Focused Feasibility Study

Seattle DOT Mercer Parcels

800 Mercer Street
Seattle, Washington

Prepared for
800 Mercer, LLC

February 3, 2022
0202738-100 (19409-04)

HARTCROWSER
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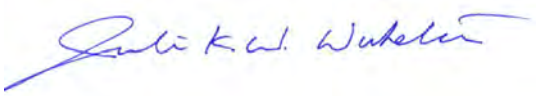

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EXECUTIVE SUMMARY

On behalf of 800 Mercer, LLC, Hart Crowser, a division of Haley & Aldrich (Hart Crowser), has prepared this Focused Feasibility Study (FFS) Report to develop and evaluate the planned cleanup action to address existing contamination and potential risk to receptors at the Seattle DOT Mercer Parcels site (Site). The Site consists primarily of the real property located at 800 Mercer Street in Seattle, Washington (Property). The 2.35-acre Property is currently owned by the City of Seattle. 800 Mercer, LLC, is seeking to purchase the Property pursuant to a Prospective Purchaser Consent Decree (PPCD) with the State of Washington. This FFS Report was developed based on the guidance included in the *Feasibility Study Checklist Guidance,* Washington State Department of Ecology and the requirements of Washington Administrative Code (WAC) 173-340-350.

As described in the Remedial Investigation (RI) Report, soil and/or groundwater on the Property is impacted by petroleum-related contamination from a historical gas/service station on the Property, polycyclic aromatic hydrocarbons and arsenic contamination from fill material utilized for realignments of roads, and chlorinated dry-cleaning solvent contamination from an upgradient off-site source. Proposed cleanup standards—consisting of the established cleanup levels for hazardous substances present at the Site, the location where these cleanup levels must be met, and the other regulatory requirements that are applicable to the Site—and cleanup action objectives (CAOs) have been presented in this FFS Report to address these contaminants and are based on the conceptual site model.

The Property is planned to be redeveloped, which will include four levels of below-grade parking resulting in excavation and removal of the impacted soil and groundwater from on-Property sources. Therefore, the planned cleanup action consists of excavating impacted soil and groundwater within the redevelopment excavation area and disposing off-site and performing compliance monitoring.

The planned cleanup action will protect receptors from exposure to constituents of concern for the Site. Possible exposure to the chlorinated solvent compounds beneath the Property from an upgradient off-site source will be mitigated by installing a vapor barrier, implementing institutional controls, and compliance monitoring and maintenance.

The planned cleanup action is a permanent cleanup action as defined in WAC 173-340-200 and will be the proposed cleanup action in the Draft Cleanup Action Plan (DCAP). Therefore, other cleanup action alternatives do not need to be evaluated and a disproportionate cost analysis is not required under WAC 173-340-360(3)(d).

The planned cleanup action meets the minimum requirements for cleanup actions as described in WAC 173-340-360(2) and implementation of this cleanup action will address the Site CAOs. The evaluations in this FFS Report are sufficient to complete a DCAP to describe the planned cleanup action in more detail.

Contents

TABLES

FIGURES

LIST OF ACRONYMS

µg/L	Microgram per liter
ARAR	Applicable or Relevant and Appropriate Requirements
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and xylenes
CAO	Cleanup action objective
CAP	Cleanup Action Plan
CFR	Code of Federal Regulations
cis-1,2-DCE	cis-1,2-Dichloroethene
CLARC	Cleanup Levels and Risk Calculation
COC	Constituent of Concern
COPC	Constituent of Potential Concern
cPAH	Carcinogenic Polycyclic Aromatic Hydrocarbon
cPAH-TEQ	Carcinogenic Polycyclic Aromatic Hydrocarbon Toxic Equivalency
CSM	Conceptual Site Model
CSO	Combined sewer overflow
CSWGP	Construction Stormwater General Permit
CUL	Cleanup level
CVOC	Chlorinated Volatile Organic Compounds
CWA	Clean Water Act
D	Deep (well zone)
DCA	Disproportionate Cost Analysis
DCAP	Draft Cleanup Action Plan
DNAPL	Dense non-aqueous phase liquid
DO	Dissolved oxygen
DRO	Diesel-range petroleum hydrocarbons
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
FFS	Focused Feasibility Study
ft	Feet
GAC	Granular activated carbon
GRO	Gasoline-range petroleum hydrocarbons
HO	Heavy oil-range petroleum hydrocarbons
IA	Intermediate A (well zone)
IB	Intermediate B (well zone)
KCC	King County Code
MCL	Maximum Contaminant Level
mg/kg	Milligrams per kilogram
MTCA	Model Toxics Control Act
NAVD88	North American Vertical Datum of 1988
NPDES	National Pollutant Discharge Elimination System
ORP	Oxidation reduction potential
OSHA	Occupational Safety and Health Act
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethene
POC	Point of Compliance

PPCD	Prospective Purchaser Consent Decree
PQL	Practical Quantitation Limit
PSCAA	Puget Sound Clean Air Agency
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
RI	Remedial Investigation
ROW	Right of way
S	Shallow (well zone)
SEPA	State Environmental Policy Act
SMC	Seattle Municipal Code
SVOC	Semi-volatile Organic Compound
TCE	Trichloroethene
TPH	Total Petroleum Hydrocarbons
U.S.	United States
USC	United States Code
VC	Vinyl Chloride
VOC	Volatile Organic Compound
WAC	Washington Administrative Code
WISHA	Washington Industrial Safety and Health Act

Seattle DOT Mercer Parcels

800 Mercer Street
Seattle, Washington

1.0 INTRODUCTION

On behalf of 800 Mercer, LLC (800 Mercer), Hart Crowser, a division of Haley & Aldrich (Hart Crowser), has prepared this Focused Feasibility Study (FFS) Report to develop and evaluate the planned cleanup action to address existing contamination and potential risk to receptors at the Seattle DOT Mercer Parcels site (Site). The Site consists primarily of the real property located at 800 Mercer Street in Seattle, Washington (Property) and includes any areas where contamination originating on or from the Property has come to be located. The Property vicinity is shown on Figure 1-1.

The 2.35-acre Property is currently owned by the City of Seattle. 800 Mercer is seeking to purchase the Property pursuant to a Prospective Purchaser Consent Decree (PPCD) with the State of Washington. The Washington State Department of Ecology (Ecology) has listed the Site on its confirmed and suspected contaminated sites list with Cleanup Site ID No. 14784.

The purpose of the FFS Report is to develop and evaluate the planned cleanup action for the Site. This FFS Report was developed subsequent to the Remedial Investigation (RI) Report (Hart Crowser 2022), which characterized the nature and extent of environmental contamination associated with the Site. The FFS Report was developed in accordance with the Model Toxics Control Act (MTCA) regulations—Washington Administrative Code (WAC) 173-340-350. The results of this FFS will be used to prepare a Draft Cleanup Action Plan (DCAP). The cleanup action outlined in the DCAP, upon approval by Ecology and after public comment, will be implemented during and following redevelopment of the Property.

2.0 SUMMARY OF REMEDIAL INVESTIGATION

The following sections summarize the Property setting and history and results of the RI. The RI Report (Hart Crowser 2022) includes more detail on the Site background, RI procedures, and analytical results.

2.1 Site Description and History

The Property is located in the South Lake Union neighborhood in Seattle, Washington. The Property is bounded by Roy Street to the north, Mercer Street to the south, Dexter Avenue North to the west, and Ninth Avenue North to the east. The Property is relatively flat on the west side (elevation 58 feet[1]) and generally slopes down toward the east (elevation 36 feet on the east side) (Figure 2-1).

The Property is planned to be redeveloped with two 13-story towers—one on the western half and one on the eastern half of the Property—separated above grade by the vacated Eighth Avenue North right-of-way

[1] All elevations in this FFS Report are referenced to the North American Vertical Datum of 1988 (NAVD88).

(ROW). The two separate towers will share a below-grade parking garage that will underlie the vast majority of the Property footprint. Four levels of below-grade parking are planned, resulting in a uniform lowest finished floor elevation of approximately 10.75 feet (approximately 23 to 48 feet below ground surface [bgs]). The foundation for the buildings and garage will consist of a 3-foot to 8-foot thick concrete mat, resulting in a bottom of excavation ranging from elevation 2.75 to 7.75 feet. The buildings will be occupied by offices, with commercial space and public amenities on the ground level. Redevelopment is expected to begin in early 2022 and is expected to be completed by late 2024.

As outlined in detail in the RI Report, from approximately the end of the 19th century to the 1950s, residential dwellings were present on the Property. Various ROWs divided the Property from approximately the end of the 19th century to 2012, including Broad Street which formerly crossed the Property from the northeast to the southwest and then continued as an underpass approximately 20 feet below grade under the intersection of Dexter Avenue North and Mercer Street (herein referred to as the Broad Street 1958-2012 alignment). From approximately 1917 to 2010, the Property was also used for a variety of commercial businesses. In the 2010s and as recently as 2019, the Property was used for construction staging. Currently, the Property is vacant.

Potential on- and off-Property historical contaminant sources for the Site and Property investigated during the RI include several gasoline and service stations, auto wrecking, sign painting and retail painting stores, a former underpass, and laundry and dry-cleaning facilities.

2.2 Site Geology and Hydrogeology

The following summary of the subsurface geology and hydrogeology conditions at the Property is based on the extensive data collected and analyzed as part of the RI. For a more detailed analysis and the interpretation of recent and historical borings completed on the Property and in the surrounding area (shown on Figure 2-2), refer to the RI Report. Subsurface conditions described below are shown on cross sections (Figures 2-3a and 2-3b). Subsurface soil conditions vary between the western and eastern portions of the Property, as described in Sections 2.2.1 and 2.2.2 below.

2.2.1 Stratigraphy – Western Side of Property

The western portion of the Property is underlain by fill materials over dense glacial soils. The fill thickness in this area is deepest along the Broad Street 1958-2012 alignment that was filled in during roadway realignment work in the early 2010s. Brief summaries of the identified geological units are presented below, and geologic cross-sections are provided in Figures 2-3a and 2-3b.

Fill. Fill is comprised of poorly graded sand with gravel, silty sand, silty sand with gravel, some silt, all with variable gravel and cobbles. Fill also contains brick, concrete, and glass debris. Varying fill depths were observed at the Property, generally ranging from less than 2 feet to over 30 feet in thickness, with the thicker fill depths generally within the Broad Street 1958-2012 alignment.

Glacial Till. Beneath the fill, dense to very dense glacially over-consolidated native soils (Glacial Till) were encountered. Glacial Till deposits are generally characterized as silty sand with gravel, with variable layers of silt, gravel, and clean sand.

Very Dense Sand. Beneath the Glacial Till are glacially overridden deposits consisting of very dense, clean to silty sands.

2.2.2 Stratigraphy – Eastern Side of Property

The eastern portion of Property consists of up to approximately 30 feet of relatively soft/loose soils consisting of fill and/or lake deposits (lacustrine) which are underlain by the competent glacial soils. The top of the glacial deposits dips down to the east as the near-surface stratigraphy transitions to reclaimed land from Lake Union. The soil layers observed in the eastern portion of the Property are briefly described as follows:

Fill. Reclaimed land from Lake Union, the fill on the eastern side of the Property generally consists of very loose to medium dense clean to silty sand, with occasional gravel. This layer increases in thickness toward the eastern side of the Property where it is up to about 20 feet thick. This sandy fill is in a loose condition and partially submerged below the water table.

Lacustrine Deposits. Recent lake deposits (lacustrine) associated with Lake Union consist of poorly graded sand, silty sand with gravel, and sandy silt with gravel, which contain varying amounts of organics, peat, and shell fragments. The lake deposits were formed in shoreline to lake bottom depositional environments. The lake deposits were observed in the eastern portion of the Property. These lacustrine deposits represented shallow lake bottom sediments and are comprised of soft to medium stiff silt and clay with fine organics, shells, and peat.

Stiff to Very Stiff Silt/Clay. Stiff to very stiff fine-grained deposits (silt and clay) were encountered below the loose fill in the southeastern portion of the Property.

Medium Dense to Dense Sand. Beneath the lacustrine and stiff cohesive soils are medium dense to dense, clean to silty sands. This layer was generally about 20 to 25 feet thick, where encountered at exploration locations.

Glacial Till. Beneath the medium dense to dense sand, dense to very dense glacial deposits (Glacial Till) were encountered. Glacial Till deposits are generally characterized as silty sand with gravel, with variable layers of silt, gravel, and clean sand.

Very Dense Sand. Beneath the Glacial Till are glacially overridden deposits consisting of very dense, clean to silty sands.

2.2.3 Hydrogeology

The hydrogeology of the Property consists of discontinuous water-bearing zones in the glacial till deposits, and a deeper water-bearing zone in the glacial outwash deposits. The water-bearing deposits have been subdivided historically into four zones (Shallow, Intermediate “A” and Intermediate “B”, and Deep) based on soil type and depth (SoundEarth Strategies 2013; PES Environmental 2018). Please refer to Section 4.2 of the RI Report for additional details on the water-bearing designations and framework.

Groundwater Levels. Under natural conditions, groundwater levels at the Site are controlled by the water level of Lake Union, which forms the local baseline level. The water level of Lake Union is controlled by a lock and spillway complex on the Lake Washington Ship Canal. Lake Union water level varies by 2 feet seasonally from elevation 18.7 to 16.7 feet. Minimum water levels are maintained during the winter and maximum lake levels occur during the summer months.

In general, groundwater levels also vary seasonally because of precipitation changes and are also influenced by local land use changes (e.g., changes in infiltration rates due to increases or decreases in impervious surfaces). In addition, groundwater level elevations are influenced by discharges from dewatering activities. During the RI, groundwater elevations at the Site generally ranged between 7 and 32 feet, with water levels measured at depths ranging from approximately 15 to 48 feet bgs.

Horizontal and Vertical Gradients. Horizontal gradients range from 0.0 foot per foot (ft/ft) (i.e., flat) to 0.05 ft/ft and indicate generally eastward groundwater flow across the Property and surrounding area in all four groundwater zones. Figures 2-4a and 2-4b show groundwater elevation contours and horizontal flow directions in all four groundwater zones based on groundwater levels collected in March 2020 and May 2020.

Vertical hydraulic gradients were derived from groundwater elevations in 11 shallow and deep well pairs.[2] Vertical gradients vary from essentially zero (-0.003 ft/ft) to strongly downward (0.32 ft/ft). The data indicates that groundwater flow is generally downward, indicated by generally positive gradient values. The instances of very slightly upward gradients are likely due to transient conditions while the hydrogeologic system is equilibrating to short-term and/or localized events, such as recharge due to precipitation, dewatering activities, etc. The overall magnitude of horizontal and vertical hydraulic gradients increased between March 2019 and March 2020, possibly in response to construction dewatering at Block 38 West, generally located at 500 to 536 Westlake Avenue North, which began in January 2020.

Fluctuations in Groundwater Levels. The observed water level fluctuations at the Property, shown on Figure 2-5 for wells with pressure transducers, have been primarily influenced by precipitation and temporary construction dewatering from nearby sites. The steady decline in water levels between March and November 2019 and sudden increases and drop in water levels between December 2019 and January 2020 are attributed to seasonal changes in precipitation.

Construction dewatering occurred at 700 Dexter Avenue North (700 Dexter) from June 2019 to July 2020 and at Block 38 West from January 2020 to March 2021. Construction dewatering at 700 Dexter did not result in significant hydraulic impacts but may have been a contributing factor to the general decline in water levels on the north side of Property. However, the magnitude of these impacts cannot be

[2] Each well pair consisted of either a Shallow zone well and a Deep zone well (5 pairs), an Intermediate A zone well and a Deep Zone well (4 pairs), or a Shallow zone well and an Intermediate B zone well (2 pairs).

distinguished from seasonal trends. The effect of dewatering from Block 38 West is more pronounced as shown by the steep drop in water levels since February 2020.

2.3 Environmental Investigations

Between 1970 and 2020, multiple investigations were completed on and adjacent to the Property in support of both geotechnical and environmental studies for the Property, for the American Linen Supply Co Dexter Ave site (Cleanup Site ID No. 12004), herein referred to as the American Linen site, and for government road and utility projects. A chronological list of the environmental investigations considered in the RI is provided in Table 2-1 and relevant information is summarized below. The RI Report and the original reports that are referenced in the summaries below contain detailed information on the previous investigations, including detected analytes and their concentrations. The locations of explorations relevant to the RI are provided on Figure 2-2 and the explorations are summarized in Table 2-2.

- A comprehensive foundation investigation for proposed property redevelopment, conducted by Shannon & Wilson from March 1970 to February 1971 (Shannon & Wilson, 1971). Four borings are close enough to be relevant to the Site and were advanced to depths ranging from 62 to 74 feet bgs or -19 to -37 feet elevation. There is no record of chemical analysis from this investigation; however, this investigation was relevant to the RI to evaluate subsurface geologic conditions on and near the Property in order to prepare geologic cross-sections.

- An investigation to document environmental conditions in the vicinity of the then-planned underground combined sewer overflow (CSO) infrastructure, conducted by HWA Geosciences in July 1996. One monitoring well was advanced to 100 feet bgs or -47 feet elevation. No soil or groundwater samples were collected for chemical analysis; however, this investigation was relevant to the RI to evaluate subsurface geologic conditions on and near the Property in order to prepare geologic cross-sections.

- A Phase II environmental site assessment for the Denny Way/Lake Union CSO project to document environmental conditions in the vicinity of the then-planned underground CSO infrastructure, conducted by Black & Veatch from June to November 1997 (Black & Veatch, 1998). Three monitoring wells are close enough to be relevant to the Site and were advanced to depths ranging from 60.5 to 78.5 feet bgs or -3.1 to -35 feet elevation. Four soil samples were collected and analyzed for total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylenes (BTEX), and/or chlorinated volatile organic compounds (CVOCs[3]). Nineteen groundwater samples were collected and analyzed from these monitoring wells for TPH and volatile organic compounds (VOCs), which includes samples collected intermittently since 2009.

[3] For purposes of this FFS Report, we use the term CVOCs to refer to the volatile compound tetrachloroethene and its degradation products—trichloroethene, cis- and trans-1,2-dichloroethene, and vinyl chloride. We use the term BTEX to refer to the volatile aromatic compounds benzene, toluene, ethylbenzene, and xylenes. All other volatile organic compounds, including chlorinated compounds such as 1,1,1-trichloroethane and 1,1-dichloroethane, are referred to as VOCs.

- A monitoring well was drilled and installed with the bottom of the well screen at 40 feet bgs or 3 feet elevation at an unknown date prior to 2010 (DOF, 2009). No boring log or report discussion of the well installation or documentation of any soil chemical analysis was available. Three groundwater samples were collected and analyzed from this well for TPH and VOCs.

- An investigation to document environmental conditions in the vicinity of the then-planned Mercer Corridor project, conducted by Shannon & Wilson from April to May 2012 (Shannon & Wilson, 2012). Three borings are close enough to be relevant to the Site and were advanced to depths ranging from 11 to 19 feet bgs or 47.5 to 39 feet elevation. Seven soil samples were collected and analyzed for gasoline-range petroleum hydrocarbons (GRO), BTEX, and lead. No groundwater samples were collected from these borings.

- A remedial investigation to delineate the nature and extent of contamination from past releases of dry-cleaning solvent and petroleum from the American Linen site, conducted by SoundEarth Strategies from July 2012 to March 2013 (SoundEarth Strategies, 2013). Six monitoring wells are close enough to be relevant to the Site and were advanced to depths ranging from 45 to 140 feet bgs or 12 to -94 feet elevation. Forty-seven soil samples were collected and analyzed for select VOCs, including CVOCs. Five grab and fifty-two monitoring well groundwater samples were collected and analyzed for VOCs, GRO, and/or diesel- and heavy oil-range petroleum hydrocarbons (DRO and HO, respectively).

- An investigation to evaluate potential impacts of contaminants migrating from the American Linen site to the 615 Westlake property, conducted by Farallon from April to May 2014. One monitoring well was installed to 119 feet bgs or -80 feet elevation. No soil samples were collected. Fifteen groundwater samples were collected and analyzed from this well for VOCs and/or GRO from 2014 to 2020.

- A limited Phase II environmental site assessment to characterize environmental conditions on the Property for future redevelopment, conducted by Shannon & Wilson in May 2017 (Shannon & Wilson, 2018). Eleven soil borings were advanced to depths ranging from 10 to 30 feet bgs or 45 to 8 feet elevation. Fifteen soil samples and four grab groundwater samples were collected and analyzed for TPH, metals, VOCs, and/or polycyclic aromatic hydrocarbons (PAHs).

- An investigation to continue to delineate the nature and extent of contamination from the adjacent American Linen site, conducted by PES Environmental from August 2017 to October 2019 (PES Environmental, 2019 and PES Environmental, 2020). One soil boring and eleven monitoring wells are close enough to be relevant to the Site and were advanced to depths ranging from 30 to 140 feet bgs or 18 to -90 feet elevation. Eighty-one soil samples were collected and analyzed for VOCs. Fifty-seven groundwater samples were collected and analyzed from these wells for GRO and/or VOCs.

- An RI to characterize the nature and extent of contamination at the Site, conducted by Hart Crowser between March 2019 and November 2020 (Hart Crowser 2022). Fifty soil borings and thirty-six monitoring wells were advanced to depths ranging from 18 to 100 feet bgs or 31 to -67 feet elevation. A total of 343 soil samples and 13 field duplicate samples were collected and analyzed for GRO, DRO, HO, VOCs, semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and/or metals. Thirty-three grab groundwater samples, forty-eight monitoring well groundwater samples, and two field

duplicates were collected and analyzed for GRO, DRO, HO, VOCs, SVOCs, total and/or dissolved metals, and/or total suspended solids.

2.4 Nature and Extent of Contamination

This section summarizes the nature and extent of contamination at the Site. The RI Report contains detailed information. Section 2.4.1 describes the process to identify proposed constituents of concern (COCs), Sections 2.4.2 and 2.4.3 describe the distribution of proposed COCs in soil and groundwater, respectively, and Section 2.4.4 presents the conceptual site model (CSM).

2.4.1 Constituents of Concern

This section summarizes the screening process and reviews how proposed COCs—those constituents that are to be addressed by the cleanup action—for the Site were selected, with more detailed information presented in the RI Report. A three-step process was utilized to determine proposed COCs: identification of detected constituents; identification of constituents of potential concern (COPCs); and identification of proposed COCs.

For the first step, those constituents that were never detected were screened out from further consideration.

The second step, identification of COPCs, involved comparing the maximum concentrations of the detected constituents to conservative (protective), risk-based screening levels. Those constituents whose maximum concentration in any sample exceeded their corresponding screening levels were identified as COPCs. Screening levels for each medium and constituent reflect concentrations that are protective for the possible exposure pathways identified in the preliminary CSM developed in the RI Report, including exposure via cross-media transport and natural background levels, where applicable. Screening levels were based on values provided by Ecology on November 17, 2020.

For the third step, those COPCs that contributed little or nothing to the overall risk to human health and the environment were screened out from consideration and the remaining constituents were identified as proposed COCs for purposes of defining site cleanup requirements. Factors that we considered when identifying proposed COCs included a constituent's toxicity, mobility in the environment, natural background concentration, and prevalence at the Site (e.g., frequency of detection). For this Site, we also considered the source of the constituent and whether it was considered part of a separate site.

Tables 2-3a and 2-3b present the evaluations that resulted in the identification of proposed COCs in soil and groundwater, respectively. These evaluations are also summarized in detail in the RI Report.

Based on the evaluations presented above, the proposed Site COCs are:

- Soil:
  - GRO
  - Total carcinogenic polycyclic aromatic hydrocarbons (cPAHs) (including benzo(a)pyrene)
  - Arsenic
  - Lead

- Groundwater:
  - GRO
  - DRO
  - Benzene

2.4.2 Distribution of COCs in Soil

This Section is divided based on specific proposed COCs in soil at the Site identified in Section 2.4.1. Section 2.4.2.1 presents the distribution of TPH-related compounds (GRO), which is shown on Figure 2-6a. Section 2.4.2.2 presents the distribution of SVOCs (total cPAHs including benzo(a)pyrene), which is shown on Figure 2-6b. Section 2.4.2.3 presents the distribution of metals (arsenic and lead), which is shown on Figures 2-6c and 2-6d, respectively.

2.4.2.1 TPH Compounds

TPH-related impacts in soil that exceed screening levels are limited to an area of gasoline-related contamination (GRO) in the northwest corner of the Property (Figure 2-6a). GRO concentrations were above the screening level in soil samples collected at depths ranging from 5 to 25 feet bgs (approximately 48.7 to 29.8 feet elevation) in explorations MBB-1, MBB-3, MBB-4, MBB-16, MBGW-13, and HMW-18S. The exceedances range from 45 to 1,200 milligrams per kilogram (mg/kg), compared to the screening level of 30 mg/kg. The observed impacts are attributed to historical releases from the former gas and auto repair station that existed in this area of the Property.

The northern extent of GRO contamination in soil is bound by the samples in borings HMW-17S (at 10 feet bgs or 47.21 feet elevation), 21417-MB1 (at 9 feet bgs or 46.43 feet elevation), and MBGW-12 (at 5 feet bgs or 49 feet elevation and 25 feet bgs or 29 feet elevation). The eastern extent is bound by the samples in borings MBGW-6 (at 10 feet bgs or 42.5 feet elevation and 30 feet bgs or 22.5 feet elevation). The southern extent is bound by the samples in borings HMW-19S (at 10 feet bgs or 48.2 feet elevation) and MBB-24 (at 5 feet bgs or 49.1 feet elevation, 10 feet bgs or 44.1 feet elevation, 15 feet bgs or 39.1 feet elevation, 20 feet bgs or 34.1 feet elevation, and 25 feet bgs or 29.1 feet elevation). The western extent is bound by the samples in borings GP-9 (at 7 to 14 feet bgs or 51 to 44 feet elevation and 14 to 19 feet bgs or 44 to 39 feet elevation) and BB-10 (at 15 to 17 feet bgs or 42.4 to 40.4 feet elevation). The vertical extent is bound by the samples in borings HMW-18S (at 15 feet bgs or 42.61 feet elevation), MBB-4 (at 25 feet bgs or 29.61 feet elevation), MBB-16 (at 15 feet bgs or 38.7 feet elevation), MBB-1 (at 25 feet bgs or 30.02 feet elevation), and MBGW-13 (at 15 feet bgs or 39.72 feet elevation).

2.4.2.2 SVOCs

SVOC impacts in soil that exceed screening levels are limited to two areas of cPAH (including benzo(a)pyrene) impacts, both within the fill material: 1) in and near the southwest corner, and 2) the east-central area of the Property (Figure 2-6b).

In three (HMW-4IA, HMW-7IB, and MBB-25) of the nine exploration locations in and near the southwest corner of the Property, carcinogenic polycyclic aromatic hydrocarbons toxic equivalency (cPAHs-TEQ) concentrations exceed the screening level from 7.5 to 25 feet bgs (approximately 51.2 to 33.6 feet

elevation). The exceedances range from 0.32 to 0.44 mg/kg, compared to the screening level of 0.19 mg/kg.

In the east-central area of the Property, cPAHs-TEQ concentrations exceed the screening level in borings MBB-22 and MBB-23 from 5 to 10 feet bgs (approximately 37.2 to 37 feet elevation). The exceedances range from 0.42 to 2.4 mg/kg, compared to the screening level of 0.19 mg/kg.

Both areas of cPAH impacts with concentrations exceeding the screening level generally lie within the limits of the Broad Street 1958-2012 alignment (Figure 2-6b). The locations of the exceedances and absence of screening level exceedances for associated aliphatic or aromatic petroleum compounds suggests that the observed contamination is not from a petroleum-related release, but likely from fill material brought in to infill the Broad Street 1958-2012 alignment. In addition, all exceedances occur at depths within fill material. cPAHs are expected to be present throughout the Property intermittently with no discernable pattern due to the presence of impacted fill material rather than the existence of a specific release.

2.4.2.3 Metals

Arsenic. Arsenic impacts in soil that exceed screening levels are located within the Broad Street 1958-2012 alignment, which crosses the Property from the northeast to the southwest corner (Figure 2-6c). In the Broad Street 1958-2012 alignment, arsenic concentrations exceed the screening level in explorations HMW-6IA, HMW-6IB, HMW-6D, HMW-7IB, HMW-8IB, HMW-9S, HMW-9IB, HMW-9D, MBPP-8, MBB-5, MBB-6, MBB-8, MBB-9, and MBB-18 from 5 to 25 feet bgs (approximately 53.7 to 33.6 feet elevation). The exceedances range from 7.75 to 25.6 mg/kg, compared to the screening level of 7.3 mg/kg.

Most of the exceedances were in the southwest corner, where the Broad Street 1958-2012 alignment was the deepest (Figure 2-6c). The location of the arsenic exceedances along the Broad Street 1958-2012 alignment at depths within fill material indicates the source of arsenic is contaminated fill. Additionally, there are no known historical sources of arsenic contamination at the Property, such as smelting or mineral processing, power generation, agricultural pesticide application, or wood treating. Since the arsenic exceedances appear associated with contaminated fill rather than a release on the Property, identifying the boundary of these sporadic hot spots is challenging as arsenic is expected to be present throughout the Broad Street 1958-2012 alignment intermittently with no discernable pattern.

There is also one isolated occurrence of arsenic in 21417-MB10 outside the Broad Street 1958-2012 alignment within the native material (28 feet bgs or 10.08 feet elevation) on the east side of the Property (Figure 2-6c). As noted previously, there are no known historical sources of arsenic contamination at the Property and no other exceedances were reported in any other soil samples in the vicinity. Additionally, the arsenic concentration within 21417-MB10 (7.75 mg/kg) was slightly above the natural background screening level of 7.3 mg/kg. Occasional exceedances of the natural background screening level in uncontaminated soil are expected in a large data set such as the one for the Site because the natural background concentration is based on the 90th percentile of background samples. Therefore, on average 1 in 10 background samples in uncontaminated areas would exceed the natural background screening level (Ecology 1994).

The results establish that none of the arsenic exceedances are attributable to releases of hazardous substances on the Property.

Lead. Detections of lead in soil that exceed screening levels are limited to the following two samples: MBB-5 (591 mg/kg) in the central portion of the Property at a depth of 10 feet (elevation 40.53 feet) and 21417-MB9 (279 mg/kg) in the northeast corner of the Property at a depth of 22 feet (elevation 17.05 feet) (Figure 2-6d). The isolated occurrence of lead in MBB-5 within fill material in an area without a known source of lead (e.g., leaded gasoline), as well as the fact that no other exceedances were reported in any other soil samples in the vicinity, indicates that this sample presents an anomalous lead-bearing hot spot within the fill material. The detection of lead in 21417-MB9 was in native material at a concentration slightly above the screening level of 250 mg/kg. Neither sample was associated with high concentrations of GRO that might have indicated a leaded-gasoline source. These isolated results do not support the existence of lead contamination in soils throughout the Property, and do not suggest any on-Property sources or releases of lead.

In the central portion of the Property, the vertical extent is bound by the sample in boring MBB-5 (at 15 feet bgs or 35.53 feet elevation). The northern extent is bound by the sample in boring MBPP-7 (at 5 feet bgs or 44.77 feet elevation). The eastern extent is bound by the sample in boring MBB-6 (at 10 feet bgs or 40.33 feet elevation). The southern extent is bound by the sample in boring MBB-18 (at 10 feet bgs or 41.33 feet elevation). The western extent is bound by the samples in boring MBGW-6 (at 10 feet bgs or 42.5 feet elevation) and HMW-20S (at 10 feet bgs or 43.81 feet elevation and 15 feet bgs or 38.81 feet elevation).

In the northeast corner of the Property, the vertical extent is bound by the sample in boring MBB-13 (at 25 feet bgs or 10.98 feet elevation). The northern extent is bound by the sample in boring MBB-12 (at 15 feet bgs or 18.69 feet elevation). The eastern extent is bound by the sample in boring MBB-13 (at 20 feet bgs or 15.98 feet elevation). The southern extent is bound by the sample in boring 21417-MB10 (at 28 feet bgs or 10.08 feet elevation). The western extent is bound by the sample in boring MBB-11 (at 25 feet bgs or 21.42 feet elevation).

2.4.3 Distribution of COCs in Groundwater

This section presents the distribution of proposed COCs in groundwater at the Site identified in Section 2.4.1 (GRO, DRO, and benzene). This information is shown in plan view on Figure 2-7.

Petroleum-related impacts in groundwater that exceed screening levels are limited to an area of GRO, DRO, and benzene contamination in the northwest corner of the Property (Figure 2-7). GRO and DRO concentrations exceed the screening levels in the Shallow zone from a temporary well (MBB-24). Benzene concentrations exceed the screening level in the Shallow zone from three temporary wells (MBB-2, MBB-3, and MBB-24).

The DRO exceedance was 650 micrograms per liter (µg/L), compared to the screening level of 500 µg/L. The GRO exceedance was 1,600 µg/L, compared to the screening level of 800 µg/L. The benzene exceedances range from 2.8 to 34 µg/L, compared to the screening level of 2.4 µg/L. The temporary wells with exceedances are located within the area of gasoline-related impacts in soil described above in Section

2.4.3.1. These GRO, DRO, and benzene exceedances in groundwater are also attributed to releases from the former gas and auto repair station that once occupied this area of the Property.

The GRO, DRO, and benzene exceedances in the northwest corner of the Property are bounded by groundwater samples within the Property boundary that do not exceed screening levels. The northern extent is bound by grab samples from boring MBB-1 and MBB-4. The eastern extent is bound by a sample from monitoring well HMW-20S and a grab sample from boring MBGW-6. The southern extent is bound by a sample from monitoring well HMW-9S and a grab sample from boring MBGW-11. The western extent is bound by samples from monitoring well HMW-18S and HMW-19S. This data establishes that the observed on-Property petroleum-related impacts in groundwater are largely limited in extent to within the Property boundaries and are not migrating off of the Property (Figure 2-7).

2.4.4 Conceptual Site Model

This section summarizes the CSM for the Site. The CSM identifies sources of contamination, contaminant transport pathways, and current and potential human and ecologic exposure pathways. The CSM for the Site is discussed below and illustrated in the diagram presented in Figure 2-8.

2.4.4.1 Contaminant Sources

The RI Report presented sources of historical on-Property releases, which included: (a) releases from historical on-property activities including from former gasoline and auto repair stations, and (b) historical placement of contaminated fill utilized for realignment of roads.

2.4.4.2 Transport Pathways

The RI Report identified petroleum-related compounds in soil and dissolved in groundwater. The groundwater has been impacted due to leaching of petroleum entrained in the soil nearby. The RI Report presents data demonstrating that the dissolved petroleum-related compounds have only been transported a minimal distance in groundwater. Volatile constituents could also be transported via volatilization from unsaturated soil and shallow groundwater into soil gas, where they could migrate to the ambient air or overlying structures.

The RI Report also identified cPAHs, arsenic, and lead as COCs in soil. Unlike petroleum-related compounds, these constituents have remained in the soil at the point of release due to their limited aqueous solubilities and were not detected in groundwater at concentrations exceeding screening levels. These constituents are not volatile and the transport pathways to soil gas, ambient air, and indoor air are incomplete.

2.4.4.3 Receptors and Exposure Pathways

Receptors at the Site currently and in the future include construction workers, workers and patrons of commercial and retail facilities, and area residents. Receptors and associated exposure pathways for contamination originating on or from the Property are:

- Any person in contact with contaminated soil.

- Any person that incidentally ingests contaminated soil.
- Any future building occupant breathing potentially contaminated air impacted from volatile compounds in vadose-zone soil and/or shallow groundwater.
- Any person ingesting shallow contaminated groundwater.

Terrestrial ecological receptors are not a concern for the Site based on the planned future land use, as discussed in more detail in the RI Report.

2.4.5 Off-Property Sources of Contamination

The Property is affected by historical off-Property releases due to laundry and dry-cleaning operations on the American Linen site originating at 700 Dexter Avenue North (Figure 2-1). The presence of chlorinated dense non-aqueous phase liquids (DNAPLs) has been documented beneath former source areas on the American Line site and dissolved-phase CVOCs have migrated onto and beneath the Property. The adjacent American Linen site CVOC plume is being addressed under an Agreed Order with Ecology. The role of DNAPL migration and other CVOC fate and transport processes that have occurred beyond the 700 Dexter property are being evaluated as part of the ongoing American Linen RI (PES Environmental 2019).

The data evaluated in the RI Report supports the conclusion that the petroleum-related impacts and chlorinated solvent impacts are two separate sites (Figure 2-9) and there is no contribution of CVOCs from on-Property sources to the existing CVOC plume originating from the 700 Dexter property. The current distribution of CVOC detections on the Property at elevations of approximately 23 to -12 feet in limited areas in soil is shown on Figure 2-10 and at approximate elevations 37 to -58 feet in groundwater is shown on Figures 2-11a and 2-11b.[4] The distribution of CVOCs on the Property is also shown in cross-section view on Figures 2-12a and 2-12b. The isolated areas of detected CVOCs in the deeper saturated soil are a result of advective transport and subsequent adsorption of tetrachloroethene (PCE) via contaminated groundwater.

3.0 CLEANUP STANDARDS

Cleanup actions must comply with cleanup standards set forth in WAC 173-340-700 through 173-340-760. Cleanup standards include cleanup levels (CULs) for hazardous substances present at the Site, the location where these CULs must be met (i.e., point of compliance), and other regulatory requirements that apply to the Site because of the type of cleanup action and/or location of the Site (i.e., applicable state and federal laws). The proposed cleanup levels and points of compliance are presented in Section 3.1, and applicable state and federal laws are presented in Section 3.2.

[4] The maps show CVOC concentrations separately in wells that are screened above and below the planned elevation of the bottom of the future building excavation, approximately 8 feet elevation.

3.1 Proposed Cleanup Levels and Points of Compliance

Cleanup levels are concentrations of hazardous substances that are determined by Ecology to be protective of human health and the environment under specified exposure conditions. The MTCA regulations (WAC 173-340-350[9][a]) require CULs be established for hazardous substances in each medium (soil and groundwater) and for each pathway where a release has occurred. For the Site, proposed CULs have been developed for soil and groundwater to address the exposure pathways identified in Section 2.4.4.3.

In general, standard MTCA Method B CULs have been proposed for this Site, which are applicable to all sites and are developed with default formulas, assumptions, and procedures (WAC 173-340-705[1] and [2]). We selected the minimum CUL (most protective) for all applicable exposure pathways, as discussed in more detail in Sections 3.1.1 and 3.1.2.

The point of compliance (POC) is the point or location on a site where CULs must be attained and is summarized for each proposed COC in Tables 3-1a and 3-1b below.

3.1.1 Soil

The POC for soil is pathway-dependent, as outlined in WAC 173-340-740(6)(b-d) and summarized below:

- Soils throughout the Site for soil CULs based on the protection of groundwater.
- Soils throughout the Site from the ground surface to the uppermost groundwater saturated zone for soil CULs based on protection from vapors.
- Soils throughout the Site from the ground surface to 15 feet bgs for soil CULs based on human exposure via direct contact.

We selected the lowest soil CUL (most protective) for the following two exposure pathways:

- Protection of direct contact, using the lower of the CULs calculated using MTCA Equations 740-1 and 740-2 (WAC 173-340-740[3][b][iii][B]).[5]
- Leaching from soil to groundwater protective of a full-time residential user of groundwater as a drinking water source for the appropriate soil zone (saturated or vadose), developed using the fixed parameter three-phase partitioning model in accordance with WAC 173-340-747(4).[6]

The CULs were also adjusted for natural background in accordance with WAC 173-340-750(6), as appropriate.

[5] Except for GRO, which is based on Ecology's model remedy guidance for sites with petroleum contaminated soil (Ecology 2017).
[6] Except for GRO, which is developed using the four-phase partitioning model in accordance with WAC 173-340-747(6).

The proposed soil CULs, their basis, and associated POCs are listed in Table 3-1a.

Table 3-1a—Proposed Soil Cleanup Standards

COC	Proposed CUL (mg/kg)	Basis of CUL	POC
GRO	30[a,b]	Protection of groundwater	Sitewide
cPAHs	0.19	Direct contact[c]	0 to 15 feet bgs
Arsenic	7.3	Protection of groundwater, adjusted up to natural background[d]	Sitewide
Lead	250[a]	Direct contact[c]	0 to 15 feet bgs

Notes:

a. MTCA Method A CUL was used since a MTCA Method B CUL is not available. Petroleum fractionation data were not obtained for calculating a Site-specific Method B CUL for GRO. The MTCA Method A CULs are presented in WAC 173-340-900, Table 740-1.

b. The CUL is calculated according to the procedures in WAC 173-340-747 and assumes benzene is present.

c. The protection of groundwater from saturated soil pathway has an equal or lower CUL but is not applicable because this constituent was either never detected in saturated soil or was detected at a concentration below the screening level protective of the saturated soil-to-groundwater pathway. Additionally, dissolved lead, benzo(a)pyrene, and cPAHs were not detected in any groundwater samples, so the protection of groundwater pathway is not applicable to these constituents and the direct contact CULs and POC are appropriate. Total lead was detected in groundwater, but the concentrations do not represent levels that are mobile within the groundwater that a future drinking water user would be exposed to, but instead represent metals sorbed to suspended particulate matter in the samples, as explained further in the RI Report.

d. Background value from *Natural Background Soil Metals Concentrations in Washington State* (Ecology 1994).

3.1.2 Groundwater

We propose to use the standard POC for groundwater, which is throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the Site (WAC 173-340-720[8][b]).

We selected the lowest groundwater CUL (most protective) for the following two exposure pathways:

- Protection of drinking water, developed by identifying maximum contaminant levels (MCLs) and calculating levels per MTCA Equations 720-1 and 720-2 (WAC 173-340-720[4][b][iii][A] and -720[4][b][iii][B]) using the toxicity values in Ecology's online cleanup levels and risk calculation (CLARC) database (Ecology 2021), and adjusting the MCLs as follows:[7]

[7] Except GRO and DRO, which are based on the MTCA Method A listed values.

- If the ratio of the minimum MCL to the Equation 720-1 value does not exceed 1, then the hazard quotient associated with the MCL does not exceed 1 and the MCL requires no adjustment.
- If the ratio of the minimum MCL to the Equation 720-1 value exceeds 1, the MCL is adjusted to the Equation 720-1 value to achieve a hazard quotient of 1.
- If the ratio of the minimum MCL to the Equation 720-2 value does not exceed 10, then the cancer risk associated with the MCL does not exceed 1E-5 and the MCL requires no adjustment.
- If the ratio of the minimum MCL to the Equation 720-2 value exceeds 10, the MCL is adjusted to 10 times the Equation 720-2 value to achieve a cancer risk of 1E-5.
- If an MCL is available but no oral toxicity values are available to evaluate it, the MCL is used without adjustment.
- If no MCL is available but an oral toxicity value is available, the minimum of the values from Equations 720-1 and 720-2 is used.

■ Protection of ambient air, calculated per Ecology guidance (Ecology 2018a and 2018b).

The proposed groundwater CULs, their basis, and associated POCs are listed below in Table 3-1b.

Table 3-1b—Proposed Groundwater Cleanup Standards

COC	Proposed CUL (µg/L)	Basis of CUL	POC
GRO	800[a,b]	Protection of drinking water	Sitewide
DRO	500[a]	Protection of drinking water	Sitewide
Benzene	2.4	Protection of indoor air	Sitewide

Notes:

a. MTCA Method A CUL was used since MTCA Method B is not available without petroleum fractionation analysis. The MTCA Method A CUL is presented in WAC 173-340-900, Table 720-1.

b. The CUL assumes benzene is present.

3.2 Applicable or Relevant and Appropriate Requirements

This section identifies potential applicable or relevant and appropriate requirements (ARARs) to be used in assessing and implementing the cleanup action at the Site. The potential ARARs focus on local, state, or federal statutes, regulations, criteria, and guidelines. The types of potential ARARs evaluated for the Site were contaminant-, location-, and action-specific, as defined in the following paragraphs. Each type of potential ARAR is evaluated in Table 3-2, and applicable ARARs are listed below.

In general, only the substantive requirements of ARARs are applied to MTCA cleanup sites being conducted under a legally binding agreement with Ecology (WAC 173-340-710[9][b]). Thus, cleanup actions under a formal agreement with Ecology are generally exempt from the procedural requirements specified in

certain state and federal laws[8]. This exemption also applies to permits or approvals required by local governments.

Contaminant-specific ARARs. Contaminant-specific ARARs are usually health- or risk-based numerical values or methodologies that, when applied to site-specific conditions, result in establishment of numerical contaminant values that regulatory agencies generally recognize as protective of human health and the environment.

Applicable contaminant-specific ARARs include:

- Washington MTCA (Revised Code of Washington [RCW] 70A.305; Chapter 173-340 WAC) regulating soil and groundwater cleanup levels.

Action-specific ARARs. Action-specific ARARs are pertinent to particular remediation methods and technologies, and to actions conducted to support cleanup. Action-specific ARARs are requirements that may need to be satisfied during the performance of specific cleanup actions because they prescribe how certain activities (e.g., treatment and disposal practices, media monitoring programs) must occur.

Applicable action-specific ARARs include:

- United States (U.S.) Clean Air Act (42 United States Code [USC] § 7401 et seq. and 40 Code of Federal Regulations [CFR] Part 50) and Washington Clean Air Act and Implementing Regulations (RCW 70A.15; Chapter 173-400 WAC) to protect ambient air quality by limiting air emissions and taking reasonable precautions to prevent fugitive dust from becoming airborne, which are applicable since the planned cleanup action involves construction.

- U.S. Resource Conservation and Recovery Act (RCRA) (42 USC § 6901 et seq.), Subtitle D—Managing Municipal and Solid Waste (40 CFR Parts 257 and 258) and Washington Solid Waste Handling Standards (RCW 70A.205; Chapter 173-350 WAC) to establish guidelines and criteria for management of non-hazardous solid waste, which are applicable since the planned cleanup action involves off-site disposal of contaminated soil and/or groundwater designated as non-hazardous waste.

- U.S. Land Disposal Restrictions (40 CFR Part 268) and Washington Land Disposal Restrictions (Chapter 173-303 WAC) to establish guidelines and criteria for disposal of dangerous waste, which are applicable to determine whether listed dangerous wastes disposed of off-site during the planned cleanup action will qualify as contained-in (see next bullet).

- Washington Contained-in Policy (Ecology memo dated February 19, 1993) to allow for listed dangerous wastes to be exempt from management as dangerous wastes if the concentrations are below risk-based

[8] The exemption applies to the following Washington State laws: Clean Air Act (RCW 70A.15), Solid Waste Management (RCW 70A.205), Hazardous Waste Management (RCW 70A.300), Construction Projects in State Waters (RCW 77.55), Water Pollution Control (RCW 90.48), and Shoreline Management Act (RCW 90.58). Exemption does not apply if Ecology determines that it would result in loss of approval from a federal agency necessary for the state to administer any federal law.

levels, which is applicable since the planned cleanup action involves off-site disposal of listed dangerous wastes at concentrations that would qualify as contained-in.

- U.S. Occupational Safety and Health Act (OSHA) (29 CFR Parts 1904, 1910, and 1926) and Washington Industrial Safety and Health Act (WISHA) (RCW 49.17; Title 296 WAC) to establish site worker and visitor health and safety requirements during implementation of the cleanup action.

- Washington State Environmental Policy Act (SEPA) (RCW 43.21C; Chapter 197-11 WAC) to identify and analyze environmental impacts associated with the planned cleanup action.

- King County Stormwater Runoff and Surface Water and Erosion Control (King County Code [KCC] Chapter 9.04), King County Water Quality (KCC Chapter 9.12), and Seattle Stormwater Code (Seattle Municipal Code [SMC] Title 22, Subtitle VIII) to establish guidelines for erosion control and construction stormwater management, which are applicable since the planned cleanup action involves construction.

- Washington Noise Control (RCW 70A.20; Chapter 173-60 WAC) and Seattle Noise Control (SMC Chapter 25.08) to minimize noise impacts during implementation of the planned cleanup action.

- Seattle Grading Code (SMC Chapter 22.170) to establish guidelines for grading, which is applicable since the planned cleanup action involves an excavation and filling volume greater than 500 cubic yards.

- U.S. Federal Water Pollution Control Act—National Pollutant Discharge Elimination System (NPDES) (Clean Water Act [CWA]; 33 USC § 1342, Section 402) and Implementing Regulations and Washington Waste Discharge General Permit Program (RCW 90.48; Chapter 173-226 WAC) to establish requirements for point source discharges, including stormwater runoff, which are applicable since the planned cleanup action involves point source discharge of stormwater.

- Washington Minimum Standards for Construction and Maintenance of Wells (RCW 18.104; Chapter 173-160 WAC) to establish standards for constructing and decommissioning monitoring wells, which is applicable since the planned cleanup action involves drilling or decommissioning wells.

Location-specific ARARs. Location-specific ARARs are restrictions placed on the concentration of hazardous substances or the conduct of activities solely because they are in a specific location. Some examples of special locations are floodplains, wetlands, historic sites, and sensitive ecosystems or habitats.

Applicable location-specific ARARs include:

- U.S. Archaeological and Historical Preservation Act (16 USC § 469, 470 et seq.; 36 CFR Parts 65 and 800) and Washington Archaeological Sites and Resources (RCW 27.44, 27.48, and 27.53; Chapter 25-48 WAC) to establish guidelines to preserve and recover significant artifacts, preserve historic and archaeological properties and resources, and minimize harm to national landmarks. There are no known historic or archaeological sites in the vicinity of the Site, but these regulations may be applicable if archaeological resources are discovered during construction.

- Seattle Clarification of SEPA Historic Preservation Policy for Potential Archaeologically Significant Sites and Requirements for Archaeological Assessments (Director's Rule 2-98; SMC Chapter 25.05.675 H) to provide guidance for the identification, protection, and treatment of archaeological sites on the City of Seattle's shorelines, which is applicable as the Site is within 200 feet of the historical Lake Union shoreline.

4.0 DESCRIPTION AND EVALUATION OF PLANNED CLEANUP ACTION

This section identifies the cleanup action objectives (CAOs), describes the planned cleanup action for the Site, and evaluates the planned cleanup action for compliance with minimum MTCA requirements.

4.1 Cleanup Action Objectives

CAOs were developed to identify goals that should be accomplished by the planned cleanup action to meet the minimum requirements of the MTCA regulations and provide adequate protection of human health and the environment. The CAOs for soil and groundwater consider the applicable receptors and exposure pathways for those media (Section 2.4.4.3).

The CAOs for the Site COCs are:

1. Prevent any person from direct contact with contaminated soil.
2. Protect groundwater from being contaminated by impacted soil.
3. Mitigate the potential for future building indoor air to be impacted by contaminated soil and groundwater.
4. Prevent any person from ingesting contaminated groundwater.

Each CAO will be achieved by terminating the associated exposure pathway. This objective can be achieved through contaminant removal or treatment to meet constituent- and media-specific cleanup standards (cleanup levels at points of compliance; Section 3.1) that are based on the specific exposure pathways, and preventing any potential residual exposure through containment with associated institutional controls.

4.2 Description of Planned Cleanup Action

The planned cleanup action developed for the Site consists of the following components:

- Excavate contaminated soil within the planned redevelopment excavation required for construction of the new buildings to an approximate elevation of at least 7.75 feet (approximately 26 to 51 feet bgs) for disposal at permitted receiving facilities. Excavation and disposal of contaminated soil will address CAOs #1, 2, and 3 by removing the contaminant source.
- Perform compliance monitoring, as required by WAC 173-340-410.

The planned cleanup action is a permanent cleanup action as defined in WAC 173-340-200. Because this permanent cleanup action will be the proposed cleanup action in the DCAP, other alternatives do not need to be evaluated and a disproportionate cost analysis (DCA) is not required under WAC 173-340-360(3)(d).

More detailed information on each of the components in the planned cleanup action is presented below.

Excavate and Dispose Soil Off-Site. The planned cleanup action includes excavation of soil containing COC concentrations above the proposed CULs within the footprint of the planned excavation for redevelopment, including the GRO in the northwest corner of the Property (Figure 2-6a), cPAHs in the southwest and east-central areas of the Property (Figure 2-6b), arsenic in the southwest, central, and eastern areas of the Property (Figure 2-6c), and lead in the central and eastern areas of the Property (Figure 2-6d).

Excavation will continue until the limit of the planned redevelopment excavation required for construction of the new buildings is reached, which will remove all COC-contaminated soil on the Property.[9] As shown in plan view on Figure 4-1 and in cross-section view on Figures 4-2a and 4-2b, the planned redevelopment excavation extends laterally across the vast majority of the Property, with the exception of the King County sewer overflow infrastructure in the north-central portion of the Property and small areas in the northwest corner and along the southern Property boundary. The vertical excavation extent is to approximately elevation 7.75 feet (approximately 26 to 51 feet bgs), except for the shear wall cores which will extend to approximately elevation 2.75 feet (approximately 31 to 56 feet bgs).

For purposes of this FFS, it is assumed that excavated COC-contaminated soil can be characterized as non-hazardous and will be sent off-site for disposal at a regulated Subtitle D landfill facility or other permitted landfill or thermal treatment facility. Erosion control, site stabilization measures, underground utility protection measures, and dewatering (including properly treating and/or disposing of impacted construction dewatering water as discussed in the next paragraph) will be implemented during construction activities to prevent adverse impact to human health and the environment.

The planned redevelopment excavation will remove shallow groundwater contamination on the Property (e.g., GRO, DRO, and benzene in the northwest corner) during temporary construction dewatering. The dewatering system is anticipated to include a combination of localized sumps within the excavation footprint, well points, and dewatering wells. The groundwater table will be maintained approximately 2 feet below the bottom of the excavation.

Construction dewatering will be required for the duration of excavation activities and will continue until the foundation and parking garage structure are completed to above the adjacent ground surface. The

[9] As discussed further in the RI Report, the observed cPAH and arsenic contamination is from fill material brought in to infill the Broad Street 1958-2012 alignment. The contaminated fill from the Broad Street 1958-2012 alignment that is located off of the Property is considered a separate site from the Seattle DOT Mercer Parcels Site, and communications with Ecology indicate that it will be listed separately on Ecology's Confirmed and Suspected Contaminated Sites List. As such, cleanup of the cPAH- and arsenic-contaminated soil located off-Property to the southwest (if any) will be handled separately and is not included in this FFS.

total estimated duration of temporary construction dewatering is anticipated to be approximately 22 months.

Collected water will be conveyed to a water treatment system prior to being discharged to the storm sewer under the Construction Stormwater General Permit (CSWGP) issued by Ecology. The dewatering treatment system is anticipated to consist of a combination of particulate removal technologies (e.g., sedimentation), air stripping, and/or granular activated carbon (GAC). If air stripping is conducted, associated air stripper vapors will also be collected and treated before discharge to the air, as permitted by the Puget Sound Clean Air Agency (PSCAA). Treatment, discharge monitoring, and reporting will be conducted in accordance with the CSWGP issued by Ecology.

Perform Compliance Monitoring. Monitoring, such as dust monitoring during excavation, will be conducted during implementation of the cleanup action to confirm that human health and the environment are adequately protected during construction. Soil and groundwater monitoring would be conducted, as necessary, to meet regulatory compliance and confirm the cleanup action has attained cleanup standards.

A Sampling and Analysis Plan/Quality Assurance Project Plan will be prepared to summarize compliance sampling procedures, locations, frequency, and analyses. This plan will be submitted to Ecology for review and approval in conjunction with the Engineering Design Report.

4.3 Considerations Related to CVOC Groundwater Plume

The planned cleanup action selected in the FFS and the Property redevelopment plans take into consideration the ongoing and future investigations, cleanup actions, and monitoring related to the CVOC plume from the off-Property source, the American Linen site, so as not to interfere with these efforts. The CVOC plume is being investigated and cleaned up under an Agreed Order with Ecology by others and therefore is not within the scope of this FFS. If investigation or remediation related activities are required beneath the proposed building footprint at the Property, these activities will need to be completed prior to the beginning of construction (anticipated in early 2022).

Considerations related to the CVOC groundwater plume from the off-Property source are summarized below:

Groundwater Management. The cleanup action at the Property will address management and disposal of CVOC-impacted groundwater encountered during excavation and associated construction dewatering. The construction dewatering treatment system will be designed to reduce CVOC concentrations in accordance with discharge permit requirements. During construction dewatering, effluent will be evaluated and treated as necessary to comply with the discharge permit.

Soil Management. Saturated soils with CVOC detections will be managed and disposed of as non-dangerous solid waste (after obtaining a contained-in designation from Ecology) at a Subtitle D landfill.

Vapor Intrusion Mitigation. A vapor barrier will be installed beneath the slabs and along the perimeter foundation walls of the new building structures at the Property as a mitigation measure to prevent soil vapors containing CVOCs from migrating into the buildings.

Environmental Covenant. An environmental covenant will be filed for the Property to place limitations on the use of the Property (i.e., prohibit extraction of groundwater) and require that engineering controls (i.e., vapor barrier) remain in place and be monitored and maintained appropriately until the CVOC plume is remediated.

4.4 Evaluation of Planned Cleanup Action

As described in WAC 173-340-360(2) (and presented in the subsections below), four threshold requirements and three other requirements need to be met for a cleanup action to be selected. Additionally, several action-specific requirements—which vary depending on the nature of the Site and the cleanup action being considered—need to be met if applicable.

Sections 4.4.1 through 4.4.3 describe the MTCA evaluation criteria and summarize how the planned cleanup action meets these criteria.

4.4.1 MTCA Threshold Criteria

Threshold requirements for cleanup actions are defined in WAC 173-340-360(2)(a). Requirements include protection of human health and the environment, compliance with MTCA cleanup standards and applicable state and federal laws, and provisions for compliance monitoring. The planned cleanup action meets the MTCA threshold requirements as described as follows and summarized in Table 4-1.

4.4.1.1 Protect Human Health and the Environment

The planned cleanup action eliminates exposure pathways and provides for overall protection of human health and the environment by removing soil and groundwater with Site COC concentrations above the CULs.

4.4.1.2 Comply with Cleanup Standards

The planned cleanup action must comply with cleanup standards (cleanup levels and the points of compliance where such cleanup levels must be met) as established in WAC 173-340-700 through 173-340-760. The planned cleanup action complies with cleanup standards, as proposed in Section 3.1, by removing and disposing of soil and groundwater with Site COC concentrations above the CULs.

4.4.1.3 Comply with Applicable State and Federal Laws

The planned cleanup action must comply with both applicable requirements and requirements determined to be relevant and appropriate, as defined through WAC 173-340-710. Additionally, the planned cleanup action must address local, state, and federal laws related to environmental protection, health and safety, transportation, and disposal. The planned cleanup action will attain and comply with all applicable ARARs, which are summarized in Table 3-2 and listed in Section 3.2.

4.4.1.4 Provide for Compliance Monitoring

The planned cleanup action must provide for compliance monitoring, as established under WAC 173-340-410 and WAC 173-340-720 through 173-340-760. There are three types of compliance monitoring: protection, performance, and confirmational. Protection monitoring is designed to protect human health and the environment during the construction and operation and maintenance phases of the cleanup action. Performance monitoring confirms that the cleanup action has met cleanup and/or performance standards. Confirmational monitoring confirms the long-term effectiveness of the cleanup action once cleanup standards have been met or other performance standards have been attained.

The planned cleanup action would meet requirements for compliance monitoring, as it includes varying levels of all three types of compliance monitoring as described in Section 4.2.

4.4.2 Other Requirements

Other requirements for cleanup actions are defined in WAC 173-340-360(2)(b). Requirements include using permanent solutions to the maximum extent practicable, providing for a reasonable restoration time frame, and considering public concerns. The planned cleanup action meets the other requirements as described as follows and summarized in Table 4-1.

4.4.2.1 Use Permanent Solutions to the Maximum Extent Practicable

As outlined in WAC 173-340-360(3), this requirement involves conducting a DCA, wherein the costs and benefits of each alternative are assessed, when evaluating multiple cleanup action alternatives. However, since the planned cleanup action will be a permanent cleanup action and will be the proposed cleanup action in the DCAP, other alternatives do not need to be evaluated and a DCA is not required (WAC 173-340-360[3][d]).

4.4.2.2 Provide for a Reasonable Restoration Time Frame

Cleanup actions must provide for a reasonable restoration time frame as laid out in WAC 173-340-360(4). The time frame for the planned cleanup action to address Site COCs by mitigating direct-contact exposure risks from impacted soil (CAO #1), protecting groundwater from impacted soil (CAO #2), mitigating vapor intrusion exposure risks (CAO #3), and protecting future drinking water users from ingesting contaminated groundwater (CAOs #4) is during redevelopment of the Property, approximately two years. This is a reasonable restoration time frame based on the factors listed below per WAC 173-340-360(4)(b):

- Potential risks posed by the site to human health and the environment.
- Practicability of achieving a shorter restoration time frame.
- Current use of the site, surrounding areas, and associated resources that are, or may be, affected by releases from the site.
- Potential future use of the site, surrounding areas, and associated resources that are, or may be, affected by releases from the site.
- Availability of alternative water supplies.

- Likely effectiveness and reliability of institutional controls.
- Ability to control and monitor migration of hazardous substances from the site.
- Toxicity of the hazardous substances at the site.
- Natural processes that reduce concentrations of hazardous substances and have been documented to occur at the site or under similar site conditions.

4.4.2.3 Consideration of Public Concerns

Consideration of public concerns is mandated under the MTCA cleanup regulation for a cleanup action led by Ecology or a potentially liable person under an Agreed Order or Consent Decree. For this cleanup, Ecology will provide a mandatory public review and comment period on the DCAP and PPCD. All public comments and concerns will be taken into consideration when finalizing the Cleanup Action Plan (CAP). Because public comments have not yet been received, consideration of public concerns regarding the planned cleanup action is preliminarily included in this document.

The planned cleanup action is anticipated to meet public concerns because it includes source removal by removing and disposing of all soil and groundwater with concentrations of Site COCs above CULs. Additionally, the public will be protected by installing a vapor barrier and implementing an environmental covenant to remove the potential inhalation and groundwater ingestion exposure pathways until the American Linen site is remediated.

4.4.3 Action-Specific Requirements

Action-specific requirements for cleanup actions are defined in WAC 173-340-360(2)(c) through (h). Requirements vary depending on the nature of the Site and the cleanup action being considered. The planned cleanup action meets the action-specific requirements, as applicable, which are described as follows and summarized in Table 4-1.

4.4.3.1 Groundwater Cleanup Actions

This requirement states that a permanent cleanup action shall be used to achieve the CULs for groundwater at the standard POCs where a permanent cleanup action is practicable or determined by the department to be in the public interest (WAC 173-340-360[2][c]). The planned cleanup action meets this requirement because it is a permanent cleanup action, as discussed in Section 4.2.

4.4.3.2 Soil at Current or Potential Future Residential Areas and Childcare Centers

Specific requirements pertaining to soil cleanup at current or potential future residential areas, schools, and childcare centers are found in WAC 173-340-360(2)(d). Although the redevelopment plans for the Property do not include residential, school, or childcare center use, these requirements are applicable because the Property has a potential to serve as a future residential area based on the consideration of zoning and adjacent land uses. The planned cleanup action complies with this requirement because all soils with concentrations of Site COCs exceeding CULs will be removed and disposed of off-site.

4.4.3.3 Institutional Controls

Institutional controls must comply with the specific requirements of WAC 173-340-440 and should demonstrably reduce risks to ensure a protective cleanup action. A cleanup action should not rely primarily on institutional controls and monitoring where it is technically possible to implement a more permanent cleanup action for all or part of a Site. For complete details, see WAC 173-340-360(2)(e).

This requirement is not applicable because the planned cleanup action for Site COCs does not include institutional controls.[10]

4.4.3.4 Releases and Migration

The regulations state that cleanup actions should prevent or minimize present and future releases and migration of hazardous substances in the environment (WAC 173-340-360[2][f]). The planned cleanup action meets this requirement because releases and migration of hazardous substances are prevented by removing soil and groundwater with concentrations of Site COCs above CULs and contaminant sources (i.e., underground storage tanks), if any are still present on the Property.

4.4.3.5 Dilution and Dispersion

The regulations state that cleanup actions should not rely primarily on dilution and dispersion unless the incremental costs of any active remedial measures over the costs of dilution and dispersion grossly exceed the incremental degree of benefits of active remedial measures over the benefits of dilution and dispersion (WAC 173-340-360[2][g]).

The planned cleanup action meets this requirement because it does not rely at all on dilution and dispersion.

4.4.3.6 Remediation Levels

Remediation levels are defined as the particular concentration of a hazardous substance in any media above which a particular cleanup action component will be required as part of a cleanup action at the Site (WAC 173-340-200). Specific requirements pertaining to use of remediation levels are in WAC 173-340-360(2)(h).

The planned cleanup action does not involve use of remediation levels; therefore, this requirement is not relevant.

5.0 CONCLUSIONS

The planned cleanup action for addressing the Site COCs consists of excavating all impacted soil (and removal of impacted groundwater) within the redevelopment excavation area and disposing off-site, and performing compliance monitoring. The planned cleanup action is a permanent cleanup action and meets all minimum requirements for cleanup actions as described in WAC 173-340-360(2). Implementation of

[10] Institutional controls may be required for the Property as part of the final cleanup action for the American Linen site to prevent exposures to CVOCs associated with that site.

this cleanup action will address the CAOs for the Site. The planned cleanup action will be documented in more detail in the forthcoming DCAP.

6.0 REFERENCES

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Shannon & Wilson 1971. Comprehensive Foundation Investigation, Proposed Bay Freeway, Seattle, Washington. Prepared for City of Seattle, September 1, 1971.

Shannon & Wilson 2012. Limited Environmental Explorations Report, Mercer Corridor Project West Phase, Seattle, Washington. Prepared for KPFF Consulting Engineers, August 22, 2012.

Shannon & Wilson 2018. Phase II Environmental Site Assessment, Mercer Corridor Project West, Broad MegaBlock Site, Seattle, Washington. Prepared for KPFF Consulting Engineers, January 25, 2018.

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TABLE 2-1
CHRONOLOGICAL LIST OF ENVIRONMENTAL INVESTIGATIONS
SEATTLE DOT MERCER PARCELS SITE
SEATTLE, WASHINGTON

Investigation/Report	Prepared By	Dates of Field Work	Location of Investigation	Summary of Field Work	Boring/Well IDs
Comprehensive Foundation Investigation[n]	Shannon & Wilson	March 1970 to February 1971	East Side of Property and Rights-of-Way North and South of Property	• 4 relevant soil borings[a]	B-404, B-414, B-432, B-434
Denny Way CSO Investigation	Hong West & Associates	July 1996	Right-of-Way North of Property	• Installed 1 monitoring well[b]	PB-9
Phase II Environmental Site Assessment[i]	Black and Veatch	June to November 1997	Central Southern Portion of Property and Rights-of-Way Adjacent to Property	• 3 relevant monitoring wells[c]	BB-5, BB-8, BB-10
Unknown[j]	Unknown	2009 or Earlier	Right-of-Way North of Property	• Installed 1 monitoring well[d]	BB-8A
Limited Environmental Explorations Report[o]	Shannon & Wilson	April to May 2012	Right-of-Way West of Property	• 3 relevant soil borings[e]	GP-7, GP-8, GP-9
Remedial Investigation[q]	SoundEarth Strategies	July 2012 to March 2013	West Side of Property and Rights-of-Way Adjacent to Property	• 6 relevant monitoring wells[f]	MW-105, MW-106, MW-114, MW-117, MW-118, MW-119
AIBS Building Block 43 Site Investigation	Farallon	April to May 2014	Northeast Side of Property	• 1 relevant monitoring well[g]	FMW-129
Limited Phase II Environmental Site Assessment[p]	Shannon & Wilson	May 2017	Property-Wide	• Drilled 11 soil borings • Collected 4 grab groundwater samples	21417-MB1 to 21417-MB11
Remedial Investigation[l,m]	PES Environmental	August 2017 to October 2019	American Linen Parcel North of Property and Rights-of-Way Adjacent to Property and American Linen Parcel	• 1 relevant soil boring and 11 relevant monitoring wells[h]	B-215, MW-140, MW-146, MW-147, MW-148, MW-153, MW-154, MW-155, MW-315, MW-316, MW-325, MW-326
Remedial Investigation[k]	Hart Crowser	March 2019; February, March, July, September, October, and November 2020	Property-Wide and in Rights-of-Way East and West of Property	• Drilled 86 soil borings and completed 36 as monitoring wells • Collected 33 grab groundwater samples and 46 monitoring well groundwater samples • Conducted slug testing on 23 monitoring wells	MBGW-1 to MBGW-16, MBPP-1 to MBPP-8, MBB-1 to MBB-26, HMW-1S, HMW-1IB, HMW-1D, HMW-2S, HMW-2IA, HMW-2IB, HMW-2D, HMW-3IA, HMW-3D, HMW-4IA, HMW-5IB, HMW-6IA, HMW-6IB, HMW-6D, HMW-7IB, HMW-8IB, HMW-9S, HMW-9IA, HMW-9IB, HMW-9D, HMW-10S, HMW-10D, HMW-11S, HMW-11IB, HMW-12D, HMW-13D, HMW-14D, HMW-15IB, HMW-16IB, HMW-17S, HMW-18S, HMW-19S, HMW-20IA, HMW-20S, HMW-21S, HMW-22S

Notes:

a. The RI report considers data from 4 of the borings on and near the Property. Additional borings were advanced for geotechnical purposes, but are not shown on Figure 2-3. Refer to the Shannon & Wilson 1971 report for additional information.

b. The RI report considers data from 1 monitoring well near the Property, which was installed as part of a larger investigation for the Denny Way combined sewer overflow (CSO) project. Although a boring log was found, no report discussing the well installation was available.

c. The RI report considers data from 3 monitoring wells on and near the Property. Additional explorations were advanced for geotechnical and environmental purposes as part of the design of the CSO tunnel on the Property. Other explorations are not shown on Figure 2-3; refer to the Black & Veatch 1998 report for additional information.

d. The RI report considers data from 1 monitoring well near the Property. No boring log or report discussing the well installation was available. The DOF 2009 report notes that they designated this well as BB-8A because it was an unknown well next to BB-8. DOF collected a groundwater sample from this well in 2009; refer to the DOF 2009 report for additional information.

e. The RI report considers data from 3 borings near the Property. Additional explorations were advanced as part of a larger investigation to document environmental conditions in the vicinity of the planned Mercer Corridor project, but are not shown on Figure 2-3. Refer to the Shannon & Wilson 2012 report for additional information.

f. The RI report considers data from 6 monitoring wells on and near the Property. Additional work was conducted as part of a larger investigative, remedial, and monitoring effort of the regional chlorinated volatile organic compound groundwater plume from the American Linen site. Other explorations are not shown on Figure 2-3; refer to the SoundEarth Strategies 2013 report for additional information.

g. The RI report considers data from 1 monitoring well on the Property, which was installed as part of a larger investigation on the AIBS Building Block 43 site east of the Property. Although a boring log was found on Ecology's database, no report discussing the well installation was available.

h. The RI report considers data from 1 boring and 11 monitoring wells near the Property. Additional work was conducted as part of a larger investigative, remedial, and monitoring effort of the regional chlorinated volatile organic compound groundwater plume from the American Linen site. Other explorations are not shown on Figure 2-3; refer to the PES Environmental 2019 and PES Environmental 2020 reports for additional information.

References:

i. Black & Veatch 1998.
j. DOF 2009.
k. Hart Crowser 2021.
l. PES Environmental 2019.
m. PES Environmental 2020.
n. Shannon & Wilson 1971.
o. Shannon & Wilson 2012.
p. Shannon & Wilson 2018.
q. SoundEarth Strategies 2013.

TABLE 2-2
SUMMARY OF EXPLORATIONS
SEATTLE DOT MERCER PARCELS SITE
SEATTLE, WASHINGTON

Boring/Well ID	Status[a]	Logs?[f]	Well Tag	Northing	Easting	Date Completed	Elevation[h]		Well Screen				Bottom of Boring		Well Casing Diameter (in)	Grab GW?[f,g]	Report Reference
							Surface (ft)	TOC (ft)	Top of Screen Depth (ft)	Bottom of Screen Depth (ft)	Top of Screen Elevation[h] (ft)	Bottom of Screen Elevation[h] (ft)	Depth (ft)	Elevation[h] (ft)			
SOIL BORINGS																	
B-215	-	Y	-	231782.5	1268432.7	9/13/2017	53.95	-	-	-	-	-	95	-41.05	-	N	PES Environmental 2019
B-404	-	Y	-	231557.3	1268925.5	4/2/1970	39.5	-	-	-	-	-	68.4	-28.9	-	N	Shannon & Wilson 1971
B-414	-	Y	-	231686.9	1268874.9	4/9/1970	43.52	-	-	-	-	-	62.4	-18.88	-	N	Shannon & Wilson 1971
B-432	-	Y	-	231771.9	1268871.5	4/28/1970	36.35	-	-	-	-	-	73.5	-37.15	-	N	Shannon & Wilson 1971
B-434	-	Y	-	231547.7	1268855.6	4/30/1970	42.73	-	-	-	-	-	63	-20.27	-	N	Shannon & Wilson 1971
GP-7	-	Y	-	231566.4	1268321	5/14/2012	58.53	-	-	-	-	-	11	47.53	-	-	Shannon & Wilson 2012
GP-8	-	Y	-	231600.2	1268321.4	5/14/2012	58.33	-	-	-	-	-	12	46.33	-	-	Shannon & Wilson 2012
GP-9	-	Y	-	231641.5	1268303.4	5/14/2012	58	-	-	-	-	-	19	39	-	-	Shannon & Wilson 2012
21417-MB1	-	Y	-	231725.7	1268417.2	5/12/2017	55.43	-	-	-	-	-	10.2	45.23	-	N	Shannon & Wilson 2018
21417-MB2	-	Y	-	231691.4	1268428	5/12/2017	54.72	-	-	-	-	-	10	44.72	-	N	Shannon & Wilson 2018
21417-MB3	-	Y	-	231536.5	1268405.4	5/12/2017	58.63	-	-	-	-	-	29	29.63	-	N	Shannon & Wilson 2018
21417-MB4	-	Y	-	231529.1	1268457.1	5/12/2017	57.24	-	15	25	42.24	32.24	25	32.24	1	Y	Shannon & Wilson 2018
21417-MB5	-	Y	-	231634.5	1268567.3	5/12/2017	51.91	-	-	-	-	-	10	41.91	-	N	Shannon & Wilson 2018
21417-MB6	-	Y	-	231702.7	1268671.1	5/11/2017	48.22	-	-	-	-	-	15	33.22	-	N	Shannon & Wilson 2018
21417-MB7	-	Y	-	231595.5	1268688	5/11/2017	47.38	-	-	-	-	-	12	35.38	-	N	Shannon & Wilson 2018
21417-MB8	-	Y	-	231713.1	1268726.6	5/11/2017	45.28	-	-	-	-	-	28	17.28	-	N	Shannon & Wilson 2018
21417-MB9	-	Y	-	231675.5	1268902	5/11/2017	39.05	-	15	25	24.05	14.05	25	14.05	1	Y	Shannon & Wilson 2018
21417-MB10	-	Y	-	231628.1	1268906.6	5/11/2017	38.08	-	20	30	18.08	8.08	30	8.08	1	Y	Shannon & Wilson 2018
21417-MB11	-	Y	-	231588.5	1268904	5/11/2017	39.04	-	15	25	24.04	14.04	25	14.04	1	Y	Shannon & Wilson 2018
MBB-1	-	Y	-	231703.2	1268422.6	2/27/2020	55.02	-	32	37	23.02	18.02	40	15.02	2	Y	Hart Crowser 2021
MBB-2	-	Y	-	231687.6	1268418.4	2/27/2020	55.45	-	32	37	23.45	18.45	40	15.45	2	Y	Hart Crowser 2021
MBB-3	-	Y	-	231679	1268431	2/27/2020	54.84	-	32	37	22.84	17.84	40	14.84	2	Y	Hart Crowser 2021
MBB-4	-	Y	-	231685.4	1268438.5	2/27/2020	54.61	-	32	37	22.61	17.61	40	14.61	2	Y	Hart Crowser 2021
MBB-5	-	Y	-	231669.7	1268575.9	3/2/2020	50.53	-	32	37	18.53	13.53	40	10.53	2	Y	Hart Crowser 2021
MBB-6	-	Y	-	231665.2	1268588.9	3/3/2020	50.33	-	25	30	25.33	20.33	40	10.33	2	Y	Hart Crowser 2021
MBB-7	-	Y	-	231704.9	1268625.5	2/25/2020	49.41	-	27	32	22.41	17.41	40	9.41	2	Y	Hart Crowser 2021
MBB-8	-	Y	-	231658.2	1268630.3	2/26/2020	49.66	-	27	32	22.66	17.66	40	9.66	2	Y	Hart Crowser 2021
MBB-9	-	Y	-	231652	1268676.8	2/26/2020	47.55	-	27	32	20.55	15.55	40	7.55	2	Y	Hart Crowser 2021
MBB-10	-	Y	-	231698.9	1268686.2	2/26/2020	49.66	-	35	40	14.66	9.66	40	9.66	2	Y	Hart Crowser 2021
MBB-11	-	Y	-	231668.8	1268866.8	3/4/2020	46.42	-	-	-	-	-	35	11.42	-	N	Hart Crowser 2021
MBB-12	-	Y	-	231696.9	1268907.2	3/4/2020	33.69	-	27	32	6.69	1.69	35	-1.31	2	Y	Hart Crowser 2021
MBB-13	-	Y	-	231671.4	1268913.6	3/4/2020	35.98	-	30	35	5.98	0.98	35	0.98	2	Y	Hart Crowser 2021
MBB-14	-	Y	-	231635.2	1268863.7	3/3/2020	47.15	-	-	-	-	-	35	12.15	-	N	Hart Crowser 2021
MBB-15	-	Y	-	231638.1	1268912.6	3/4/2020	37.73	-	30	35	7.73	2.73	35	2.73	2	Y	Hart Crowser 2021
MBB-16	-	Y	-	231702	1268460.8	9/2/2020	53.7	-	30	40	23.7	13.7	40.4	13.3	-	Y	Hart Crowser 2021
MBB-17	-	Y	-	231591.6	1268507.7	9/1/2020	54.88	-	-	-	-	-	31.5	23.38	-	N	Hart Crowser 2021
MBB-18	-	Y	-	231636.5	1268579.6	9/1/2020	51.33	-	-	-	-	-	20.8	30.53	-	N	Hart Crowser 2021
MBB-19	-	Y	-	231595.4	1268589.9	9/1/2020	51.68	-	-	-	-	-	20.8	30.88	-	N	Hart Crowser 2021
MBB-20	-	Y	-	231693.1	1268688	9/2/2020	47.53	-	-	-	-	-	20.5	27.03	-	N	Hart Crowser 2021
MBB-21	-	Y	-	231570	1268696.9	9/2/2020	47.6	-	-	-	-	-	20.9	26.7	-	N	Hart Crowser 2021
MBB-22	-	Y	-	231639	1268767.4	9/21/2020	42.05	-	-	-	-	-	36.5	5.55	-	N	Hart Crowser 2021
MBB-23	-	Y	-	231689.5	1268760.4	9/21/2020	47.18	-	-	-	-	-	35.8	11.38	-	N	Hart Crowser 2021
MBB-24	-	Y	-	231640.9	1268449	9/9/2020	54.1	-	30	40	24.1	14.1	40.4	13.7	-	Y	Hart Crowser 2021
MBB-25	-	Y	-	231525	1268366.1	10/30/2020	58.63	-	30	40	28.63	18.63	40	18.63	-	Y	Hart Crowser 2021
MBB-26	-	Y	-	231500.3	1268385.4	10/29/2020	58.79	-	30	40	28.79	18.79	40	18.79	-	Y	Hart Crowser 2021

Boring/Well ID	Status[a]	Logs?[f]	Well Tag	Northing	Easting	Date Completed	Elevation[h]		Well Screen				Bottom of Boring		Well Casing Diameter (in)	Grab GW?[f,g]	Report Reference
							Surface (ft)	TOC (ft)	Top of Screen Depth (ft)	Bottom of Screen Depth (ft)	Top of Screen Elevation[h] (ft)	Bottom of Screen Elevation[h] (ft)	Depth (ft)	Elevation[h] (ft)			
SOIL BORINGS																	
MBGW-1	-	Y	-	231717.9	1268814.4	3/6/2019	39.95	-	20	30	19.95	9.95	30	9.95	2	Y	Hart Crowser 2021
MBGW-2	-	Y	-	231675.9	1268809.6	3/4/2019	46.11	-	20	30	26.11	16.11	81	-34.89	2	Y	Hart Crowser 2021
MBGW-3	-	Y	-	231688	1268669.1	3/7/2019	47.77	-	16	26	31.77	21.77	28	19.77	2	Y	Hart Crowser 2021
MBGW-4	-	Y	-	231686.8	1268722.5	3/6/2019	47.3	-	-	-	-	-	25	22.3	-	N	Hart Crowser 2021
MBGW-5	-	Y	-	231683.8	1268585.2	3/11/2019	49.87	-	20	30	29.87	19.87	76.5	-26.63	2	Y	Hart Crowser 2021
MBGW-6	-	Y	-	231694.9	1268490.7	3/14/2019	52.5	-	20	30	32.5	22.5	30.5	22	2	Y	Hart Crowser 2021
MBGW-7	-	Y	-	231624.5	1268489.7	3/6/2019	53.76	-	30	40	23.76	13.76	75.3	-21.54	2	Y	Hart Crowser 2021
MBGW-8	-	Y	-	231577.5	1268709.9	3/15/2019	47.08	-	15	25	32.08	22.08	76.5	-29.42	2	Y	Hart Crowser 2021
MBGW-9	-	Y	-	231553.8	1268464.9	3/13/2019	56.84	-	20	30	36.84	26.84	31.5	25.34	2	Y	Hart Crowser 2021
MBGW-10	-	Y	-	231523.6	1268494.8	3/13/2019	55.25	-	20	30	35.25	25.25	30.9	24.35	2	Y	Hart Crowser 2021
MBGW-11	-	Y	-	231510.4	1268442.2	3/12/2019	57.55	-	35	45	22.55	12.55	50	7.55	2	Y	Hart Crowser 2021
MBGW-12	-	Y	-	231726	1268449.4	3/15/2019	54	-	17.5	27.5	36.5	26.5	30.9	23.1	2	Y	Hart Crowser 2021
MBGW-13	-	Y	-	231693.1	1268435	3/14/2019	54.72	-	20	30	34.72	24.72	31.5	23.22	2	Y	Hart Crowser 2021
MBGW-14	-	Y	-	231615.6	1268872.1	3/6/2019	46.09	-	20	30	26.09	16.09	30	16.09	2	Y	Hart Crowser 2021
MBGW-15	-	Y	-	231568.7	1268885.7	3/11/2019	40.87	-	20	30	20.87	10.87	81	-40.13	2	Y	Hart Crowser 2021
MBGW-16	-	Y	-	231546.5	1268567.1	3/14/2019	52.14	-	20	30	32.14	22.14	75.5	-23.36	2	Y	Hart Crowser 2021
MBPP-1	-	Y	-	231635.9	1268801.4	3/5/2019	45.28	-	-	-	-	-	30	15.28	-	N	Hart Crowser 2021
MBPP-2	-	Y	-	231575.5	1268828.3	3/5/2019	44.46	-	-	-	-	-	30	14.46	-	N	Hart Crowser 2021
MBPP-3	-	Y	-	231593.9	1268746.6	3/6/2019	45.89	-	-	-	-	-	30	15.89	-	N	Hart Crowser 2021
MBPP-4	-	Y	-	231619.1	1268667.7	3/7/2019	48.34	-	-	-	-	-	18	30.34	-	N	Hart Crowser 2021
MBPP-5	-	Y	-	231721.9	1268693.2	3/7/2019	45.92	-	18	28	27.92	17.92	28	17.92	2	Y	Hart Crowser 2021
MBPP-6	-	Y	-	231604.6	1268569.5	3/8/2019	52.26	-	-	-	-	-	30	22.26	-	N	Hart Crowser 2021
MBPP-7	-	Y	-	231725.5	1268551.4	3/8/2019	49.77	-	-	-	-	-	23	26.77	-	N	Hart Crowser 2021
MBPP-8	-	Y	-	231588.6	1268424.6	3/8/2019	57.52	-	-	-	-	-	30	27.52	-	N	Hart Crowser 2021
MONITORING WELLS																	
Shallow																	
BB-10	D	Y	-	231732	1268341.6	11/13/1997	57.4	-	29	39	28.4	18.4	60.5	-3.1	2	N	Black & Veatch 1998
HMW-1S	-	Y	BLI532	231663.1	1268917	3/6/2019	36.01	35.73	20	30	16.01	6.01	31.5	4.51	2	N	Hart Crowser 2021
HMW-2S	-	Y	BLR924	231667.7	1268683.1	3/13/2019	47.39	47.28	19.8	29.8	27.59	17.59	30	17.39	2	N	Hart Crowser 2021
HMW-9S	-	Y	BLZ189	231607.5	1268475.2	3/2/2020	55.39	58.54	25	35	30.39	20.39	40	15.39	2	N	Hart Crowser 2021
HMW-10S	-	Y	BLZ193	231564.8	1268682.5	3/3/2020	48.21	51.09	24.7	34.7	23.51	13.51	40	8.21	2	N	Hart Crowser 2021
HMW-11S	-	Y	BLZ195	231575	1268889.2	2/24/2020	41.47	44.77	25	35	16.47	6.47	40	1.47	2	N	Hart Crowser 2021
HMW-17S	-	Y	BMP351	231712.9	1268386.3	9/3/2020	57.21	57.35	35	45	22.21	12.21	45.5	11.71	2	N	Hart Crowser 2021
HMW-18S	-	Y	BMP352	231676.5	1268386.9	9/3/2020	57.61	57.44	35	45	22.61	12.61	45.3	12.31	2	N	Hart Crowser 2021
HMW-19S	-	Y	BMP353	231643	1268383.9	9/8/2020	58.2	61.08	35	45	23.2	13.2	46.4	11.8	2	N	Hart Crowser 2021
HMW-20S	-	Y	BMP354	231637	1268512.5	9/8/2020	53.81	56.49	25	35	28.81	18.81	35.8	18.01	2	N	Hart Crowser 2021
HMW-21S	-	Y	BMP373	231626.2	1268924.2	10/20/2020	38.17	37.92	30	40	8.17	-1.83	41.5	-3.33	2	N	Hart Crowser 2021
HMW-22S	-	Y	BMP374	231592.8	1268923.7	10/22/2020	38.75	38.58	27	37	11.75	1.75	38.5	0.25	2	N	Hart Crowser 2021
MW-154	-	N	BKF350	231736	1268482.2	3/30/2018	53.22	52.57	25	35	28.22	18.22	35	18.22	2	N	PES Environmental 2019
MW-155	-	N	BKF354	231735.4	1268717.5	4/10/2018	44.47	44.05	20	30	24.47	14.47	30	14.47	2	N	PES Environmental 2019
Intermediate A																	
BB-5	D	Y	-	231594.4	1268646.9	9/3/1997	49.48	-	30	40	19.48	9.48	78	-28.52	2	N	Black & Veatch 1998
BB-8	-	Y	-	231762.7	1268707.1	6/6/1997	43.72	43.69	30	40	13.72	3.72	78.5	-34.78	2	N	Black & Veatch 1998
BB-8A	D	N	-	231763.5	1268720	-	43.36	-	-	40.3	-	3.06	-	-	-	N	DOF 2009[b]
HMW-2IA	-	Y	-	231646.6	1268697	3/8/2019	45.55	47.51	34.8	44.8	10.75	0.75	46	-0.45	2	N	Hart Crowser 2021
HMW-3IA	-	Y	BLR925	231681.8	1268425.8	3/15/2019	55.02	54.75	34.8	44.8	20.22	10.22	45.5	9.52	2	N	Hart Crowser 2021
HMW-6IA	-	Y	BLZ185	231552.5	1268379.7	3/2/2020	58.65	61.27	37.5	47.5	21.15	11.15	50	8.65	2	N	Hart Crowser 2021
HMW-9IA	-	Y	BLZ190	231610.7	1268480.4	2/28/2020	55.26	58.21	36.7	46.7	18.56	8.56	50	5.26	2	N	Hart Crowser 2021
HMW-20IA	-	Y	BMP356	231634.1	1268516.1	9/9/2020	53.83	56.47	41	51	12.83	2.83	51.3	2.53	2	N	Hart Crowser 2021
MW-114	A	Y	BHS768	231656.1	1268537.7	12/10/2012	42.43	45.84	35	45	7.43	-2.57	45	-2.57	2	N	SoundEarth Strategies 2013
MW-117	D	Y	BHS885	231643.7	1268343.7	12/10/2012	57.78	56.9	40	55	17.78	2.78	45.5	12.28	2	N	SoundEarth Strategies 2013
MW-118	D	Y	BIC079	231491.4	1268503.4	3/21/2013	54.5	52.91	40	50	14.5	4.5	55.5	-1	2	N	SoundEarth Strategies 2013
MW-119	-	Y	BIC080	231653.1	1268925.2	3/21/2013	37.66	37.42	35	45	2.66	-7.34	45	-7.34	2	N	SoundEarth Strategies 2013
MW-146	-	N	BKF349	231735.7	1268490.1	3/30/2018	52.86	52.34	39.8	49.8	13.06	3.06	50	2.86	2	N	PES Environmental 2019
MW-315	-	N	BMF570	231538.6	1268645.5	9/11/2019	49.56	49.18	37.5	47.4	12.06	2.16	48	1.56	2	N	PES Environmental 2019
MW-325	-	N	BMF585	231553.5	1268886.3	9/11/2019	41.42	40.9	34.5	44.5	6.92	-3.08	44.7	-3.28	2	N	PES Environmental 2019

Boring/Well ID	Status[a]	Logs?[f]	Well Tag	Northing	Easting	Date Completed	Elevation[h]		Well Screen				Bottom of Boring		Well Casing Diameter (in)	Grab GW?[f,g]	Report Reference
							Surface (ft)	TOC (ft)	Top of Screen Depth (ft)	Bottom of Screen Depth (ft)	Top of Screen Elevation[h] (ft)	Bottom of Screen Elevation[h] (ft)	Depth (ft)	Elevation[h] (ft)			
Intermediate B																	
HMW-1IB	-	Y	BLR917	231653.1	1268903.5	3/13/2019	38.29	38.38	54.3	64.3	-16.01	-26.01	65.5	-27.21	2	N	Hart Crowser 2021
HMW-2IB	-	Y	BLR923	231653	1268687	3/12/2019	47.41	47.19	52.8	62.8	-5.39	-15.39	66.5	-19.09	2	N	Hart Crowser 2021
HMW-4IA[c]	-	Y	BLI162	231558.7	1268409.6	3/7/2019	58.7	58.53	50	60	8.7	-1.3	81.5	-22.8	2	N	Hart Crowser 2021
HMW-5IB	-	Y	BLZ188	231613	1268382.8	2/28/2020	58.44	60.99	49.7	59.7	8.74	-1.26	70	-11.56	2	N	Hart Crowser 2021
HMW-6IB	-	Y	BLZ186	231548.1	1268380.8	3/3/2020	58.67	61.61	50	60	8.67	-1.33	70	-11.33	2	N	Hart Crowser 2021
HMW-7IB	-	Y	BLZ159	231522.5	1268383.3	3/2/2020	58.69	61.38	49.7	59.7	8.99	-1.01	70	-11.31	2	N	Hart Crowser 2021
HMW-8IB	-	Y	BLZ158	231559.1	1268433.8	3/2/2020	57.97	60.78	50.5	60.5	7.47	-2.53	70	-12.03	2	N	Hart Crowser 2021
HMW-9IB	-	Y	BLZ191	231604.9	1268480.1	2/28/2020	55.36	57.89	57	67	-1.64	-11.64	70	-14.64	2	N	Hart Crowser 2021
HMW-11IB	-	Y	BLZ196	231565.1	1268891.7	2/24/2020	39.7	42.91	44.9	54.9	-5.17	-15.17	70	-30.3	2	N	Hart Crowser 2021
HMW15IB	-	Y	BMP316	231512.3	1268389.5	7/16/2020	58.86	58.33	64	73	-5.14	-14.14	76.5	-17.64	2	N	Hart Crowser 2021
HMW16IB	-	Y	BMP315	231724	1268386.5	7/14/2020	57.02	56.8	55	65	2.02	-7.98	76.5	-19.48	2	N	Hart Crowser 2021
MW-147	-	Y	BKF351	231736	1268498	4/2/2018	52.49	51.85	70	80	-17.51	-27.51	80	-27.51	2	N	PES Environmental 2019
MW-148	-	Y	BKF353	231734	1268722	4/9/2018	44.29	43.91	70	80	-25.71	-35.71	80.5	-36.21	2	N	PES Environmental 2019
MW-316	-	Y	BMF569	231537.9	1268641.6	9/9/2019	49.71	49.44	59.8	69.8	-10.09	-20.09	70	-20.29	2	N	PES Environmental 2019
Deep																	
FMW-129	-	Y	BIE085	231708.1	1268874.6	5/16/2014	38.64	38.31	84.2	89.2	-45.56	-50.56	119	-80.36	2	Y	Farallon[d]
HMW-1D	-	Y	BLI197	231641.8	1268907.5	3/4/2019	38.07	37.99	80	90	-41.93	-51.93	90	-51.93	2	N	Hart Crowser 2021
HMW-2D	-	Y	BLI198	231659.8	1268696.2	3/6/2019	47.34	47.19	80	90	-32.66	-42.66	90	-42.66	2	N	Hart Crowser 2021
HMW-3D	-	Y	BLI199	231676	1268409	3/6/2019	56.56	56.37	80	90	-23.44	-33.44	90	-33.44	2	N	Hart Crowser 2021
HMW-6D	-	Y	BLZ187	231551.3	1268382.8	3/2/2020	58.58	61.49	79.7	89.7	-21.12	-31.12	90	-31.42	2	N	Hart Crowser 2021
HMW-9D	-	Y	BLZ192	231609.9	1268484.4	2/28/2020	55.32	58.14	79.7	89.7	-24.38	-34.38	90	-34.68	2	N	Hart Crowser 2021
HMW-10D	-	Y	BLZ194	231565.5	1268686.2	3/5/2020	48.16	51.03	79	89	-30.84	-40.84	90	-41.84	2	N	Hart Crowser 2021
HMW12D	-	Y	BMP290	231704.6	1268915.3	7/16/2020	33.52	35.86	82	92	-48.48	-58.48	100.3	-66.78	2	N	Hart Crowser 2021
HMW13D	-	Y	BMP318	231638.7	1268802.4	7/23/2020	45.3	45.08	89.5	99.5	-44.2	-54.2	100.9	-55.6	2	N	Hart Crowser 2021
HMW14D	-	Y	BMP317	231576.9	1268800.7	7/20/2020	46.35	46.11	70	80	-23.65	-33.65	81.5	-35.15	2	N	Hart Crowser 2021
MW-105	-	Y	BCK018	231763.7	1268695.3	8/10/2012	45.59	44.69	130	140	-84.41	-94.41	140	-94.41	2	N	SoundEarth Strategies 2013
MW-106	-	Y	BCK019	231721.8	1268488	8/15/2012	52.9	51.99	130	140	-77.1	-87.1	140	-87.1	2	N	SoundEarth Strategies 2013
MW-140	-	Y	BKA301	231782.8	1268511.9	8/31/2017	50.32	50.2	129.5	139.5	-79.18	-89.18	140	-89.68	2	N	PES Environmental 2019
MW-153	-	Y	BKF348	231737.1	1268440.3	3/29/2018	54.84	54.35	120	130	-65.16	-75.16	130	-75.16	2	N	PES Environmental 2019
MW-326	-	Y	BLR750	231552.7	1268889.6	9/10/2019	41.31	40.97	90	100	-48.69	-58.69	100	-58.69	2	N	PES Environmental 2019
PB-9	-	Y	-	231759.8	1268445	7/15/1996	53.6	-	62	77	-8.4	-23.4	100.1	-46.5	0.75	N	HWA[e]

Notes:

a."D" represents decommissioned and "A" represents abandoned.

b. No boring log or report discussing the well installation was available. The DOF 2009 report notes that they designated this well as BB-8A because it was an unknown well next to BB-8.
The bottom of screen depth was assumed based on DOF's measurement of the bottom of the well.

c. This well was installed as an Intermediate B well rather than an Intermediate A well as suggested in the name.

d. This well was installed as part of a larger investigation on the AIBS Building Block 43 Site east of the Property.
Although a boring log was found on Ecology's database, no report discussing the well installation was available.

e. This well was installed as part of a larger investigation for the Denny Way combined sewer overflow project.
Although a boring log was found, no report discussing the well installation was available.

f. "Y" represents yes and "N" represents no.

g. All grab groundwater samples were collected in the shallow aquifer.

h. Elevations referenced to North American Vertical Datum of 1988 (NAVD88).

- = Data not available or not applicable.

ft = feet.

in = inches.

TOC = Top of casing.

TABLE 2-3a
IDENTIFICATION OF PROPOSED COCS IN SOIL
SEATTLE DOT MERCER PARCELS SITE
SEATTLE, WASHINGTON

COPC	Screening Levels: Vadose Zone (less than or equal to 25 feet bgs)			Screening Levels: Saturated Zone (greater than 25 feet bgs)			COC?	Rationale
	Direct Contact	Protective of Groundwater Vadose Zone	Natural Background	Direct Contact	Protective of Groundwater Saturated Zone	Natural Background		
Volatile Organic Compounds								
cis-1,2-Dichloroethene	--	--	NA	--	**X**	NA	no	Constituent associated with groundwater plume originating from nearby site being addressed separately.
Methylene Chloride	--	--	NA	--	**X**	NA	no	1. Constituent does not pose an unacceptable direct contact risk. 2. Constituent does not pose an unacceptable risk to drinking water. Although constituent exceeds screening level in soil indicating it could potentially cause an exceedance of drinking water levels in groundwater, empirical groundwater data indicates that methylene chloride is not a COC in groundwater. This indicates that the soil-to-drinking-water pathway is not complete and methylene chloride in soil does not pose an unacceptable risk to drinking water. 3. Constituent is a common laboratory contaminant and is likely a false positive.
Tetrachloroethene	--	--	NA	--	**X**	NA	no	Constituent associated with groundwater plume originating from nearby site being addressed separately.
Trichloroethene	--	--	NA	--	**X**	NA	no	Constituent associated with groundwater plume originating from nearby site being addressed separately.
Vinyl chloride	--	--	NA	--	**X**	NA	no	Constituent associated with groundwater plume originating from nearby site being addressed separately.
Semi-Volatile Organic Compounds								
Benzo(a)pyrene	**X**	--	NA	--	--	NA	yes	Retained as COC
cPAHs-TEQ	**X**	**X**	NA	--	--	NA	yes	Retained as COC
Total Petroleum Hydrocarbons								
Gasoline Range Organics	--	**X**	NA	--	--	NA	yes	Retained as COC
Inorganic Compounds								
Arsenic	**X**	**X**	**X**	**X**	**X**	**X**	yes	Retained as COC
Lead	**X**	--	**X**	--	--	--	yes	Retained as COC
Selenium	--	--	NA	--	**X**	NA	no	1. Constituent does not pose an unacceptable direct contact risk. 2. Constituent does not pose an unacceptable risk to drinking water. Although constituent exceeds screening level in soil indicating it could potentially cause an exceedance of drinking water levels in groundwater, empirical groundwater data indicates that selenium is not a COC in groundwater. This indicates that the soil-to-drinking-water pathway is not complete and selenium in soil does not pose an unacceptable risk to drinking water. 3. There are no known historical sources or releases of constituent on the Property. The greatest proportion of selenium released to the environment is coal fly ash. Other anthropogenic emission sources of selenium include coal and oil combustion facilities, selenium refining factories, base metal smelting and refining factories, mining and milling operations, and end-product manufacturers (e.g., some semiconductor manufacturers) (ATSDR 2003). None of these activities are known or suspected of having taken place on the property.

Notes:
Screening levels provided by Ecology (November 17, 2020).
Pink = COC.
X = Maximum detected conctration exceeded available screening level.
-- = Maximum detected concentration below available screening level.
bgs = Below ground surface.
COC = Constituent of Concern.
COPC = Constituent of Potential Concern.
cPAHs-TEQ = Carcinogenic polycyclic aromatic hydrocarbons toxic equivalency.
NA = No screening level available.

TABLE 2-3b
IDENTIFICATION OF PROPOSED COCS IN GROUNDWATER
SEATTLE DOT MERCER PARCELS SITE
SEATTLE, WASHINGTON

COPC	Screening Levels			COC?	Rationale
	Protective of Drinking Water	Protective of Indoor Air	Natual Background		
Volatile Organic Compounds					
1,1-Dichloroethene	**X**	--	NA	no	Constituent associated with groundwater plume originating from nearby site being addressed separately.
1,2-Dichloroethane	**X**	**X**	NA	no	Low frequency of detection (only one sample); low maximum exceedance factor (<1.7x most protective screening level; and never detected in soil).
Benzene	**X**	**X**	NA	yes	Retained as COC
cis-1,2-Dichloroethene	**X**	NA	NA	no	Constituent associated with groundwater plume originating from nearby site being addressed separately.
Methylene chloride	**X**	--	NA	no	Frequent lab contaminant and low frequency of detection. Exceedance appears to be an anomaly.
Tetrachloroethene	**X**	**X**	NA	no	Constituent associated with groundwater plume originating from nearby site being addressed separately.
Trichloroethene	**X**	**X**	NA	no	Constituent associated with groundwater plume originating from nearby site being addressed separately.
Vinyl chloride	**X**	**X**	NA	no	Constituent associated with groundwater plume originating from nearby site being addressed separately.
Semi-Volatile Organic Compounds					
1-Methylnaphthalene	**X**	NA	NA	no	Low frequency of detection, low exceedance factor, and co-occurs with high gasoline-range organics (which is a COC).
Total Petroleum Hydrocarbons					
Diesel Range Organics	**X**	NA	NA	yes	Retained as COC
Gasoline Range Organics	**X**	NA	NA	yes	Retained as COC
Heavy Oil Range Organics	**X**	NA	NA	no	Low frequency of detection, low frequency of exceedance, low exceedance factor. Detections appear to be biased high due to grab groundwater samples. Heavy oil was not detected in soil samples from nearby borings, indicating the groundwater exceedance is not associated with a release from the Property, as an on-Property source to groundwater would be expected to have left residual heavy oil in shallow soil as it migrated downward to the water table.
Inorganic Compounds					
Arsenic	**X**	NA	**X**	no	Constituent is associated with background conditions.
Barium	**X**	NA	NA	no	High levels of total metals associated with excess turbidity and are not representative of actual transport/exposure potential.
Cadmium	**X**	NA	NA	no	High levels of total metals associated with excess turbidity and are not representative of actual transport/exposure potential.
Chromium	**X**	NA	NA	no	High levels of total metals associated with excess turbidity and are not representative of actual transport/exposure potential.
Lead	**X**	NA	NA	no	High levels of total metals associated with excess turbidity and are not representative of actual transport/exposure potential.
Mercury	**X**	**X**	NA	no	High levels of total metals associated with excess turbidity and are not representative of actual transport/exposure potential.

Notes:
Screening levels provided by Ecology (November 17, 2020).
Pink = COC.
X = Maximum detected conctration exceeded available screening level.
-- = Maximum detected concentration below available screening level.
COC = Constituent of Concern.
COPC = Constituent of Potential Concern.
NA = No screening level available.

TABLE 3-2
POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
SEATTLE DOT MERCER PARCELS SITE
SEATTLE, WASHINGTON

Authority	Resource	Implementing Laws/Regulations	ARAR?	Applicability
Contaminant-Specific ARARs				
State	Soil	MTCA [RCW 70A.305; Chapter 173-340 WAC]	Yes	The MTCA soil cleanup levels are applicable.
State	Groundwater	MTCA [RCW 70A.305; Chapter 173-340 WAC]	Yes	The MTCA groundwater cleanup levels are applicable.
Action-Specific ARARs				
Federal	Air	Clean Air Act [42 USC § 7401 et seq.; 40 CFR Part 50]	Yes	The federal Clean Air Act creates a national framework designed to protect ambient air quality by limiting air emissions.
State	Air	Clean Air Act and Implementing Regulations [RCW 70A.15; Chapter 173-400 WAC]	Yes	These regulations require the owner or operator of a source of fugitive dust to take reasonable precautions to prevent fugitive dust from becoming airborne and to maintain and operate the source to minimize emissions primarily during construction. These regulations are applicable since the planned cleanup action involves construction.
Local	Air Emissions	Regional Emission Standards for Toxic Air Pollutants [PSCAA Regulations I and III]	No	A source of toxic air contaminant requires a notice of construction. This is not applicable to the planned cleanup action.
Federal	Solid Waste	RCRA [42 USC § 6901 et seq.], Subtitle D -- Managing Municipal and Solid Waste [40 CFR Parts 257 and 258]	Yes	Subtitle D of RCRA establishes a framework for management of non-hazardous solid waste. These regulations establish guidelines and criteria from which states develop solid waste regulations. These requirements are applicable since the planned cleanup action involves off-site disposal of impacted soil and/or groundwater designated as non-hazardous waste.
Federal/ State	Solid Waste	U.S. Transportation of Hazardous Materials [49 CFR Parts 105 to 177] Washington Transportation of Hazardous Materials [Chapter 446-50 WAC]	No	Transportation of hazardous waste or materials must meet state and federal requirements. These requirements are not applicable since the planned cleanup action is not anticipated to involve the off-site transport of soil and/or groundwater designated as hazardous waste.
Federal/ State	Solid Waste	U.S. Land Disposal Restrictions [40 CFR Part 268] Washington Land Disposal Restrictions [Chapter 173-303-140 WAC]	Yes	Best management practices for disposal of dangerous wastes must meet state and federal requirements. These requirements are appliable to determine whether listed dangerous wastes disposed of off-site during the planned cleanup action will qualify as contained-in.
Federal/ State	Solid Waste	U.S. RCRA [42 USC § 6901 et seq.], Subtitle C -- Hazardous Waste Management [40 CFR Parts 260 to 262] Washington Dangerous Waste Regulations [Chaper 173-303 WAC]	No	Subtitle C of RCRA pertains to the management of hazardous waste. These requirements are not applicable since the planned cleanup action is not anticipated to involve the off-site disposal of soil and/or groundwater designated as hazardous waste.
State	Solid Waste	Contained-in Policy [Ecology Memo dated February 19, 1993]	Yes	The contained-in policy allows for listed dangerous wastes to be exempt from management as dangerous wastes if the concentrations are below risk-based levels. This policy is applicable since the planned cleanup action involves the off-site disposal of listed dangerous wastes at concentrations that would qualify as contained-in.
State	Solid Waste	Solid Waste Handling Standards [RCW 70A.205; Chapter 173-350 WAC]	Yes	Washington Solid Waste Handling Standards apply to facilities and activities that manage solid waste. The regulations set minimum functional performance standards for proper handling and disposal of solid waste; describe responsibilities of various entities; and stipulate requirements for solid waste handling facility location, design, construction, operation, and closure. These requirements are applicable since the planned cleanup action involves off-site disposal of impacted soil.
Federal/ State	Remedy Construction	U.S. OSHA [29 CFR Parts 1904, 1910, and 1926] WISHA [RCW 49.17; Title 296 WAC]	Yes	Site worker and visitor health and safety requirements established by OSHA/WISHA are to be met during implementation of the planned cleanup action.
State	Remedy Construction	UIC Program [Chapter 173-218 WAC]	No	UIC regulations apply to cleanup actions that include injection of biological or chemical oxidants into injection wells or trenches. These activities are not expected for the planned cleanup action.
State/ Local	Remedy Construction	SEPA [RCW 43.21C; Chapter 197-11 WAC]	Yes	A SEPA review identifies and analyzes environmental impacts associated with the planned cleanup action. A SEPA review is required for local permitting and pursuant to MTCA.
Local	Remedy Construction	King County Stormwater Runoff and Surface Water and Erosion Control [KCC Chapter 9.04] and King County Water Quality [KCC Chapter 9.12] Seattle Stormwater Code [SMC Title 22, Subtitle VIII]	Yes	Guidelines for erosion control and construction stormwater management. These regulations are applicable since the planned cleanup action involves construction.
State/ Local	Remedy Construction	Washington Noise Control [RCW 70A.20; Chapter 173-60 WAC] Seattle Noise Control [SMC Chapter 25.08]	Yes	Potentially relevant, depending on construction activities and equipment selected. Construction activities will be limited to normal working hours, to the extent possible, to minimize noise impacts.
Local	Remedy Construction	Grading Code [SMC Chapter 22.170]	Yes	Guidelines for grading activities, applicable since the planned cleanup action involves an excavation and filling volume greater than 500 cubic yards.
Federal	Surface Water	Federal Water Pollution Control Act--Water Quality Certification [CWA; 33 USC § 1341, Section 401] and Implementing Regulations	No	Section 401 of the CWA provides that applicants for a permit to conduct any activity involving potential discharges into waters or wetlands shall obtain certification from the state that discharges will comply with applicable water quality standards. These activities are not expected for the planned cleanup action.

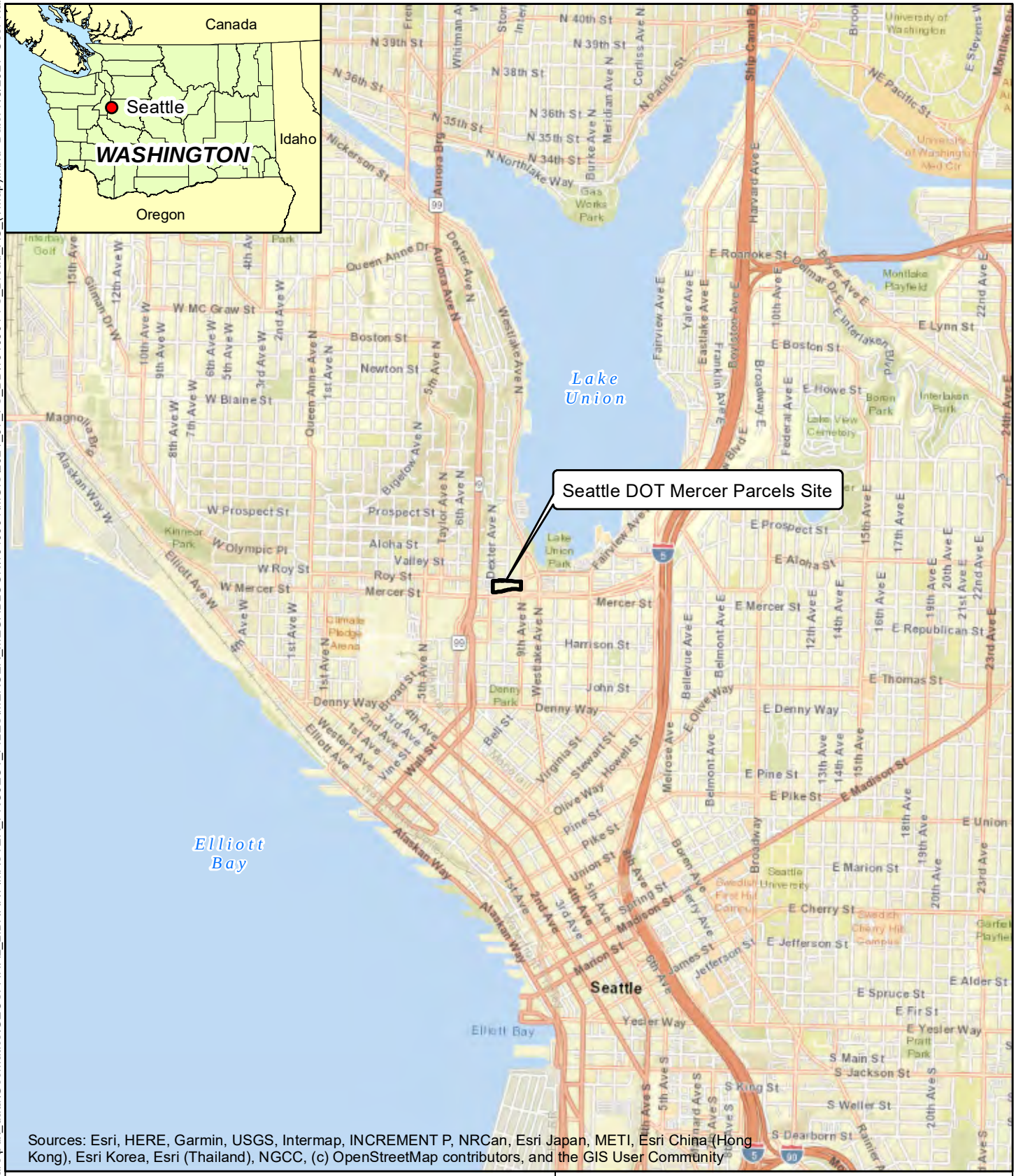
Authority	Resource	Implementing Laws/Regulations	ARAR?	Applicability
Action-Specific ARARs				
Federal/ State	Surface Water	U.S. Federal Water Pollution Control Act--NPDES [CWA; 33 USC § 1342, Section 402] and Implementing Regulations Washington Waste Discharge General Permit Program [RCW 90.48; Chapter 173-226 WAC]	Yes	The NPDES program establishes requirements for point source discharges, including stormwater runoff. These requirements are applicable since the planned cleanup action involves point source discharge of stormwater during construction or following cleanup.
State	Surface Water	Hydraulic Code [RCW 77.55; Chapter 220-660 WAC]	No	The Hydraulic Code requires that any construction activity that uses, diverts, obstructs, or changes the bed or flow of state waters must be done under the terms of a Hydraulic Project Approval permit issued by the Washington State Department of Fish and Wildlife. These activities are not expected as part of the planned cleanup action.
State	Groundwater	Minimum Standards for Construction and Maintenance of Wells [RCW 18.104; Chapter 173-160 WAC]	Yes	Washington state has developed minimum standards for constructing water and monitoring wells, and for the decommissioning of wells. These regulations are applicable since the planned cleanup action involves drilling or decommissioning wells.
Location-Specific ARARs				
Federal	Endangered Species; Critical Habitats	ESA [16 USC §§ 1531-1544] and Implementing Regulations	No	The ESA protects species of fish, wildlife, and plants that are listed as threatened or endangered with extinction. It also protects designated critical habitat for listed species. The ESA outlines procedures for federal agencies to follow, including consultation with resource agencies, when taking actions that may jeopardize listed species. No threatened or endangered species or habitat areas are expected to be impacted by the planned cleanup action.
Federal/ State	Historic Areas	U.S. Archaeological and Historic Preservation Act [16 USC § 469, 470 et seq.; 36 CFR Parts 65 and 800] Washington Archaeological Sites and Resources [RCW 27.44, 27.48, and 27.53; Chapter 25-48 WAC]	Yes	Actions must be taken to preserve and recover significant artifacts, preserve historic and archaeological properties and resources, and minimize harm to national landmarks. There are no known historic or archaeological sites in the vicinity of the Site, but these regulations may be applicable if archaeological resources are discovered during construction.
Local	Historic Areas	Clarification of SEPA Historic Preservation Policy for Potential Archaeologically Significant Sites and Requirements for Archaeological Assessments (Director's Rule 2-98; SMC Chapter 25.05.675 H)	Yes	Provides guidance for the identification, protection, and treatment of archaeological sites on the City of Seattle's shorelines. The archaeological significance of a project site must be assessed for any proposed project involving excavation within 200 feet of the US Government Meander line which approximates the historical shoreline. The Site is within 200 feet of the historical shoreline.
State	Aquatic Lands	Aquatic Land Management [RCW 79.105; Chapter 332-30 WAC]	No	The Aquatic Lands Management law develops criteria for managing state-owned aquatic lands. Aquatic lands are to be managed to promote uses and protect resources as specified in the regulations. The planned cleanup action does not occur on state-owned aquatic lands.
State	Shorelines and Surface Water	Shoreline Management Act of 1971 [RCW 90.58] and Implementing Regulations	No	Actions are prohibited within 200 feet of shorelines of statewide significance unless permitted. The Site is not within 200 feet of a shoreline.
State	Wetlands	Shoreline Management Act of 1971 [RCW 90.58] and Implementing Regulations	No	The construction or management of property in wetlands is required to minimize potential harm, avoid adverse effects, and preserve and enhance wetlands. The Site is not within a wetland.
State	Public Lands	Public Lands Management [RCW 79.02]	No	Activities on public lands are restricted, regulated, or proscribed. The Site is not on state-owned public lands.
Local	Shoreline	Seattle Shoreline Master Program Regulations [SMC Chapter 23.60A]	No	Properties within 200 feet of the shoreline are regulated by the Seattle Shoreline Master Program, in addition to any zoning requirements. The Site is not within 200 feet of the shoreline.

Notes:
ARAR = Applicable or Relevant and Appropriate Requirement.
CFR = Code of Federal Regulations.
CWA = Clean Water Act.
DPD = Department of Planning and Development.
ESA = Endangered Species Act.
KCC = King County Code.
MTCA = Model Toxics Control Act.
NPDES = National Pollutant Discharge Elimination System.
OSHA = Occupational Safety and Health Act.
PSCAA = Puget Sound Clean Air Agency.
RCRA = Resource Conservation and Recovery Act.
RCW = Revised Code of Washington.
SEPA = State Environmental Policy Act.
SMC = Seattle Municipal Code.
SPU = Seattle Public Utilities.
UIC = Underground Injection Controls.
USC = United States Code.
WAC = Washington Administrative Code.
WISHA = Washington Industrial Safety and Health Act.

TABLE 4-1
EVALUATION OF PLANNED CLEANUP ACTION
SEATTLE DOT MERCER PARCELS SITE
SEATTLE, WASHINGTON

Threshold Requirements: WAC 173-340-360(2)(a)	
Protect Human Health and the Environment	Complies. Removal of soil and groundwater with Site COC concentrations above the CULs will eliminate exposure pathways and provide for overall protection of human health and the environment.
Comply with Cleanup Standards	Complies. Following excavation, no soil or groundwater with Site COC concentrations above the CULs is expected to remain.
Comply with Applicable State and Federal Laws	Complies. ARARs are judged to be attainable for the planned cleanup action (see Table 3-2).
Provide for Compliance Monitoring	Complies. The planned cleanup action provides for compliance monitoring in accordance with WAC 173-340-410 as described in Section 4.2.
Other Requirements: WAC 173-340-360(2)(b)	
Use Permanent Solutions to the Maximum Extent Practicable	Complies. This requirement involves conducting a DCA when evaluating multiple cleanup action alternatives. However, since the planned cleanup action is a permanent cleanup action and will be the proposed cleanup action in the DCAP, other alternatives do not need to be evaluated and a DCA is not required (WAC 173-340-360[3][d]).
Provide for a Reasonable Restoration Time Frame	Complies. The soil direct contact, soil-to-groundwater leaching, inhalation, and groundwater ingestion exposure risks for Site COCs will be mitigated during redevelopment of the Property, over an approxmiately two year time frame. This is a reasonable restoration time frame based on the factors listed in WAC 173-340-360(4)(b).
Consideration of Public Concerns	Complies. Ecology will provide a mandatory public review and comment period on the DCAP and PPCD, and all public comments and concerns will be taken into consideration when finalizing the CAP. The planned cleanup action is anticipated to meet public concerns because soil and groundwater with concentrations of Site COCs above CULs will be removed. Additionally, a vapor barrier and environmental covenant will remove the inhalation and groundwater ingestion exposure pathways until the American Linen site plume beneath the Property is remediated.
Action-Specific Requirements: WAC 173-340-360(2)(c) through (h)	
Groundwater Cleanup Actions	Complies. The planned cleanup action is considered a permanent groundwater cleanup action that will meet CULs at the standard point of compliance for Site COCs.
Cleanup Actions for Soil at Current or Potential Future Residential Areas and for Soils at Schools and Child Care Centers	Complies. Although the redevelopment plans for the Property do not include residential, school, or childcare center use, this requirement is applicable because the Property has a potential to serve as a future residential area based on the zoning and adjacent land uses. The planned cleanup action meets the requirement because soil with concentrations of Site COCs exceeding CULs will be removed and disposed of off-site.
Institutional Controls	Not applicable. The planned cleanup action for Site COCs does not include institutional controls.[a]
Releases and Migration	Complies. The planned cleanup action prevents releases and migration of hazardous substances by removing soil and groundwater with concentrations of Site COCs above CULs and contaminant sources (i.e., USTs), if any are still present on the Property.
Dilution and Dispersion	Complies. The planned cleanup action meets the requirement because it does not rely at all on dilution and dispersion.
Remediation Levels	Not applicable. The planned cleanup action does not involve remediation levels.

Notes:
a. Institutional controls may be required for the Property as part of the final cleanup action for the American Linen site to prevent exposure to CVOCs associated with that site.
ARARs = Applicable or Relevant and Appropriate Requirements.
CAP = Cleanup Action Plan.
COC = Constituent of Concern.
CUL = Cleanup Level.
CVOC = Chlorinated Volatile Organic Compound.
DCA = Disproportionate Cost Analysis.
DCAP = Draft Cleanup Action Plan.
PPCD = Prospective Purchaser Consent Decree.
UST = Underground Storage Tank.
WAC = Washington Administrative Code.



0 0.25 0.5 1 Miles

N

Seattle DOT Mercer Parcels Site
Seattle, Washington

Vicinity Map

19409-04 07/21

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Figure
1-1

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Legend

- Other Parcel Boundary
- Property Boundary

Underground Sewer Lines

- King County Main
- SPU Drainage Main
- SPU Combined Main

- King County Main Facility Structures
- Elevation Contour (King County LiDAR, 2016)

0 75 150 300 Feet

N

Sources: Aerial photograph provided by Hexagon Imagery Program Data.
Address information obtained from King County GIS Open Data portal's

Seattle DOT Mercer Parcels Site
Seattle, Washington

Site Conditions Map

19409-04 07/21

HARTCROWSER
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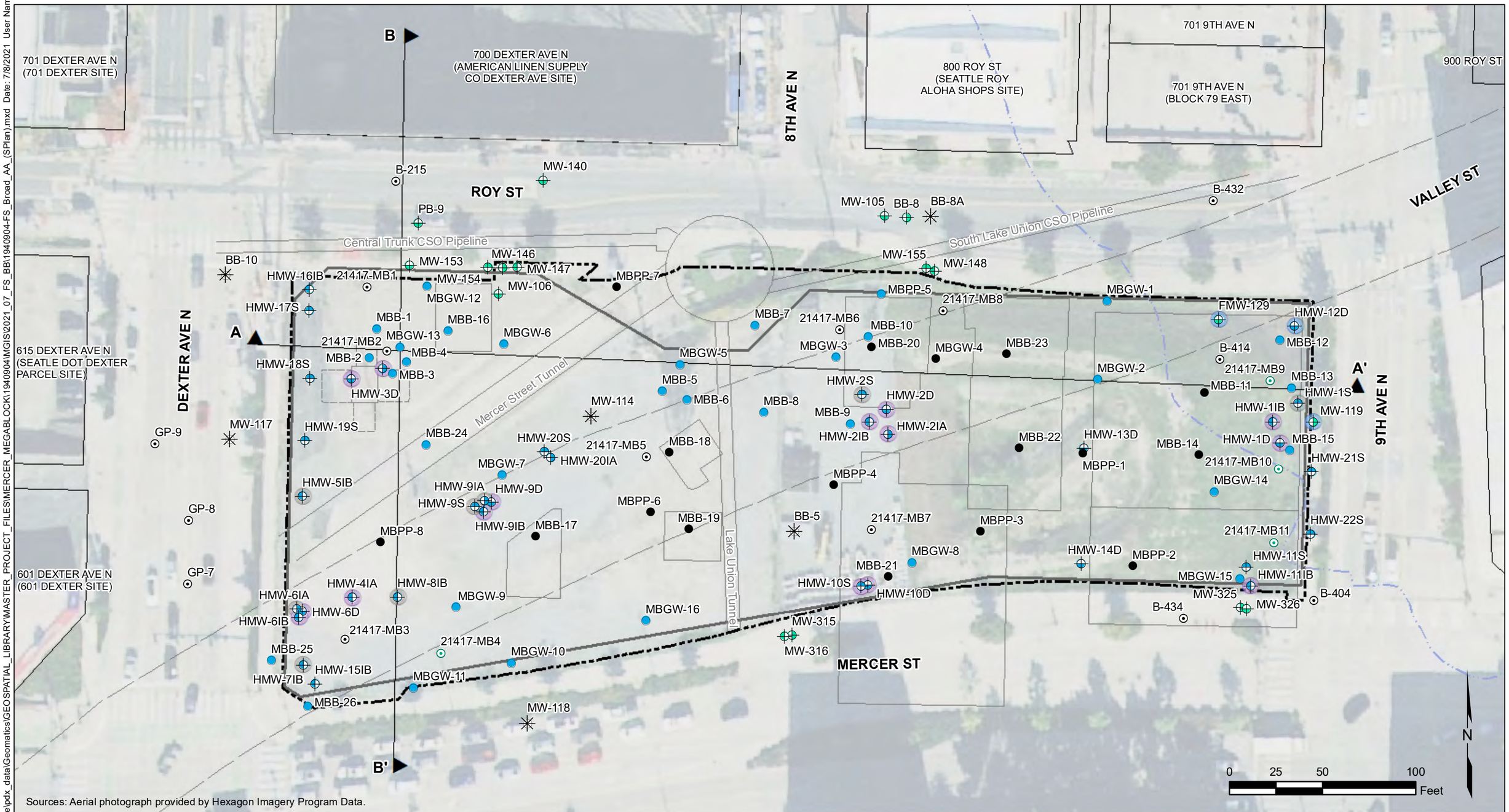
Figure
2-1



Sources: Aerial photograph provided by Hexagon Imagery Program Data.

Legend

RI Investigations

- Soil Boring
- Soil Boring with Grab Groundwater Sample
- Shallow Zone Monitoring Well
- Intermediate A Zone Monitoring Well
- Intermediate B Zone Monitoring Well
- Deep Zone Monitoring Well
- Slug Test Performed
- Slug Test Performed & Transducer/Datalogger Deployed
- Transducer/Datalogger Deployed
- Potential Historical Contaminant Source

Other Investigations

- Soil Boring
- Soil Boring with Grab Groundwater Sample
- Shallow Zone Monitoring Well
- Intermediate A Zone Monitoring Well
- Intermediate B Zone Monitoring Well
- Deep Zone Monitoring Well
- Abandoned or Decommissioned Monitoring Well
- Cross Section
- Excavation Limits (Shoring Permit Plans by NBBJ dated 12/17/2020)
- King County Main Facility Structures
- Other Parcel Boundary
- Property Boundary

Seattle DOT Mercer Parcels Site
Seattle, Washington

Investigation Locations

19409-04 07/21

HARTCROWSER
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Figure
2-2

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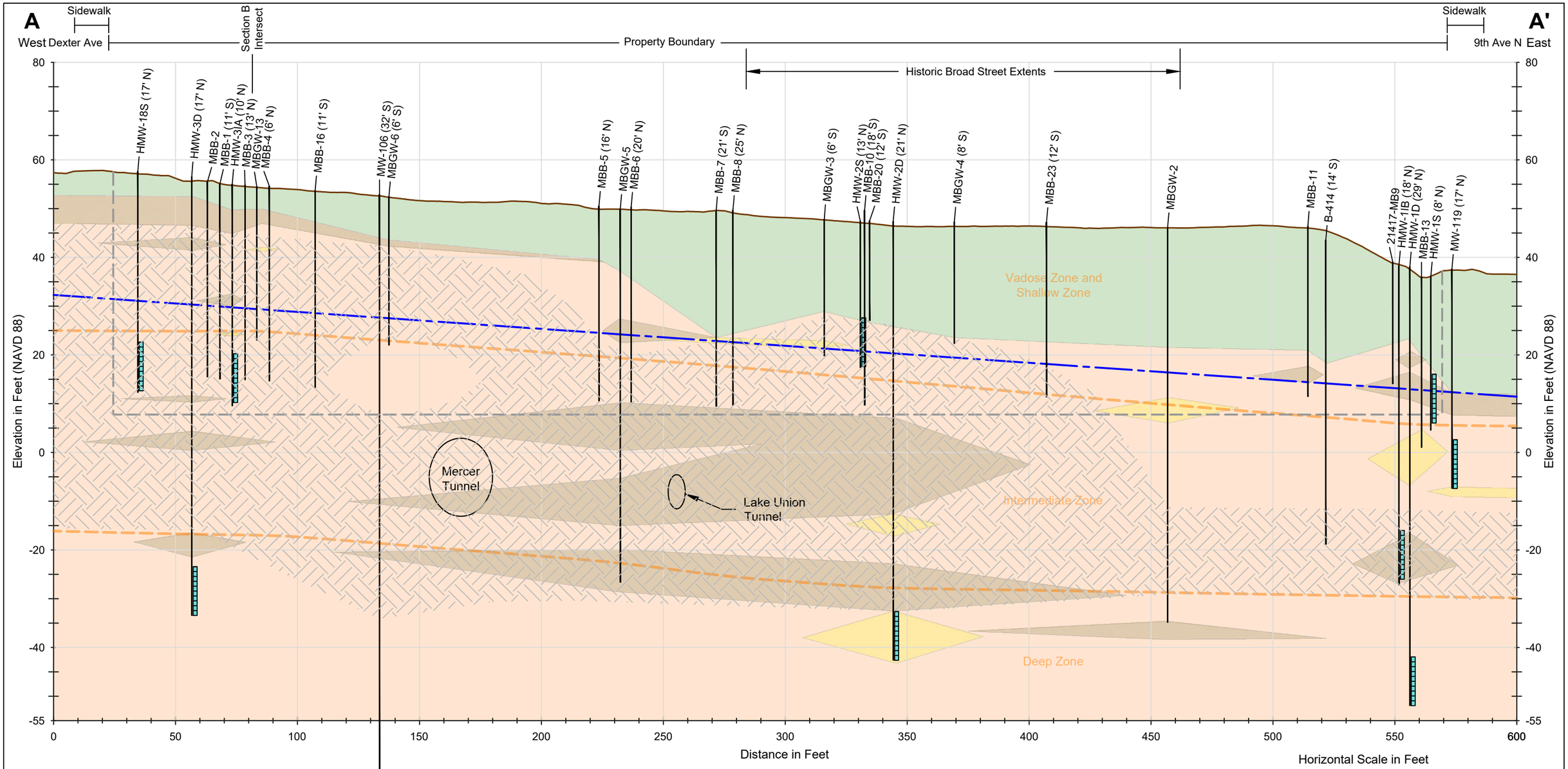

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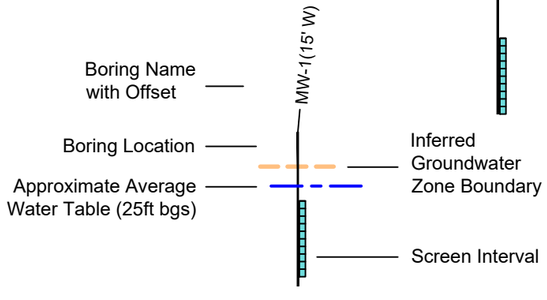
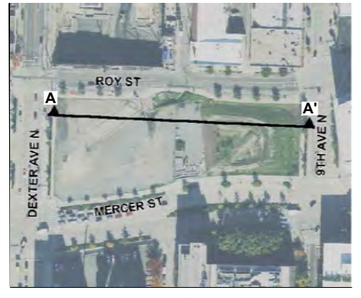


Geologic Units (Predominant Component)

- Fill
- Clean Sand and/or Gravel
- Till
- Silty Sand and Silty Gravel
- Silt and/or Clay with or without Sand

Approximate Limits of Proposed Excavation and Vapor Barrier Area at Seattle DOT Mercer Parcels Site ("Schematic Design, ARE Mercer Blocks," NBBJ, 04/20/2020)

Explorations MBB-1, MBB-2, MBB-4, and MBGW-13 have been shifted horizontally for visual clarity.



INSET MAP

Horizontal Scale in Feet
0 40 80
0 20 40
Vertical Scale in Feet
Vertical Exaggeration x 2

Seattle DOT Mercer Parcels Site
Seattle, Washington

Geological Cross Section A-A'

19409-04 07/21

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Figure
2-3a

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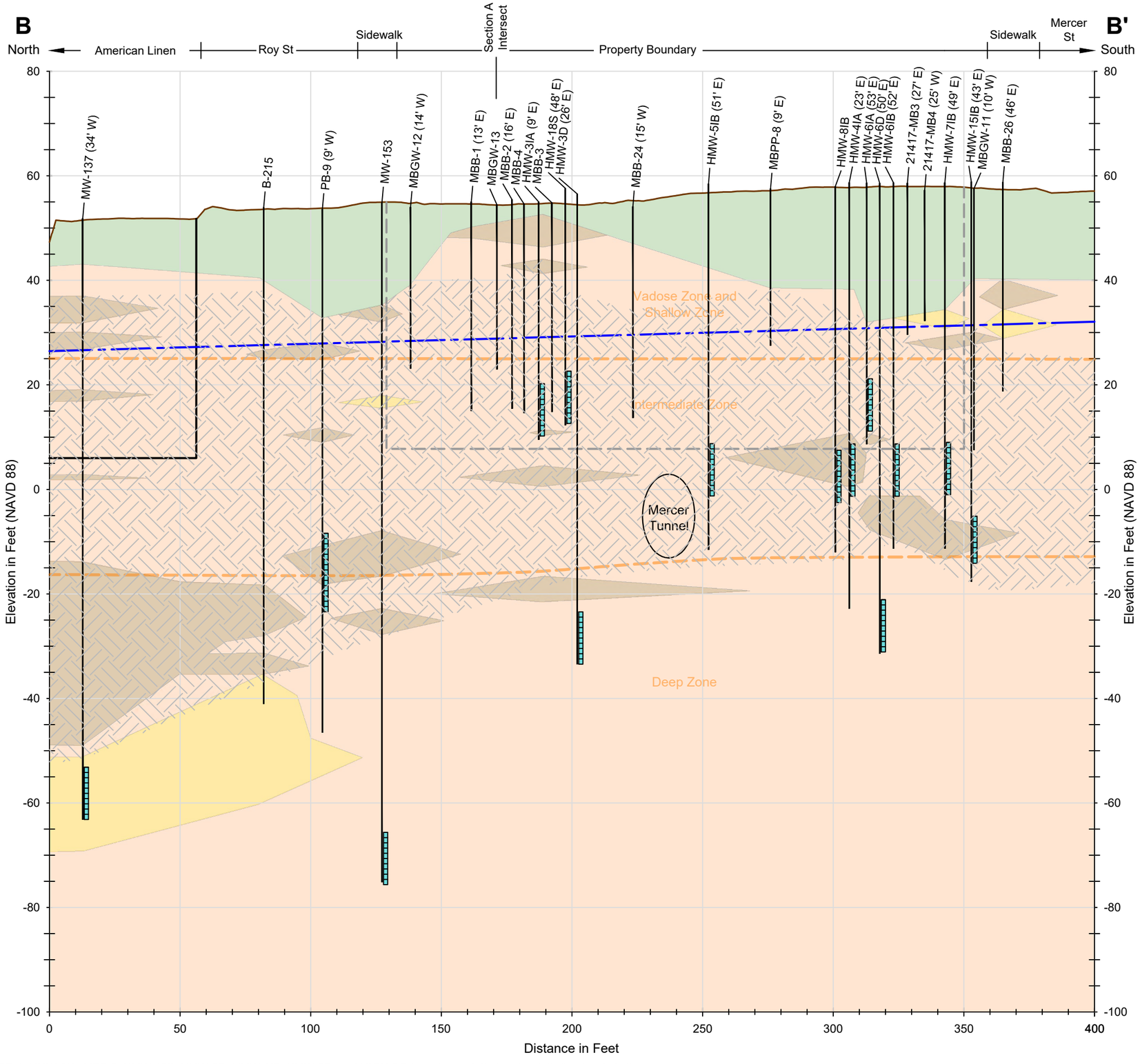

Explorations MBB-4, HMW-3IA, MBB-3, HMW-18S, HMW-3D, HMW-8IB, HMW-6D, and HMW-6IB have been shifted horizontally for visual clarity.

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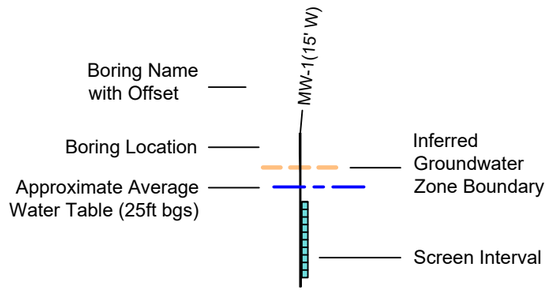
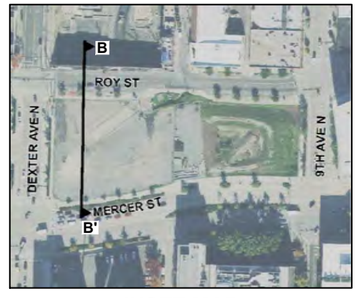


Approximate Limits of Proposed Excavation and Vapor Barrier Area at Seattle DOT Mercer Parcels Site ("Schematic Design, ARE Mercer Blocks," NBBJ, 04/20/2020)

Approximate Limits of 2020 Building Excavation at American Linen Site

Geologic Units (Predominant Component)

- Fill
- Clean Sand and/or Gravel
- Till
- Silty Sand and Silty Gravel
- Silt and/or Clay with or without Sand



INSET MAP

Horizontal Scale in Feet
0 40 80
0 20 40
Vertical Scale in Feet
Vertical Exaggeration x 2

Seattle DOT Mercer Parcels Site
Seattle, Washington

Geological Cross Section B-B'

19409-04 07/21

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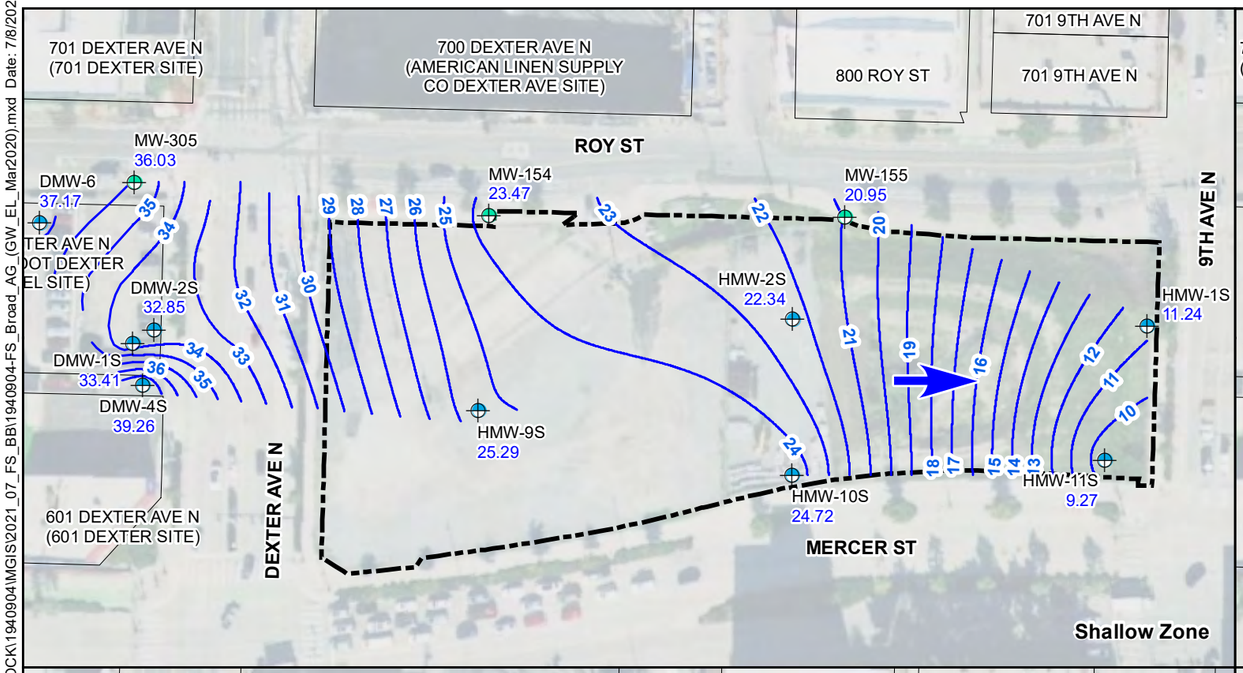
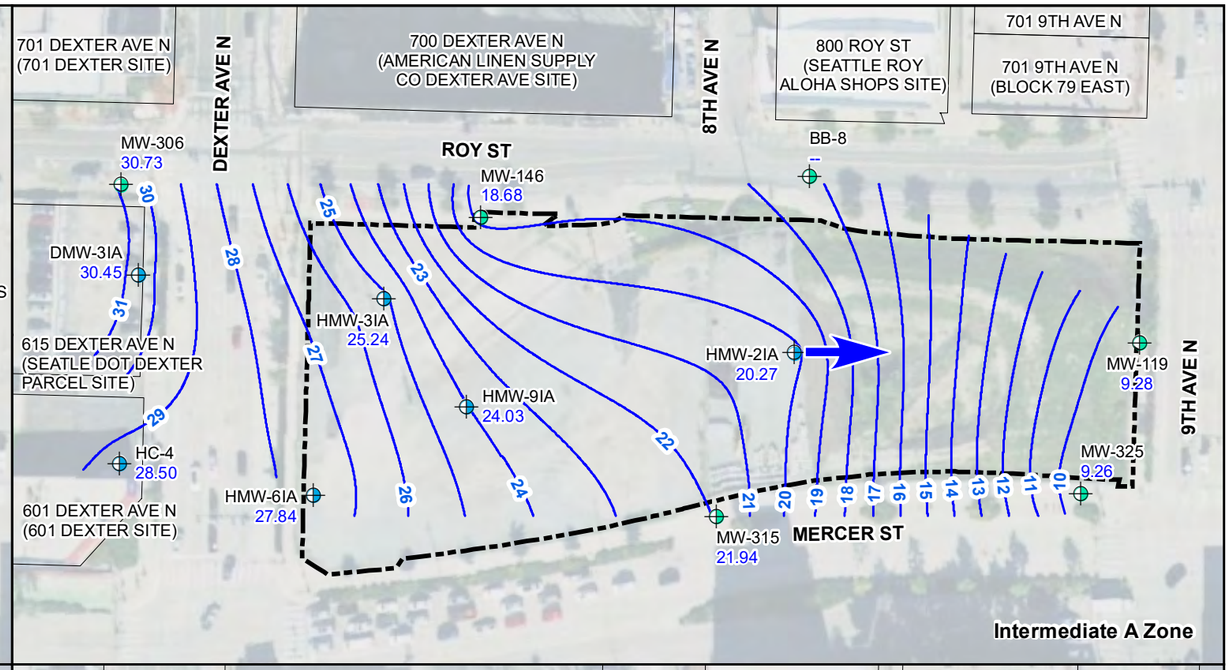
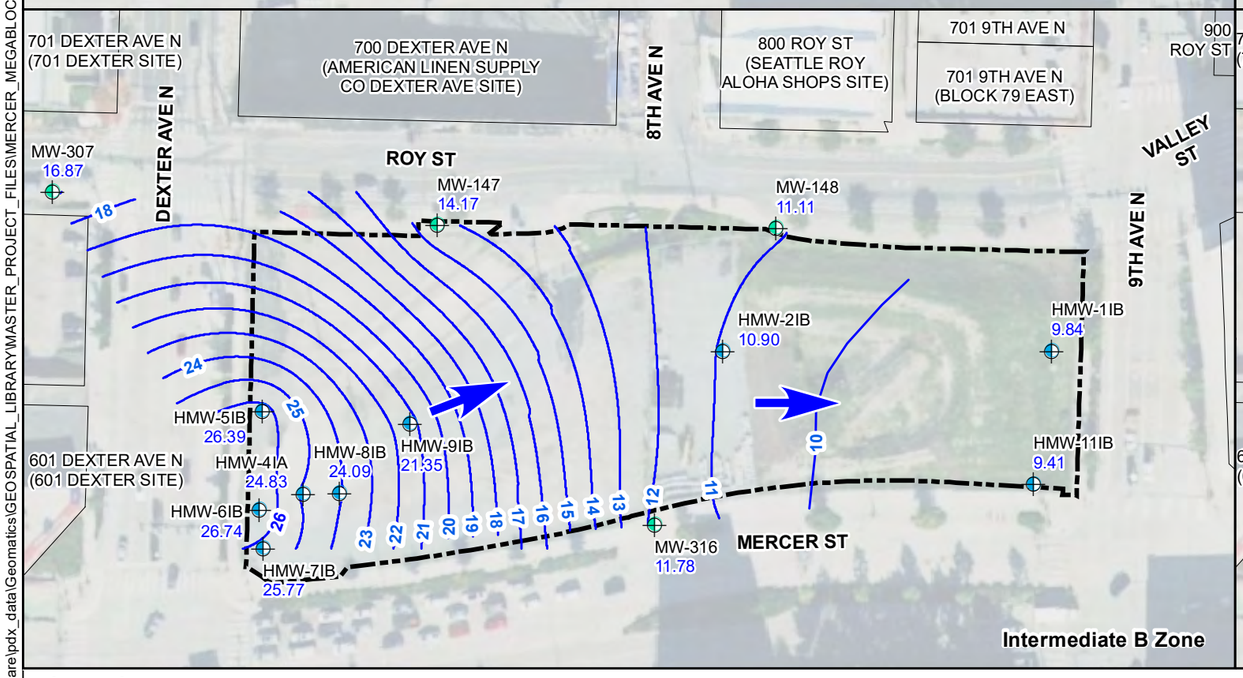
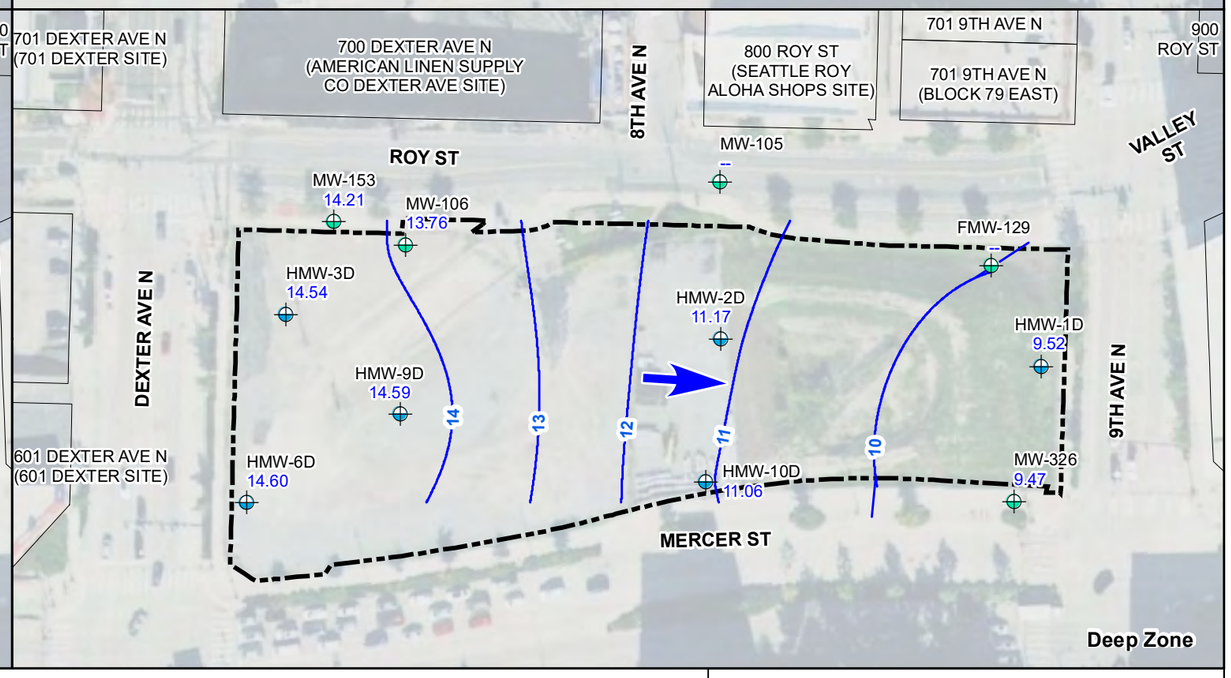
Figure
2-3b









Legend

RI Investigations

- Shallow Zone Monitoring Well
- Intermediate A Zone Monitoring Well
- Intermediate B Zone Monitoring Well
- Deep Zone Monitoring Well

Other Investigations

- Shallow Zone Monitoring Well
- Intermediate A Zone Monitoring Well
- Intermediate B Zone Monitoring Well
- Deep Zone Monitoring Well

32.85 Groundwater Elevation (March 19, 2020)

Groundwater Elevation Contour

Groundwater Flow Direction

Other Parcel Boundary

Property Boundary

-- Groundwater Elevation not Measured on March 19, 2020

Note:
1. Elevations are in NAVD 88, feet.

0 50 100 200 Feet

N

Source: Aerial photograph provided by Hexagon Imagery Program Data.

Seattle DOT Mercer Parcels Site
Seattle, Washington

Water Level Elevations
March 2020

19409-04 07/21

HARTCROWSER
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Figure
2-4a

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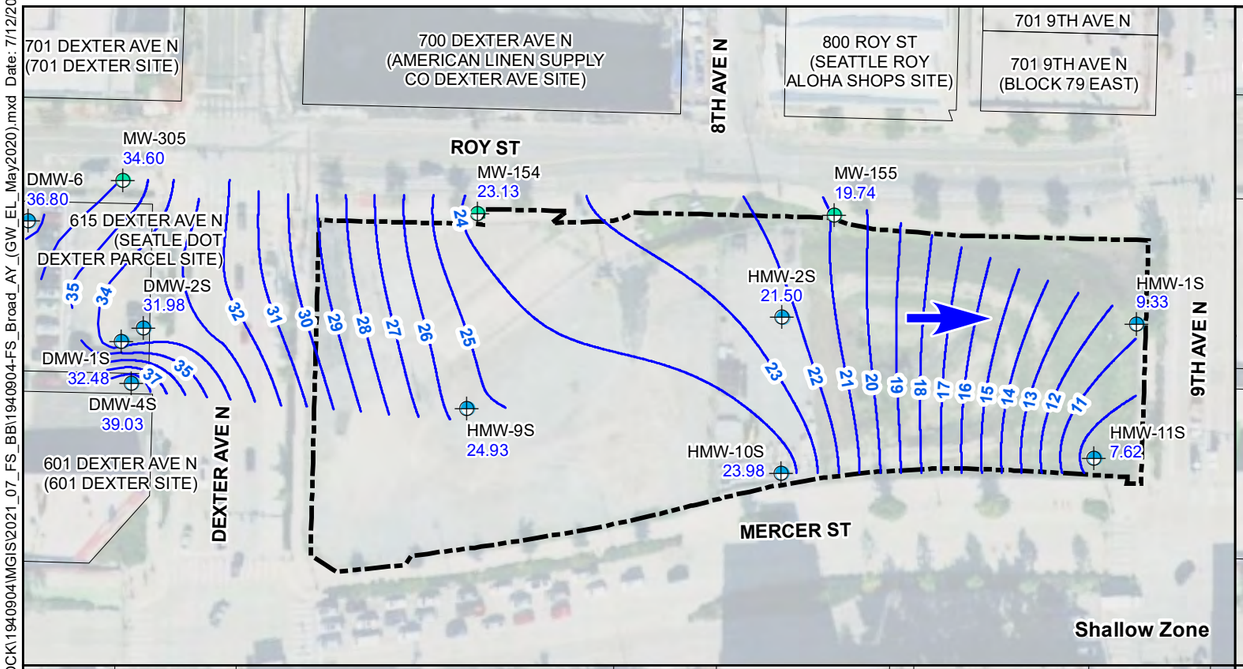

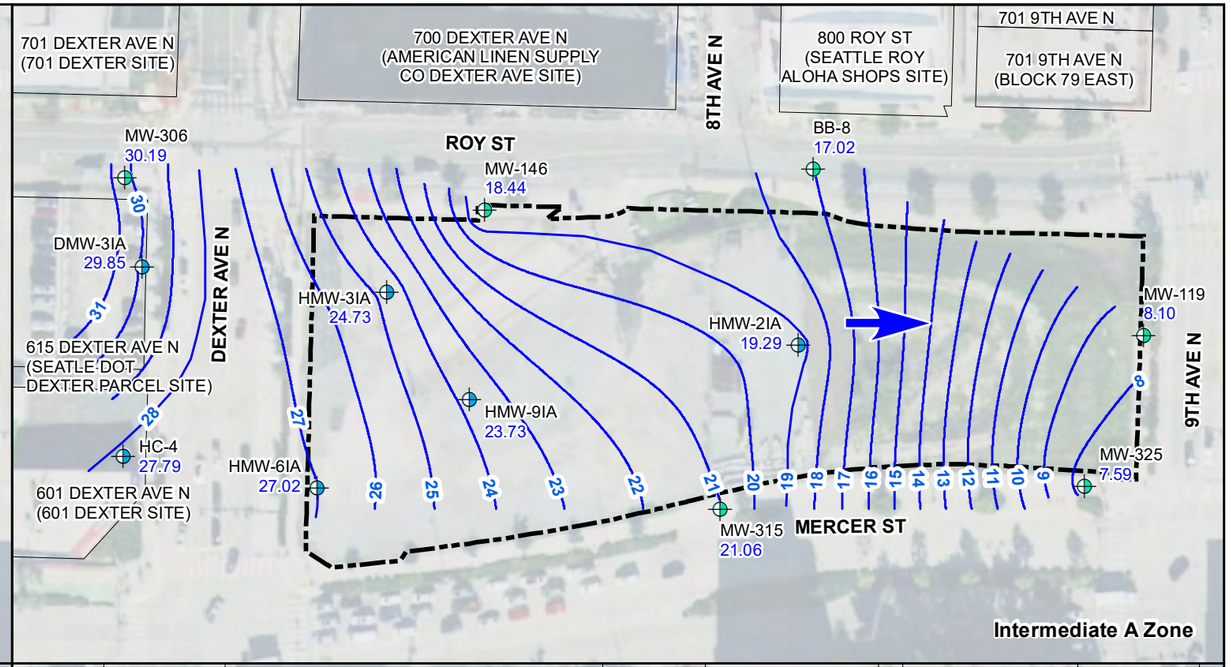

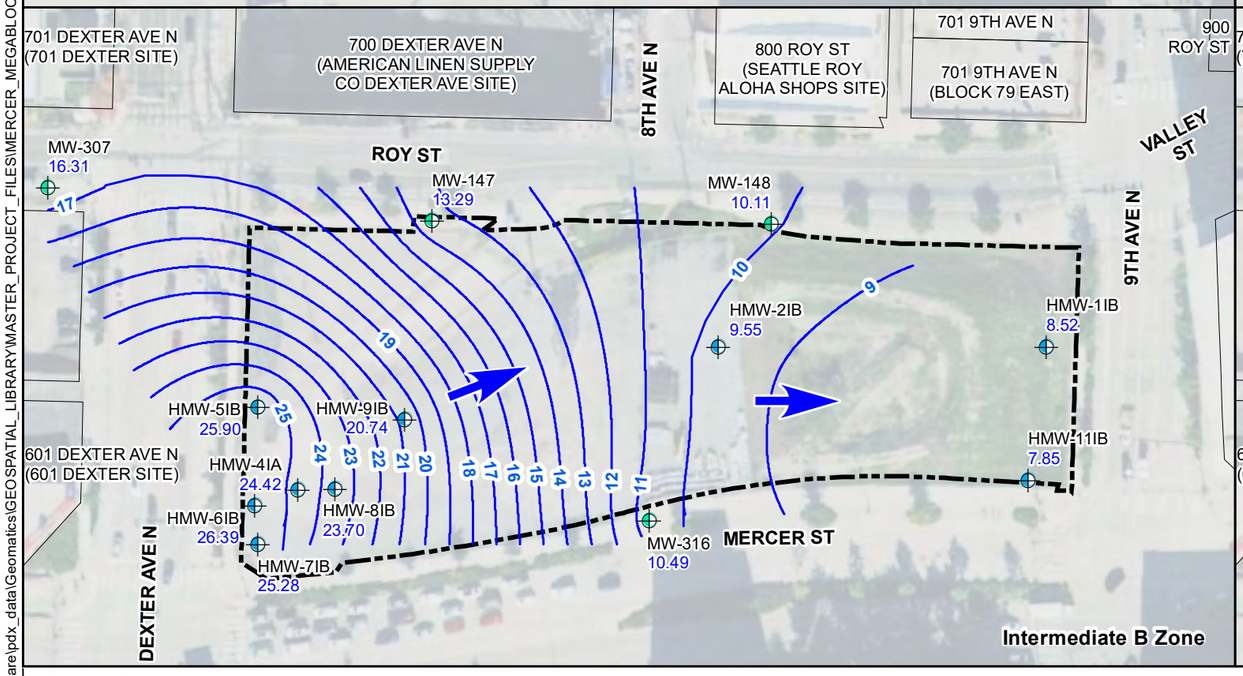

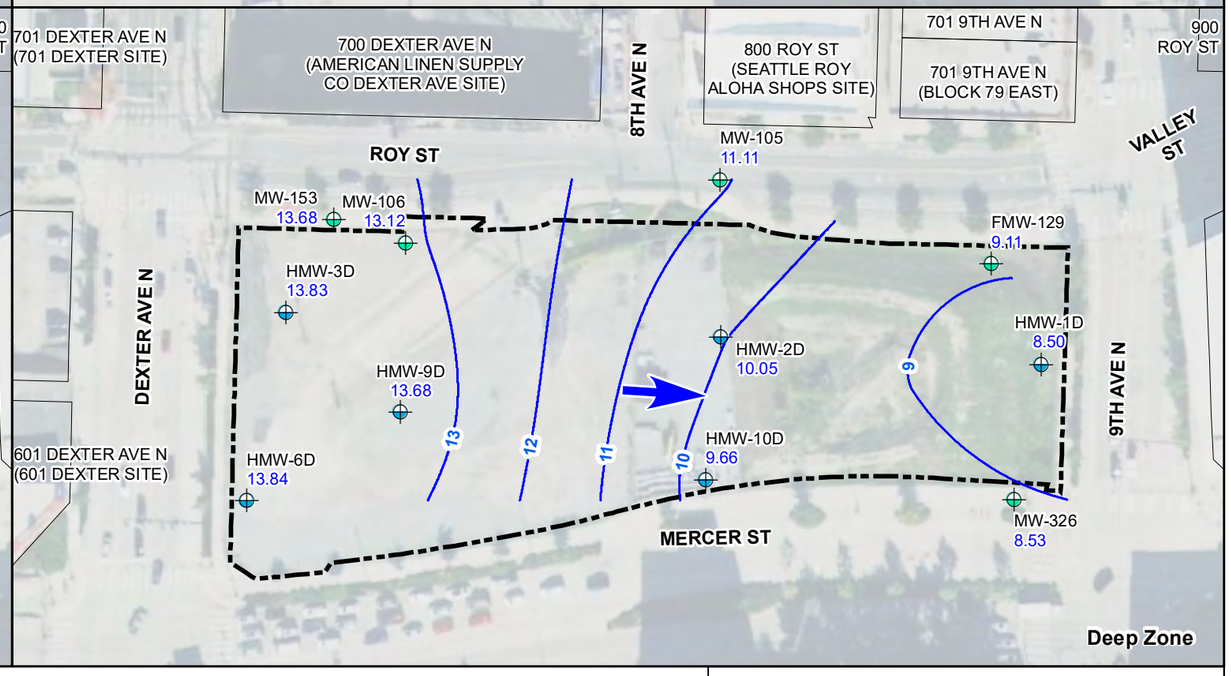

Legend

RI Investigations

- Shallow Zone Monitoring Well
- Intermediate A Zone Monitoring Well
- Intermediate B Zone Monitoring Well
- Deep Zone Monitoring Well

Other Investigations

- Shallow Zone Monitoring Well
- Intermediate A Zone Monitoring Well
- Intermediate B Zone Monitoring Well
- Deep Zone Monitoring Well

32.85 Groundwater Elevation (May 11, 2020)

Groundwater Elevation Contour

Groundwater Flow Direction

Other Parcel Boundary

Property Boundary

-- Groundwater Elevation not Measured on May 11, 2020

Source: Aerial photograph provided by Hexagon Imagery Program Data.

Note:
1. Elevations are in NAVD 88, feet.

0 50 100 200 Feet

N

Seattle DOT Mercer Parcels Site
Seattle, Washington

**Water Level Elevations
May 2020**

19409-04 07/21

HARTCROWSER
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Figure
2-4b

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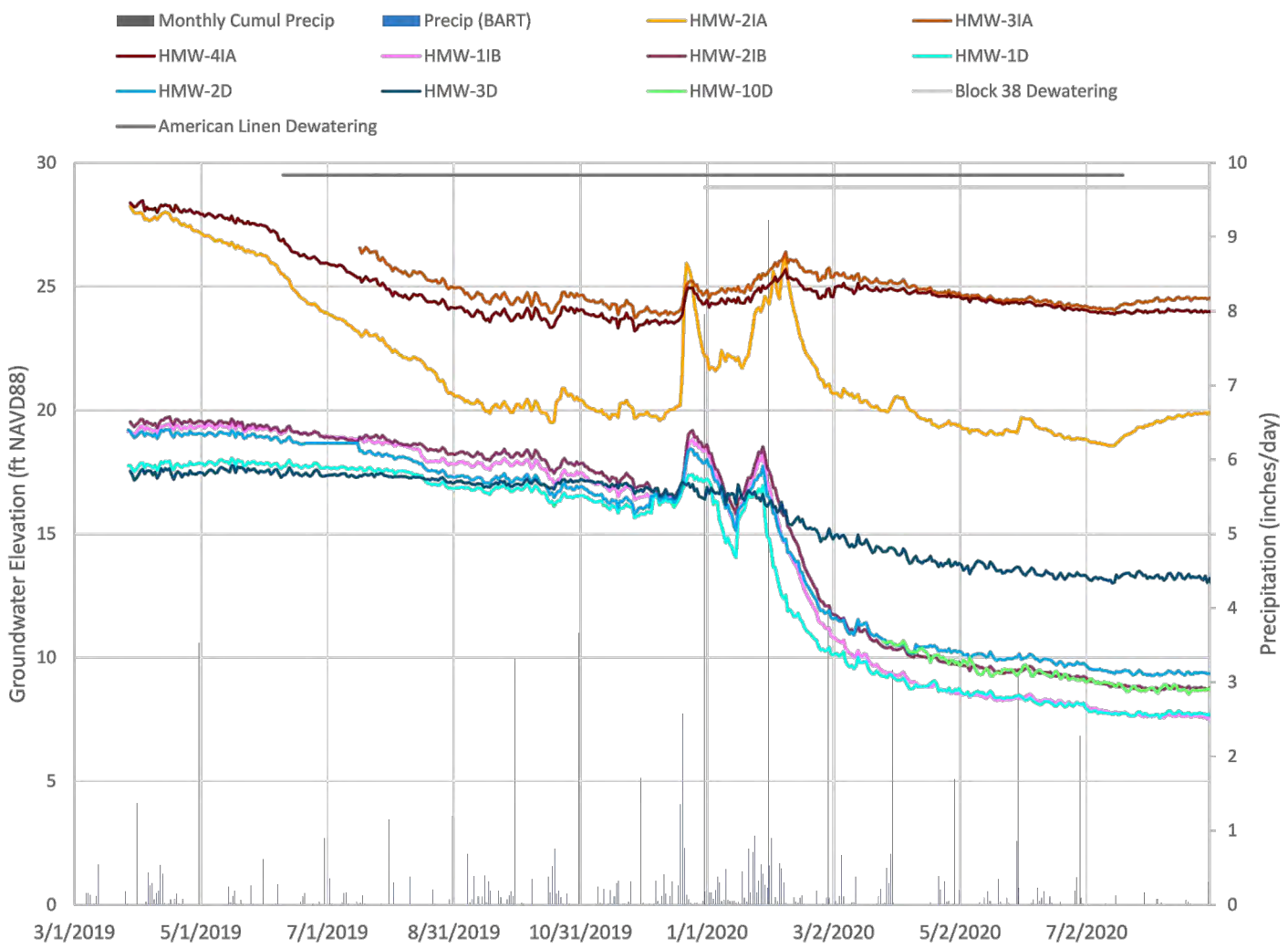

Note: Precipitation data from UW Atmospheric Sciences Northwest Observational Data.

Seattle DOT Mercer Parcels Site
Seattle, Washington

Long-Term Water Levels for Selected Wells

19409-04 07/21

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Figure **2-5**

MBB-1	02/27/2020 5 ft el 50.02	02/27/2020 10 ft el 45.02	02/27/2020 15 ft el 40.02	02/27/2020 20 ft el 35.02	02/27/2020 25 ft el 30.02
GRO	5 U	5 U	7.7	570	5 U

MBGW-13	03/14/2019 5 ft el 49.47	03/14/2019 10 ft el 44.47	03/14/2019 15 ft el 39.47	03/14/2019 20 ft el 34.47
GRO	5 U	730 J	16	5 U

MBB-16	09/02/2020 5 ft el 48.7	09/02/2020 10 ft el 43.7	09/02/2020 15 ft el 38.7	09/02/2020 20 ft el 33.7
GRO	1200	200	20	5 U

HMW-18S	09/03/2020 5 ft el 52.61	09/03/2020 10 ft el 47.61	09/03/2020 15 ft el 42.61	09/03/2020 20 ft el 37.61	09/03/2020 25 ft el 32.61
GRO	5 U	45	5 U	5 U	5 U

MBB-3	02/27/2020 5 ft el 49.84	02/27/2020 10 ft el 44.84	02/27/2020 15 ft el 39.84	02/27/2020 20 ft el 34.84	02/27/2020 25 ft el 29.84
GRO	5 U	350	5 U	5 U	52

MBB-4	02/27/2020 5 ft el 49.61	02/27/2020 10 ft el 44.61	02/27/2020 15 ft el 39.61	02/27/2020 20 ft el 34.61	02/27/2020 25 ft el 29.61
GRO	5 U	5 U/7.3	5 U	210	5 U

GRO IN SOIL (mg/kg)
- ≥ 300
- ≥ 60 TO 300
- ≥ 30 TO 60
- ND/0 TO < 30
- NO DATA

SAMPLE DEPTH INTERVALS
- ≤ 5 FT BELOW GROUND SURFACE (BGS)
- 5 TO 10
- 10 TO 15
- 15 TO 20
- 20 TO 25
- > 25

- EXCAVATION LIMITS; TO BE EXCAVATED DOWN TO ELEVATION 8 FT OR LOWER
- POTENTIAL HISTORICAL CONTAMINANT SOURCE
- PROPERTY BOUNDARY
- FORMER LAKE UNION SHORELINE
- FORMER BROAD STREET AND 8TH AVENUE N, THROUGH 1950s
- FORMER BROAD STREET 1958-2012

SOME SAMPLING LOCATIONS MAY HAVE BEEN SLIGHTLY OFFSET ON THIS MAP TO REDUCE SYMBOL OVERLAP

RED TEXT INDICATES EXCEEDANCE OF PROTECTIVE OF GROUNDWATER SCREENING LEVELS

SCREENING LEVELS PROVIDED BY ECOLOGY (NOVEMBER 17, 2020)

CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

DEPTH IN FEET BELOW GROUND SURFACE (BGS)

ELEVATION IN FEET (NAVD 88); EL. = GROUND SURFACE ELEVATION

U = NON-DETECT AT DETECTION LIMIT AS INDICATED
J = ESTIMATED VALUE
/ = MULTIPLE RESULTS INDICATE THAT A FIELD DUPLICATE WAS TAKEN

AERIAL IMAGERY SOURCE: EAGLEVIEW

SCREENING LEVELS FOR GASOLINE RANGE ORGANICS (GRO) IN SOIL (mg/kg)	
ZONE	PROTECTIVE OF GW
Vadose (0 to 25 ft bgs) and Saturated (>25 ft bgs)	30

Seattle DOT Mercer Parcels Site
Seattle, Washington

GRO Distribution in Soil

19409-04 07/21

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Figure **2-6a**

GIS FILE PATH: C:\Users\craumann\Desktop\LOCAL_DATA\135568_Broad_Block\Maps\2021_05_BB_FS\135568_00MB_BB_SOIL_SMARTIES_FS.mxd - USER: craumann - LAST SAVED: 7/6/2021 8:39:27 PM

MBB-25	10/30/2020 5 ft el 53.63	10/30/2020 10 ft el 48.63	10/30/2020 15 ft el 43.63	10/30/2020 20 ft el 38.63	10/30/2020 25 ft el 33.63
cPAHs-TEQ	0.002 U	0.09	0.002 U	0.00041 U/0.00041 U	0.32

HMW-4IA	03/07/2019 7.5 ft el 51.2
cPAHs-TEQ	0.36

MBB-23	09/21/2020 5 ft el 42.18	09/21/2020 10 ft el 37.18	09/21/2020 15 ft el 32.18	09/21/2020 20 ft el 27.18	09/21/2020 25 ft el 22.18
cPAHs-TEQ	0.0097 U	2.4	0.0019 U	0.0019 U	0.0019 U

MBB-22	09/21/2020 5 ft el 37.05	09/21/2020 15 ft el 27.05	09/21/2020 20 ft el 22.05	09/21/2020 25 ft el 17.05
cPAHs-TEQ	0.42	0.0019 U	0.0019 U	0.0019 U

HMW-7IB	02/28/2020 5 ft el 53.69	02/28/2020 10 ft el 48.69	02/28/2020 15 ft el 43.69	02/28/2020 20 ft el 38.69	02/28/2020 25 ft el 33.69
cPAHs-TEQ	0.089	0.017	0.44	0.016	0.072

DEXTER AVE N

8TH AVE N

ROY ST

MERCER ST

HMW-17S EL 57.7
HMW-18S EL 57.5
HMW-19S EL 58.4
HMW-5IB EL 58.4
HMW-6IA EL 58.6
HMW-6IB EL 58.7
HMW-6D EL 58.6
MBB-25 EL 58.6
HMW-7IB EL 58.7
MBB-26 EL 58.8
MBB-1 EL 55.0
21417-MB2 EL 54.7
MBB-2 EL 55.5
MBB-4 EL 54.6
MBB-3 EL 54.8
MBB-16 EL 53.7
MBB-24 EL 54.1
HMW-20S EL 53.6
MBB-17 EL 54.9
HMW-4IA EL 58.7
21417-MB3 EL 58.6
HMW-8IB EL 58.0
MBB-18 EL 51.3
MBB-19 EL 51.7
MBGW-3 EL 47.8
MBB-20 EL 47.5
MBB-21 EL 47.6
MBB-23 EL 47.2
MBB-22 EL 42.0
MBGW-1 EL 40.0
MBGW-2 EL 46.1
MBB-14 EL 47.1
MBB-15 EL 37.7

0 20 40 80 Feet

N

cPAHs-TEQ IN SOIL (mg/kg)
- ≥ 1.90
- ≥ 0.38 TO 1.90
- ≥ 0.19 - 0.38
- ND/0 TO < 0.19
- NO DATA

SAMPLE DEPTH INTERVALS
- ≤ 5 FT BELOW GROUND SURFACE (BGS)
- 5 TO 10
- 10 TO 15
- 15 TO 20
- 20 TO 25
- > 25

- EXCAVATION LIMITS; TO BE EXCAVATED DOWN TO ELEVATION 8 FT OR LOWER
- POTENTIAL HISTORICAL CONTAMINANT SOURCE
- PROPERTY BOUNDARY
- FORMER LAKE UNION SHORELINE
- FORMER BROAD STREET AND 8TH AVENUE N, THROUGH 1950s
- FORMER BROAD STREET 1958-2012

SOME SAMPLING LOCATIONS MAY HAVE BEEN SLIGHTLY OFFSET ON THIS MAP TO REDUCE SYMBOL OVERLAP

RED TEXT INDICATES EXCEEDANCE OF DIRECT CONTACT OR PROTECTIVE OF GROUNDWATER SCREENING LEVELS

SCREENING LEVELS PROVIDED BY ECOLOGY (NOVEMBER 17, 2020)

CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

DEPTH IN FEET BELOW GROUND SURFACE (BGS)

ELEVATION IN FEET (NAVD 88); EL. = GROUND SURFACE ELEVATION

U = NON-DETECT AT DETECTION LIMIT AS INDICATED
J = ESTIMATED VALUE
/ = MULTIPLE RESULTS INDICATE THAT A FIELD DUPLICATE WAS TAKEN

AERIAL IMAGERY SOURCE: EAGLEVIEW

SCREENING LEVELS FOR cPAHs-TEQ IN SOIL (mg/kg)		
ZONE	DIRECT CONTACT	PROTECTIVE OF GW
Vadose (0 to 25 ft bgs)	0.19	0.45
Saturated (>25 ft bgs)	0.19	0.022

Seattle DOT Mercer Parcels Site
Seattle, Washington

cPAH Distribution in Soil

19409-04 07/21

HARTCROWSER A division of Haley & Aldrich

Figure **2-6b**

HMW-6D	03/02/2020 5 ft el 53.58	03/02/2020 10 ft el 48.58	03/02/2020 15 ft el 43.58	03/02/2020 25 ft el 33.58	03/02/2020 30 ft el 28.58
As	16.4	21.8	24.4	18	1.61/1.42

HMW-6IB	03/03/2020 5 ft el 53.67	03/03/2020 10 ft el 48.67	03/03/2020 15 ft el 43.67	03/03/2020 20 ft el 38.67	03/03/2020 25 ft el 33.67
As	13.4	15.9/14.9	22.2	25.6	2.23

MBPP-8	03/08/2019 14 ft el 43.52
As	16

MBB-5	03/02/2020 5 ft el 45.53	03/02/2020 10 ft el 40.53	03/02/2020 15 ft el 35.53	03/02/2020 20 ft el 30.53	03/02/2020 25 ft el 25.53
As	23.2	6.56	1.81	1.34	1.51

MBB-18	09/01/2020 5 ft el 46.33	09/01/2020 10 ft el 41.33	09/01/2020 15 ft el 36.33	09/01/2020 20 ft el 31.33
As	14.2	6.2	1.13	1.61

MBB-6	03/03/2020 5 ft el 45.33	03/03/2020 10 ft el 40.33	03/03/2020 15 ft el 35.33	03/03/2020 20 ft el 30.33	03/03/2020 25 ft el 25.33
As	21.2	9.18	1.84	2.08	1.6

MBB-8	02/26/2020 7 ft el 42.66	02/26/2020 10 ft el 39.66	02/26/2020 15 ft el 34.66	02/26/2020 20 ft el 29.66	02/26/2020 25 ft el 24.66
As	21.9	1.75	1.7/1.6	1.6	1.13

MBB-9	02/26/2020 5.5 ft el 42.05	02/26/2020 10 ft el 37.55	02/26/2020 15 ft el 32.55	02/26/2020 20 ft el 27.55	02/26/2020 25 ft el 22.55
As	9.58	1.94	1.72	1.7	1.27

21417-MB10	05/11/2017 28 ft el 10.08
As	7.75

HMW-9D	02/27/2020 5 ft el 50.32	02/27/2020 10 ft el 45.32	02/27/2020 15 ft el 40.32	02/27/2020 20 ft el 35.32	02/27/2020 25 ft el 30.32
As	1.78	1.38	15.3	2.55	1.46

HMW-9S	03/02/2020 5 ft el 50.39	03/02/2020 14 ft el 41.39	03/02/2020 17 ft el 38.39	03/02/2020 20 ft el 35.39	03/02/2020 25 ft el 30.39
As	2.64	14.5	17.7	1.3	1.36

HMW-6IA	03/02/2020 5 ft el 53.65	03/02/2020 10 ft el 48.65	03/02/2020 15 ft el 43.65	03/02/2020 20 ft el 38.65	03/02/2020 30 ft el 28.65
As	15.6	13.6	18.6	18.3	3.1

HMW-9IB	02/28/2020 5 ft el 50.36	02/28/2020 13 ft el 42.36	02/28/2020 15 ft el 40.36	02/28/2020 20 ft el 35.36	02/28/2020 25 ft el 30.36
As	7.75	1.64	17.8	1.6	1.26

HMW-7IB	02/28/2020 5 ft el 53.69	02/28/2020 10 ft el 48.69	02/28/2020 15 ft el 43.69	02/28/2020 20 ft el 38.69	02/28/2020 25 ft el 33.69
As	15.3	13.8	19.9	25.6	8.13/8.49

HMW-8IB	03/02/2020 5 ft el 52.97	03/02/2020 10 ft el 47.97	03/02/2020 15 ft el 42.97	03/02/2020 20 ft el 37.97	03/02/2020 25 ft el 32.97
As	21.4	19.5	17.1	4.86	1.12/1.06

ROY ST
8TH AVE N
DEXTER AVE N
MERCER ST

21417-MB1 EL 55.4
MBGW-12 EL 54.0
HMW-17S EL 57.7
MBB-1 EL 55.0
MBB-16 EL 53.7
MBGW-6 EL 52.5
MBB-2 EL 55.5
MBB-4 EL 54.6
HMW-18S EL 57.5
HMW-3IA EL 55.0
MBB-3 EL 54.8
HMW-19S EL 58.4
MBB-24 EL 54.1
HMW-20S EL 53.6
HMW-5IB EL 58.4
MBGW-7 EL 53.8
HMW-9S EL 55.4
HMW-9IA EL 55.3
HMW-9D EL 55.3
MBB-17 EL 54.9
MBPP-8 EL 57.5
HMW-9IB EL 55.4
HMW-8IB EL 58.0
MBGW-9 EL 56.8
HMW-6IA EL 58.6
HMW-6IB EL 58.7
HMW-6D EL 58.6
HMW-7IB EL 58.7
21417-MB4 EL 57.2
MBGW-10 EL 55.3
MBGW-11 EL 57.5
MBPP-7 EL 49.8
MBGW-5 EL 49.9
MBB-5 EL 50.5
MBB-6 EL 50.3
MBB-7 EL 49.4
MBB-8 EL 49.7
MBB-18 EL 51.3
MBB-19 EL 51.7
MBPP-4 EL 48.3
21417-MB6 EL 48.2
MBPP-5 EL 45.9
MBB-10 EL 49.7
MBB-20 EL 47.5
MBGW-3 EL 47.8
MBGW-4 EL 47.3
21417-MB8 EL 45.3
MBB-23 EL 47.2
MBB-9 EL 47.5
HMW-2IB EL 47.4
MBB-22 EL 42.0
MBPP-3 EL 45.9
MBGW-8 EL 47.1
MBB-21 EL 47.6
HMW-10D EL 48.2
HMW-10S EL 48.2
MBGW-1 EL 40.0
MBGW-2 EL 46.1
21417-MB9 EL 39.0
MBPP-1 EL 45.3
21417-MB10 EL 38.1
21417-MB11 EL 39.0
MBPP-2 EL 44.5
HMW-11S EL 41.5
MBGW-15 EL 40.9
HMW-11IB EL 39.7

N
0 20 40 80
Feet

ARSENIC IN SOIL (mg/kg)
- ≥ 14.6 TO 73
- ≥ 7.3 TO 14.6
- ND/0 TO < 7.3
- NO DATA

SAMPLE DEPTH INTERVALS
- ≤ 5 FT BELOW GROUND SURFACE (BGS)
- 5 TO 10
- 10 TO 15
- 15 TO 20
- 20 TO 25
- > 25

- EXCAVATION LIMITS; TO BE EXCAVATED DOWN TO ELEVATION 8 FT OR LOWER
- POTENTIAL HISTORICAL CONTAMINANT SOURCE
- PROPERTY BOUNDARY
- FORMER LAKE UNION SHORELINE
- FORMER BROAD STREET AND 8TH AVENUE N, THROUGH 1950s
- FORMER BROAD STREET 1958-2012

SOME SAMPLING LOCATIONS MAY HAVE BEEN SLIGHTLY OFFSET ON THIS MAP TO REDUCE SYMBOL OVERLAP

RED TEXT INDICATES EXCEEDANCE OF PROTECTIVE OF GROUNDWATER SCREENING LEVELS ADJUSTED UP TO NATURAL BACKGROUND

SCREENING LEVELS PROVIDED BY ECOLOGY (NOVEMBER 17, 2020)

CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

DEPTH IN FEET BELOW GROUND SURFACE (BGS)

ELEVATION IN FEET (NAVD 88); EL. = GROUND SURFACE ELEVATION

U = NON-DETECT AT DETECTION LIMIT AS INDICATED
J = ESTIMATED VALUE
/ = MULTIPLE RESULTS INDICATE THAT A FIELD DUPLICATE WAS TAKEN

AERIAL IMAGERY SOURCE: EAGLEVIEW

SCREENING LEVELS FOR ARSENIC IN SOIL (mg/kg) All levels adjusted up to natural background	
ZONE	PROTECTIVE OF GW
Vadose (0 to 25 ft bgs) and Saturated (>25 ft bgs)	7.3

Seattle DOT Mercer Parcels Site
Seattle, Washington

Arsenic Distribution in Soil

19409-04 07/21

HARTCROWSER A division of Haley & Aldrich

Figure **2-6c**

MBB-5	03/02/2020 5 ft el 45.53	03/02/2020 10 ft el 40.53	03/02/2020 15 ft el 35.53	03/02/2020 20 ft el 30.53	03/02/2020 25 ft el 25.53
Lead	17.6	591	1.57	1.24	1.29

21417-MB9	05/11/2017 13 ft el 26.05	05/11/2017 22 ft el 17.05
Lead	19.3	279

ROY ST

8TH AVE N

DEXTER AVE N

MERCER ST

21417-MB1 EL 55.4
MBGW-12 EL 54.0
MBPP-7 EL 49.8
MBPP-5 EL 45.9
21417-MB8 EL 45.3
MBGW-1 EL 40.0
HMW-17S EL 57.7
MBB-1 EL 55.0
MBB-16 EL 53.7
MBB-7 EL 49.4
21417-MB6 EL 48.2
MBB-10 EL 49.7
MBB-12 EL 33.7
MBB-2 EL 55.5
MBB-4 EL 54.6
MBGW-6 EL 52.5
MBGW-5 EL 49.9
MBGW-3 EL 47.8
MBB-20 EL 47.5
MBGW-4 EL 47.3
MBB-23 EL 47.2
HMW-18S EL 57.5
HMW-3IA EL 55.0
MBB-3 EL 54.8
MBB-5 EL 50.5
MBB-6 EL 50.3
MBGW-2 EL 46.1
21417-MB9 EL 39.0
MBB-13 EL 36.0
MBB-11 EL 46.4
GP-9 EL 58.0
HMW-19S EL 58.4
MBB-24 EL 54.1
HMW-20S EL 53.6
MBB-8 EL 49.7
MBB-9 EL 47.5
HMW-2IB EL 47.4
MBB-22 EL 42.0
MBPP-1 EL 45.3
MBB-18 EL 51.3
HMW-5IB EL 58.4
MBGW-7 EL 53.8
HMW-9S EL 55.4
HMW-9IA EL 55.3
HMW-9D EL 55.3
MBPP-4 EL 48.3
21417-MB10 EL 38.1
GP-8 EL 58.3
MBB-19 EL 51.7
MBPP-3 EL 45.9
MBPP-8 EL 57.5
HMW-9IB EL 55.4
MBB-17 EL 54.9
21417-MB11 EL 39.0
MBPP-2 EL 44.5
HMW-11S EL 41.5
MBGW-15 EL 40.9
HMW-11IB EL 39.7
GP-7 EL 58.5
MBGW-8 EL 47.1
HMW-10S EL 48.2
HMW-10D EL 48.2
MBB-21 EL 47.6
HMW-6IA EL 58.6
HMW-6IB EL 58.7
HMW-6D EL 58.6
HMW-8IB EL 58.0
MBGW-9 EL 56.8
21417-MB4 EL 57.2
HMW-7IB EL 58.7
MBGW-10 EL 55.3
MBGW-11 EL 57.5

0 20 40 80 Feet

N

LEAD IN SOIL (mg/kg)
- ≥ 2,500
- ≥ 500 TO 2,500
- ≥ 250 TO 500
- ND/0 TO < 250
- NO DATA

SAMPLE DEPTH INTERVALS
- ≤ 5 FT BELOW GROUND SURFACE (BGS)
- 5 TO 10
- 10 TO 15
- 15 TO 20
- 20 TO 25
- > 25

- EXCAVATION LIMITS; TO BE EXCAVATED DOWN TO ELEVATION 8 FT OR LOWER
- POTENTIAL HISTORICAL CONTAMINANT SOURCE
- PROPERTY BOUNDARY
- FORMER LAKE UNION SHORELINE
- FORMER BROAD STREET AND 8TH AVENUE N, THROUGH 1950s
- FORMER BROAD STREET 1958-2012

SOME SAMPLING LOCATIONS MAY HAVE BEEN SLIGHTLY OFFSET ON THIS MAP TO REDUCE SYMBOL OVERLAP

RED TEXT INDICATES EXCEEDANCE OF DIRECT CONTACT OR PROTECTIVE OF GROUNDWATER SCREENING LEVELS

SCREENING LEVELS PROVIDED BY ECOLOGY (NOVEMBER 17, 2020)

CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

DEPTH IN FEET BELOW GROUND SURFACE (BGS)

ELEVATION IN FEET (NAVD 88); EL. = GROUND SURFACE ELEVATION

U = NON-DETECT AT DETECTION LIMIT AS INDICATED
J = ESTIMATED VALUE
/ = MULTIPLE RESULTS INDICATE THAT A FIELD DUPLICATE WAS TAKEN

AERIAL IMAGERY SOURCE: EAGLEVIEW

SCREENING LEVELS FOR LEAD (mg/kg) IN SOIL		
ZONE	DIRECT CONTACT	PROTECTIVE OF GW
Vadose (0 to 25 ft bgs)	250	3000
Saturated (>25 ft bgs)	250	150

Seattle DOT Mercer Parcels Site
Seattle, Washington

Lead Distribution in Soil

19409-04 07/21

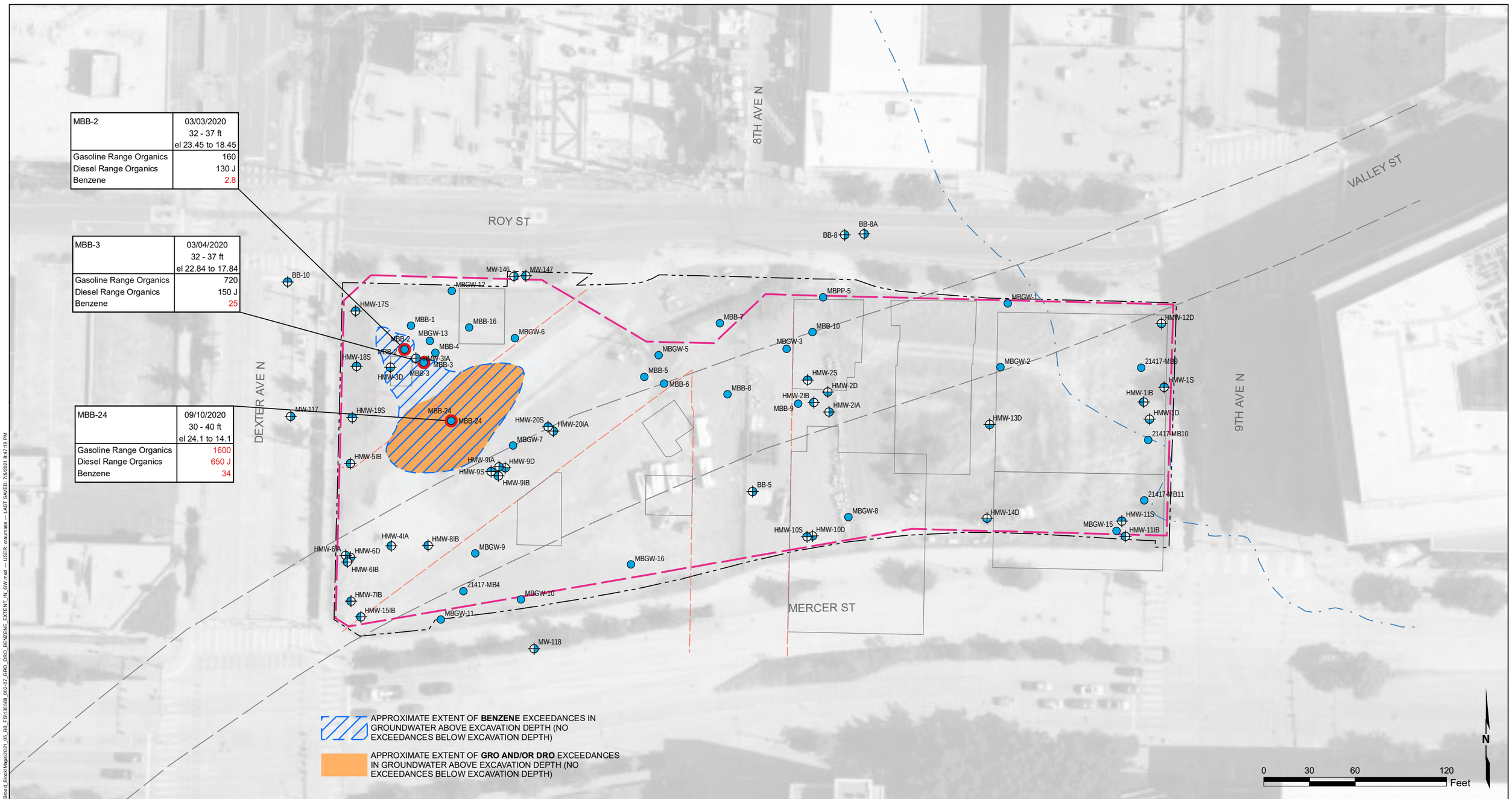
HARTCROWSER A division of Haley & Aldrich

Figure **2-6d**

MBB-2	03/03/2020 32 - 37 ft el 23.45 to 18.45
Gasoline Range Organics	160
Diesel Range Organics	130 J
Benzene	2.8

MBB-3	03/04/2020 32 - 37 ft el 22.84 to 17.84
Gasoline Range Organics	720
Diesel Range Organics	150 J
Benzene	25

MBB-24	09/10/2020 30 - 40 ft el 24.1 to 14.1
Gasoline Range Organics	1600
Diesel Range Organics	650 J
Benzene	34



APPROXIMATE EXTENT OF **BENZENE** EXCEEDANCES IN GROUNDWATER ABOVE EXCAVATION DEPTH (NO EXCEEDANCES BELOW EXCAVATION DEPTH)

APPROXIMATE EXTENT OF **GRO AND/OR DRO** EXCEEDANCES IN GROUNDWATER ABOVE EXCAVATION DEPTH (NO EXCEEDANCES BELOW EXCAVATION DEPTH)

N

0 30 60 120 Feet

SAMPLE LOCATIONS ANALYZED FOR GRO, DRO, AND BENZENE (ALL LOCATIONS SHOWN HERE WERE SAMPLED FOR ALL THREE COMPOUNDS)

- SHALLOW ZONE MONITORING WELL
- INTERMEDIATE A ZONE MONITORING WELL
- INTERMEDIATE B ZONE MONITORING WELL
- DEEP ZONE MONITORING WELL
- SOIL BORING WITH GRAB GROUNDWATER SAMPLE
- GROUNDWATER SAMPLE LOCATION WITH EXCEEDANCE

- EXCAVATION LIMITS; TO BE EXCAVATED DOWN TO ELEVATION 8 FT OR LOWER
- POTENTIAL HISTORICAL CONTAMINANT SOURCE
- PROPERTY BOUNDARY
- FORMER LAKE UNION SHORELINE
- FORMER BROAD STREET AND 8TH AVENUE N, THROUGH 1950s
- FORMER BROAD STREET 1958-2012

RED TEXT INDICATES EXCEEDANCE OF PROTECTIVE OF DRINKING WATER OR PROTECTIVE OF INDOOR AIR SCREENING LEVELS

CONCENTRATIONS IN MICROGRAMS PER LITER (µg/L)

SCREENING LEVELS WERE PROVIDED BY ECOLOGY (NOVEMBER 17, 2020)

DEPTH IN FEET BELOW GROUND SURFACE (BGS)

ELEVATION IN FEET (NAVD 88)

U = NON-DETECT AT DETECTION LIMIT AS INDICATED
J = ESTIMATED VALUE
- = ANALYTE WAS NOT ANALYZED/NOT APPLICABLE
/ = MULTIPLE RESULTS INDICATE THAT A FIELD DUPLICATE WAS TAKEN

AERIAL IMAGERY SOURCE: EAGLEVIEW

SCREENING LEVELS FOR GRO, DRO, AND BENZENE GROUNDWATER (µg/L)		
CONSTITUENT	PROTECTIVE OF DRINKING WATER	PROTECTIVE OF INDOOR AIR
Gasoline Range Organics (GRO)	800	-
Diesel Range Organics (DRO)	500	-
Benzene	5	2.4

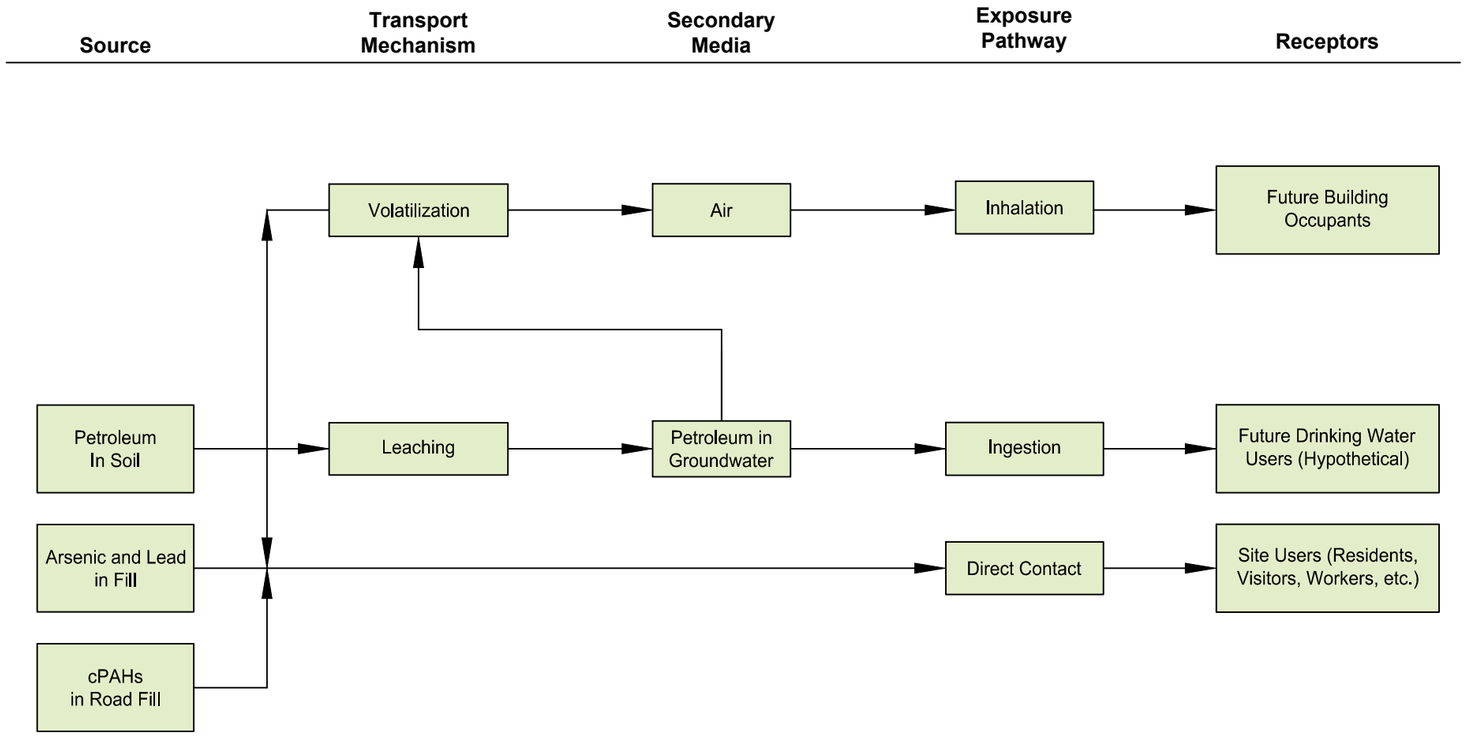
Seattle DOT Mercer Parcels Site
Seattle, Washington

GRO, DRO, and Benzene Distribution in Groundwater

19409-04 07/21

HARTCROWSER A division of Haley & Aldrich

Figure **2-7**



Seattle DOT Mercer Parcels Site
Seattle, Washington

Sources, Pathways, and Receptors: On-Property Releases

19409-04 07/21

HARTCROWSER A division of Haley & Aldrich

Figure **2-8**

American Linen Site | Roy Street | Bend in Section | Seattle DOT Mercer Parcels Site | 9th Ave N

Former Dry Cleaners

Former Gas Station/ Repair Shop

Old Road Fill

Old Road Fill

Arsenic and Lead Exceedance in Soil

Current Ground Surface

Petroleum Impacts

cPAH Impacts

Fill

Water Table

Vadose Soil

Saturated Soil

Planned Soil Removal Limit

Lead Exceedance in Soil

Groundwater Flow

Dry Cleaning Solvent Plume

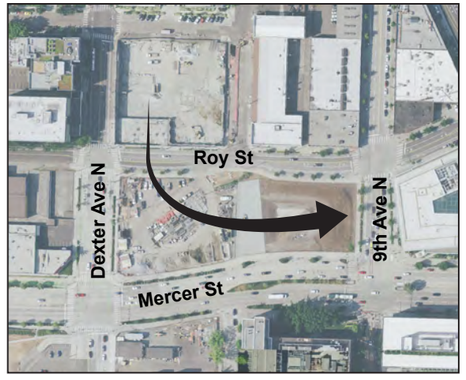
Elevation in Feet (NAVD 88)

80 60 40 20 0 -20 -40 -60 -80 -100

0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 845

Approximate Distance in Feet

Note
This cross section does not represent a single snapshot in time. Rather, it graphically depicts general groundwater flow directions over time that have led to the migration of contaminants observed in the Remedial Investigation.



Seattle DOT Mercer Parcels Site
Seattle, Washington

Generalized Diagrammatic Conceptual Cross Section

19409-04 01/22

HARTCROWSER
A division of Haley & Aldrich

Figure
2-9

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B-215	09/12/2017 35 ft el 18.95	09/12/2017 65 ft el -11.05
PCE	0.0277	11.1
TCE	0.00195	1.02
cis-1,2-DCE	0.062	1.55
VC	0.00118 U	0.0286 U

MW-140	08/30/2017 25 ft el 25.32	08/30/2017 35 ft el 15.32	08/30/2017 45 ft el 5.32	08/30/2017 55 ft el -4.68
PCE	0.147	15.1	4.27	1.56
TCE	0.0107	0.629	0.0793	0.0496
cis-1,2-DCE	0.00199	0.387	0.0431	0.13
VC	0.000316 U	0.0107 J	0.0016	0.099

MW-105	08/06/2012 30 ft el 15.59	08/08/2012 40 ft el 5.59	08/08/2012 50 ft el -4.41
PCE	1.3	0.025 U	0.18
TCE	0.16	0.03 U	0.04
cis-1,2-DCE	0.086	0.22	0.05 U
VC	0.05 U	0.05 U	0.05 U

MW-148	04/09/2018 30 ft el 14.29
PCE	0.00112 U
TCE	0.00112 U
cis-1,2-DCE	0.00364
VC	0.0144

MW-153	03/27/2018 50 ft el 4.84	03/28/2018 90 ft el -35.16	03/28/2018 110 ft el -55.16
PCE	0.00111 U	0.000799 J	0.00254
TCE	0.00111 U	0.0012 U	0.00118 U
cis-1,2-DCE	0.00111 U	0.000596 J	0.000773 J
VC	0.00767	0.00176	0.00311

MW-147	04/02/2018 30 ft el 22.49	04/02/2018 40 ft el 12.49	04/02/2018 50 ft el 2.49
PCE	0.0238	0.0146	0.00175
TCE	0.0033	0.00118	0.00105 J
cis-1,2-DCE	0.00239	0.00488	0.00432
VC	0.00112 U	0.0615	0.00322

HMW-1IB	03/12/2019 50 ft el -11.71
PCE	0.12 J
TCE	0.024 J
cis-1,2-DCE	0.05 U
VC	0.05 U

MW-106	08/14/2012 30 ft el 22.9	08/14/2012 40 ft el 12.9	08/14/2012 50 ft el 2.9
PCE	0.038	3.1	0.73
TCE	0.03 U	0.15	0.17
cis-1,2-DCE	0.05 U	0.05 U	0.11
VC	0.05 U	0.05 U	0.05 U

MW-114	12/10/2012 35 ft el 7.43	12/10/2012 40 ft el 2.43	12/10/2012 45 ft el -2.57
PCE	8.8	0.59	0.25
TCE	0.45	0.071	0.03 U
cis-1,2-DCE	0.11	0.05 U	0.05 U
VC	0.05 U	0.05 U	0.05 U

MBGW-5	03/11/2019 45 ft el 4.87
PCE	3.4
TCE	0.47
cis-1,2-DCE	0.26
VC	0.05 U

MBGW-3	03/07/2019 25 ft el 22.77
PCE	0.074
TCE	0.02 U
cis-1,2-DCE	0.05 U
VC	0.05 U

HMW-2IB	03/12/2019 45 ft el 2.41
PCE	0.12 J
TCE	0.02 U
cis-1,2-DCE	0.05 U
VC	0.05 U

21417-MB8	05/11/2017 27 ft el 18.28
PCE	0.0238
TCE	0.0152 U
cis-1,2-DCE	0.0152 U
VC	0.00152 U

MBB-23	09/21/2020 30 ft el 17.18
PCE	0.025 U
TCE	0.03 U
cis-1,2-DCE	0.014
VC	0.005 U

MW-326	09/09/2019 45 ft el -3.69	09/09/2019 50 ft el -8.69	09/09/2019 55 ft el -13.69	09/09/2019 65 ft el -23.69
PCE	0.00301 U	0.101 J	0.00304 U	0.00753
TCE	0.00169	0.0145	0.00122 U	0.00243
cis-1,2-DCE	0.0617	0.0057	0.015	0.00508
VC	0.00301 U	0.00286 U	0.00304 U	0.0029 U

ROY ST

MERCER ST

8TH AVE N

DEXTER AVE N

0 20 40 80 Feet

N

CVOCs in SOIL

- EXCEEDANCE OF PCE, TCE, cis-1,2-DCE, OR VINYL CHLORIDE
- NO EXCEEDANCE
- NO DATA

SAMPLE DEPTH INTERVALS

- ≤ 10 FT BELOW GROUND SURFACE (BGS)
- 10 TO 20
- 20 TO 30
- 30 TO 40
- 40 TO 50
- > 50

- EXCAVATION LIMITS; TO BE EXCAVATED DOWN TO ELEVATION 8 FT OR LOWER
- POTENTIAL HISTORICAL CONTAMINANT SOURCE
- PROPERTY BOUNDARY
- FORMER LAKE UNION SHORELINE
- FORMER BROAD STREET AND 8TH AVENUE N, THROUGH 1950s
- FORMER BROAD STREET 1958-2012

SOME SAMPLING LOCATIONS MAY HAVE BEEN SLIGHTLY OFFSET ON THIS MAP TO REDUCE SYMBOL OVERLAP

RED TEXT INDICATES EXCEEDANCE OF PROTECTIVE OF GROUNDWATER SCREENING LEVELS

SCREENING LEVELS PROVIDED BY ECOLOGY (NOVEMBER 17, 2020)

CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

DEPTH IN FEET BELOW GROUND SURFACE (BGS)

ELEVATION IN FEET (NAVD 88); EL = GROUND SURFACE ELEVATION

U = NON-DETECT AT DETECTION LIMIT AS INDICATED
J = ESTIMATED VALUE
/ = MULTIPLE RESULTS INDICATE THAT A FIELD DUPLICATE WAS TAKEN

AERIAL IMAGERY SOURCE: EAGLEVIEW

SCREENING LEVELS FOR CVOCs SATURATED ZONE SOIL (> 25 FT BGS) (mg/kg)	
CONSTITUENT	PROTECTIVE OF GW SATURATED ZONE
Tetrachloroethene (PCE)	0.0028
Trichloroethene (TCE)	0.0015
cis-1,2-Dichloroethene (cis-1,2-DCE)	0.0052
Vinyl chloride (VC)	0.0015 (adjusted to PQL)

Seattle DOT Mercer Parcels Site
Seattle, Washington

CVOCs Distribution in Soil

19409-04 07/21

HARTCROWSER
A division of Haley & Aldrich

Figure
2-10

MW-146	04/30/2018 39.8 - 49.8 (ft) el 13.06 to 3.06	01/22/2019 39.8 - 49.8 (ft) el 13.06 to 3.06	04/24/2019 39.8 - 49.8 (ft) el 13.06 to 3.06	07/19/2019 39.8 - 49.8 (ft) el 13.06 to 3.06	10/14/2019 39.8 - 49.8 (ft) el 13.06 to 3.06	01/24/2020 39.8 - 49.8 (ft) el 13.06 to 3.06	04/30/2020 39.8 - 49.8 (ft) el 13.06 to 3.06	11/10/2020 39.8 - 49.8 (ft) el 13.06 to 3.06
PCE	3.56	2.29	1.5	3.08	2.03	21.1 J	50 U	0.21
TCE	48.4	21.6	12.4	14.4	6.77	50 U	50 U	2.8
cis-1,2-DCE	900	1080	257	257	1350	1460	2100	3800
VC	2100	1370	383	580	2830	3900	6040	5200

MW-154	04/30/2018 25 - 35 (ft) el 28.22 to 18.22	01/21/2019 25 - 35 (ft) el 28.22 to 18.22	04/24/2019 25 - 35 (ft) el 28.22 to 18.22	07/15/2019 25 - 35 (ft) el 28.22 to 18.22	10/14/2019 25 - 35 (ft) el 28.22 to 18.22	01/21/2020 25 - 35 (ft) el 28.22 to 18.22	04/30/2020 25 - 35 (ft) el 28.22 to 18.22
PCE	4.46	1.7	1.02	69.5	4.99	11.6	12.1
TCE	0.23 J	0.33 J	0.214 J	5.75	0.445 J	0.999	1.06
cis-1,2-DCE	1.77	2.03	1.76	2.55	1.4	2.26	2.58
VC	7.48	3.52	0.797	0.211 J	0.5 U	0.5 U	0.5 U

MW-155	04/27/2018 20 - 30 (ft) el 24.47 to 14.47	01/21/2019 20 - 30 (ft) el 24.47 to 14.47	04/23/2019 20 - 30 (ft) el 24.47 to 14.47	07/23/2019 20 - 30 (ft) el 24.47 to 14.47	10/16/2019 20 - 30 (ft) el 24.47 to 14.47	01/20/2020 20 - 30 (ft) el 24.47 to 14.47	05/05/2020 20 - 30 (ft) el 24.47 to 14.47
PCE	3.48	3.72	14.6	92.7	121	98.3	140
TCE	0.334 J	0.581	4.75	19.9	27.6	21.8	27.3
cis-1,2-DCE	0.466 J	0.274 J	71.9	12.1	36.2	12.7	16.4
VC	0.447 J	0.5 U	6.54 K	0.35 J	0.5 U	0.5 U	0.5 U

BB-8	04/11/2018 30 - 40 (ft) el 13.72 to 3.72	01/23/2019 30 - 40 (ft) el 13.72 to 3.72	04/23/2019 30 - 40 (ft) el 13.72 to 3.72	07/17/2019 30 - 40 (ft) el 13.72 to 3.72	10/22/2019 30 - 40 (ft) el 13.72 to 3.72	01/20/2020 30 - 40 (ft) el 13.72 to 3.72	05/12/2020 30 - 40 (ft) el 13.72 to 3.72
PCE	33.7 J	133	48.8	169	135 J	138	142
TCE	6.13 J	43.1	9.09	28.9	46.6	25.4	30.8
cis-1,2-DCE	4.64	81.5	7.57	19.3	31.8 J	16.5	17.6
VC	0.5 U	0.618	0.5 UJK	0.5 U	0.162 J	0.5 U	0.5 U

MBGW-1	03/06/2019 20 - 30 (ft) el 19.95 to 9.95
PCE	9.5
TCE	3.9
cis-1,2-DCE	19
VC	0.2 U

MBB-10	02/27/2020 35 - 40 (ft) el 14.66 to 9.66
PCE	98
TCE	59
cis-1,2-DCE	130
VC	0.88

MBB-7	03/04/2020 27 - 32 (ft) el 22.41 to 17.41
PCE	9.4
TCE	1.9
cis-1,2-DCE	7.3
VC	0.2 U

MBGW-3	03/07/2019 16 - 26 (ft) el 31.77 to 21.77
PCE	35
TCE	7.4
cis-1,2-DCE	4.8
VC	0.2 U

MBGW-15	03/15/2019 20 - 30 (ft) el 20.87 to 10.87
PCE	35
TCE	1 U
cis-1,2-DCE	1 U
VC	0.2 U

MBGW-12	03/19/2019 17.5 - 27.5 (ft) el 36.5 to 26.5
PCE	5.1
TCE	1
cis-1,2-DCE	1 U
VC	0.2 U

HMW-4IA	03/25/2019 50 - 60 (ft) el 8.7 to -1.3	03/10/2020 50 - 60 (ft) el 8.7 to -1.3
PCE	1 U	0.2 U
TCE	1 U	0.2 U
cis-1,2-DCE	1 U	0.2 U
VC	3.6	0.41

HMW-9IA	03/19/2020 36.7 - 46.7 (ft) el 18.56 to 8.56
PCE	0.42
TCE	0.23
cis-1,2-DCE	3.7
VC	0.95

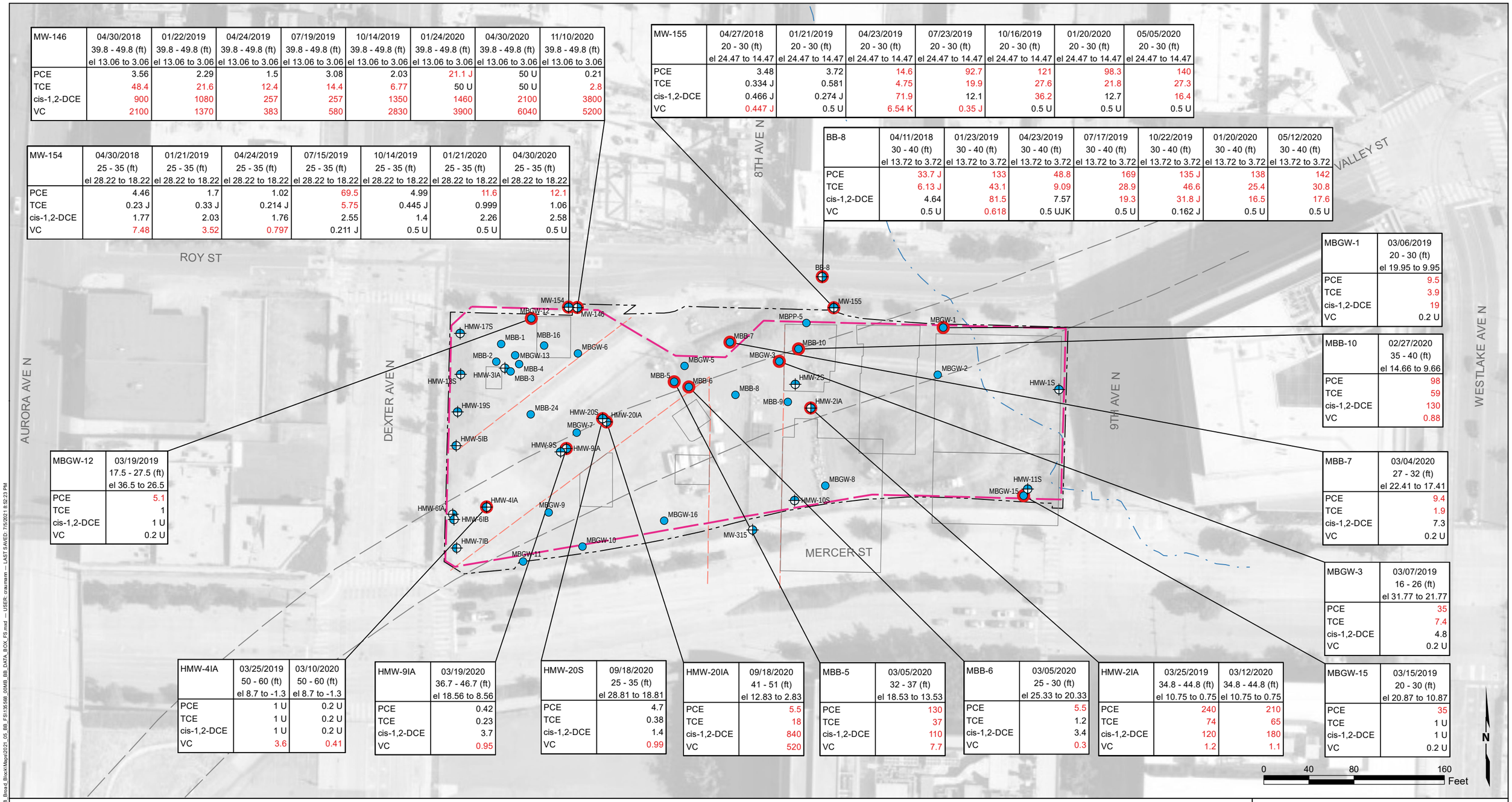
HMW-20S	09/18/2020 25 - 35 (ft) el 28.81 to 18.81
PCE	4.7
TCE	0.38
cis-1,2-DCE	1.4
VC	0.99

HMW-20IA	09/18/2020 32 - 37 (ft) el 12.83 to 2.83
PCE	5.5
TCE	18
cis-1,2-DCE	840
VC	520

MBB-5	03/05/2020 41 - 51 (ft) el 18.53 to 13.53
PCE	130
TCE	37
cis-1,2-DCE	110
VC	7.7

MBB-6	03/05/2020 25 - 30 (ft) el 25.33 to 20.33
PCE	5.5
TCE	1.2
cis-1,2-DCE	3.4
VC	0.3

HMW-2IA	03/25/2019 34.8 - 44.8 (ft) el 10.75 to 0.75	03/12/2020 34.8 - 44.8 (ft) el 10.75 to 0.75
PCE	240	210
TCE	74	65
cis-1,2-DCE	120	180
VC	1.2	1.1



- SHALLOW ZONE MONITORING WELL
- INTERMEDIATE A ZONE MONITORING WELL
- INTERMEDIATE B ZONE MONITORING WELL
- SOIL BORING WITH GRAB GROUNDWATER SAMPLE
- GROUNDWATER SAMPLING LOCATION WITH EXCEEDANCE

- EXCAVATION LIMITS; TO BE EXCAVATED DOWN TO ELEVATION 8 FT OR LOWER
- POTENTIAL HISTORICAL CONTAMINANT SOURCE
- PROPERTY BOUNDARY
- FORMER LAKE UNION SHORELINE
- FORMER BROAD STREET AND 8TH AVENUE N, THROUGH 1950s
- FORMER BROAD STREET 1958-2012

RED TEXT INDICATES EXCEEDANCE OF PROTECTIVE OF DRINKING WATER OR PROTECTIVE OF INDOOR AIR SCREENING LEVELS

DATA SHOWN IS FROM 2018-2020; CONCENTRATIONS IN MICROGRAMS PER LITER (µg/L)

SCREENING LEVELS PROVIDED BY ECOLOGY (NOVEMBER 17, 2020)

DEPTH IN FEET BELOW GROUND SURFACE (BGS)

ELEVATION IN FEET (NAVD 88)

U = NON-DETECT AT DETECTION LIMIT AS INDICATED
J = ESTIMATED VALUE
- = ANALYTE WAS NOT ANALYZED/NOT APPLICABLE
/ = MULTIPLE RESULTS INDICATE THAT A FIELD DUPLICATE WAS TAKEN
K = REPORTED RESULT WITH UNKNOWN BIAS

AERIAL IMAGERY SOURCE: EAGLEVIEW

SCREENING LEVELS FOR CVOCs IN GROUNDWATER (µg/L)		
CONSTITUENT	PROTECTIVE OF DRINKING WATER	PROTECTIVE OF INDOOR AIR
Tetrachloroethene (PCE)	5	24
Trichloroethene (TCE)	4	1.4
cis-1,2-Dichloroethene (cis-1,2-DCE)	16	-
Vinyl chloride (VC)	0.29	0.35

Seattle DOT Mercer Parcels Site
Seattle, Washington

CVOCs Distribution in Groundwater, Above 8 ft Elevation

19409-04 07/21

HARTCROWSER
A division of Holey & Aldrich

Figure
2-11a

MW-147	05/12/2018 70 - 80 (ft) el -17.51 to -27.51	01/22/2019 70 - 80 (ft) el -17.51 to -27.51	04/23/2019 70 - 80 (ft) el -17.51 to -27.51	07/18/2019 70 - 80 (ft) el -17.51 to -27.51	10/14/2019 70 - 80 (ft) el -17.51 to -27.51	01/24/2020 70 - 80 (ft) el -17.51 to -27.51	04/29/2020 70 - 80 (ft) el -17.51 to -27.51	11/10/2020 70 - 80 (ft) el -17.51 to -27.51
PCE	19.8	98.2	0.5 U	0.5 U	0.5 U	12.5 U	12.5 U	0.2 U
TCE	83.4	179	5.13	4.79	3.38	4.63 J	5.1 J	4.9
cis-1,2-DCE	399	1230	322	219	597	1100	2410	3500 J
VC	1150	738	499	446	1410	1340	3470	7400 J

MW-153	05/01/2018 120 - 130 (ft) el -65.16 to -75.16	01/22/2019 120 - 130 (ft) el -65.16 to -75.16	04/24/2019 120 - 130 (ft) el -65.16 to -75.16	07/22/2019 120 - 130 (ft) el -65.16 to -75.16	10/15/2019 120 - 130 (ft) el -65.16 to -75.16	01/21/2020 120 - 130 (ft) el -65.16 to -75.16	04/30/2020 120 - 130 (ft) el -65.16 to -75.16
PCE	0.756	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TCE	0.5 U	0.5 U	0.5 U	0.19 J	0.5 U	0.5 U	0.5 U
cis-1,2-DCE	0.612	1.41	1.07	0.384 J	0.5 U	0.5 U	0.5 U
VC	9.56	15.9	2.69	0.235 J	0.5 U	0.5 U	0.5 U

HMW-16IB	09/18/2020 55 - 65 (ft) el 2.02 to -7.98
PCE	0.2 U
TCE	0.2 U
cis-1,2-DCE	3.3
VC	15

HMW-9D	03/17/2020 79.7 - 89.7 (ft) el -24.38 to -34.38
PCE	0.81/0.89
TCE	0.2 U/0.2 U
cis-1,2-DCE	4.1/5.1
VC	0.81/0.97

HMW-9IB	03/19/2020 57 - 67 (ft) el -1.64 to -11.64
PCE	660
TCE	420
cis-1,2-DCE	9100
VC	1900

MW-148	05/01/2018 70 - 80 (ft) el -25.71 to -35.71	01/23/2019 70 - 80 (ft) el -25.71 to -35.71	04/26/2019 70 - 80 (ft) el -25.71 to -35.71	07/22/2019 70 - 80 (ft) el -25.71 to -35.71	10/16/2019 70 - 80 (ft) el -25.71 to -35.71	01/20/2020 70 - 80 (ft) el -25.71 to -35.71	04/30/2020 70 - 80 (ft) el -25.71 to -35.71
PCE	0.5 U/0.5 U	1.24	0.5 U	0.415 J	0.5 U	0.5 U	0.5 U
TCE	0.5 U/0.5 U	0.347 J	0.5 U	0.5 U	0.5 U	0.163 J	0.5 U
cis-1,2-DCE	0.5 UJ/0.216	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
VC	0.5 U/0.5 U	0.5 U	0.277 J	0.253 J	0.463 J	0.305 J	0.5 U

FMW-129	05/01/2019 84.2 - 89.2 (ft) el -45.56 to -50.56	07/16/2019 84.2 - 89.2 (ft) el -45.56 to -50.56	10/21/2019 84.2 - 89.2 (ft) el -45.56 to -50.56	11/12/2019 84.2 - 89.2 (ft) el -45.56 to -50.56	01/14/2020 84.2 - 89.2 (ft) el -45.56 to -50.56	02/18/2020 84.2 - 89.2 (ft) el -45.56 to -50.56	03/25/2020 84.2 - 89.2 (ft) el -45.56 to -50.56	04/27/2020 84.2 - 89.2 (ft) el -45.56 to -50.56	05/06/2020 84.2 - 89.2 (ft) el -45.56 to -50.56	05/19/2020 84.2 - 89.2 (ft) el -45.56 to -50.56
PCE	101	159	114	79	130	110	88	74	34.6	18
TCE	166	84.1	198	130	170	170	140	88	61.9	42
cis-1,2-DCE	372	272	350	340	385	310	290	190	157	120
VC	2.5 U	0.296 J	0.259 J	2 U	2 U	2 U	2.6	1 U	14.2	6.5

MW-105	04/11/2018 130 - 140 (ft) el -84.41 to -94.41	01/23/2019 130 - 140 (ft) el -84.41 to -94.41	04/23/2019 130 - 140 (ft) el -84.41 to -94.41	07/17/2019 130 - 140 (ft) el -84.41 to -94.41	10/22/2019 130 - 140 (ft) el -84.41 to -94.41	01/20/2020 130 - 140 (ft) el -84.41 to -94.41	05/12/2020 130 - 140 (ft) el -84.41 to -94.41
PCE	0.5 U	0.79	0.5 U	0.5 U	0.5 U	0.208 J	0.5 U
TCE	0.5 U	0.317 J	0.5 U	0.5 U	0.5 U	0.348 J	1.02
cis-1,2-DCE	1.67	1.51	0.917	0.891	0.945	1.38	0.805
VC	0.205 J	0.392 J	0.238 J	0.265 J	0.214 J	0.568	0.5 U

HMW-12D	09/10/2020 82 - 92 (ft) el -48.48 to -58.48
PCE	0.2 U
TCE	0.2 U
cis-1,2-DCE	200 J
VC	3.9

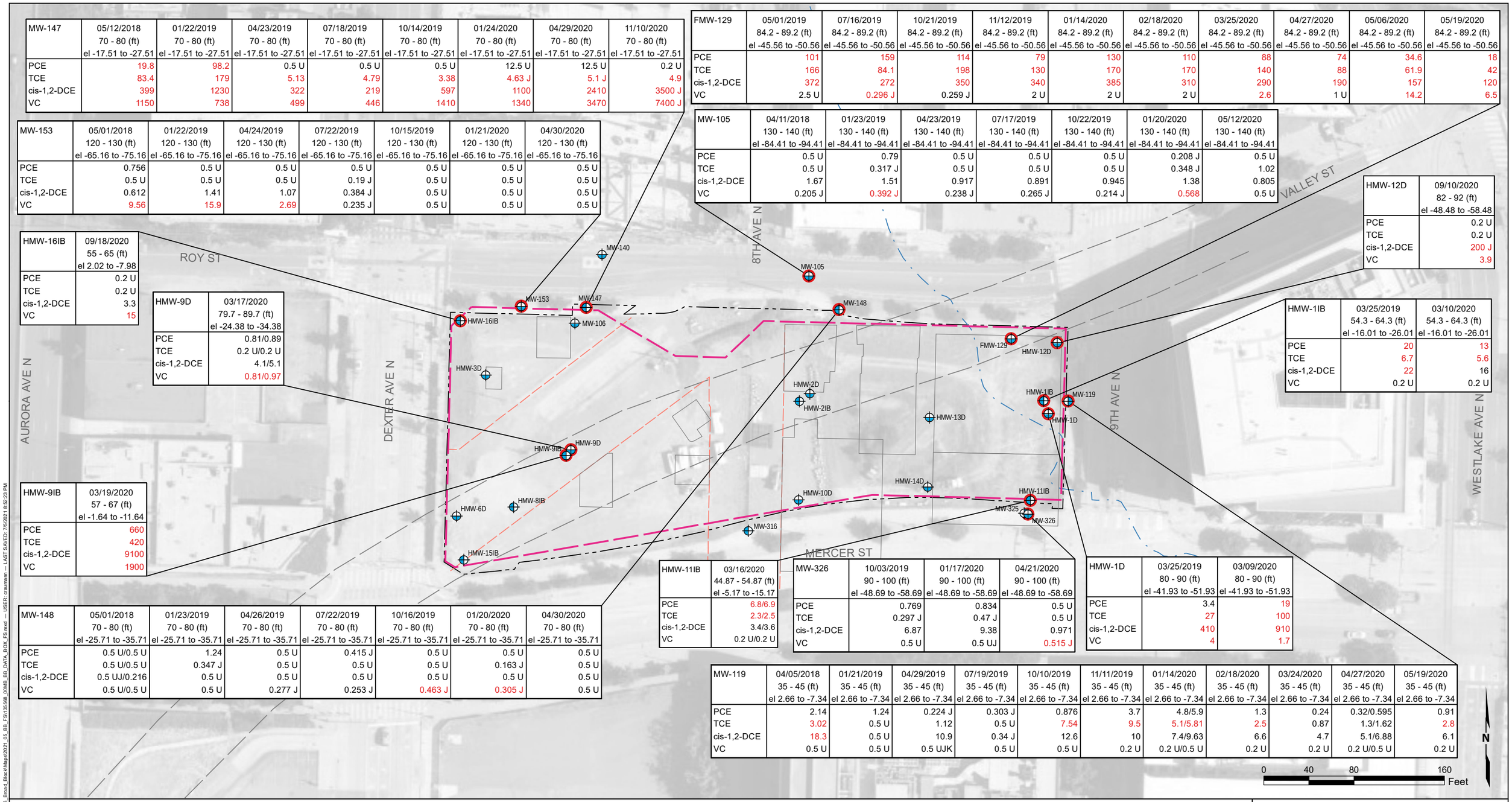
HMW-1IB	03/25/2019 54.3 - 64.3 (ft) el -16.01 to -26.01	03/10/2020 54.3 - 64.3 (ft) el -16.01 to -26.01
PCE	20	13
TCE	6.7	5.6
cis-1,2-DCE	22	16
VC	0.2 U	0.2 U

HMW-11IB	03/16/2020 44.87 - 54.87 (ft) el -5.17 to -15.17
PCE	6.8/6.9
TCE	2.3/2.5
cis-1,2-DCE	3.4/3.6
VC	0.2 U/0.2 U

MW-326	10/03/2019 90 - 100 (ft) el -48.69 to -58.69	01/17/2020 90 - 100 (ft) el -48.69 to -58.69	04/21/2020 90 - 100 (ft) el -48.69 to -58.69
PCE	0.769	0.834	0.5 U
TCE	0.297 J	0.47 J	0.5 U
cis-1,2-DCE	6.87	9.38	0.971
VC	0.5 U	0.5 UJ	0.515 J

HMW-1D	03/25/2019 80 - 90 (ft) el -41.93 to -51.93	03/09/2020 80 - 90 (ft) el -41.93 to -51.93
PCE	3.4	19
TCE	27	100
cis-1,2-DCE	410	910
VC	4	1.7

MW-119	04/05/2018 35 - 45 (ft) el 2.66 to -7.34	01/21/2019 35 - 45 (ft) el 2.66 to -7.34	04/29/2019 35 - 45 (ft) el 2.66 to -7.34	07/19/2019 35 - 45 (ft) el 2.66 to -7.34	10/10/2019 35 - 45 (ft) el 2.66 to -7.34	11/11/2019 35 - 45 (ft) el 2.66 to -7.34	01/14/2020 35 - 45 (ft) el 2.66 to -7.34	02/18/2020 35 - 45 (ft) el 2.66 to -7.34	03/24/2020 35 - 45 (ft) el 2.66 to -7.34	04/27/2020 35 - 45 (ft) el 2.66 to -7.34	05/19/2020 35 - 45 (ft) el 2.66 to -7.34
PCE	2.14	1.24	0.224 J	0.303 J	0.876	3.7	4.8/5.9	1.3	0.24	0.32/0.595	0.91
TCE	3.02	0.5 U	1.12	0.5 U	7.54	9.5	5.1/5.81	2.5	0.87	1.3/1.62	2.8
cis-1,2-DCE	18.3	0.5 U	10.9	0.34 J	12.6	10	7.4/9.63	6.6	4.7	5.1/6.88	6.1
VC	0.5 U	0.5 U	0.5 UJK	0.5 U	0.5 U	0.2 U	0.2 U/0.5 U	0.2 U	0.2 U	0.2 U/0.5 U	0.2 U



- INTERMEDIATE A ZONE MONITORING WELL
- INTERMEDIATE B ZONE MONITORING WELL
- DEEP ZONE MONITORING WELL
- GROUNDWATER SAMPLING LOCATION WITH EXCEEDANCE
- EXCAVATION LIMITS; TO BE EXCAVATED DOWN TO ELEVATION 8 FT OR LOWER
- POTENTIAL HISTORICAL CONTAMINANT SOURCE
- PROPERTY BOUNDARY
- FORMER LAKE UNION SHORELINE
- FORMER BROAD STREET AND 8TH AVENUE N, THROUGH 1950s
- FORMER BROAD STREET 1958-2012

RED TEXT INDICATES EXCEEDANCE OF PROTECTIVE OF DRINKING WATER OR PROTECTIVE OF INDOOR AIR SCREENING LEVELS

DATA SHOWN IS FROM 2018-2020; CONCENTRATIONS IN MICROGRAMS PER LITER (µg/L)

SCREENING LEVELS PROVIDED BY ECOLOGY (NOVEMBER 17, 2020)

DEPTH IN FEET BELOW GROUND SURFACE (BGS)

ELEVATION IN FEET (NAVD 88)

U = NON-DETECT AT DETECTION LIMIT AS INDICATED
J = ESTIMATED VALUE
- = ANALYTE WAS NOT ANALYZED/NOT APPLICABLE
/ = MULTIPLE RESULTS INDICATE THAT A FIELD DUPLICATE WAS TAKEN
K = REPORTED RESULT WITH UNKNOWN BIAS

AERIAL IMAGERY SOURCE: EAGLEVIEW

SCREENING LEVELS FOR CVOCs IN GROUNDWATER (µg/L)		
CONSTITUENT	PROTECTIVE OF DRINKING WATER	PROTECTIVE OF INDOOR AIR
Tetrachloroethene (PCE)	5	24
Trichloroethene (TCE)	4	1.4
cis-1,2-Dichloroethene (cis-1,2-DCE)	16	-
Vinyl chloride (VC)	0.29	0.35

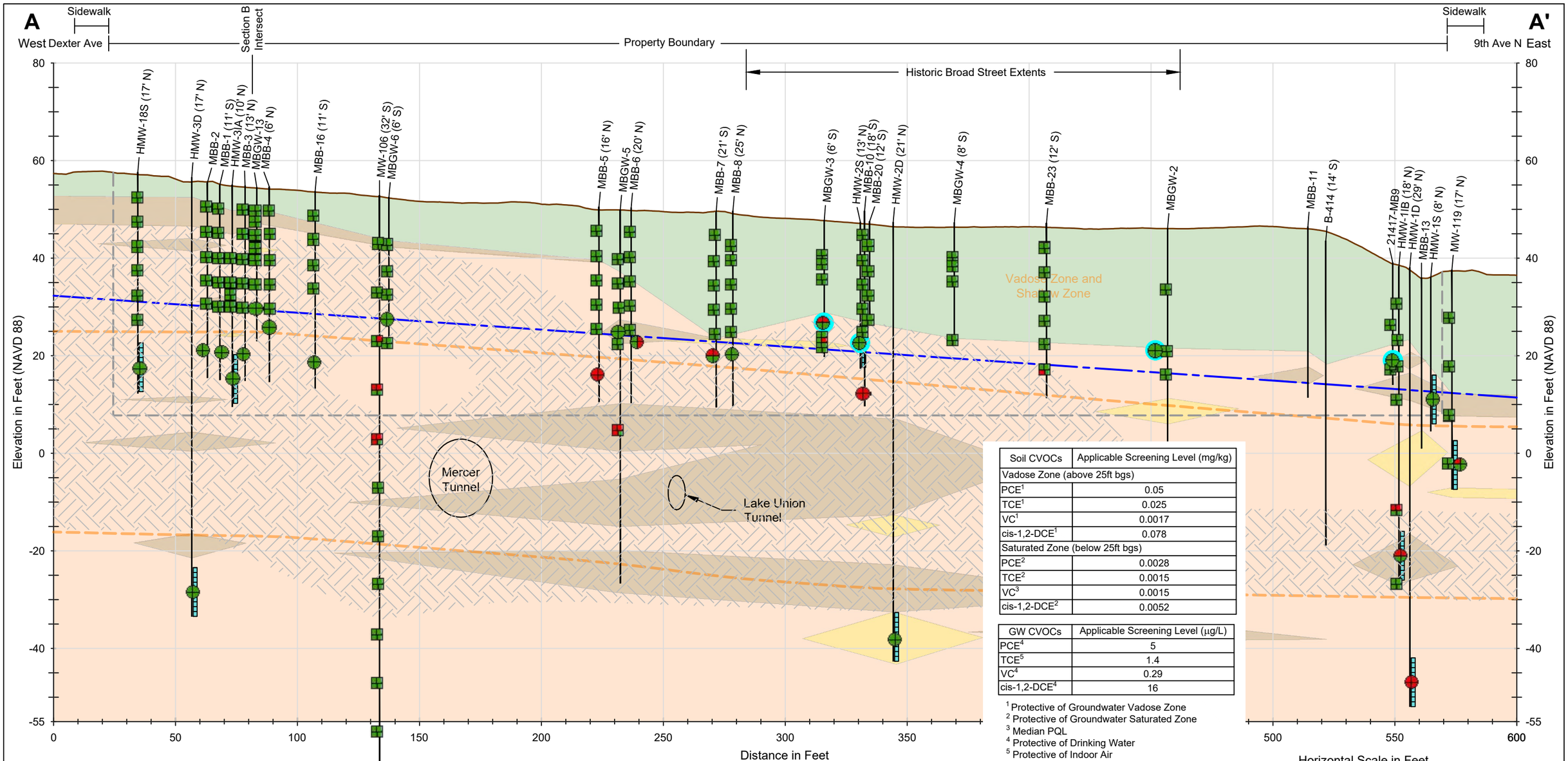
Seattle DOT Mercer Parcels Site
Seattle, Washington

CVOCs Distribution in Groundwater, Below 8 ft Elevation

19409-04 07/21

HARTCROWSER
A division of Haley & Aldrich

Figure
2-11b



Soil CVOCs	Applicable Screening Level (mg/kg)
Vadose Zone (above 25ft bgs)	
PCE[1]	0.05
TCE[1]	0.025
VC[1]	0.0017
cis-1,2-DCE[1]	0.078
Saturated Zone (below 25ft bgs)	
PCE[2]	0.0028
TCE[2]	0.0015
VC[3]	0.0015
cis-1,2-DCE[2]	0.0052

GW CVOCs	Applicable Screening Level (µg/L)
PCE[4]	5
TCE[5]	1.4
VC[4]	0.29
cis-1,2-DCE[4]	16

[1] Protective of Groundwater Vadose Zone
[2] Protective of Groundwater Saturated Zone
[3] Median PQL
[4] Protective of Drinking Water
[5] Protective of Indoor Air

Horizontal Scale in Feet
0 40 80
0 20 40
Vertical Scale in Feet
Vertical Exaggeration x 2

Legend

Boring Name with Offset — MW-1(15' W)
Boring Location
Approximate Average Water Table (25ft bgs)
Inferred Groundwater Zone Boundary
Screen Interval

green = Constituent(s) below applicable screening level
red = Constituent(s) above applicable screening level
Sample results shown from the most recent sampling event.

Geologic Units (Predominant Component)

Fill
Clean Sand and/or Gravel
Till
Silty Sand and Silty Gravel
Silt and/or Clay with or without Sand

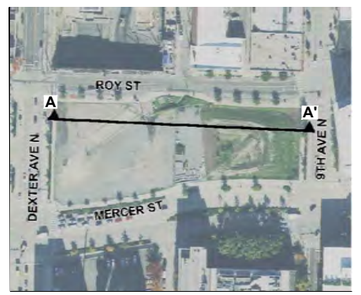
Approximate Limits of Proposed Excavation and Vapor Barrier Area at Seattle DOT Mercer Parcels Site ("Schematic Design, ARE Mercer Blocks," NBBJ, 04/20/2020)

GROUNDWATER SAMPLE
TCE PCE
cis-1,2-DCE VC

SOIL SAMPLE
TCE PCE
cis-1,2-DCE VC

= Perched groundwater

Note:
There were no detections of CVOCs in vadose zone soil on the Property.



INSET MAP

Explorations MBB-1, MBB-2, MBB-4, and MBGW-13 have been shifted horizontally for visual clarity.

Seattle DOT Mercer Parcels Site
Seattle, Washington

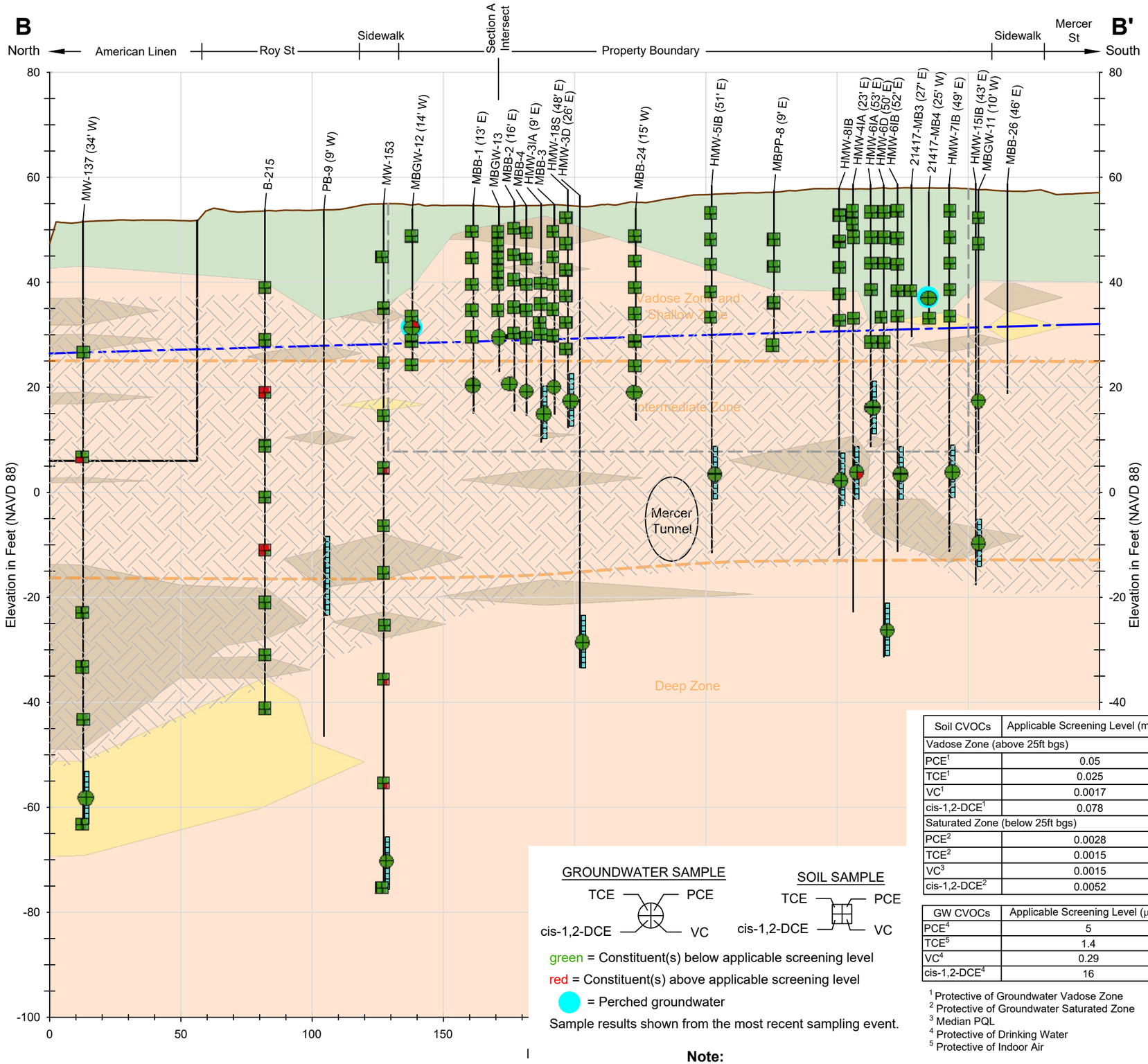
CVOCs in Soil and Groundwater Cross Section A-A'

19409-04 07/21

HARTCROWSER A division of Haley & Aldrich

Figure **2-12a**

File: \\haleyaldrich.com\share\sea_projects\Notebooks\1940904_Mercer_Mega_Block_Remedial_Investigations\CAD\1940904-012 FS (XSec-Mercer).dwg Layout:FS-SEC_BroadA (CVOCs) Date: 07-08-2021 Author: mschweltzer



Explorations MBB-4, HMW-3IA, MBB-3, HMW-18S, HMW-3D, HMW-8IB, HMW-6D, and HMW-6IB have been shifted horizontally for visual clarity.

GROUNDWATER SAMPLE

SOIL SAMPLE

green = Constituent(s) below applicable screening level

red = Constituent(s) above applicable screening level

= Perched groundwater

Sample results shown from the most recent sampling event.

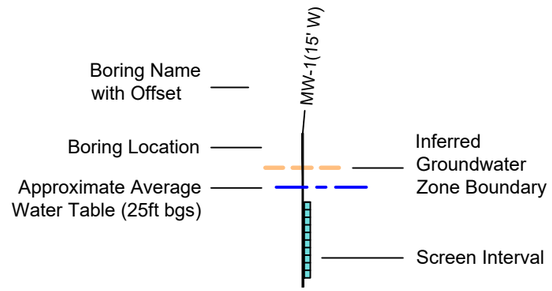
Soil CVOCs	Applicable Screening Level (mg/kg)
Vadose Zone (above 25ft bgs)	
PCE[1]	0.05
TCE[1]	0.025
VC[1]	0.0017
cis-1,2-DCE[1]	0.078
Saturated Zone (below 25ft bgs)	
PCE[2]	0.0028
TCE[2]	0.0015
VC[3]	0.0015
cis-1,2-DCE[2]	0.0052

GW CVOCs	Applicable Screening Level (µg/L)
PCE[4]	5
TCE[5]	1.4
VC[4]	0.29
cis-1,2-DCE[4]	16

[1] Protective of Groundwater Vadose Zone
[2] Protective of Groundwater Saturated Zone
[3] Median PQL
[4] Protective of Drinking Water
[5] Protective of Indoor Air

Note:
There were no detections of CVOCs in vadose zone soil on the Property.

Legend

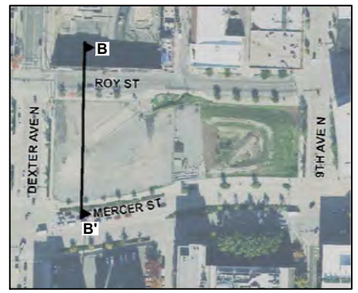


Approximate Limits of Proposed Excavation and Vapor Barrier Area at Seattle DOT Mercer Parcels Site ("Schematic Design, ARE Mercer Blocks," NBBJ, 04/20/2020)

Approximate Limits of 2020 Building Excavation at American Linen Site

Geologic Units (Predominant Component)

Fill
Clean Sand and/or Gravel
Till
Silty Sand and Silty Gravel
Silt and/or Clay with or without Sand



INSET MAP

Horizontal Scale in Feet
0 40 80
0 20 40
Vertical Scale in Feet
Vertical Exaggeration x 2

Seattle DOT Mercer Parcels Site
Seattle, Washington

CVOCs in Soil and Groundwater Cross Section B-B'

19409-04 07/21

HARTCROWSER A division of Haley & Aldrich

Figure **2-12b**

File: \\haleyaldrich.com\share\sea_projects\Notebooks\1940904_Mercer_Mega_Block_Remedial_Investigations\CAD\1940904-012 FS (XSec-Mercer).dwg Layout:FS-SEC_BroadB (CVOCs) Date: 07-12-2021 Author: mschweitzer

ROY ST

8TH AVE N

DEXTER AVE N

MERCER ST

MW-140
MW-105
BB-8
BB-10
MW-153
MW-154
MW-146
MW-147
MW-155
MW-148
21417-MB1
MBGW-12
MW-106
MBPP-7
MBPP-5
MBGW-1
HMW-17S
21417-MB8
MBB-1
MBB-7
21417-MB6
MBB-10
MBB-20
MBB-12
MBB-16
MBGW-6
21417-MB2
MBGW-13
MBB-2
MBB-4
HMW-3IA
MBB-3
MBGW-3
MBGW-4
MBB-23
MBGW-5
HMW-18S
MBB-5
MBB-6
MBGW-2
21417-MB9
MBB-11
HMW-2S
MBB-13
HMW-1S
MW-114
MBB-8
MBB-9
HMW-2IB
HMW-1IB
MW-119
GP-9
MW-117
HMW-19S
MBB-24
HMW-2IA
MBB-22
MBPP-1
MBB-15
HMW-20S
HMW-20IA
21417-MB5
MBB-18
MBB-14
21417-MB10
HMW-21S
MBGW-7
MBPP-4
HMW-5IB
HMW-9IA
HMW-9D
MBGW-14
HMW-9S
HMW-9IB
MBPP-6
GP-8
MBB-19
BB-5
21417-MB7
MBPP-3
HMW-22S
MBB-17
MBPP-8
21417-MB11
MBGW-8
MBPP-2
HMW-11S
GP-7
HMW-10D
MBB-21
MBGW-15
HMW-11IB
HMW-10S
HMW-4IA
HMW-8IB
HMW-6IA
MBGW-9
HMW-6D
MW-326
MBGW-16
HMW-6IB
21417-MB3
MW-316
MW-315
21417-MB4
MBB-25
MBGW-10
HMW-7IB
MBGW-11
MBB-26
MW-118

LEGEND

- SOIL BORING
- SOIL BORING WITH GRAB GROUNDWATER SAMPLE
- SHALLOW ZONE MONITORING WELL
- INTERMEDIATE A ZONE MONITORING WELL
- INTERMEDIATE B ZONE MONITORING WELL
- DEEP ZONE MONITORING WELL

TESTING RESULTS

- SOIL TESTED, WITHOUT EXCEEDANCE OF PROPOSED CLEANUP LEVEL
- SOIL TESTED, WITH EXCEEDANCE OF PROPOSED CLEANUP LEVEL
- GROUNDWATER TESTED, WITHOUT EXCEEDANCE OF PROPOSED CLEANUP LEVEL
- GROUNDWATER TESTED, WITH EXCEEDANCE OF PROPOSED CLEANUP LEVEL
- EXCAVATION LIMITS; TO BE EXCAVATED DOWN TO ELEVATION 8 FT OR LOWER AND VAPOR BARRIER AREA
- PROPERTY BOUNDARY
- FORMER BROAD STREET 1958-2012

TESTING RESULTS ARE SHOWN FOR THESE CONSTITUENTS	SOIL (mg/kg)	GROUNDWATER (µg/L)
COCs	PROPOSED CLEANUP LEVEL	PROPOSED CLEANUP LEVEL
Gasoline Range Organics (GRO)	30	800
cPAHs-TEQ	0.19	-
Arsenic	7.3	-
Lead	250	-
Diesel Range Organics (DRO)	-	500
Benzene	-	2.4

0 20 40 80 Feet

N

DEPTH IN FEET BELOW GROUND SURFACE (ft bgs)
ELEVATION (el) IN FEET (NAVD 88)
AERIAL IMAGERY SOURCE: NEARMAP, AUGUST 28, 2020

Seattle DOT Mercer Parcels Site
Seattle, Washington

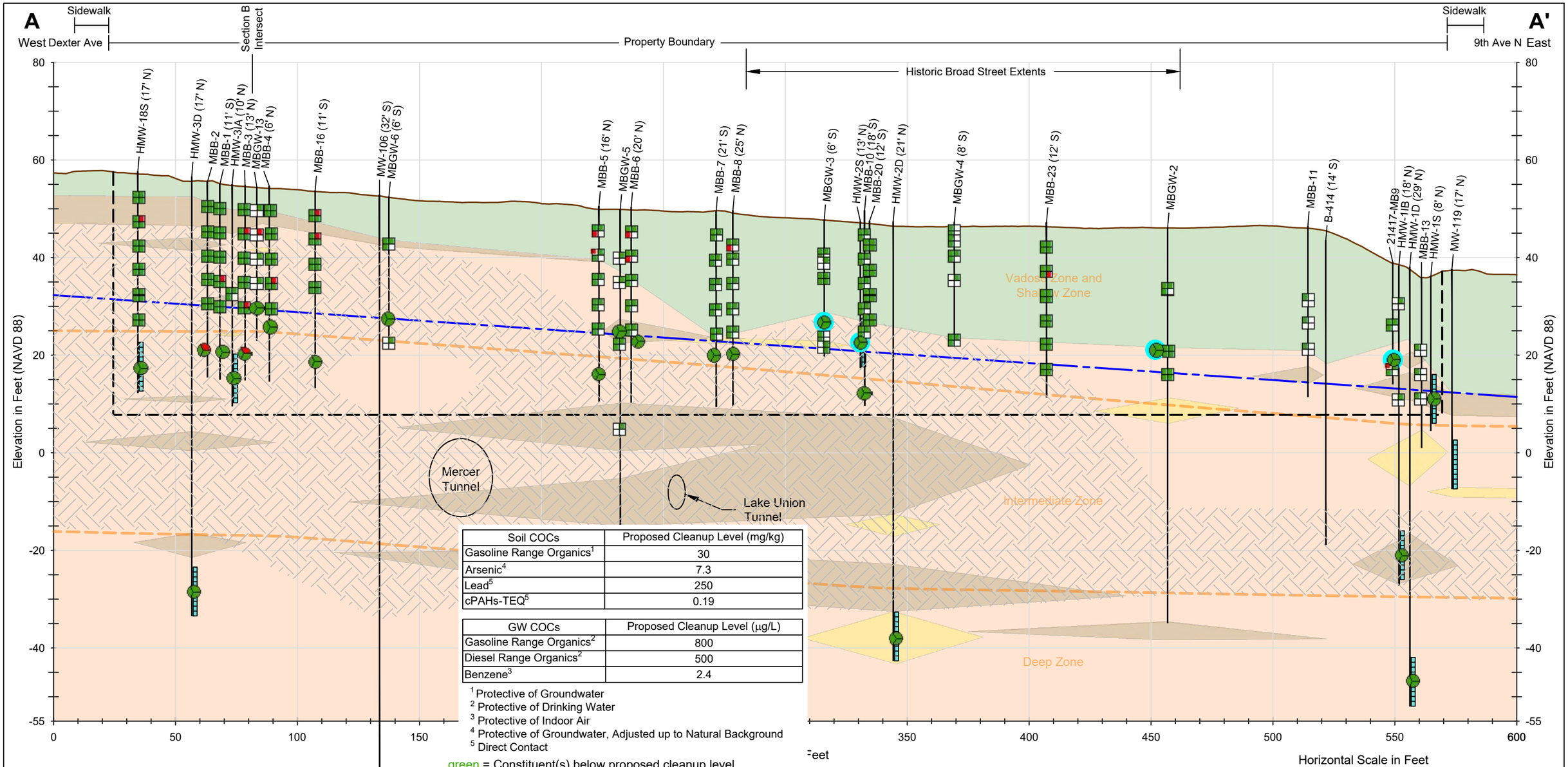
Planned Cleanup Action of COCs

19409-04 07/21

HARTCROWSER
A division of Haley & Aldrich

Figure
4-1

GIS FILE PATH: C:\Users\craumann\Desktop\LOCAL_DATA\135568_Broad Block\Maps\2021_05_BB_FS\135568_004-01_PLANNED_CLEANUP_ACTION.mxd — USER: craumann — LAST SAVED: 7/12/2021 6:11:21 PM



Soil COCs	Proposed Cleanup Level (mg/kg)
Gasoline Range Organics[1]	30
Arsenic[4]	7.3
Lead[5]	250
cPAHs-TEQ[5]	0.19

GW COCs	Proposed Cleanup Level (µg/L)
Gasoline Range Organics[2]	800
Diesel Range Organics[2]	500
Benzene[3]	2.4

[1] Protective of Groundwater
[2] Protective of Drinking Water
[3] Protective of Indoor Air
[4] Protective of Groundwater, Adjusted up to Natural Background
[5] Direct Contact

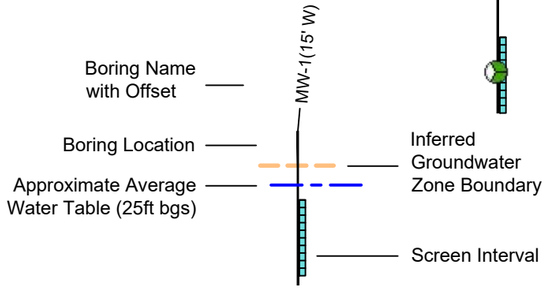
green = Constituent(s) below proposed cleanup level

red = Constituent(s) above proposed cleanup level

white = Constituent(s) not tested

Sample results shown from the most recent sampling event.

Legend



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- Fill
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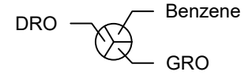
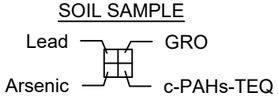
- Till
- Silty Sand and Silty Gravel
- Silt and/or Clay with or without Sand

Approximate Limits of Proposed Excavation and Vapor Barrier Area at Seattle DOT Mercer Parcels Site ("Schematic Design, ARE Mercer Blocks," NBBJ, 04/20/2020)

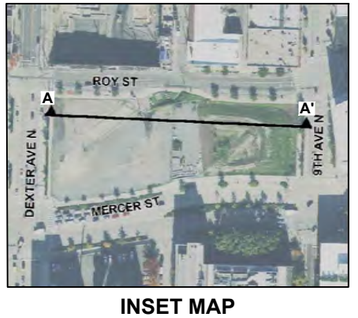
GROUNDWATER SAMPLE



SOIL SAMPLE



= Perched groundwater



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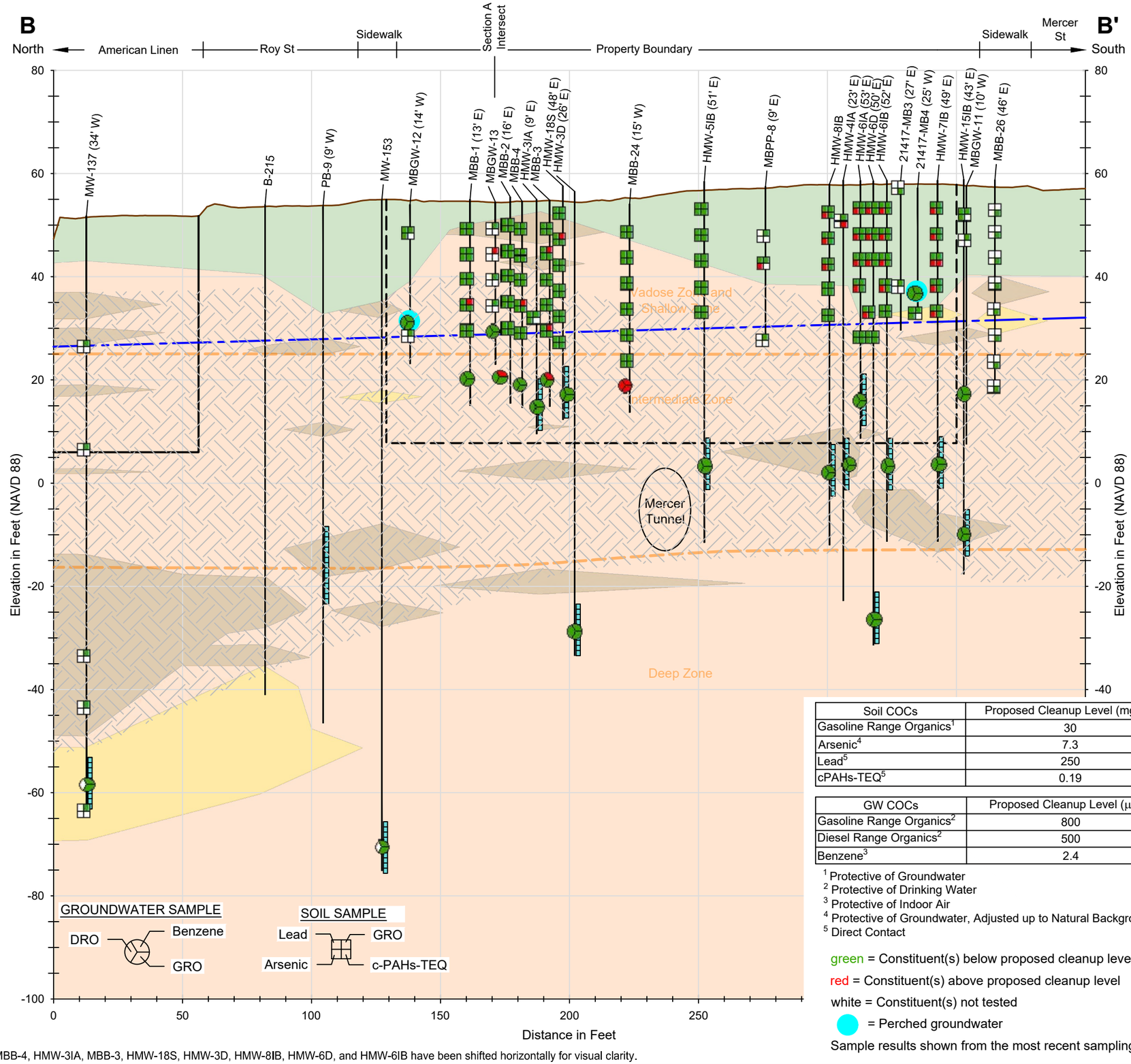
Seattle DOT Mercer Parcels Site
Seattle, Washington

Planned Cleanup Action of COCs
Cross Section A-A'

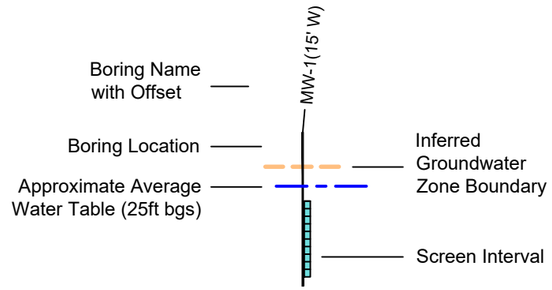
19409-04 07/21

HARTCROWSER
A division of Haley & Aldrich

Figure
4-2a



Legend



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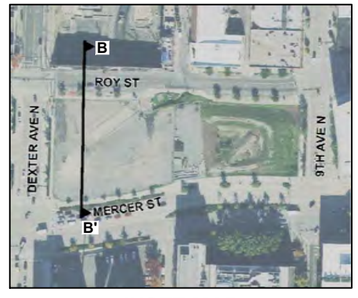

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Seattle DOT Mercer Parcels Site
Seattle, Washington

Planned Cleanup Action of COCs
Cross Section B-B'

19409-04 07/21

HARTCROWSER
A division of Haley & Aldrich

Figure
4-2b