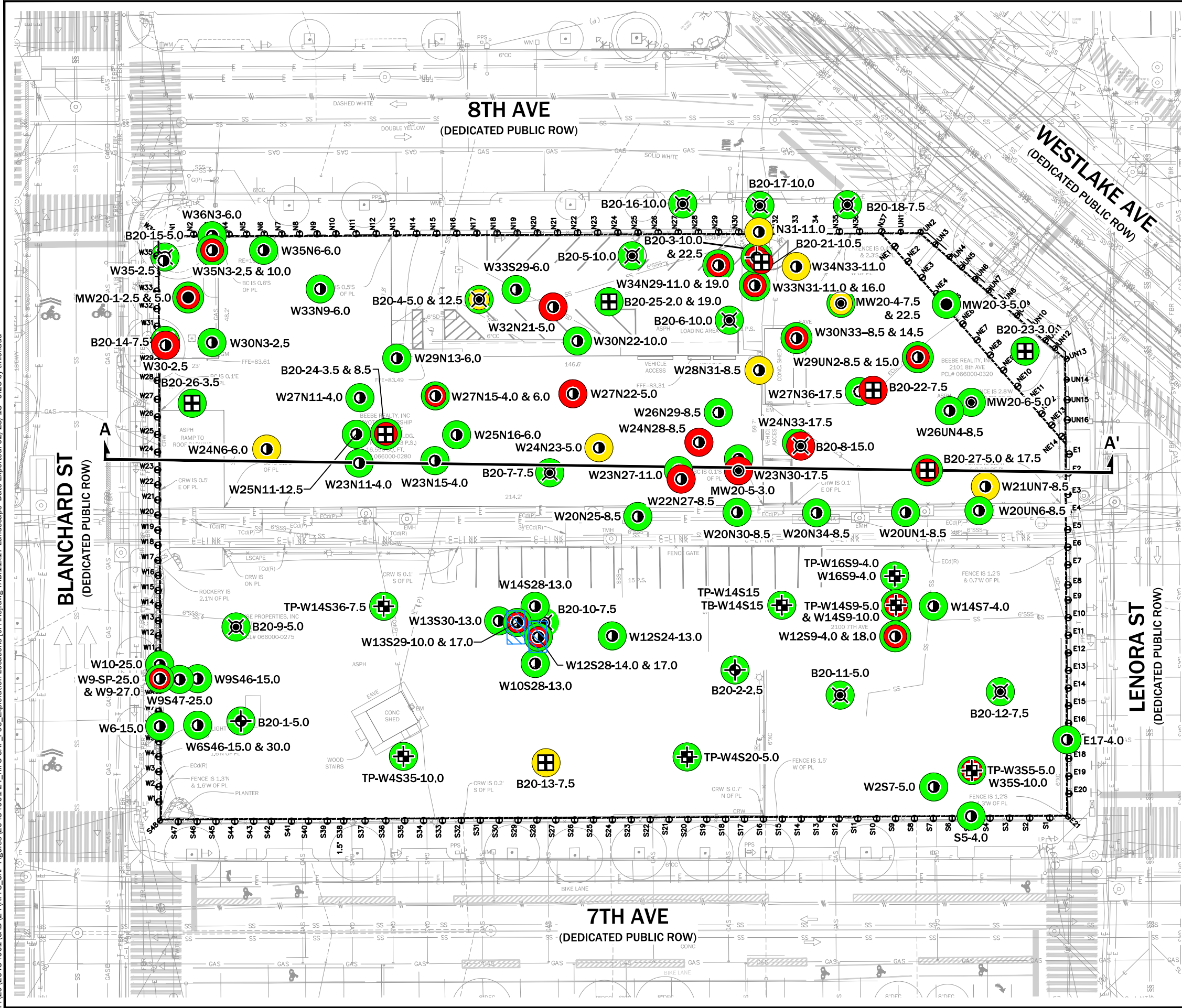
Exploration Locations and Total Metals Analytical Results

Rufus 2.0 Development - Block 20
Seattle, Washington

GEOENGINEERS

Figure 5

P:\20_20434001\CAD\24\RI-FS_CAP_Figures\20434001.24_RIFS_CAP_F06_Exploration Locations (cPAHs).dwg TAB:1x17 Landscape Date Exported: 02/23/18 - 9:25 by tmchaud



Legend

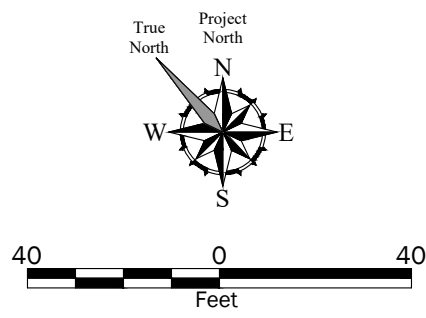
- W27N22-5.0 ● Approximate Location of Soil Sample Obtained During Construction, 2016-2017
- TP-W14S36 ⊕ Approximate Location of Test Pit Completed in November, 2016
- B20-21 ⊕ Direct Push Borings Completed in April 2015
- MW20-4 ● Shallow Monitoring Wells Completed in April 2012
- B20-4 ⊕ Direct-Push Borings Completed in April 2012
- B20-1 ⊕ Hollow-stem Auger Borings Completed in February 2012
- MW20-1 ● Monitoring Well Completed in February 2012
- cPAHs detected at concentrations above MTCA CUL
- cPAHs not detected at concentrations below MTCA CUL
- cPAHs detected at concentrations below MTCA CUL
- cPAHs Carcinogenic Polycyclic Aromatic Hydrocarbons
- CUL Cleanup Level
- ▨ Approximate location of USTs encountered during construction (removed in 2016)
- A A' Cross-Section Location

Notes:

1. Sample nomenclature for construction phase soil samples and test pits used a project-specific grid system based on soldier pile IDs from the temporary shoring design (ex. N9 is a soldier pile along the north shoring wall). Soldier pile IDs are shown along the Property boundary. The final number in all sample IDs represents the depth the sample was obtained from (ex. W32N21-5.0 was obtained from a depth of 5.0 ft below ground surface).
2. The locations of all features shown are approximate.
3. 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.

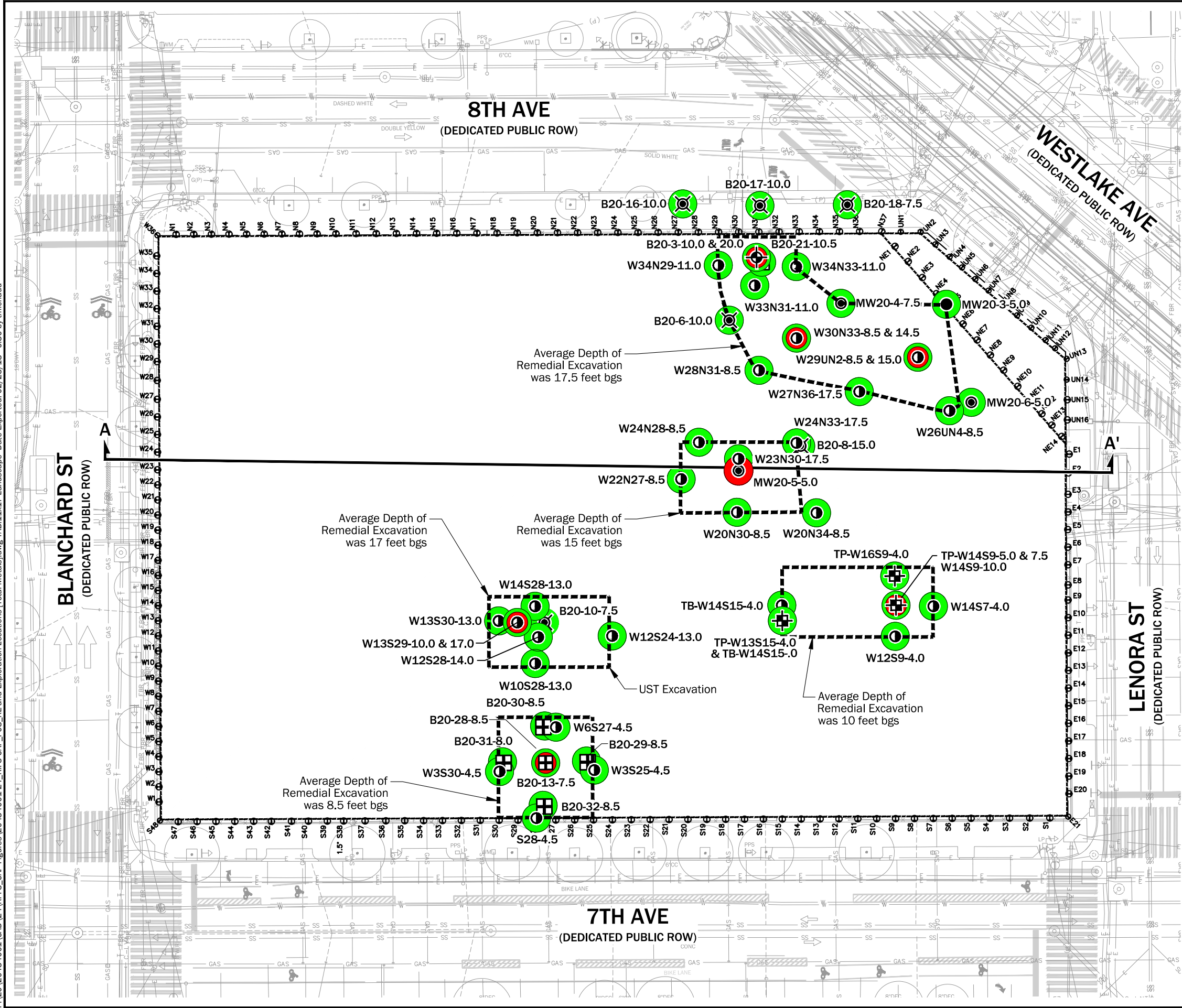
Data Source: Base survey and shoring design CAD files provided by Sellen on 8-10-2016.

Projection: NAD83 WA State Planes, N Zone, US Foot



Exploration Locations and cPAHs Analytical Results	
Rufus 2.0 Development - Block 20 Seattle, Washington	
	Figure 6

P:\20_20434001\CAD\24\RIFS-CAP_FIGURES\20434001.24_RIFS-CAP_F08_RE and Exploration Locations [Total Metals].dwg TAB:1.1x17 Landscape Date Exported: 02/23/18 - 9:30 by tmichaud



Legend

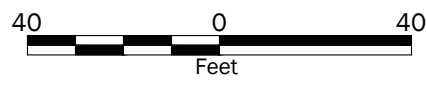
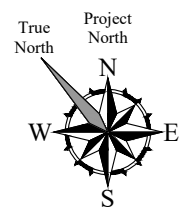
- W27N22-5.0 ● Approximate Location of Soil Sample Obtained During Construction, 2016-2017
- TP-W14S36 ⊕ Approximate Location of Test Pit Completed in November, 2016
- B20-21 ⊕ Direct Push Borings Completed in April 2015
- MW20-4 ● Shallow Monitoring Wells Completed in April 2012
- B20-4 ⊕ Direct-Push Borings Completed in April 2012
- B20-1 ⊕ Hollow-stem Auger Borings Completed in February 2012
- MW20-1 ● Monitoring Well Completed in February 2012
- Total Metals detected at concentrations above MTCA CUL
- Total Metals were not detected or were detected at concentrations below MTCA CUL
- CUL Cleanup Level
- ▭ Approximate location of remedial excavation area
- bgs Below Ground Surface
- A-A' Cross-Section Location

Notes:

1. Refer to Table 5 for Total Metals MTCA Exceedances and Corresponding Vertical Confirmation Samples
2. Sample nomenclature for construction phase soil samples and test pits used a project-specific grid system based on soldier pile IDs from the temporary shoring design (ex. N9 is a soldier pile along the north shoring wall). Soldier pile IDs are shown along the Property boundary. The final number in all sample IDs represents the depth the sample was obtained from (ex. W32N21-5.0 was obtained from a depth of 5.0 ft below ground surface).
3. The locations of all features shown are approximate.
4. 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.

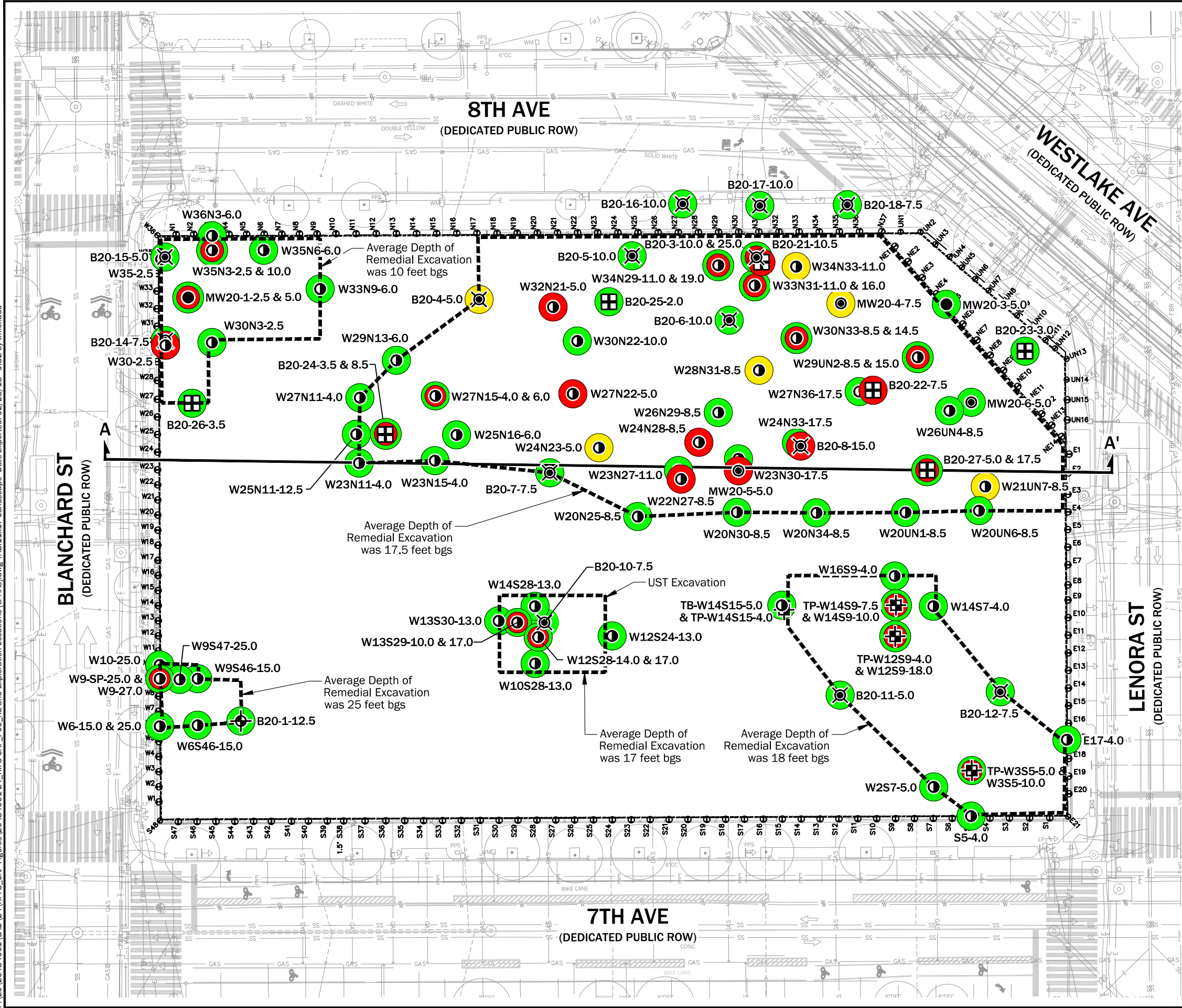
Data Source: Base survey and shoring design CAD files provided by Sellen on 8-10-2016.

Projection: NAD83 WA State Planes, N Zone, US Foot



Total Metals Remedial Excavation Location and Analytical Results	
Rufus 2.0 Development - Block 20 Seattle, Washington	
	Figure 8

P:\20_20434001\CAD\24\RI-FS_CAP Figures_20434001.24_RIFS-CAP_F09_RE and Exploration Locations [cPAHs].dwg TAB:11x17 Landscape Date Exported: 02/23/18 - 9:32 by tmichaud

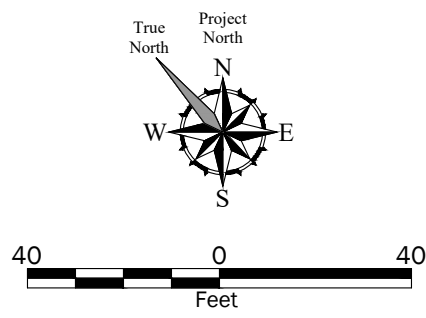


Legend

- W27N22-5.0 ● Approximate Location of Soil Sample Obtained During Construction, 2016-2017
- TP-W14S36 ⊕ Approximate Location of Test Pit Completed in November, 2016
- B20-21 ⊕ Direct Push Borings Completed in April 2015
- MW20-4 ● Shallow Monitoring Wells Completed in April 2012
- B20-4 ⊕ Direct-Push Borings Completed in April 2012
- B20-1 ⊕ Hollow-stem Auger Borings Completed in February 2012
- MW20-1 ● Monitoring Well Completed in February 2012
- cPAHs detected at concentrations above MTCA CUL
- cPAHs detected at concentrations below MTCA CUL
- cPAHs were not detected
- cPAHs Carcinogenic Polycyclic Aromatic Hydrocarbons
- CUL Cleanup Level
- ⬡ Approximate location of remedial excavation area
- bgs Below Ground Surface
- A A' Cross-Section Location

- ### Notes:
1. Refer to Table 6 for cPAH MTCA Exceedances and Corresponding Vertical Confirmation Samples.
 2. Sample nomenclature for construction phase soil samples and test pits used a project-specific grid system based on soldier pile IDs from the temporary shoring design (ex. N9 is a soldier pile along the north shoring wall). Soldier pile IDs are shown along the Property boundary. The final number in all sample IDs represents the depth the sample was obtained from (ex. W32N21-5.0 was obtained from a depth of 5.0 ft below ground surface).
 3. The locations of all features shown are approximate.
 4. 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.

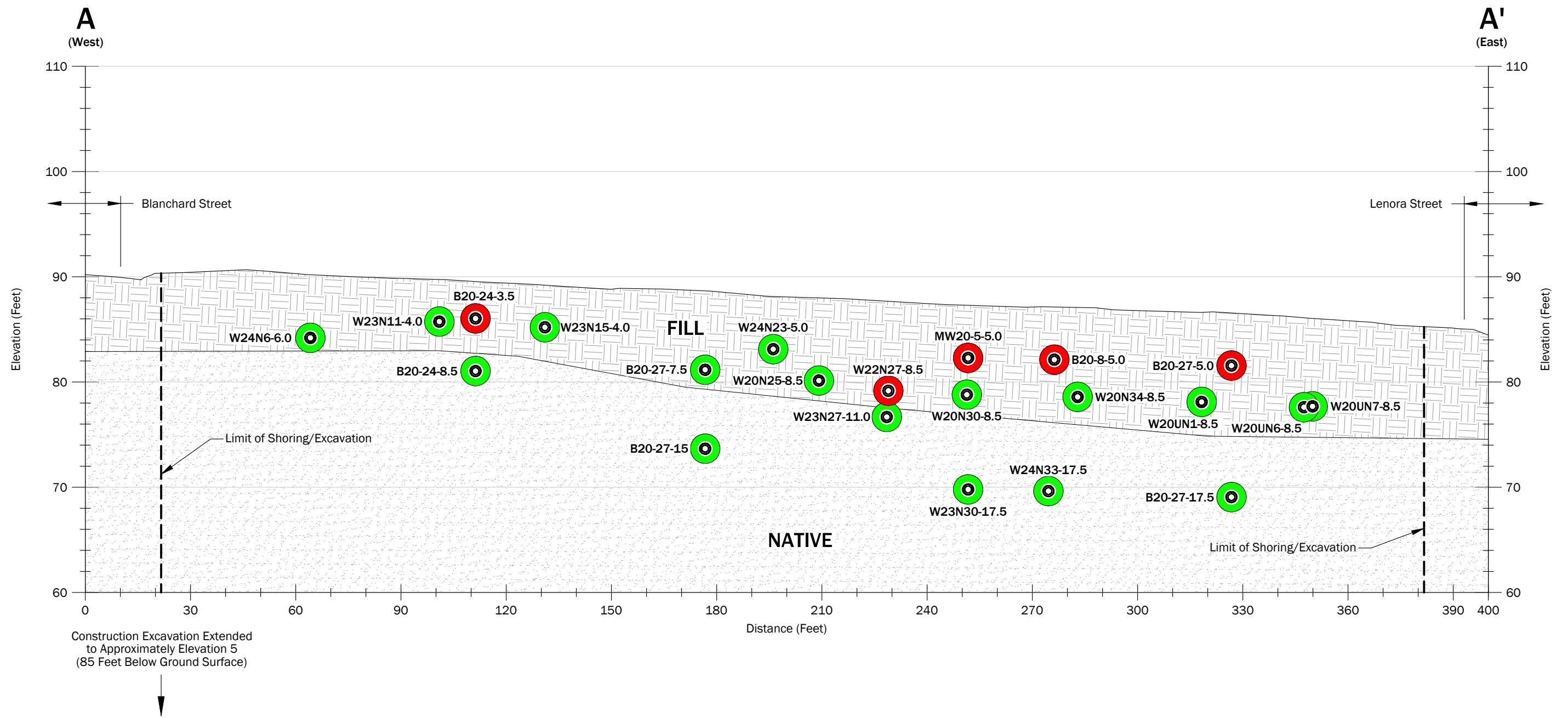
Data Source: Base survey and shoring design CAD files provided by Sellen on 8-10-2016.
 Projection: NAD83 WA State Planes, N Zone, US Foot



**cPAHs Remedial Excavation
Location and Analytical Results**

Rufus 2.0 Development - Block 20
Seattle, Washington

Figure 9



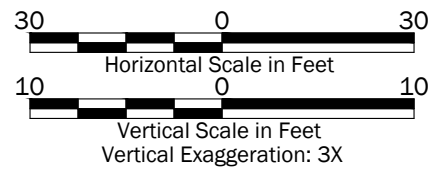
P:\20\20434001\CAD\24\RIFS-CAP_Figures\20434001.24_RIFS-CAP_F10_CrossSection AA.dwg;TAB:11x17 Landscape Date Exported: 02/23/18 - 9:34 by tmichaud

- Notes:**
1. Sample nomenclature for construction phase soil samples and test pits used a project-specific grid system based on soldier pile IDs from the temporary shoring design (ex. N9 is a soldier pile along the north shoring wall). Soldier pile IDs are shown along the Property boundary. The final number in all sample IDs represents the depth the sample was obtained from (ex. W32N21-5.0 was obtained from a depth of 5.0 ft below ground surface).
 2. The locations of all features shown are approximate.
 3. 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.

Data Source: Base survey and shoring design CAD files provided by Sellen on 8-10-2016.

Legend

- Contaminants of concern detected at concentrations above MTCA CUL
- Contaminants of concern were not detected or were detected at concentrations below MTCA CUL
- CUL Cleanup Level



Cross-Section A-A'	
Rufus 2.0 Development - Block 20 Seattle, Washington	
	Figure 10