

Chevron Environmental Management Company

REMEDIAL INVESTIGATION WORK PLAN

Former Chevron Service Station No. 209335

1201 - 1225 North 45th Street

Seattle, Washington

FSID: 70996824

CSID: 6537


September 20, 2021



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Prepared for:

Chevron Environmental Management
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September 20, 2021

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ACRONYMS AND ABBREVIATIONS

AO	Agreed Order
Arcadis	Arcadis U.S., Inc.
ASTM	ASTM International (formerly American Standard for Testing and Materials)
BTEX	Benzene, Toluene, Ethylbenzene, and Total Xylenes
CEMC	Chevron Environmental Management Company
COC	Constituent of concern
CSID	Cleanup Site Identification Number
CSM	Conceptual Site Model
CUL	Cleanup Level
CVOCs	Chlorinated Volatile Organic Compounds
DRO	Diesel Range Organics
DUP	Duplicate
Ecology	Washington State Department of Ecology
EDR	Environmental Data Resources, Inc.
EIM	Environmental Information Management
FS	Feasibility Study
FSID	Facility Site Identification Number
bgs	Below ground surface
GRO	Gasoline Range Organics
HO	Heavy Oil Range Organics
HRG	Housing Resources Group
IDP	Inadvertent Discovery Plan
IDW	investigation-derived waste
LNAPL	Light Non-Aqueous Phase Liquid
LUST	Leaking Underground Storage Tank
ORO	Oil Range Organics
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
MRL	Method Reporting Limit

MTBE	Methyl tertiary-butyl ether
MTCA	Model Toxics Control Act
MW	Monitoring Well
NWTPH-Dx	Northwest Total Petroleum Hydrocarbons Method – Diesel
NWTPH-Gx	Northwest Total Petroleum Hydrocarbons Method – Gasoline
PID	Photo-ionization Detector
PLP	Potentially Liable Person
Property	King County tax parcel IDs 7821200255 and 7821200275 located at 1201 – 1225 North 45 th Street, Seattle, Washington
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RI	remedial investigation
RI WP	Remedial Investigation Work Plan
ROW	Right-of-way
SHA	Seattle Housing Authority
Site	where the former Chevron Service Station No. 209335 was located (eastern half of current tax parcel 7821200255) as well as where contamination caused by the release of hazardous substances at the former Chevron Service Station No. 209335 has come to be located
SOP	Standard Operating Procedure
Stone Way	Stone Way Apartments, LLC
TEE	Terrestrial Ecological Evaluation
TGI	Technical Guidance Instructions
TPH	Total Petroleum Hydrocarbons
USCS	Unified Soil Classification System
USEPA	United States Department of Environmental Protection
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program
VOC	Volatile organic compound
WAC	Washington Administrative Code

1 INTRODUCTION

On behalf of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc. (Arcadis) prepared this *Remedial Investigation Work Plan* (RI WP) for former Chevron Service Station No. 209335 located at the corner of North 45th Street and Stone Way North, Seattle, Washington. This RI WP is prepared pursuant to Washington State Department of Ecology (Ecology) Agreed Order (AO) No. DE 19432, effective February 2, 2021 and the Model Toxics Control Act (MTCA) regulation Washington Administrative Code (WAC) 173-340- 350(7), which describes the elements necessary to complete a remedial investigation (RI). The Remedial Investigation Checklist (Ecology 2020) was also used as a guidance document during the preparation of this RI WP.

Former Chevron Service Station No. 209335 was located on the eastern half of current tax parcel 7821200255. This tax parcel, as well as the adjoining one to the west (tax parcel 781200275), are currently owned by Stone Way Apartments, LLC (Stone Way). Under AO No. DE 19432, the Site is defined by the extent of contamination caused by the release of hazardous substances at the former Chevron Service Station No. 209335. Under this RI WP, we will therefore refer to the Site as where the former Chevron Service Station No. 209335 was located (eastern half of current tax parcel 7821200255) as well as where contamination caused by the release of hazardous substances at the former Chevron Service Station No. 209335 has come to be located. The extent of contamination will be further defined by the MTCA boundary in Section 5 of this RI WP. A Site location map is presented on Figure 1. An aerial map showing the Site vicinity is included as Figure 2.

The Site is formally known as Chevron 209335 in Ecology's database. The Identifiers are:

- Facility Site Identification Number (FSID): 70996824
- Cleanup Site Identification Number (CSID): 6537
- Leaking Underground Storage Tank (LUST) ID: 5695
- Agreed Order Number: 19432
- Address: 1201 – 1225 North 45th Street, Seattle, Washington 98103

Ecology's website for the Site and associated electronically available documents can be accessed from this web page: <https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=6537>. Data collected during investigations of the Site are available in Ecology's Environmental Information Management (EIM) database under EIM identification number FS70996824.

Potentially Liable Persons (PLPs) for the Site as identified in AO No. DE 19432 are CEMC and Stone Way (Ecology 2021).

The purposes of this RI WP are to:

- Describe general Site information, history and conditions, past field investigations, and a conceptual site model (CSM).
- Define the known nature and extent of the contamination at the Site.
- Identify any potential data gaps.

- Propose an RI to collect and evaluate sufficient information to fully characterize the nature and extent of contamination at the Site.
- Describe a project management strategy and schedule for implementing and reporting RI activities.

The remaining sections of this RI WP are summarized below:

- Section 2 – *Background*. Describes the Site history, use, and environmental settings.
- Section 3 – *Historical Environmental Investigations*. Summarizes historical investigations.
- Section 4 – *Historical Remedial Actions*. Summarizes historical remedial actions.
- Section 5 – *Nature and Extent of Contamination*. Describes contamination at the Site.
- Section 6 – *Preliminary Conceptual Site Model*. Evaluates fate and transport, potential receptors, and potential exposure pathways.
- Section 7 – *Cleanup Standards*. Describes cleanup standards for the impacted media at the Site.
- Section 8 – *Remedial Investigation Scope of Work*. Proposes remedial investigation to collect and evaluate sufficient information to further characterize the nature and extent of contamination at the Site.
- Section 9 – *Reporting and Schedule*. Describes reporting and anticipated schedule of proposed work.
- Section 10– *References*. Lists the references cited throughout this RI WP.

Limitations

This RI WP is based on available reports and data regarding the Site and current knowledge regarding Site conditions.

The majority of the reports available to Arcadis are from work conducted by Ecology, CEMC, Seattle Housing Authority (SHA), and/or Housing Resources Group (HRG), as well as documents available on the Ecology website¹.

Review of documents available at Ecology document repositories was not conducted. Documents consulted to prepare this RI WP are listed in the References Section.

¹ <https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=6537>

2 BACKGROUND

This section describes the Site and its surroundings and summarizes historical activities conducted at the Site and its surroundings. A Site vicinity map and Site plan are presented on Figures 2 and 3. Appendix A presents pertinent parcel information.

2.1 Site Description

Stone Way currently owns tax parcels 7821200255 and 7821200275, which together are defined in this RI WP as the Property. Under AO No. DE 19432, the Site is defined by the extent of contamination caused by the release of hazardous substances at the former Chevron Service Station No. 209335 which was historically located on the eastern half of current tax parcel 7821200255. A Site location map is presented on Figure 1. An aerial map showing the Site vicinity is included as Figure 2. A Site plan is presented on Figure 3.

The Property contains a mixed-use, four-story apartment building with ground floor retail and an underground parking garage. The Property is primarily occupied by the building with the exception of some paved areas and minimal landscaping areas.

The Site’s general information is listed below:

- **Site Location and County:** southwest corner of North 45th Street and Stone Way North, Seattle, King County, Washington
- **Site Parcel ID, Definition, Address, Current Use, Land Use:**

Parcel ID	Definition	Address	Current Use	Land Use ¹
7821200255	The former Chevron Service Station No. 209335 (Site) was historically located on the eastern half of current tax parcel 7821200255 (part of Property)	1201 – 1225 North 45 th Street	0.23-acre parcel on the corner of Stone Way North and North 45 th Street. A portion of Stone Way Apartments are located on the parcel, as well as retail including a Verizon store. Former wells on the parcel prior to redevelopment: MW-1 through MW-5. Current wells MW-6 through MW-8. MW-9 and MW-10 are located in the Stone Way North right-of way (ROW)	Neighborhood Commercial (NC2P-55 (M))
7821200275	Offsite (part of Property)	1205 North 45 th Street	0.45-acre parcel on the corner of Midvale Avenue North and North 45 th Street. A portion of Stone Way Apartments are located on the parcel, as well as retail including a gym (Fuerte Fitness) and a coffee shop (Seattle Meowtropolitan). There are no former or current wells on this parcel. There is no known contamination on this parcel.	Neighborhood Commercial (NC2P-55 (M))

1. The land use of a parcel is defined by the Seattle zoning map available in Appendix A. Any potential parcel use change will be defined by the land use as described on the Seattle zoning map.

2.2 Site and Surroundings History

According to the Environmental Data Resources, Inc. (EDR) Report (Appendix B), initial development of the Site and surrounding neighborhood largely took place between 1900 and 1920. The neighborhood has historically had a mix of residential and commercial businesses, similar to the current use. Historical ownership and land use of the Site and surrounding parcels are described below. The Site vicinity map is shown on Figure 2.

2.2.1 Site History

The eastern half of current tax parcel 7821200255 (historical Parcel 0245 [Environmental Associates 1999]) was first developed as a gasoline service station in 1935. The 1935 station was purchased by Standard Oil Company of California (Standard Oil) in 1954 and reconfigured in 1956. The 1935 and 1955 stations were configured with the pump islands and the former station office in the north-eastern corner and a service garage in the southern half. A hydraulic hoist was also present (presumed located within the garage in the southern half). The service station and garage were demolished in 1969. SHA purchased historical Parcel 0245 from Standard Oil in 1978 (Environmental Associates 1999, SAIC 2010b).

According to the Phase 1 conducted in 1999, the western half of current tax parcel 7821200255 (historical Parcel 0255 [Environmental Associates 1999]) was occupied by a 1940-vintage building known as the Wallingford Medical Building. The Wallingford Medical Building heating system consisted of a boiler system fueled by heating oil stored in a 294-gallon UST reportedly located south of the building (Environmental Associates 1999). No historical gas station activities were implemented on historical Parcel 0255. The Parcel was owned throughout the years by private owner, corporation or partnership not associated with the owner of historical Parcel 0245 (Environmental Associates 1999).

In 2005, SHA sold historical Parcel 0245 and historical Parcel 0255 (forming together current tax parcel 7821200255) to HRG who immediately conveyed those to Stone Way.

In 2005, the entire Property (tax parcel 7821200255 and 7821200275) was excavated to 13 feet below ground surface (feet bgs) to accommodate an underground parking garage² that Stone Way constructed on the Property beneath a four-story mixed use apartment building with ground floor retail (SAIC 2010b).

An estimated 11 underground storage tanks (USTs) were present on current tax parcel 7821200255 as described below, ten being associated with the service station activities. None of the USTs remained in place after the Property-wide excavation implemented in 2005 for the underground parking garage. According to the documentation available, the original station included two 1,000-gallon fuel USTs, one 550-gallon UST, and one hydraulic hoist. In 1956, during station redevelopment, one 3,000-gallon UST, one 2,000-gallon UST and one 550-gallon UST were reportedly installed. Four 500-gallon steel USTs were encountered during the 2005 Property-wide excavation at the northeast corner of the Property and

² A full description of the excavation that occurred concurrently with redevelopment of the Property in 2005 is presented in Section 4.1.

removed. An additional heating oil UST, not associated with the service station, was also located three feet underground, five feet south of the Wallingford Medical Building according to the site reconnaissance conducted on former Parcel 0255 by Environmental Associates in 1999 (Environmental Associates 1999). The 2005 Property-wide excavation to 13 feet bgs for the underground parking garage was implemented lot line to lot line and therefore included the location of the heating oil UST. While no documentation of the removal of this UST is available to Arcadis, it is assumed this heating oil UST has been removed from the Property.

UST History

Installation Date	Quantity	Specifications	Contents	Location	Current Status
1935	2	1,000-gallon	"Fuel"	Likely corresponding to the 1000-gallon UST located near MW-2 removed in 2001 and to the UST located near MW-2 removed in 2005 ³	Removed
1935	1	550-gallon	Unknown	Unknown	Removed
1956	1	3,000-gallon	Unknown	Unknown	Removed
1956	1	2,000-gallon	Unknown	Unknown	Removed
1956	1	550-gallon	Unknown	Unknown	Removed
Unknown ⁴	4	500-gallon steel UST each	Unknown	Northeast corner of the Site along eastern parcel boundary adjacent to one another	Removed
1940	1	294-gallon	Heating Oil	South of the former Wallingford Medical Building (not associated with the service station activities)	Removed

2.2.2 Site Surrounding History

According to historical Sanborn maps, tax parcel 7821200275 (the western parcel of the Property) had been developed into multiple buildings by 1950 and had been further developed with shops and an office building by 1968, including a large building selling audio-visual supplies (Appendix B). In 2005, HRG purchased it and immediately conveyed the Property to Stone Way. In 2006, Stone Way built the existing development at the Property (SAIC 2010).

The south-adjointing property (4453 Stone Way North) is currently undergoing redevelopment with the construction of a four-story mixed-use apartment building with underground parking.

³ Original report from Delta Environmental Consultant Inc., March 28, 2001, Environmental Investigation, Chevron Service Station 20-9335 is unavailable.

⁴ While the UST capacities do not correspond, it is possible that some of the four USTs removed during the 2005 excavation correspond to the 1935 and 1956 USTs mentioned above.

A Phase I Environmental Site Assessment conducted in 1999 by Environmental Associates, Inc. identified the following notable uses on surrounding/adjoining properties:

- Big Wheel Auto Parts was located on the south-adjoining parcel (4453 Stone Way North). Historical records indicated a Shell gasoline station was located on the southern portion of this parcel in at least 1936, but was no longer present by 1956.
- A former auto repair shop was located 250 feet to the north of the Site (1220 North 45th Street) from at least 1919 through at least 1954.
- A gasoline service station (Unocal) was located to the northeast, diagonally across the intersection of North 45th Street and Stone Way North (4500 Stone Way North) in at least 1960 but was no longer present by 1974.

A plan from the Phase I showing the locations of the surrounding former gasoline service stations and auto repair shop is included in Appendix A (Environmental Associates 1999).

2.3 Site Regulatory History

The Site regulatory history is listed below:

- Notice of a confirmed release at the Site was received by Ecology on September 25, 2001, and the Site was enrolled in the LUST database and the Confirmed and Suspected Contaminated Sites List (Farallon 2003).
- The Site was first enrolled in the Voluntary Cleanup Program (VCP) in 2005. It was re-enrolled in November 2009 following removal due to lack of activity in October 2009 (VCP number NW1415) (SAIC, 2010). The VCP agreement was terminated on May 3, 2017, when Ecology decided to pursue an AO at the Site (Ecology 2017).
- CEMC and Stone Way were identified as PLPs on February 8, 2017, and May 23, 2017, respectively (Ecology 2021).
- AO No. DE 19432 was executed on February 2, 2021 (Ecology 2021).

2.4 Environmental Setting

The Site environmental setting is listed below:

- **Site Elevation:** The Site is generally flat, with a minor downhill slope to the west. The Site sits approximately 215 feet above mean sea level (amsl) (Environmental Associates 1999).
- **Climate:** Temperate climate with local annual precipitation averaging 34.1 inches. Local temperatures range from average lows in the mid-30s Fahrenheit in the winter months to highs in the 70s Fahrenheit in summer months (U.S. Climate Data 2020).
- **Nearest Waterbodies:** Green Lake is 0.7 mile to the north. Lake Union and the Fremont Cut are approximately 1 mile south/southwest.
- **Site Soils:** Regional soils are comprised of dense, heterogeneous glacial till with varying amounts of sand, silt, and gravel on the Seattle Drift Plain (Environmental Associates 1999, SAIC 2013). Soil

borings at the Site have shown the predominant material to be a dense to very dense, well-graded, fine- to medium-grained sand with some silt and rounded gravel from approximately 8.5 to 20 feet bgs. Very dense, brown to light brown, poorly graded, fine-to medium-grained sand underlies that layer to the maximum depth explored (45.5 feet bgs) (SAIC 2013). Available boring logs are presented in Appendix C.

- **Site Groundwater:** Groundwater monitoring began during the fourth quarter of 2000 with monitoring of wells MW-1 through MW-5 until the wells were decommissioned in March 2005 during the redevelopment of the Property. Wells MW-6 through MW-8 were installed in November 2005 and monitoring resumed in the first quarter of 2006. Wells MW-9 and MW-10 were installed in the ROW in December 2006. Monitoring of MW-6 to MW-10 continued quarterly until the fourth quarter of 2019. Well construction details are presented in Table 1. Historical gauging data and groundwater analytical results are presented in Table 2.
 - Monitoring network: MW-1 through MW-5 (2000 – 2005 [decommissioned]), MW-6 through MW-10 (2006 and 2007)
 - Observed depth to water in MW-1 through MW-5: 34 – 40 feet bgs (SAIC 2010a, SAIC 2013)
 - Groundwater elevation: Approximately 170 feet [North American Vertical Datum of 1988 (NAVD 88)] (SAIC 2010a)
 - Groundwater flow direction: South/southeast (Farallon 2003, SAIC 2013)
 - Hydraulic gradient: Approximately 0.007 - 0.04 feet/foot (Farallon 2003, SAIC 2010a)
- **Site Surface Water:** No surface water is present on or near the Site, and no risks to surface water have been identified.
- **Site Sediment:** No sediment is present on or near the Site. Therefore, no risks to sediments have been identified.

3 HISTORICAL ENVIRONMENTAL INVESTIGATIONS

Investigations have been conducted at the Site since 1999 and included soil, groundwater, soil vapor, and light non-aqueous phase liquid (LNAPL) assessment. Those investigations are summarized in the following sections.

3.1 Soil Investigations

Historical soil analytical results are presented in Table 3. The current soil MTCA boundary is shown on Figure 7.

A Phase I Environmental Site Assessment was conducted at the Site in 1999. The Phase I identified the possibility of petroleum impacts to soil and groundwater due to former service station use and identified a heating oil UST on the parcel to the west of the Site (tax parcel 7821200275) (SAIC 2010).

A Preliminary Subsurface Environmental Study was done in August 1999 following the Phase I. Four soil borings (B-1 through B-4) were advanced to depths ranging from 9 to 24 feet bgs. Soil samples were analyzed for GRO, DRO, heavy oil range organics (HO), and/or BTEX. GRO soil concentrations were

observed above MTCA Method A Cleanup Levels (CULs) near a metallic anomaly detected during a geophysical survey in the north-central portion of the former service station; at 8.5 feet bgs in boring B-1, and at 14 and 24 feet bgs in boring B-2. Detected ethylbenzene and total xylenes concentrations in B-2 at 14 feet bgs also exceeded MTCA Method A CULs (Environmental Associates 1999). Samples collected from B-3 and B-4 were in compliance with MTCA Method A CULs. Two additional soil borings (B-5 and B-6) were advanced in September 1999 and soil samples were analyzed for GRO and BTEX (two of the samples were additionally analyzed for lead). Boring B-5 identified GRO and xylenes concentrations in soil above MTCA Method A CULs in the vicinity of the metallic anomaly at 37.5 feet bgs (SAIC 2010). Samples collected from B-6 were in compliance with MTCA Method A CULs.

In November 2000, five monitoring wells (MW-1 through MW-5) were installed. During the investigation, a 1,000-gallon UST was discovered during the drilling of MW-2 in the west-central portion of the former service station. The UST was removed in February 2001. Upon removal, there was one hole observed in the top of the UST that was thought to have been caused by the drilling rig. Soil samples collected from the sidewalls and bottom of the UST excavation were analyzed for GRO, DRO, HO, and BTEX, and none of these analytes were detected.

Soil samples were collected from each boring during installation of MW-1 through MW-5 at a depth of 35 feet bgs. An additional soil sample was collected from MW-5 at a depth of 5 feet bgs. Soil samples were analyzed for GRO, DRO, HO, and BTEX. The GRO soil concentration exceeded MTCA Method A CULs in one sample (MW-2 at 35 feet bgs). All other soil samples were in compliance with MTCA Method A CULs.

In May and June 2004, a supplemental site investigation was conducted, which included an additional geophysical survey to identify potential USTs, and the advancement of ten soil borings (SB-1 through SB-10) to depths of 43 to 46 feet bgs. The borings were placed in the southeast corner of current tax parcel 7821200255, the northeast corner of the former 1935 service station building, and near the east wall of the 1956 service station building—these locations were flagged as locations of potential USTs during the geophysical survey. A UST was found to be abandoned-in place and filled with concrete at the northeast corner of the 1935 service station building. The other location investigated did not show the presence of additional USTs. Twenty soil samples were collected and analyzed for GRO, DRO, HO, BTEX, and methyl tertiary-butyl ether (MTBE). Five soil samples, collected from SB-3, SB-5, SB-8, and SB-9, contained GRO at concentrations exceeding MTCA Method A CULs. Two soil samples, collected from SB-3 and SB-5, also contained ethylbenzene, toluene, and total xylenes at concentrations exceeding their respective MTCA Method A CULs (SAIC 2010). All other soil samples were in compliance with MTCA Method A CULs.

In December 2004, a geotechnical investigation was conducted in preparation for the development of the existing building at the Property (Shannon & Wilson 2004). The investigation consisted of four borings, ranging in depth from 25 to 31.5 feet bgs. No hydrocarbon odors were observed in borings located on the western parcel of the Property (parcel 7821200275) (Shannon & Wilson 2004). Boring logs and a site plan showing the approximate location of the geotechnical borings are included in Appendix A.

In April 2005, six additional soil borings (SB-11 through SB-16) were drilled to depths of 39.5 to 46 feet bgs. These borings were exploratory in nature and used to estimate the total volume of petroleum impacts in soil to be excavated. Field screening techniques (observation of soil for any visible sheen, visual hydrocarbon staining, or volatilization using a photo-ionization detector [PID] or a flame ionization

detector [FID]) were used to identify impacts; no analytical samples were taken from these borings, but the boring logs are included in Appendix C (SAIC 2010b).

A total of 46 confirmation samples were taken in 2005 during Property redevelopment from the shallow soil excavation that extended across the entire Property (13 feet bgs) and from targeted deep soil excavations (42 feet bgs) during Property redevelopment and analyzed for GRO, DRO, HO, and BTEX. Of these, only two samples, sidewall excavation sample EX-W8-10 at 10 feet bgs (GRO 26,000 mg/kg, toluene 42 mg/kg, ethylbenzene 110 mg/kg, and total xylenes 870 mg/kg) and deep excavation sample BA20-39 at 39 feet bgs (GRO 4,200 mg/kg, toluene 18 mg/kg, ethylbenzene 31 mg/kg, and total xylenes 180 mg/kg) had concentrations above MTCA Method A CULs. The soil at BA20-39 was over-excavated until a clean sample was obtained at BA39-42 (42 feet bgs). Both samples were located in the northeast corner of the former service station. Sidewall excavation sample EX-W8-10 is delineated vertically by excavation sample EX-W8-13 collected at 13 feet bgs.

In 2016, soil borings FB-1 and FB-2 were advanced to 35 and 30 feet bgs, respectively, on the Former Big Wheel Auto Parts parcel directly south of the Property. The samples were analyzed for GRO, DRO, HO, and 136 volatile organic compounds (VOCs), including BTEX, MTBE, EDB, EDC, and chlorinated volatile organic compounds (CVOCs); which were all non-detect (Farallon 2016). The former Big Wheel Auto Parts parcel is currently undergoing redevelopment. Construction of a four-story mixed use building includes excavation for one level of underground parking. As of the writing of this report, the excavation is complete, and no observations of impacted soil or groundwater have been reported.

3.2 Groundwater Investigations

During the September 1999 investigation, groundwater was encountered in boring B-5 at approximately 38 feet bgs. A grab groundwater sample was collected and contained GRO and BTEX concentrations in exceedance of MTCA Method A CULs (SAIC 2010).

Quarterly groundwater monitoring began in November 2000 with the installation of MW-1 through MW-5. MW-2 was installed near the grab groundwater sample collected from B-5. Groundwater was analyzed for GRO, DRO, HO, BTEX, MTBE, and total lead. Groundwater samples collected at MW-2, MW-4, and MW-5 were in exceedance of MTCA Method A CULs for GRO, DRO and BTEX. Groundwater samples collected from MW-1 and MW-3 were always in compliance with MTCA Method A CULs. All wells were decommissioned in 2005 when the Property was redeveloped (SAIC 2010).

Wells MW-6 through MW-8 were installed in November 2005 after Property redevelopment, and wells MW-9 and MW-10 were installed in the ROW in December 2006. MW-6 through MW-10 were sampled annually in 2006 and 2007, with quarterly sampling from 2009 until 2019. Concentrations above MTCA Method A CULs for GRO, DRO, BTEX, and total lead were observed in wells MW-6 through MW-8. Chemical results for groundwater samples collected from ROW wells MW-9 or MW-10 have been in compliance with MTCA Method A CULs with the exception of some total lead exceedances.

Well construction details are shown in Table 1. Groundwater gauging and sampling results are shown in Table 2. Available boring logs are presented in Appendix C.

LNAPL was measured in MW-2, MW-4, and MW-5 shortly after installation and until the 2005 excavation with a maximum thickness of 2.44 feet observed at MW-2 in October 2003. Following the 2005 excavation and the subsequent installation of the new monitoring well network, LNAPL was observed at

MW-7 with a maximum thickness of 1.26 feet measured in November 2010. During the last four gauging events conducted at MW-7 from May 2017 to November 2019, LNAPL was either not observed or was measured at a 0.02 feet thickness. LNAPL historically has not been observed in MW-1, MW-3, MW-6, MW-8, MW-9, or MW-10.

Groundwater samples were analyzed for GRO, DRO, HO, BTEX, MTBE, and total lead. GRO, DRO, BTEX, and total lead were detected above MTCA Method A CULs. HO and MTBE consistently were not detected or were below MTCA Method A CULs.

Historically, six wells (MW-2, MW-4, MW-5, MW-6, MW-7 and MW-8) have had groundwater concentrations of GRO, DRO, and/or BTEX above MTCA Method A CULs at least once. Two former wells (MW-1 and MW-3) and two ROW wells (MW-9 and MW-10) were or have been, respectively, in compliance with MTCA Method A CULs for GRO, DRO, and/or BTEX since installation. The historical and current MTCA boundaries for groundwater are shown on Figures 5 and 6, respectively.

Total lead was/has been detected above MTCA Method A CULs at MW-5 through MW-10. Total lead is the only analyte to exceed CULs in MW-9 and MW-10.

In 2016, grab groundwater samples were taken from borings FB-1 and FB-2 on the Former Big Wheel Auto Parts parcel located directly south of the Property. FB-1 is located on the northern edge of the south-adjointing property, just south of the former 1956 service station. The samples were analyzed for GRO, DRO, ORO, and 136 VOCs, including BTEX, MTBE, EDB, EDC, and CVOCs, and were found to be non-detect (Farallon 2016).

3.3 Vapor Intrusion Investigations

Johnson and Ettinger (J&E) vapor modeling was completed in 2005 to evaluate potential vapor intrusion concerns in the underground parking garage at the Property (SAIC 2005a). The model was developed using conservative assumptions and focused on soil contamination found between 15 and 45 feet bgs; groundwater to vapor pathways were not evaluated. At the time, the modeling indicated that the incremental risk to human health was insignificant and that no additional engineered controls beyond soil excavation to 15 feet bgs, LNAPL removal, and the excavation of deeper soil “hot spots” with impacts below 15 feet bgs were required to protect human health (SAIC 2005a).

4 HISTORICAL REMEDIAL ACTIONS

4.1 2005 Excavation and Redevelopment

Three excavations were implemented as part of the Property redevelopment from August to October 2005: an initial Property-wide excavation to a depth of 13 feet bgs to build an underground parking garage, targeted excavations to 42 feet below the original grade via bucket auger for deep-soil remediation, and a supplemental excavation to 18 feet bgs to remove additional impacted soil. According to a May 16, 2005 letter from SAIC (SAIC 2005b), SAIC provided technical oversight during redevelopment activities including soil sampling to determine where impacted soils were present and soil segregation for disposal or re-use purposes based on field observations, such as degree of hydrocarbon

odor, PID readings, sheen tests, and soil analytical data from previous borings. SAIC provided oversight during the lateral excavation of contaminated soil “until field observations and laboratory analytical data indicated that contamination was no longer present” (SAIC 2010a). In total, approximately 2,490 tons of soil were removed (SAIC 2010a). The approximate extents of excavations are shown on Figure 4. The three excavations are discussed further below.

Initial excavation to 13 feet below original grade:

The Property-wide excavation to 13 feet bgs was completed between August 31 and September 22, 2005 (SAIC 2010a, SAIC 2010b). Five USTs were discovered during the work: four 500-gallon steel USTs in the northeast corner of the Site along Stone Way North, and one just north of MW-2 in the west-central portion of the Site near former service station buildings. All five USTs were in good condition with no holes, cracks, or significant corrosion observed. Confirmation samples were taken from the bottom and sidewalls of the UST excavations (SAIC 2010b). In addition, 23 confirmation soil samples were collected during the initial excavation from 14 locations along the north, east and south boundaries of the parcel where the former Chevron Service Station No. 209335 was located. Of those 23 samples, only one sample, EX-W8-10 in the northeast corner along the northern sidewall, had concentrations of GRO, ethylbenzene, toluene, and total xylenes above MTCA Method A CULs. Benzene was not detected in this sample; however, the laboratory reporting limit was above the MTCA CUL. The impacts detected in EX-W8-10 were delineated vertically by a deeper sample (EX-W8-13). Investigation and removal of impacted soil to the north of EX-W8-10 was implemented to the maximum extent practicable given the field constraints (presence of utilities, sidewalk, and road ROWs). Approximately 1,450 tons of impacted soil were removed during this initial excavation and disposed at the Waste Management facility in Arlington, Oregon. Any impacted soil observed below 13 feet bgs was noted and mapped for targeted or supplemental excavation conducted in October 2005.

Targeted excavations to 42 feet below original grade:

Between October 3 and 7, 2005, additional excavation was completed to address remaining petroleum-hydrocarbon impacted soil below the initial Property-wide excavation. Two areas were targeted for deep-soil remediation: in the northeast corner of the former gas station in the vicinity of the four previously undocumented USTs, and in the west-central portion of the former gas station in the vicinity of the fifth undocumented UST and former monitoring well MW-2 (SAIC 2010b). Twenty large-diameter bucket auger borings were advanced to remove deeper impacts. The bucket auger borings (BA-1 through BA-20) were 6.5 feet in diameter and extended to 42 feet below original grade. Specifically, soils surrounding MW-2, which historically had contained LNAPL, were removed via BA-1, BA-3 and BA-8. Similarly, soils surrounding MW-5, which also historically contained LNAPL, were removed via BA-2, BA-6 and BA-11. Soil from the bucket-auger borings was field screened for petroleum-hydrocarbon impacts (visible sheen, visual hydrocarbon staining, or volatilization using a PID or an FID). Samples were collected to depths where field screening observations indicated impacts were no longer present. A total of 21 confirmation soil samples were collected for analyses of GRO, DRO, HO, and BTEX; 20 of which were in compliance with MTCA Method A CULs. Sample BA20-39 at 39 feet bgs was above CULs for GRO, toluene, ethylbenzene, and total xylenes; this location was over-excavated until a sample in compliance with MTCA Method A CULs was obtained at 42 feet bgs (BA20-42). An additional approximately 940 cubic yards was removed during the auger excavations and disposed offsite leaving only a minimal volume of impacted soil in the annular space between the bucket-auger borings. These deep excavation activities

are therefore considered to have been implemented to the maximum extent practicable given field constraints. After soil removal, the borings were backfilled with soil-cement slurry (SAIC 2010b). Cross sections showing residual impacts at the time of excavation are provided in Appendix A.

Supplemental excavation to 18 feet below the original grade:

After the large-diameter, bucket-auger activities were completed, the base of the Property-wide excavation to 13 feet bgs was field screened for possible remaining impacted soil in the northeastern corner of the Site. The areas that contained impacted soil underwent additional excavation until field screening indicated that remaining soil was no longer impacted. An additional 120 cubic yards of impacted soil were removed during this work. Two samples (SS1-13.5 and SS2-13.5) were collected at the base of the supplemental excavation and analyzed for GRO, DRO, HO, and BTEX. No exceedances of MTCA CULs were detected (SAIC 2010b).

4.2 2004 - 2005, 2010 LNAPL Bailing

LNAPL bailing was conducted at MW-2 between August 2004 and March 2005. The frequency of bailing events varied from daily to bi-weekly, and approximately 26 gallons of LNAPL were removed from MW-2 during this period. LNAPL thickness varied during this time, with a maximum of 1.92 feet in January 2005 and a minimum of 1.27 feet in November 2004. The final LNAPL thickness was 1.53 feet on January 14, 2005. MW-2 was decommissioned prior to excavation, and the area was subsequently excavated during the deep excavation, as described above in Section 4.1 (SAIC 2010b).

Additional bailing activities were conducted at MW-7 between February and August 2006, following the remedial excavation. The frequency of bailing events varied from daily to bi-weekly, and approximately 4 gallons of LNAPL were removed during this period. Bailing efforts stopped, and all removed LNAPL was disposed offsite when Stone Way raised concerns about storing the LNAPL at a residential facility (SAIC 2013).

In September 2010, LNAPL recovery test activities were undertaken at MW-7 (SAIC 2010a). Initially, approximately 1.5 gallons of LNAPL and water were bailed from MW-7. The initial thickness of LNAPL in the well was 0.56 feet and after 3 hours the thickness was 0.38 feet.

4.3 2013 Surfactant-Enhanced Recovery

Surfactant injection and extraction activities were conducted in March 2013 in efforts to reduce or eliminate persistent LNAPL occurrences at MW-7. A 4-5% non-ionic surfactant solution (Release Gold Crew HIT-E-001 Hydrocarbon Desorption Agent) was injected at a gravity-fed, low-flow rate into MW-7. In total, 100 gallons of solution were injected at a rate of approximately 2.3 gallons per minute over a 45-minute period. Over a three-day period following injection, 327 gallons of LNAPL, surfactant, and water were extracted from MW-7 (SAIC 2013). As shown in Table 2, LNAPL thicknesses observed in MW-7 decreased to below 0.1 feet following the injection and extraction activities. LNAPL was only observed at thicknesses above 0.1 feet four times since March 2013 with thicknesses ranging from 0.12 to 0.40 feet. During the last four gauging events conducted at MW-7 from May 2017 to November 2019, LNAPL was either not observed or was measured at a 0.02 feet thickness.

5 NATURE AND EXTENT OF CONTAMINATION

This section describes the type of contaminants at the Site (nature) and the distribution of these contaminants laterally and vertically across the Site (extent). The nature and extent of contamination were identified based on data collected during the Site investigations described in Section 3 and Site remediation described in Section 4.

5.1 Soil Quality

Soil sampling activities were predominantly completed from 1999 to 2006, prior to Property redevelopment as described in Section 3.1. Soil sampling was also conducted during Property redevelopment excavation activities as described in Section 4.1. Current soil compliance status with MTCA Method A CULs is presented on Figure 7. Samples that were subsequently excavated are presented as gray symbols on Figure 7. Historical soil data is presented in Table 3.

Soil samples collected in the listed years were analyzed for the following:

- GRO/DRO/HO: 1999, 2000, 2004, 2005, 2006
- BTEX: 1999, 2000, 2004, 2005, 2006
- MTBE: 2004, 2006
- Lead: two samples collected in 1999

The only soil samples with concentrations that exceeded MTCA Method A CULs and were not over-excavated are EX-W8-10, B-2, and B-5, all three located in the former service station area. SAIC cross sections illustrating these potential impacts are provided in Appendix A.

EX-W8-10 was a sidewall sample located at the northeast corner of the Site and contained concentrations above CULs for GRO (26,000 mg/kg), toluene (42 mg/kg), ethylbenzene (110 mg/kg), and total xylenes (870 mg/kg) at 10 feet bgs. Soil sample EX-W8-10 was delineated vertically by samples EX-W8-7.5 and EX-W8-13 collected at 7.5 feet bgs and 13.5 feet bgs, respectively (Table 3).

Samples collected from borings B-2 and B-5, collected during a 1999 subsurface investigation, also contained concentrations exceeding MTCA Method A CULs. The sample collected from B-2 at 22.5-24 feet bgs contained GRO at 230 mg/kg, with 24 feet bgs being the maximum depth explored at that location. The sample collected from B-5 at 37.5-39 feet bgs contained concentrations of GRO (210 mg/kg) and total xylenes (12.6 mg/kg), with 44 feet bgs being the maximum depth explored at that location. Therefore, no deeper samples were collected from these borings for vertical delineation.

The table below summarizes the maximum soil concentrations historically observed at the Site for analytes detected above MTCA Method A CULs.

	MTCA Method A CULs (mg/kg)	Historical maximum concentration detected (mg/kg)	Date and sample ID of historical maximum concentration detected
GRO	30/100	26,000	EX-W8-10, 9/15/2005, remaining

	MTCA Method A CULs (mg/kg)	Historical maximum concentration detected (mg/kg)	Date and sample ID of historical maximum concentration detected
Toluene	7	48 42	SB-8-37.5, 6/1/2004, removed EX-W8-10, 9/15/2005, remaining
Ethylbenzene	6	110	EX-W8-10, 9/15/2005, remaining
Total Xylenes	9	870	EX-W8-10, 9/15/2005, remaining

Notes: mg/kg = milligrams per kilogram.

GRO=Gasoline Range Organic compounds measured using NWTPH-Gx

Benzene, DRO and HO were either non-detect or were detected at concentrations below MTCA Method A CULs. MTBE was not detected in any of the soil samples analyzed at the Site.

5.2 Groundwater Quality

Groundwater monitoring began in October 2000. Five groundwater monitoring wells (MW-1 through MW-5) were installed in the former service station area; but were decommissioned in 2005 due to pending redevelopment. The current groundwater monitoring network consists of five groundwater monitoring wells: three in the former service station area (MW-6 to MW-8) and two located in the ROW of Stone Way North (MW-9 and MW-10). Historical groundwater quality is defined as groundwater data from 2000 to 2018. Current groundwater quality is defined as groundwater data from May and November 2019. Historical and current groundwater data are further discussed below.

5.2.1 Historical Groundwater Quality

Groundwater samples were historically collected from ten groundwater monitoring wells (MW-1 through MW-10) using various methodologies as described in Table 2. Groundwater samples for analysis were not collected from wells with measurable LNAPL. Four wells (MW-1, MW-3, and ROW wells MW-9, MW-10) have historically been in compliance with MTCA Method A CULs for GRO, DRO, HO, and BTEX. MTCA Method A CUL exceedances of GRO, DRO, and/or BTEX have been detected in MW-2 and MW-4 through MW-8. Total lead has also been detected at concentrations above MTCA Method A CULs in six wells (MW-5 through MW-10). Historical groundwater compliance status with MTCA Method A CULs is presented on Figure 5.

A grab groundwater sample was collected from boring B-5 in 1999, and detected concentrations exceeded MTCA Method A CULs for GRO and BTEX.

Two grab groundwater samples were collected by Farallon in 2016 from borings FB-1 and FB-2 on the south-adjointing property. FB-1 was located on the northern edge of the south-adjointing property, just south of the former 1956 service station. FB-2 was located near the southeast corner of the south-adjointing property. Groundwater samples collected from the borings were analyzed for GRO, DRO, HO, and BTEX. None of the analytes were found to be above MTCA Method A CULs.

Groundwater samples from all monitoring wells were analyzed routinely for the following analytes:

- GRO
- DRO
- HO

- BTEX
- MTBE
- Total Lead

The table below summarizes the maximum groundwater concentrations of constituents historically observed above MTCA Method A CULs. All other analytes were non-detect or below MTCA Method A CULs.

	MTCA Method A CULs (µg/L)	Historical maximum concentration detected (µg/L)	Date and well of historical maximum concentration detected
GRO	800/1000	480,000	MW-7, 05/17/2017
DRO	500	200,000	MW-7, 03/11/2015
Benzene	5	326	MW-4, 12/16/2000
Toluene	1000	15,100	MW-5, 12/16/2000
Ethylbenzene	700	4,160	MW-5, 12/16/2000
Total Xylenes	1,000	24,200	MW-5, 03/26/2001
Total Lead	15	1,020	MW-7, 05/17/2017

Notes: µg/L = micrograms per liter

DRO=Diesel Range Organic compounds measured using NWTPH-Dx

Concentrations of HO were either non-detect or were detected below MTCA Method A CULs. MTBE was not detected in the groundwater samples.

5.2.2 Current Groundwater Quality

The most recent groundwater sampling events were performed in May and November 2019 at the five existing monitoring wells (MW-6 through MW-10). In May 2019, MW-7 had exceedances of MTCA Method A CULs for GRO (95,000 µg/L), DRO (5,900 µg/L), ethylbenzene (1,200 µg/L), total xylenes (6,700 µg/L), and total lead (144 µg/L). In November 2019, LNAPL was observed at MW-7 at a thickness of 0.02 feet, and therefore MW-7 was not sampled. Current groundwater compliance status with MTCA Method A CULs for GRO, DRO, HRO, and BTEX is presented on Figure 6. As shown on Figure 6, four wells (MW-6, MW-8, MW-9, MW-10) are in compliance with MTCA Method A CULs for GRO, DRO, HO, and BTEX.

Groundwater samples collected in 2019 from MW-6, MW-7, and MW-9 had exceedances of the MTCA Method A CUL for total lead, with concentrations of 32.2 µg/L, 144 µg/L, 18.2 µg/L respectively. Lead exceedances do not correlate with detection of petroleum constituents.

Groundwater samples were analyzed for the following analytes:

- GRO
- DRO

- HO
- BTEX
- Total Lead

The table below summarizes the maximum detected groundwater concentrations in 2019.

	Constituents detected above MRLs	Maximum concentration detected (µg/L)	Well ID of maximum concentration detected	Constituents detected above MTCA Method A CUL
GRO	Yes	95,000	MW-7	Yes
DRO	Yes	5,900	MW-7	Yes
HO	Yes	160	MW-7	No
Benzene	No	-	-	-
Toluene	Yes	200	MW-7	No
Ethylbenzene	Yes	1,200	MW-7	Yes
Total Xylenes	Yes	6,700	MW-7	Yes
Total Lead	Yes	144	MW-7	Yes

Notes: µg/L = micrograms per liter

MRL=Method Reporting Limit

DRO=Diesel Range Organic compounds measured using NWTPH-Dx

HO=Organic compounds measured using NWTPH-Dx

5.3 Light Non-Aqueous Phase Liquid

LNAPL has historically been observed at a thickness greater than 0.01 foot in four groundwater monitoring wells (MW-2, MW-4, MW-5, and MW-7). Wells MW-2, MW-4, and MW-5 were decommissioned in 2005. As shown below, LNAPL was detected in MW-7 during the most recent monitoring event.

A summary of historical and recent LNAPL detections is included in the table below.

Well	Date of first occurrence of LNAPL	Historical maximum thickness (feet)	Date of most recent measurable thickness	Most recent measurable thickness (feet)
MW-2	03/08/2002	2.44	03/01/2005	1.67
MW-4	03/04/2003	0.04	09/11/2004	0.03
MW-5	09/24/2001	0.50	08/18/2003	0.30
MW-7	02/09/2006	1.26	11/04/2019	0.02

5.4 Soil Vapor Conditions

Soil vapor conditions can be evaluated using vapor intrusion groundwater screening levels. Groundwater impacts historically exceeded MTCA Vapor Intrusion (VI) Method B screening levels for benzene (MW-2, MW-4, MW-5, MW-6), toluene (MW-5), ethylbenzene (MW-5), and total xylenes (MW-2, MW-4, MW-5,

MW-6). However, current groundwater concentrations do not exceed MTCA VI Method B screening levels at four wells (MW-6, MW-8, MW-9, MW-10). Groundwater concentrations observed in MW-7 exceed for total xylenes, with a concentration of 6,700 µg/L in May 2019 and LNAPL present in November 2019.

According to the Ecology Implementation Memorandum No. 14: Updated Process for Initially Assessing the Potential for Petroleum Vapor Intrusion (Ecology Memo 14), vertical separation distances considered protective of potential vapor intrusion exposure are included for site screening and initial evaluation (Ecology 2016). Ecology Memo 14 states that a vertical separation distance of 15 feet between site petroleum impacts (soil and groundwater) and the associated building foundation is considered adequately protective of potential vapor intrusion exposures. At the Site, the minimum depth of residual impacts in soil and groundwater are 22.5 feet bgs, in comparison to the depth of the building foundation which is at 10 feet bgs, giving a vertical separation distance of approximately 12.5 feet. Additionally, the subsurface parking garage constructed beneath the building allows for additional air turnover and mitigation of potential soil vapor. Based on this information and current and likely future receptor scenarios, potential indoor air impacts due to the vapor intrusion exposure pathway are not likely to occur at the Site.

5.5 Remaining Impacts

Figures 5, 6, and 7 present the historical and current lateral and vertical extent of known soil and groundwater impacts.

5.5.1 Soil

As described above, three soil samples containing concentrations that exceeded MTCA Method A CULs were not over-excavated (EX-W8-10, B-2, and B-5).

- EX-W8-10 was a sidewall excavation sample collected at 10 feet bgs and located in the northeast corner of the Site. EX-W8-10 contained concentrations of TPH-GRO, toluene, ethylbenzene, and total xylenes in soil that exceeded MTCA Method A CULs. It was delineated vertically by EX-W8-7.5 and EX-W8-13 collected at 7.5 feet bgs and 13.5 feet bgs, respectively. Soil sample EX-W8-10 was delineated laterally to the south, east and west by BA-9, BA-2, and EX-W9. However, sample EX-W8-10 was collected at the Property boundary and soil samples were not collected to the north in the ROW under North 45th Street.
- Boring B-2 was drilled in 1999 as described in Section 3. Boring B-2 contained concentrations of TPH-GRO in soil that exceeded MTCA Method A CULs. Exceedances in B-2 were observed at 22.5 to 24 feet bgs, which was the maximum depth explored. These impacts were delineated to the north, south, and east by B-6, BA-17, and BA-4.
- Boring B-5 was also drilled in 1999. Boring B-5 contained concentrations of TPH-GRO and total xylenes in soil that exceeded MTCA Method A CULs. Exceedances of MTCA Method A CULs in B-5 were observed at 37.5-39 feet bgs; additionally, odors and staining were recorded on the boring log from 27 to 44 feet bgs, which was the maximum depth explored. Impacts in B-5 were delineated to the north and south by BA-1 and SB-6.

Soil samples have been analyzed for GRO, DRO, HO, BTEX and MTBE (and total lead in two samples). DRO, HO, and MTBE were either non-detect, or were in compliance with MTCA Method A CULs.

Based on the 2005 excavation methodology described in 4.1, excavation was extended laterally until field observations and laboratory analytical data indicated that contamination was no longer present (SAIC 2010a); In addition, there was no indication of petroleum hydrocarbon impacts (no odors or staining noted) in the geotechnical borings located on the western parcel of the Property (parcel 7821200275) (Shannon & Wilson 2004); therefore, the extent of impacted soil appears delineated to the west.

Regarding the residual detected impacts at B-2 and B-5, as mentioned above no deeper samples were collected from these borings for delineation. However, samples collected from other borings on the site at depths of greater than 44 feet bgs (SB8-45, SB9-45) did not show exceedances of MTCA Method A CULs. In addition, this area is currently overlain by the existing building including the belowground parking garage which would make any potential additional investigation significantly difficult as well as disruptive to the residents. In lieu of attempting additional investigation, as discussed above, a land use covenant is expected to be implemented to account for these residual impacts.

5.5.2 Groundwater

Only monitoring well MW-7 currently contains petroleum concentrations that exceed MTCA Method A CULs for GRO, DRO, ethylbenzene, and total xylenes. Groundwater samples collected in 2019 from MW-6, MW-7, and MW-9 also had exceedances of the MTCA Method A CUL for total lead, with concentrations of 32.2 µg/L, 144 µg/L, and 18.2 µg/L respectively. Lead exceedances do not correlate with detection of petroleum constituents.

Current groundwater conditions of the following historical wells are unknown since those were decommissioned in 2005; last historical conditions observed are listed below:

- Last groundwater concentrations measured on 01/04/05 at former well MW-4 exceeded MTCA Method A CULs for GRO, DRO and benzene.
- Last gauging event conducted on 03/01/05 at MW-2 and on 11/17/2003 at MW-5 indicated the presence of LNAPL with respective thicknesses of 1.67 and 0.3 feet.

Groundwater samples have been analyzed for GRO, DRO, HO, BTEX and total lead. HO was never observed above MTCA Method A CULs in the groundwater samples.

5.5.3 Soil Vapor

A soil vapor evaluation of the underground parking garage conducted in 2005 by SAIC (Johnson & Ettinger [J&E] modelling) concluded that the incremental risk to human health was insignificant. An updated evaluation presented below also concludes the risk due to potential vapor intrusion is insignificant.

6 PRELIMINARY CONCEPTUAL SITE MODEL

The CSM uses data collected during previous investigations and remediation activities to understand constituent occurrence, movement, and potential exposures at the Site.

6.1 Source Characterization

As described in Sections 3 and 4, multiple investigations and remediation activities have been conducted, particularly a Property-wide excavation to 13 feet bgs and deeper soil removal in select locations to 42 feet bgs. The primary source of petroleum hydrocarbons at the Site are presumed historical leaks from the former pump islands and USTs. Those historical leaks are considered to have been addressed during the 2005 Property-wide excavation and are not considered an ongoing source of contamination. The secondary sources are residual hydrocarbon impacted soil, and LNAPL.

6.2 Constituents of Concern

Constituents of concern (COCs) are the chemicals expected to account for most of the risks at a site, and cleanup standards must be developed for each COC in each medium. The preliminary COCs for groundwater and soil were developed in accordance with WAC 173-340-703 and Table 830-1 "Required Testing for Petroleum Releases." The preliminary COCs are presented in this section.

Operations at the Site included the storage and distribution of "fuel", from 1935, when the USTs were installed, to 1969 when gas station operations ceased. Although the exact contents of the Site USTs are unknown, based on the current and historical soil and groundwater data, the years of operation, and an evaluation of Table 830-1, preliminary COCs are:

- GRO, because they have been observed above MTCA Method A CULs
- DRO (groundwater), because they have been observed above MTCA Method A CULs in the groundwater beneath the Site
- BTEX, because the individual constituents have been observed above MTCA Method A CULs
- VOCs, including EDB and EDC, because never analyzed to date within the Site boundary
- cPAHs (groundwater), because DRO has been observed above MTCA Method A CULs Table 830-1(13) in the groundwater beneath the Site
- Lead, because it has been observed above MTCA Method A CULs

As a service garage was present in the southern half of the Site, it is possible that a used oil UST was associated with the garage. VOCs are therefore also considered a preliminary COC for soil and groundwater immediately downgradient of any former used oil USTs until proven otherwise. As discussed above, VOCs were analyzed in the grab-groundwater samples FB-1 and FB-2 south of the Site and were non-detect. HO was not detected in soil samples collected from borings surrounding the former heating oil UST in the area of the former medical building on the western parcel of the Property (SB-10, B-4 and EX-W12). As HO was either non-detect or detected just above laboratory reporting limits and since no mention of an electric transformer was found during historical research conducted as part of the Phase I Environmental Site Assessment (Environmental Associates 1999), neither HO nor polychlorinated biphenyls (PCBs) are considered COCs for the Site.

6.3 Fate and Transport

6.3.1 General Fate and Transport Mechanism

As a generality (non-Site-specific), petroleum hydrocarbons can exist in four phases in soils (unsaturated vadose zone and/or smear zone):

Residual phase. Petroleum hydrocarbons are sorbed to soil or trapped within soil pore space.

Dissolved or aqueous phase. Petroleum hydrocarbons are dissolved in water within soil pore space.

Vapor phase. Petroleum hydrocarbons are volatilized into soil pore space.

Free phase. Recoverable LNAPL.

Following a release, petroleum hydrocarbons are driven by gravity toward the water table and, depending on the quantity released, soil type, and depth to groundwater, may reach the groundwater table. As the hydrocarbons migrate toward the water table, residual LNAPL may be left behind in each of the phases (residual, dissolved, and free).

When residual-, dissolved-, or free-phase LNAPL comes into contact with groundwater, dissolution of the hydrocarbons to the groundwater can occur. If a release of petroleum hydrocarbons is large enough, LNAPL may overcome the capillary forces at the capillary fringe within smear zone soil and pool on top of the groundwater. When rainwater infiltrates subsurface soil in the area of a release, the water will flow downward through the soil and may preferentially follow high-conductivity soil lenses horizontally before reaching groundwater, transporting COCs with it.

6.3.2 Site Fate and Transport Mechanisms

Petroleum hydrocarbons encountered at the Site are described as follows:

Residual phase. Previous investigations showed that soil impacts at the Site are delineated to the south, east, and west; however, further delineation is warranted in the ROW to the north along North 45th Street, specifically in the area surrounding sample EX-W8-10. These impacts will be further delineated as part of the RI.

Dissolved phase. Groundwater analytical results from 2019 are generally consistent with the last four consecutive quarters, with petroleum impacts above MTCA Method A CULs only at MW-7. Analytical data show that the historical groundwater impacts at the Site are delineated to the northwest and south; however further delineation is warranted to the northeast, southeast and east of the Property beneath the ROWs.

Vapor phase. As discussed above, J&E vapor modeling was completed for the underground parking garage in 2005 and concluded that incremental risk to human health was insignificant as long as excavation and LNAPL removal were performed (SAIC 2005a). Excavation was conducted in 2005 and LNAPL removal was conducted in 2004, 2005 and 2010. The groundwater to vapor pathway is evaluated below.

Free phase. LNAPL was observed at MW-7 in 2019, during the most recent groundwater monitoring event, at a thickness of 0.02 feet. LNAPL was also historically observed at MW-2, MW-4 and MW-5

prior to their decommissioning. LNAPL has never been observed in any of the other existing monitoring wells (MW-6, MW-8, MW-9, and MW-10). Therefore, there is low risk of LNAPL migration offsite.

6.4 Exposure Pathways and Potential Receptors

6.4.1 Potential Receptors

The primary human receptors at the Site are residents of the apartments on the Property. Additional human receptors include workers and the general public at the retail establishments on the Property.

Current ecological receptors include Site vegetation and animals that may pass through the Site. A terrestrial ecological evaluation (TEE) is required when a hazardous substance is released to soil at a site [WAC 173-340-7490(2)]. However, there is less than 1.5 acres of contiguous undeveloped land on or within 500 feet of any area of the Site; therefore, no further TEE is required under WAC 173-340-7491(1)(c). The TEE Form is included in Appendix D.

6.4.2 Potential Exposure Pathways

Potential exposure pathways are evaluated in the following sections.

6.4.2.1 Potential Soil Exposure Pathways

Potential soil exposure pathways include:

Exposure to soil via incidental ingestion, dermal contact, and inhalation of windblown dust. Impacted soil was excavated onsite to a minimum depth of 13 feet bgs. Any residual soil impacts are therefore located below 13 feet bgs except at the Site boundaries. Soil sidewall sample EX-W8-10 showed that soils at the northeast Site boundary exceeded MTCA A CULs at 10 feet bgs at the shallowest. In addition, current human receptors (commercial workers, visitors, and residents) are not likely to be exposed to deeper soils since the Site is primarily covered with the building. Due to the depth, surface cover, and location of the impacted soil, no inhalation of dust, ingestion or dermal contact for workers, visitors, or residents are possible. Exposure to impacted soil via incidental ingestion, dermal contact, and inhalation of windblown dust is a potentially complete pathway for future construction workers and others who may perform subsurface work. While future construction workers may be exposed to residual phase petroleum hydrocarbons through dermal contact or incidental ingestion when working at depths of approximately 10 feet bgs or deeper, which is not expected given the typical shallow depth of utility repair or landscaping work, the temporary nature of the exposure to residual phase petroleum hydrocarbons exceeding MTCA Method A CULs suggests that this exposure would not result in unacceptable risk. A land use covenant is expected to be prepared to account for residual deeper impacted soil at the Site and will provide notification of the presence of impacted materials for any future work.

Soil leaching to groundwater. COC concentrations in groundwater have been shown to be above Method A groundwater CULs. Therefore, the soil leaching to groundwater pathway is potentially complete.

Exposure to soil vapor via volatilization and inhalation. – Remaining petroleum impacts that may volatilize to the surface are in soil encountered at 10 feet bgs at the Site boundaries. While unlikely, due to the location and depth of the soil impacts, exposure to vapor phase petroleum hydrocarbons is considered a potential exposure pathway until proven otherwise.

6.4.2.2 Potential Groundwater Exposure Pathways

Site groundwater samples were collected in the fourth quarter of 2019 and analyzed for GRO, DRO, HO, BTEX, MTBE, and total lead (Table 2). Groundwater analytical data from the last four sampling events showed petroleum concentrations above MTCA Method A CULs at MW-7. Current human receptors (users of ROWs, residents of apartments, and workers in ground floor businesses) are not exposed to groundwater. Groundwater beneath the Site is not currently used as drinking water. Due to the depth of groundwater (ranging from approximately 24 to 40 feet bgs), and because it is not currently used for drinking water, no ingestion or dermal contact are likely. The potential groundwater exposure pathway for future construction workers working offsite will be evaluated further based on data collected during this RI. However, given the depth to groundwater, typical construction activities would not be expected to encounter groundwater.

6.4.2.3 Soil Vapor Potential Pathway

No subsurface soil vapor samples have been collected at the Site. However, an underground parking garage extends across the entire building footprint, with the parking garage floor at 10 feet bgs. Building plans indicate that a 15 ml polyethylene vapor barrier was installed beneath the concrete slab of the parking garage as part of the redevelopment to mitigate any potential vapor intrusion.

Additionally, as required to provide air exchange due to vehicle exhaust, the parking garage contains a mechanically operated fan (26,155 cubic feet per minute ([CFM]) that is operated by a carbon monoxide sensor. A smaller volume ventilation system (1,300 CFM) operates continuously to meet local building codes for air exchange. The exchange rate based on the lower volume ventilation system is approximately 2.7 exchanges per hour. The ventilation system airflow rate is at least 0.75 CFM/foot², in compliance with City of Seattle building codes. These systems provide additional mitigation measures against potential vapor intrusion into the overlying businesses and residential units.

Remaining petroleum impacts that may volatilize to the surface are in soil encountered at 10 feet bgs in the northeast corner of the Site. Potential future human receptors (construction workers working in the ROW) might be exposed through inhalation to vapor phase petroleum hydrocarbons volatilizing from soil in this area.

Known remaining petroleum impacts at B-2 are at 22.5 to 24 feet bgs. The vertical distance between impacts at B-2 and the parking garage floor is 12.5 feet. The parking garage ventilation system and the installed vapor barrier mitigate any potential risk to people in the underground parking garage and residents of the apartment building on the Property, and therefore no additional vapor mitigation is necessary.

Known remaining petroleum impacts at B-5 are at 37.5-39 feet bgs. The vertical distance between impacts at B-5 and the parking garage floor is greater than 15 feet. Therefore, no additional vapor

intrusion assessment is warranted, based on the recommended vertical separation distances shown in the table below and as indicated in Ecology's Memo 14.

Groundwater concentrations during the May 2019 groundwater sampling event were above MTCA Vapor Intrusion Method B Groundwater CUL for xylenes at MW-7. The depth to groundwater/LNAPL in MW-7 has ranged from approximately 26 to 28 feet bgs. Therefore, the vertical distance between impacted groundwater and the parking garage floor is greater than 15 feet. Therefore, no additional vapor intrusion assessment is warranted, based on the table below and as indicated in Ecology's Memo 14.

The recommended vertical separation distances between contamination and building parking garage floor specified in the *Technical Guidance for Addressing Petroleum Vapor Intrusion at Leaking Underground Storage Tank Sites* (USEPA 2015) are summarized in the table below:

Media	Benzene	TPH	Vertical Separation Distance (feet)
Soil (mg/kg)	≤10	≤100 (unweathered gasoline) ≤250 (weathered gasoline, diesel)	6
	>10 (LNAPL)	>100 (unweathered gasoline) > (weathered gasoline, diesel)	15
Groundwater (mg/L)	≤5 (5,000 µg/l)	≤30 (30,000 µg/l)	6
	>5 (LNAPL) (5,000 µg/l)	>30 (LNAPL) (30,000 µg/l)	15

Based on the above information, potential vapor intrusion is not a significant concern, and no further assessment or evaluation is warranted.

7 CLEANUP STANDARDS

Based on Ecology's focus sheet for establishing cleanup standards (Ecology Publication No. F-TC-94-130) (Ecology 2018), Arcadis will compare soil and groundwater concentrations to MTCA Method A CULs to assess current Site COCs.

8 REMEDIAL INVESTIGATION SCOPE OF WORK

8.1 Pre-Field Activities

Arcadis has prepared a Health and Safety Plan (HASP), to be submitted under separate cover, including job safety analyses and a traffic control plan.

Arcadis has prepared an Inadvertent Discovery Plan (IDP) outlining procedures to follow in the event of discovering archaeological materials or human remains, in accordance with state and federal laws. The IDP is included in Appendix E.

Before mobilizing to the Site, Arcadis will perform the following activities:

- Update the site-specific HASP and prepare job safety analyses and traffic control plans, as appropriate
- Secure permits from the City of Seattle for the ROW, as appropriate
- Notify and coordinate with the Property owner and tenants at least 30 days before field work commences
- Notify Ecology at least 21 days prior to commencing field work
- Mark the proposed drilling locations and contact the state one-call public locate service a minimum of 48 hours prior to initiating the field activities
- Contract a private utility locator to identify potential conflicting utilities or other underground structures in the area of the proposed wells.

8.2 Monitoring Well Installation and Construction

Four monitoring wells will be installed in the ROW adjacent to the Site (MW-11, MW-12, MW-13, and MW-14). MW-11 will be installed in the North 45th Street ROW to the north of the Site, and MW-12, MW-13, and MW-14 will be installed along Stone Way North to the east of the Site. Proposed monitoring well locations are shown on Figure 8. Well locations may need to be adjusted to account for utilities, trees, and other obstructions. Well installation activities will be coordinated with retail tenants to maintain access and minimize impacts to the businesses.

The well borings will first be pre-cleared using a combination of air knife, vacuum truck, and/or hand auger to a minimum depth of 5 feet bgs. Following clearance, the boreholes will be advanced using a hollow stem auger to the total planned depth of 45 feet bgs.

Soil samples will be collected from each monitoring well during installation. During preclearance, soil samples will be collected at approximately 2.5 feet bgs via hand auger and screened for VOCs using a PID. After preclearance activities, soil samples will be collected via an 18-inch split spoon sampler at approximate 5-foot intervals to the total depth of each boring. Each borehole will be logged using a combination of Udden-Wentworth and the Unified Soil Classification System (USCS) and screened for VOCs using a calibrated PID.

Soil samples for laboratory analysis will be collected at the groundwater interface and at depths in the vadose or saturated zone, wherever PID readings are highest. In the absence of elevated PID readings, analytical samples may be collected for laboratory analysis to characterize soil based on field observations. A minimum of three soil samples collected from each boring will be submitted for laboratory analysis.

Soil samples will be placed in an ice-chilled cooler and sent to an Ecology-accredited laboratory under chain-of-custody protocol. Soil samples will be analyzed for the following:

- GRO analyzed by Northwest Method Total Petroleum Hydrocarbons – Gasoline (NWTPH-Gx)
- DRO and HO analyzed by Northwest Method Total Petroleum Hydrocarbons – Diesel (NWTPH-Dx, no silica gel)
- BTEX by USEPA Method 8260
- EDB and EDC by USEPA Method 8260
- Lead by USEPA Method 6010
- cPAHs by USEPA Method 8270 – selected ion monitoring (SIM)

The wells will be constructed of 2-inch diameter Schedule 40 polyvinyl chloride (PVC) 0.010-inch slotted screen from approximately 30-45 feet bgs. Blank PVC casing will be installed from the top of the screen to near surface grade. Sand filter pack will be placed in the annular space of the borehole from the bottom of boring to approximately 1 foot above the top of the well screen, followed by transition seal consisting hydrated bentonite chips to approximately 2 feet bgs. The remaining open borehole annulus will be sealed with neat cement to near ground surface.

The wellheads will be completed at the ground surface with a locking well cap and traffic-rated bolt-down well vault. Following the installation of monitoring wells, well location, ground surface, and top-of-casing elevations will be surveyed by a professional Washington-licensed land surveyor.

8.3 Well Development and Groundwater Sampling

Following completion of monitoring well installations, each well will be developed to remove fine-grained sediments from the vicinity of the well screens. The well development will include surging the screen interval and purging fine-grained material out of the well. Purge water will be contained in Department of Transportation-approved 55-gallon steel drums and temporarily stored onsite.

Arcadis will return a minimum of 72 hours after the groundwater monitoring wells are developed to collect groundwater samples. Samples will be collected from the newly installed monitoring wells and existing monitoring wells using standard low-flow groundwater purging and sampling methods. Groundwater samples will be submitted to a Washington State certified laboratory for analysis under standard chain-of-custody procedures. Groundwater samples will be submitted for the following analyses:

- GRO by Northwest TPH-Gx
- DRO and HO by Northwest TPH-Dx (no silica gel)
- BTEX by USEPA Method 8260
- EDB and EDC by USEPA Method 8260
- Dissolved Lead by USEPA Method 6010D
- cPAHs by USEPA Method 8270E - SIM

In addition, groundwater samples from three monitoring wells (MW-6, MW-7, and MW-8) will be submitted for analyses of VOCs.

After the initial groundwater monitoring event, Arcadis will conduct three additional quarterly groundwater monitoring events.

8.4 Sampling and Analysis Plan and Quality Assurance Project Plan

A Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP) are included in Appendix F.

9 SCHEDULE AND REPORTING

Following completion of the well installations and four quarters of groundwater sampling described above, Arcadis will prepare a technical report for submittal to Ecology. This RI report will document the results of the RI, and include the following, as described in Ecology's RI Checklist Guidance (Ecology 2020):

- Introduction: General Site Information, Site History, Site Use
- Field Investigations: Previous Environmental Investigations, Site Characterization, Sampling/Analytical Results
- Conceptual Site Model
- Proposed Cleanup Standards, Terrestrial Ecological Evaluation
- Summary, Conclusions, and Recommendations
- Figures including Vicinity Map, Site Map, Conceptual Site Model
- Data tables, well logs, laboratory reports

Arcadis estimates that the groundwater monitoring well installations and subsequent quarterly groundwater monitoring will be conducted within 360 days of receiving Ecology approval of this RI WP, or agreed upon revisions of this RI WP, as set forth in the AO, contingent on access and permitting, coordination with onsite businesses, and assuming it is safe to do so. It should be noted that significant delays have been experienced in obtaining ROW encroachment permits from the City of Seattle on other projects, and thus it is expected that this task will dictate the overall schedule.

10 REFERENCES

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Tables

Table 1
Well Construction Details
Former Chevron Service Station No. 209335
1201 - 1225 North 45th Street
Seattle, Washington



Well ID	Well Setup	Construction Details					
		Installation Date	Decommission Date	Well Diameter	Top of Screen Depth	Bottom of Screen Depth	Total Well Depth
				inches	feet bgs	feet bgs	feet bgs
ON SITE							
MW-1	Single casing, PVC	10/10/2000	3/18/2005	2	32	42	42
MW-2	Single casing, PVC	10/11/2000	3/18/2005	2	32	42	43
MW-3	Single casing, PVC	10/11/2000	3/18/2005	2	35	45	45.5
MW-4	Single casing, PVC	10/10/2000	3/18/2005	2	32	42	43
MW-5	Single casing, PVC	10/11/2000	3/18/2005	2	32	42	43
MW-6	Single casing, PVC	11/7/2005	--	2	18	35	35
MW-7	Single casing, PVC	11/7/2005	--	2	20	35	35
MW-8	Single casing, PVC	11/7/2005	--	2	20	35	35
OFF SITE							
MW-9	Single casing, PVC	12/4/2006	--	2	29.1	44.1	45
MW-10	Single casing, PVC	12/4/2006	--	2	30	45	44.1

Notes and Acronyms:
 MW = monitoring well
 -- = Not applicable
 bgs = below ground surface

Table 2
 Groundwater Gauging and Select Analytical Results
 Former Chevron Service Station No. 209335
 1201 - 1225 North 45th Street
 Seattle, Washington



Well	Date	TOC	DTP	DTW	NAPL	GWE ¹	GRO	DRO	HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Total Lead	Comments
		ft	ft btoc	ft btoc	ft	ft	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	--
Model Toxics Control Act (MTCA) Method A Cleanup Levels (CULs) in µg/L							800/1,000 ²	500	500	5	1,000	700	1,000	20	15	--
MW-1	10/11/00	97.95	--	34.50	--	63.45	--	--	--	--	--	--	--	--	--	--
MW-1	12/16/00	97.95	--	35.91	0.00	62.04	74.4	<250	<750	<0.500	<0.500	<0.500	<1.00	<5.00	<1.00	
MW-1	03/26/01	97.95	--	36.54	0.00	61.41	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	<1.00	--	
MW-1	06/25/01	97.95	--	36.78	0.00	61.17	<50.0	<281	<842	<0.500	<0.500	<0.500	<1.00	--	--	
MW-1	09/24/01	97.95	--	37.14	0.00	60.81	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00	--	--	
MW-1	12/13/01	97.95	--	37.25	0.00	60.70	<80.0	<250	<500	<0.500	<0.500	<0.500	<1.00	--	--	
MW-1	03/08/02	97.95	--	36.79	0.00	61.16	<50.0	<250	<750	<0.50	<0.50	<0.50	<1.5	--	--	No Purge
MW-1	05/29/02	97.95	--	36.44	0.00	61.51	Sampled Semiannually									
MW-1	09/16/02	97.95	--	36.71	0.00	61.24	<50.0	<250	<250	<0.50	<0.50	<0.50	<1.5	--	--	No Purge
MW-1	12/05/02	97.95	--	37.09	0.00	60.86	Sampled Semiannually									
MW-1	03/04/03	97.95	--	37.26	0.00	60.69	100	<250	<250	<0.50	<0.50	<0.50	<3.0	--	--	No Purge
MW-1	06/03/03	97.95	--	37.09	0.00	60.86	Sampled Semiannually									
MW-1	10/27/03	97.95	--	37.42	0.00	60.53	Not Sampled due to insufficient water									
MW-1	03/31/04	97.95	--	37.12	0.00	60.83	<50	<800	<1,000	<0.5	<0.5	<0.5	<1.5	--	--	No Purge
MW-1	06/28/04	97.95	--	37.14	0.00	60.81	Sampled Semiannually									
MW-1	09/29/04	97.95	--	37.50	0.00	60.45	Not Sampled due to insufficient water									
MW-1	01/04/05	97.95	--	37.61	0.00	60.34	Sampled Semiannually									
MW-1							Abandoned									
MW-2	10/11/00	98.70	--	34.50	--	64.20	--	--	--	--	--	--	--	--	--	
MW-2	12/16/00	98.70	--	36.46	0.00	62.24	28,100	1,000	<750	283	2,560	693	4,020	<5.00	1.94	
MW-2	03/26/01	98.70	--	37.12	0.00	61.58	17,000	1,180	<750	143	1,450	378	2,180	<1.00/<1.00	--	
MW-2	06/25/01	98.70	--	37.37	0.00	61.33	11,700	418	<750	92.3	547	181	1,010	--	--	
MW-2	09/24/01	98.70	--	37.72	0.00	60.98	22,100	4,840	<557	120	1,380	658	4,100	--	--	
MW-2	12/13/01	98.70	--	37.89	0.00	60.81	84,000	5,540	<500	185	3,960	1,590	9,950	--	--	
MW-2	03/08/02	98.70	37.24	38.00	0.76	61.31	Not Sampled due to the presence of LNAPL									
MW-2	05/29/02	98.70	36.81	37.54	0.73	61.74	Not Sampled due to the presence of LNAPL									
MW-2	09/16/02	98.70	37.19	37.61	0.42	61.43	Not Sampled due to the presence of LNAPL									
MW-2	10/15/02	98.70	37.24	37.68	0.44	61.37	Not Sampled due to the presence of LNAPL									
MW-2	11/22/02	98.70	37.12	37.63	0.51	61.48	Not Sampled due to the presence of LNAPL									
MW-2	12/05/02	98.70	37.51	38.10	0.59	61.07	Not Sampled due to the presence of LNAPL									
MW-2	01/28/03	98.70	36.77	37.33	0.56	61.82	Not Sampled due to the presence of LNAPL									
MW-2	02/13/03	98.70	37.44	38.02	0.58	61.14	Not Sampled due to the presence of LNAPL									
MW-2	03/04/03	98.70	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	04/21/03	98.70	37.21	37.78	0.57	61.38	Not Sampled due to the presence of LNAPL									
MW-2	05/08/03	98.70	37.43	37.94	0.51	61.17	Not Sampled due to the presence of LNAPL									
MW-2	06/03/03	98.70	37.37	37.91	0.54	61.22	Not Sampled due to the presence of LNAPL									
MW-2	07/06/03	98.70	36.96	37.51	0.55	61.63	Not Sampled due to the presence of LNAPL									
MW-2	08/18/03	98.70	37.49	38.02	0.53	61.10	Not Sampled due to the presence of LNAPL									
MW-2	10/27/03	98.70	37.54	39.98	2.44	60.67	Not Sampled due to the presence of LNAPL									
MW-2	11/17/03	98.70	37.10	37.58	0.48	61.50	Not Sampled due to the presence of LNAPL									
MW-2	12/31/03	98.70	36.18	38.19	2.01	62.12	Not Sampled due to the presence of LNAPL									
MW-2	02/09/04	98.70	37.00	37.49	0.49	61.60	Not Sampled due to the presence of LNAPL									
MW-2	03/04/04	98.70	35.85	37.06	1.21	62.61	Not Sampled due to the presence of LNAPL									
MW-2	03/31/04	98.70	37.32	39.05	1.73	61.03	Not Sampled due to the presence of LNAPL									
MW-2	06/28/04	98.70	37.32	39.05	1.73	61.03	Not Sampled due to the presence of LNAPL									
MW-2	08/30/04	98.70	37.61	38.99	1.38	60.81	Not Sampled due to the presence of LNAPL									
MW-2	09/07/04	98.70	37.61	39.19	1.58	60.77	Not Sampled due to the presence of LNAPL									
MW-2	09/11/04	98.70	37.65	39.10	1.45	60.76	Not Sampled due to the presence of LNAPL									
MW-2	09/14/04	98.70	37.65	39.25	1.60	60.73	Not Sampled due to the presence of LNAPL									
MW-2	09/21/04	98.70	37.61	39.30	1.69	60.75	Not Sampled due to the presence of LNAPL									
MW-2	09/28/04	98.70	37.70	39.30	1.69	60.75	Not Sampled due to the presence of LNAPL									
MW-2	09/29/04	98.70	37.71	39.39	1.68	60.65	Not Sampled due to the presence of LNAPL									
MW-2	10/05/04	98.70	37.72	39.27	1.55	60.67	Not Sampled due to the presence of LNAPL									
MW-2	10/06/04	98.70	37.86	39.27	1.16	60.36	Not Sampled due to the presence of LNAPL									

Table 2
 Groundwater Gauging and Select Analytical Results
 Former Chevron Service Station No. 209335
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 Seattle, Washington



Well	Date	TOC	DTP	DTW	NAPL	GWE ¹	GRO	DRO	HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Total Lead	Comments	
		ft	ft btoc	ft btoc	ft	ft	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	--	
Model Toxics Control Act (MTCA) Method A Cleanup Levels (CULs) in µg/L							800/1,000 ²	500	500	5	1,000	700	1,000	20	15	--	
MW-2	10/07/04	98.70	37.90	38.59	0.69	60.66											Not Sampled due to the presence of LNAPL
MW-2	10/08/04	98.70	37.89	38.65	0.76	60.66											Not Sampled due to the presence of LNAPL
MW-2	10/11/04	98.70	37.79	39.15	1.36	60.64											Not Sampled due to the presence of LNAPL
MW-2	10/12/04	98.70	37.89	38.78	0.89	60.63											Not Sampled due to the presence of LNAPL
MW-2	10/16/04	98.70	--	--	0.90	---											Not Sampled due to the presence of LNAPL
MW-2	10/18/04	98.70	--	--	1.10	---											Not Sampled due to the presence of LNAPL
MW-2	10/19/04	98.70	37.96	38.61	0.65	60.61											Not Sampled due to the presence of LNAPL
MW-2	10/20/04	98.70	37.99	38.47	0.48	60.61											Not Sampled due to the presence of LNAPL
MW-2	10/21/04	98.70	37.96	38.55	0.59	60.62											Not Sampled due to the presence of LNAPL
MW-2	10/22/04	98.70	38.01	38.25	0.34	60.72											Not Sampled due to the presence of LNAPL
MW-2	10/25/04	98.70	37.90	38.80	0.90	60.62											Not Sampled due to the presence of LNAPL
MW-2	10/26/04	98.70	38.05	38.36	0.31	60.59											Not Sampled due to the presence of LNAPL
MW-2	10/27/04	98.70	38.05	38.35	0.30	60.59											Not Sampled due to the presence of LNAPL
MW-2	10/28/04	98.70	38.10	38.23	0.13	60.57											Not Sampled due to the presence of LNAPL
MW-2	10/29/04	98.70	38.11	38.15	0.04	60.58											Not Sampled due to the presence of LNAPL
MW-2	11/01/04	98.70	37.94	38.75	0.81	60.60											Not Sampled due to the presence of LNAPL
MW-2	11/02/04	98.70	38.04	38.49	0.45	60.57											Not Sampled due to the presence of LNAPL
MW-2	11/04/04	98.70	38.01	38.65	0.64	60.56											Not Sampled due to the presence of LNAPL
MW-2	11/05/04	98.70	38.05	38.53	0.48	60.55											Not Sampled due to the presence of LNAPL
MW-2	11/08/04	98.70	37.92	38.93	1.01	60.58											Not Sampled due to the presence of LNAPL
MW-2	11/09/04	98.70	38.13	38.24	0.11	60.55											Not Sampled due to the presence of LNAPL
MW-2	11/16/04	98.70	--	--	1.70	---											Not Sampled due to the presence of LNAPL
MW-2	11/22/04	98.70	36.89	38.16	1.27	61.56											Not Sampled due to the presence of LNAPL
MW-2	11/23/04	98.70	--	--	1.60	---											Not Sampled due to the presence of LNAPL
MW-2	01/04/05	98.70	37.88	39.80	1.92	60.44											Not Sampled due to the presence of LNAPL
MW-2	01/04/05	98.70	38.01	39.19	1.18	60.45											Not Sampled due to the presence of LNAPL
MW-2	01/10/05	98.70	37.90	39.59	1.69	60.46											Not Sampled due to the presence of LNAPL
MW-2	01/14/05	98.70	37.49	39.02	1.53	60.90											Not Sampled due to the presence of LNAPL
MW-2	1/18/2005	98.70	37.89	39.64	1.75	60.46											Not Sampled due to the presence of LNAPL
MW-2	1/28/2005	98.70	--	--	1.50	---											Not Sampled due to the presence of LNAPL
MW-2	2/2/2005	98.70	--	--	1.50	---											Not Sampled due to the presence of LNAPL
MW-2	02/09/05	98.70	37.90	39.64	1.74	60.45											Not Sampled due to the presence of LNAPL
MW-2	02/18/05	98.70	37.88	39.60	1.72	60.48											Not Sampled due to the presence of LNAPL
MW-2	02/22/05	98.70	37.92	39.53	1.61	60.46											Not Sampled due to the presence of LNAPL
MW-2	03/01/05	98.70	37.89	39.56	1.67	60.48											Not Sampled due to the presence of LNAPL
MW-2																	Abandoned
MW-3	10/11/00	98.76	--	34.00	--	64.76	--	--	--	--	--	--	--	--	--	--	
MW-3	12/16/00	98.76	--	36.39	0.00	62.37	<50.0	<250	<750	<0.500	0.612	<0.500	1.95	<5.00	<1.00		
MW-3	03/26/01	98.76	--	37.05	0.00	61.71	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	<1.00	--		
MW-3	06/25/01	98.76	--	37.29	0.00	61.47	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	--	--		
MW-3	09/24/01	98.76	--	37.64	0.00	61.12	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00	--	--		
MW-3	12/13/01	98.76	--	37.78	0.00	60.98	<80.0	<250	<500	<0.500	<0.500	<0.500	<1.00	--	--		
MW-3	03/08/02	98.76	--	37.28	0.00	61.48	320	<250	<750	<0.50	0.64	2.1	15	--	--	No Purge	
MW-3	05/29/02	98.76	--	36.92	0.00	61.84											Sampled Semiannually
MW-3	09/16/02	98.76	--	37.21	0.00	61.55	<50	<250	<250	<0.50	<0.50	<0.50	<1.5	--	--	No Purge	
MW-3	12/05/02	98.76	--	37.58	0.00	61.18											Sampled Semiannually
MW-3	03/04/03	98.76	--	37.79	0.00	60.97	<50	<250	<250	<0.50	<0.50	<0.50	<1.5	--	--	No Purge	
MW-3	06/03/03	98.76	--	37.68	0.00	61.08											Sampled Semiannually
MW-3	10/27/03	98.76	--	38	0.00	60.76	<50	<250	<250	<0.5	<0.5	<0.5	<1.5	--	--	No Purge	
MW-3	03/31/04	98.76	--	37.65	0.00	61.11	<50	<800	<1,000	<0.5	<0.5	<0.5	<1.5	--	--	No Purge	
MW-3	06/28/04	98.76	--	37.68	0.00	61.08											Sampled Semiannually
MW-3	09/29/04	98.76	--	38.01	0.00	60.75	<50	<250	<250	<0.5	<0.5	<0.5	<1.5	--	--	No Purge	
MW-3	01/04/05	98.76	--	38.19	0.00	60.57											Sampled Semiannually
MW-3																	Abandoned
MW-4	10/11/00	98.52	--	35.00	--	63.52	--	--	--	--	--	--	--	--	--	--	
MW-4	12/16/00	98.52	--	36.35	0.00	62.17	58,200	<250	<750	326	5,520	1,430	8,520	<5.00	12		

Table 2
Groundwater Gauging and Select Analytical Results
Former Chevron Service Station No. 209335
1201 - 1225 North 45th Street
Seattle, Washington



Well	Date	TOC	DTP	DTW	NAPL	GWE ¹	GRO	DRO	HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Total Lead	Comments
		ft	ft btoc	ft btoc	ft	ft	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	--
Model Toxics Control Act (MTCA) Method A Cleanup Levels (CULs) in µg/L							800/1,000 ²	500	500	5	1,000	700	1,000	20	15	--
MW-4	03/26/01	98.52	--	37.00	0.00	61.52	27,200	266	<750	178	2,160	785	4,160	<1.00/<1.00	--	
MW-4	06/25/01	98.52	--	37.25	0.00	61.27	12,300	<250	<750	69	654	416	1,910	--	--	
MW-4	09/24/01	98.52	--	37.60	0.00	60.92	4,130	<250	<500	30.1	154	197	684	--	--	
MW-4	12/13/01	98.52	--	37.72	0.00	60.80	5,490	<250	<500	30.3	175	177	679	--	--	
MW-4	03/08/02	98.52	--	38.36	0.00	60.16	9,000	<250	<750	<50	150	170	710	--	--	No Purge
MW-4	05/29/02	98.52	--	36.86	0.00	61.66	6,700	<250	<750	22	150	190	780	--	--	No Purge
MW-4	09/16/02	98.52	--	37.16	0.00	61.36	7,500	<250	<250	46	230	240	630	--	--	No Purge
MW-4	12/05/02	98.52	--	37.53	0.00	60.99	14,000	<250	<250	73	400	540	1,500	--	--	No Purge
MW-4	03/04/03	98.52	36.68	36.71	0.03	61.83										
MW-4	06/03/03	98.52	36.59	36.63	0.04	61.92										
MW-4	07/06/03	98.52	36.90	36.93	0.03	61.61										
MW-4	08/18/03	98.52	36.76	36.80	0.04	61.75										
MW-4	10/27/03	98.52	--	37.96	0.00	60.56	2,200	<400	<500	16	55	76	170	--	--	No Purge
MW-4	11/17/03	98.52	36.34	36.37	0.03	62.17										
MW-4	12/31/03	98.52	--	36.88	0.00	61.64	--	--	--	--	--	--	--	--	--	
MW-4	02/09/04	98.52	36.14	36.17	0.03	62.37										
MW-4	03/04/04	98.52	--	36.74	0.00	61.78	--	--	--	--	--	--	--	--	--	
MW-4	03/31/04	98.52	--	37.59	0.00	60.93	3,900	<250	<250	14	96	110	340	--	--	No Purge
MW-4	06/28/04	98.52	--	37.54	0.00	60.98	1,600	<250	<250	8.5	15	59	110	--	--	No Purge
MW-4	09/11/04	98.52	37.78	37.81	0.03	60.73										
MW-4	09/29/04	98.52	--	37.86	0.00	60.66	1,500	<250	<250	18	40	76	170	--	--	No Purge
MW-4	11/22/04	98.52	--	36.81	0.00	61.71	--	--	--	--	--	--	--	--	--	
MW-4	01/04/05	98.52	--	38.11	0.00	60.41	1,600	1,600	<250	10	13	60	110	--	--	No Purge
MW-4	01/14/05	98.52	--	37.58	0.00	60.94	--	--	--	--	--	--	--	--	--	
MW-4																Abandoned
MW-5	10/11/00	99.42	--	34.50	--	64.92	--	--	--	--	--	--	--	--	--	
MW-5	12/16/00	99.42	--	37.18	0.00	62.24	146,000	5,080	<750	<500	15,100	4,160	24,100	<5.00	20	
MW-5	03/26/01	99.42	--	37.91	0.00	61.51	149,000	77,900	<750	256	10,600	4,000	24,200	<1.00/<1.00	--	
MW-5	06/25/01	99.42	--	38.14	0.00	61.28	127,000	109,000	<18,100	210	9,580	3,730	21,500	--	--	
MW-5	09/24/01	99.42	38.40	38.44	0.04	61.01										
MW-5	12/13/01	99.42	38.55	38.59	0.04	60.86										
MW-5	03/08/02	99.42	37.96	38.46	0.50	61.36										
MW-5	05/29/02	99.42	37.60	38.05	0.45	61.73										
MW-5	08/07/02	99.42	37.73	38.12	0.39	61.61										
MW-5	09/16/02	99.42	38.00	38.39	0.39	61.34										
MW-5	10/15/02	99.42	38.09	38.47	0.38	61.25										
MW-5	11/22/02	99.42	37.84	38.26	0.42	61.50										
MW-5	12/05/02	99.42	38.42	38.78	0.36	60.93										
MW-5	01/28/03	99.42	37.88	38.24	0.36	61.47										
MW-5	02/13/03	99.42	38.33	38.68	0.35	61.02										
MW-5	03/04/03	99.42	37.54	37.89	0.35	61.81										
MW-5	04/21/03	99.42	37.96	38.29	0.33	61.39										
MW-5	05/08/03	99.42	38.50	38.82	0.32	60.86										
MW-5	06/03/03	99.42	37.42	37.76	0.34	61.93										
MW-5	07/06/03	99.42	37.77	38.11	0.34	61.58										
MW-5	08/18/03	99.42	38.54	38.86	0.32	60.82										
MW-5	10/27/03	99.42														
MW-5	11/17/03	99.42	37.87	38.17	0.30	61.49										
MW-5	12/31/03	99.42														
MW-5	02/09/04	99.42														
MW-5	03/04/04	99.42														
MW-5	03/31/04	99.42														
MW-5	06/28/04	99.42														
MW-5	09/11/04	99.42														
MW-5	09/29/04	99.42														
MW-5	11/22/04	99.42														
MW-5	01/04/05	99.42														

Table 2
 Groundwater Gauging and Select Analytical Results
 Former Chevron Service Station No. 209335
 1201 - 1225 North 45th Street
 Seattle, Washington



Well	Date	TOC	DTP	DTW	NAPL	GWE ¹	GRO	DRO	HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Total Lead	Comments	
		ft	ft btoc	ft btoc	ft	ft	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	--	
Model Toxics Control Act (MTCA) Method A Cleanup Levels (CULs) in µg/L							800/1,000 ²	500	500	5	1,000	700	1,000	20	15	--	
MW-5	01/14/05	99.42															Well Obstructed at 35.92 ft bgs
MW-5																	Abandoned
MW-6	02/09/06	197.18	--	36.74	0.00	160.44	1,500	680	98	<0.5	0.7	1.2	37	--	--		
MW-6	05/03/07	197.18	--	36.74	0.00	160.44	380	1,000	130	29	1	4	30	--	--		
MW-6	06/16/09	197.18															Inaccessible
MW-6	07/01/09	197.18	--	27.46	0.00	169.72	<50	270	<70	<0.5	<0.5	<0.5	<1.5	--	22.9		No Purge
MW-6	12/11/09	197.18	--	27.55	0.00	169.63	<50	35	<69	<0.5	<0.5	<0.5	<1.5	--	0.76		No Purge
MW-6	06/09/10	197.18	--	26.84	0.00	170.34	5,900	360	<340	<0.5	<0.5	<0.5	350	--	13.2		No Purge
MW-6	11/19/10	197.18	--	26.97	0.00	170.21	750	240	81	<0.5	<0.5	<0.5	11	--	3.7		No Purge
MW-6	06/21/11	197.18	--	25.77	0.00	171.41	2,400	270	88	<0.5	<0.5	0.6	9.2	--	3.2		No Purge
MW-6	09/22/11	197.18	--	25.90	0.00	171.28	660	<29	<69	<0.5	<0.5	<0.5	4.1	--	3.3		No Purge
MW-6	12/09/11	197.18	--	27.34	0.00	169.84	64	<29	<69	140	0.5	<0.5	<1.5	--	0.44		No Purge
MW-6	03/30/12	197.18	--	26.8	0.00	170.38	90	<30	<69	<0.5	<0.5	<0.5	<1.5	--	2.5		No Purge
MW-6	06/20/12	197.18	--	26.56	0.00	170.62	<50	<30	<70	<0.5	<0.5	<0.5	<1.5	--	<0.034		No Purge
MW-6	10/05/12	197.18	--	27.08	0.00	170.10	<50	<32	<74	<0.5	<0.5	<0.5	<1.5	--	1.2		No Purge
MW-6	12/27/12	197.18	--	27.13	0.00	170.05	<50	<29	<67	<0.5	<0.5	<0.5	<1.5	--	2		No Purge
MW-6	03/18/13	197.18	--	26.63	0.00	170.55	120	<30	<71	<0.5	<0.5	<0.5	<1.5	--	--		
MW-6	03/22/13	197.18	--	26.71	0.00	170.47	100	<31	<72	<0.5	<0.5	<0.5	<1.5	--	--		
MW-6	03/28/13	197.18	--	26.61	0.00	170.57	79	<29	<67	<0.5	<0.5	<0.5	<1.5	--	3.7		No Purge
MW-6	06/27/13	197.18	--	26.42	0.00	170.76	120	<29	<68	<0.5	<0.5	<0.5	<1.5	--	1.3		No Purge
MW-6	10/17/13	197.18	--	26.64	0.00	170.54	<50	<29	<68	<0.5	<0.5	<0.5	<1.5	--	0.33		No Purge
MW-6	03/20/14	197.18	--	26.68	0.00	170.50	<50	<30	<70	<0.5	<0.5	<0.5	<1.5	--	4		No Purge
MW-6	06/25/14	197.18	--	26.85	0.00	170.33	<50	<29	<67	<0.5	<0.5	<0.5	<1.5	--	2.1		No Purge
MW-6	09/24/14	197.18	--	27.19	0.00	169.99	<50	<28	<66	<0.2	<0.2	<0.2	<0.2	--	0.48		No Purge
MW-6	12/11/14	197.18	--	27.16	0.00	170.02	<50	<28	<66	<0.5	<0.5	<0.5	<1.5	--	1.5		No Purge
MW-6	03/11/15	197.18	--	26.66	0.00	170.52	<50	<30	<71	<0.5	0.5	<0.5	<1.5	--	6.3		No Purge
MW-6	10/21/15	197.18	--	27.47	0.00	169.71	<50	<28	<66	<0.5	<0.5	<0.5	<1.5	--	10.9		No Purge
MW-6	04/20/16	197.18	--	26.66	0.00	170.52	<50	<28	<66	<0.5	<0.5	<0.5	<1.5	--	6.4		No Purge
MW-6	10/17/16	197.18	--	26.98	0.00	170.20	<50	<28	<66	<0.5	<0.5	<0.5	<1.5	--	14.8		No Purge
MW-6	05/17/17	197.18	--	25.99	0.00	171.19	<50	<29/<29 ⁴	<68/<68 ⁴	<0.5	<0.5	<0.5	<1.5	--	30.5		No Purge
MW-6	10/19/17	197.18	--	26.03	0.00	171.15	<50	<29/<32 ⁴	<68/<68 ⁴	<0.5	<0.5	<0.5	<1.5	--	33		No Purge
MW-6	05/17/18	197.18	--	25.71	0.00	171.47	<50	<29	<67	<0.5	<0.5	<0.5	<1.5	--	8.5		No Purge
MW-6	05/02/19	197.18	--	25.93	0.00	171.47	<19	53 J	<68	<0.5	<0.5	<0.5	<1.5	--	32.2		No Purge
MW-6	11/04/19	197.18	--	26.91	0.00	171.47	<19	83 J	<67	<0.2	<0.2	<0.4	<1	--	18		No Purge
MW-7	02/08/06	197.18	--	--	0.50	--	--	--	--	--	--	--	--	--	--		
MW-7	02/09/06	197.42	37.87	38.17	0.30	159.49	--	--	--	--	--	--	--	--	--		
MW-7	2/12/2006	197.42	27.27	27.68	0.41	170.07											
MW-7	2/13/2006	197.42	27.22	27.74	0.52	170.10											
MW-7	2/14/2006	197.42	27.24	26.59	0.35	171.11											
MW-7	2/17/2006	197.42	27.30	17.39	0.09	180.10											
MW-7	2/22/2006	197.42	27.22	27.53	0.31	170.14											
MW-7	2/24/2006	197.42	--	--	0.20	--											
MW-7	2/27/2006	197.42	--	--	0.30	--											
MW-7	2/28/2006	197.42	--	--	0.01	--											
MW-7	3/1/2006	197.42	--	--	0.01	--											
MW-7	3/2/2006	197.42	27.21	27.22	0.01	170.21											
MW-7	3/3/2006	197.42	--	--	0.01	--											
MW-7	3/6/2006	197.42	--	--	0.01	--											
MW-7	3/7/2006	197.42	--	--	0.01	--											
MW-7	3/8/2006	197.42	--	--	0.01	--											
MW-7	3/13/2006	197.42	--	--	0.01	--											
MW-7	3/15/2006	197.42	--	--	0.01	--											
MW-7	3/16/2006	197.42	--	--	0.01	--											
MW-7	3/17/2006	197.42	27.02	27.13	0.11	170.38											
MW-7	3/22/2006	197.42	--	--	0.01	--											
MW-7	3/24/2006	197.42	--	--	0.01	--											

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 Seattle, Washington



Well	Date	TOC	DTP	DTW	NAPL	GWE ¹	GRO	DRO	HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Total Lead	Comments
		ft	ft btoc	ft btoc	ft	ft	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	--
Model Toxics Control Act (MTCA) Method A Cleanup Levels (CULs) in µg/L							800/1,000 ²	500	500	5	1,000	700	1,000	20	15	--
MW-7	3/27/2006	197.42	--	--	0.01	--										
MW-7	3/29/2006	197.42	--	--	0.01	--										
MW-7	3/31/2006	197.42	--	--	0.01	--										
MW-7	4/3/2006	197.42	26.99	27.03	0.04	170.42										
MW-7	4/5/2006	197.42	--	--	0.01	--										
MW-7	4/7/2006	197.42	--	--	0.01	--										
MW-7	4/10/2006	197.42	26.92	26.97	0.05	170.49										
MW-7	4/12/2006	197.42	26.93	26.94	0.01	170.49										
MW-7	4/18/2006	197.42	--	--	0.30	--										
MW-7	4/19/2006	197.42	--	--	0.01	--										
MW-7	4/24/2006	197.42	--	--	0.01	--										
MW-7	5/1/2006	197.42	26.90	26.98	0.08	170.50										
MW-7	05/03/2007	197.42	26.55	27.80	0.00	169.62	--	--	--	--	--	--	--	--	--	
MW-7	5/19/2006	197.42	--	--	0.01	--										
MW-7	5/26/2006	197.42	--	--	0.01	--										
MW-7	6/1/2006	197.42	--	--	0.01	--										
MW-7	6/8/2006	197.42	--	--	0.01	--										
MW-7	6/15/2006	197.42	26.90	26.91	0.01	170.52										
MW-7	06/16/09	197.42							Inaccessible							
MW-7	6/22/2006	197.42	--	--	0.01	--										
MW-7	6/29/2006	197.42	26.86	26.89	0.03											
MW-7	07/01/09	197.42	27.39	-- ³	-- ³	-- ³				Not Sampled due to the presence of LNAPL						Skimmer in Well
MW-7	07/05/06	197.42	26.97	26.97	0.00	170.45										
MW-7	07/14/06	197.42	--	--	0.00	--										
MW-7	08/03/06	197.42	--	--	0.00	--										
MW-7	08/15/06	197.42	27	27.13**	0.13	170.39										
MW-7	08/31/06	197.42	--	--	0.00	--										
MW-7	12/11/09	197.42	27.50	-- ³	-- ³	-- ³				Not Sampled due to the presence of LNAPL						Skimmer in Well
MW-7	06/09/10	197.42	27.03	28.20	1.17	170.16				Not Sampled due to the presence of LNAPL						Skimmer in Well
MW-7	10/10/10	197.42	27.57	28.13	0.56	169.74										
MW-7	11/19/10	197.42	27.08	28.34	1.26	170.09				Not Sampled due to the presence of LNAPL						
MW-7	06/21/11	197.42	--	26.12	0.00	171.30	150,000	11,000	<1,800	45	4,800	2,600	18,000	--	310	
MW-7	09/22/11	197.42	--	26.25	0.00	171.17	100,000	2,000	<340	29	4,300	1,900	17,000	--	94.4	
MW-7	12/09/11	197.42	27.45	27.80	0.35	169.90				Not Sampled due to the presence of LNAPL						
MW-7	03/30/12	197.42	27.15	27.35	0.20	170.23				Not Sampled due to the presence of LNAPL						
MW-7	06/20/12	197.42	26.90	27.05	0.15	170.49				Not Sampled due to the presence of LNAPL						
MW-7	10/05/12	197.42	27.38	27.76	0.38	169.96				Not Sampled due to the presence of LNAPL						
MW-7	12/27/12	197.42	27.46	27.65	0.19	169.92				Not Sampled due to the presence of LNAPL						
MW-7	03/18/13	197.42	27.01	27.18	0.17	170.38				Not Sampled due to the presence of LNAPL						
MW-7	03/22/13	197.42	--	27.03	0.00	170.39	99,000	5,200	<69	12	1,600	1,700	17,000	--	--	Pre-surfactant injection sample Post-surfactant extraction sample
MW-7	03/28/13	197.42	26.91	27.00	0.09	170.49				Not Sampled due to the presence of LNAPL						
MW-7	06/27/13	197.42	26.77	26.79	0.02	170.65				Not Sampled due to the presence of LNAPL						
MW-7	10/17/13	197.42	27.03	27.05	0.02	170.39				Not Sampled due to the presence of LNAPL						
MW-7	03/20/14	197.42	26.99	27.11	0.12	170.41				Not Sampled due to the presence of LNAPL						
MW-7	06/25/14	197.42	27.26	27.28	0.02	170.16				Not Sampled due to the presence of LNAPL						
MW-7	09/24/14	197.42	27.56	27.61	0.05	169.85				Not Sampled due to the presence of LNAPL						
MW-7	12/11/14	197.42	--	27.50	0.00	169.92	96,000	55,000	<6,900	<13	600	660	14,000	--	168	No Purge
MW-7	03/11/15	197.42	--	26.96	0.00	170.46	65,000	200,000	<17,000	<5.0	470	570	6,700	--	0.0717	No Purge
MW-7	10/21/15	197.42	27.77	28.17	0.40	169.57				Not Sampled due to the presence of LNAPL						
MW-7	04/20/16	197.42	26.91	27.31	0.40	170.43				Not Sampled due to the presence of LNAPL						
MW-7	10/17/16	197.42	27.25	27.57	0.32	170.11				Not Sampled due to the presence of LNAPL						
MW-7	05/17/17	197.42	--	26.38	0.00	171.04	480,000	29,000/41,000 ⁴	<660/<1,300 ⁴	<50	360	1,400	18,000	--	1,020	No Purge
MW-7	10/19/17	197.42	--	26.62	0.00	170.80	63,000	24,000/29,000 ⁴	<1,300/<6,700 ⁴	4.1	190	900	8,100	--	203	No Purge
MW-7	05/17/18	197.42	--	26.10	0.00	171.32	140,000	12,000	<670	<10	390	1,200	8,700	--	78.8	No Purge
MW-7	05/02/19	197.42	--	26.32	0.00	171.10	95,000	5,900	160 J	<10	200	1,200	6,700	--	144	No Purge
MW-7	11/04/19	197.42	27.43	27.45	0.02	169.97				Not Sampled due to the presence of LNAPL						
MW-8	02/09/06	197.35	--	36.74	0.00	160.61	440	280	<96	<0.5	1.1	3.3	28	--	--	

Table 2
 Groundwater Gauging and Select Analytical Results
 Former Chevron Service Station No. 209335
 1201 - 1225 North 45th Street
 Seattle, Washington



Well	Date	TOC	DTP	DTW	NAPL	GWE ¹	GRO	DRO	HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Total Lead	Comments
		ft	ft btoc	ft btoc	ft	ft	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	--
Model Toxics Control Act (MTCA) Method A Cleanup Levels (CULs) in µg/L							800/1,000 ²	500	500	5	1,000	700	1,000	20	15	--
MW-9	05/17/18	208.11	--	37.18	0.00	170.93	<50	<28	<66	<0.5	0.5	<0.5	<1.5	--	0.9	No Purge
MW-9	05/02/19	208.11	--	37.36	0.00	170.75	<19	52 J	<67	<0.5	0.5	<0.5	<1.5	--	13.3	No Purge
MW-9	11/04/19	208.11	--	38.38	0.00	169.73	<19	150	<67	<0.2	<0.2	<0.4	<1	--	18.2	No Purge
MW-10	05/03/07	207.29	--	36.74	0.00	170.55	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	
MW-10	06/16/09	207.29					Inaccessible									
MW-10	07/01/09	207.29	--	38.72	0.00	168.57	<50	<30	<69	<0.5	<0.5	<0.5	<1.5	--	10.9	No Purge
MW-10	12/11/09	207.29	--	35.91	0.00	171.38	<50	49	<69	<0.5	<0.5	<0.5	<1.5	--	13.4	No Purge
MW-10	06/09/10	207.29	--	37.48	0.00	169.81	<50	50	88	<0.5	<0.5	<0.5	<1.5	--	7.2	No Purge
MW-10	11/19/10	207.29	--	37.53	0.00	169.76	<50	<29	74	<0.5	<0.5	<0.5	<1.5	--	18.8	No Purge
MW-10	06/21/11	207.29	--	36.46	0.00	170.83	<50	<31	180	<0.5	<0.5	<0.5	<1.5	--	5.7	No Purge
MW-10	09/22/11	207.29	--	36.60	0.00	170.69	<50	<300	<700	<0.5	<0.5	<0.5	<1.5	--	6.6	No Purge
MW-10	12/09/11	207.29	--	35.71	0.00	171.58	<50	<29	<69	<0.5	<0.5	<0.5	<1.5	--	2.1	No Purge
MW-10	03/30/12	207.29	--	29.80	0.00	177.49	<50	<30	<69	<0.5	<0.5	<0.5	<1.5	--	110	No Purge
MW-10	06/20/12	207.29	--	37.35	0.00	169.94	<50	<31	<71	<0.5	<0.5	<0.5	<1.5	--	0.23	No Purge
MW-10	10/05/12	207.29	--	37.79	0.00	169.50	<50	45	<70	<0.5	<0.5	<0.5	<1.5	--	3.7	No Purge
MW-10	12/27/12	207.29	--	37.84	0.00	169.45	<50	<29	<67	<0.5	<0.5	<0.5	<1.5	--	2.2	No Purge
MW-10	03/28/13	207.29	--	27.36	0.00	179.93	<50	<29	<67	<0.5	<0.5	<0.5	<1.5	--	<0.073	No Purge
MW-10	06/27/13	207.29	--	37.16	0.00	170.13	<50	<29	<67	<0.5	<0.5	<0.5	<1.5	--	1.8	No Purge
MW-10	10/17/13	207.29	--	37.78	0.00	169.51	<50	<28	<66	<0.5	<0.5	<0.5	<1.5	--	0.34	No Purge
MW-10	03/20/14	207.29	--	29.77	0.00	177.52	<50	<30	<69	<0.5	<0.5	<0.5	<1.5	--	<0.085	No Purge
MW-10	06/25/14	207.29	--	35.03	0.00	172.26	<50	<30	<71	<0.5	<0.5	<0.5	<1.5	--	2.5	No Purge
MW-10	09/24/14	207.29	--	37.88	0.00	169.41	<50	<30	<70	<0.2	<0.2	<0.2	<0.2	--	0.00095	No Purge
MW-10	12/11/14	207.29	--	37.88	0.00	169.41	<50	<29	<67	<0.5	<0.5	<0.5	<1.5	--	<0.082	No Purge
MW-10	03/11/15	207.29	--	29.71	0.00	177.58	<50	<29	<69	<0.5	<0.5	<0.5	<1.5	--	0.0002	No Purge
MW-10	10/21/15	207.29	--	38.14	0.00	169.15	<50	<28	<66	<0.5	<0.5	<0.5	<1.5	--	20.1	No Purge
MW-10	04/20/16	207.29	--	37.39	0.00	169.90	<50	<29	<67	<0.5	<0.5	<0.5	<1.5	--	0.0113	No Purge
MW-10	10/17/16	207.29	--	37.69	0.00	169.60	<50	<28	<66	<0.5	<0.5	<0.5	<1.5	--	12	No Purge
MW-10	05/17/17	207.29	--	36.78	0.00	170.51	<50	<28/<28 ⁴	<66/<66 ⁴	<0.5	<0.5	<0.5	<1.5	--	3.6	No Purge
MW-10	10/19/17	207.29	--	36.80	0.00	170.49	<50	<29/<29 ⁴	<67/<67 ⁴	<0.5	<0.5	<0.5	<1.5	--	7.6	No Purge
MW-10	05/17/18	207.29	--	36.52	0.00	170.77	<50	<29	<68	<0.5	<0.5	<0.5	<1.5	--	2.2	No Purge
MW-10	05/02/19	207.29	--	36.72	0.00	170.57	<19	160	<70	<0.5	<0.5	<0.5	<1.5	--	2.0 J	No Purge
MW-10	11/04/19	207.29	--	37.70	0.00	169.59	<19	86 J	<66	<0.2	<0.2	<0.4	<1	--	1.3	No Purge
FB-1	10/24/16	--	--	--	--	--	< 100	< 290	< 460	< 0.20	< 1.0	< 0.20	< 0.60	--	--	--
FB-2	10/24/16	--	--	--	--	--	< 100	< 280	< 440	< 0.20	< 1.0	< 0.20	< 0.60	--	--	--
QA	12/16/00	--	--	--	--	--	ND	--	--	ND	ND	ND	ND	ND	--	--
QA	03/26/01	--	--	--	--	--	ND	--	--	ND	ND	ND	ND	ND	--	--
QA	06/25/01	--	--	--	--	--	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	--	--	--
QA	09/24/01	--	--	--	--	--	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	--	--	--
QA	12/13/01	--	--	--	--	--	<80.0	--	--	<0.500	<0.500	<0.500	<1.00	--	--	--
QA	03/08/02	--	--	--	--	--	<50	--	--	<0.50	<0.50	<0.50	<1.5	--	--	--
QA	05/29/02	--	--	--	--	--	<50	--	--	<0.50	<0.50	<0.50	<1.5	--	--	--
QA	09/16/02	--	--	--	--	--	<50	--	--	<0.50	<0.50	<0.50	<1.5	--	--	--
QA	12/05/02	--	--	--	--	--	<50	--	--	<0.50	<0.50	<0.50	<1.5	--	--	--
QA	03/04/03	--	--	--	--	--	<50	--	--	<0.50	<0.50	<0.50	<1.5	--	--	--
QA	10/27/03	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	--
QA	03/31/04	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	--
QA	06/28/04	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	--
QA	09/29/04	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	--
QA	01/04/05	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	--
QA	06/16/09	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	--
QA	07/01/09	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	--
QA	12/11/09	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	--
QA	06/09/10	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	--
QA	11/19/10	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	--

Table 2
Groundwater Gauging and Select Analytical Results
Former Chevron Service Station No. 209335
1201 - 1225 North 45th Street
Seattle, Washington



Well	Date	TOC	DTP	DTW	NAPL	GWE ¹	GRO	DRO	HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Total Lead	Comments
		ft	ft btoc	ft btoc	ft	ft	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	--
Model Toxics Control Act (MTCA) Method A Cleanup Levels (CULs) in µg/L							800/1,000²	500	500	5	1,000	700	1,000	20	15	--
QA	06/21/11	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	09/22/11	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	12/09/11	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	03/30/12	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	06/20/12	QA Vials Not Received by the Laboratory														
QA	10/05/12	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	12/27/12	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	03/28/13	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	06/27/13	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	10/17/13	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	03/20/14	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	06/25/14	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	09/24/14	--	--	--	--	--	<50	--	--	<0.2	<0.2	<0.2	<0.2	--	--	
QA	12/11/14	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	03/11/15	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	10/23/15	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	04/20/16	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	10/17/16	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	05/17/17	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	10/19/17	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	
QA	05/17/18	--	--	--	--	--	<50	--	--	<0.5	<0.5	<0.5	<1.5	--	--	

Notes

- 1 When LNAPL is present, GWE has been corrected using the following formula: $GWE = [(TOC - DTW) + (LNAPL \times 0.80)]$.
- 2 The Cleanup level of 800 µg/L is used when benzene is present, when benzene is not present the cleanup level of 1,000 µg/L is used
- 3 Interface probe could not detect LNAPL/Groundwater Interface, unable to gauge hydrocarbon thickness and calculate corrected GWE.
- 4 Analyzed with silica-gel cleanup.

BOLD and highlighted values are greater than their respective MTCA Method A cleanup level

BOLD values are non-detect below the laboratory method detection limit (MDL), but the MDL is higher than the MTCA Method A cleanup level Ecology Model Toxics Control Act (MTCA) Method A Cleanup Levels for Groundwater, WAC Chapter 173-340-900, Table 720-1 All results in micrograms per liter (µg/L).

Abbreviations:

- TOC = Top of Casing. MW-6 through MW-9 TOC elevations are in feet above North American Vertical Datum of 1988 (NAVD 88). MW-1 through MW-5 TOC elevations are reference to an arbitrary benchmark of 100 feet.
- DTW = Depth to water in feet below TOC
- NAPL = Non-aqueous phase liquid thickness in feet
- LNAPL= Light Non-aqueous phase liquid
- GWE = Groundwater elevation in feet relative to datum NAVD88
- No Purge = Non purge sample, collected with a bailer
- GRO = TPH- gasoline range organics (C4-C12), analyzed by Method NWTPH-Gx
- DRO = TPH - diesel range organics (C10-C28) by Method NWTPH-Dx + Extended
- HO = TPH - heavy oil range organics (C16-C36) by Method NWTPH-Dx + Extended
- BTEX = benzene, toluene, ethylbenzene and total xylenes - collectively analyzed by USEPA (United States Environmental Protection Act) Method 8260B; before March 27, 2006, analyzed by USEPA 8021B.
- MTBE = Methyl tertiary butyl ether, analyzed by USEPA Method 8260B; before March 27, 2006, analyzed by USEPA 8021B unless otherwise noted.
- Total lead analyzed by USEPA Method 6000/7000 series
- = Not applicable, not available, or not analyzed
- MTCA = Model Toxics Control Act Cleanup Regulations [WAC 173-340-720(2)(a)(1), as amended February 2001]
- µg/L = Micrograms per Liter
- btoc = below top of casing

Laboratory Qualifiers

- <n = Below laboratory detection limit of n µg/L
- J = estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

Table 3
 Soil Analytical Results
 Former Chevron Service Station No. 209335
 1201 - 1225 North 45th Street
 Seattle, Washington



Sample ID	Date	Depth	TPH-GRO	TPH-DRO	TPH-HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MTCA Method A Soil Cleanup Levels			30/100	2,000	2,000	0.03	7	6	9	0.1
Soil Boring analytical results										
B1-7.5-8.5	8/29/1999	7.5-8.5	1,200	--	--	<0.29	<0.29	0.45	2.6	--
B1-17.5-19	8/29/1999	17.5-19	<5.4	<27	<54	<0.054	<0.054	<0.054	<0.054	--
B2-12.5-14	8/29/1999	12.5-14	1,900	--	--	<0.26	2.9	12	94	--
B2-22.5-24	8/29/1999	22.5-24	230	<27	<53	<0.27	<0.27	<0.27	5	--
B3-2.5-4	8/29/1999	2.5-4	74	--	--	<0.27	<0.27	<0.27	1.87	--
B4-2.5-9	8/29/1999	2.5-9	--	<28	140	--	--	--	--	--
B5-32.5-34	9/21/1999	32.5-34	<5.3	--	--	<0.053	<0.053	<0.053	<0.053	--
B5-37.5-39	9/21/1999	37.5-39	210	--	--	<0.30	2.5	2.3	12.6	--
B6-17.5-18.5	9/21/1999	17.5-18.5	<28	--	--	<0.28	<0.28	<0.28	<0.28	--
B6-22.5-24	9/21/1999	22.5-24	<5.5	--	--	<0.055	<0.055	<0.055	<0.055	--
MW1-35	10/10/2000	35	<5.00	<10	<25	<0.050	<0.050	<0.050	<0.10	--
MW2-35	10/11/2000	35	430	94.1	<25	<0.050	<0.57	<2.45	<7.65	--
MW3-35	10/10/2000	35	<5.00	<10	<25	<0.050	<0.050	<0.050	<0.10	--
MW4-35	10/11/2000	35	<5.00	<10	<25	<0.050	<0.050	<0.050	<0.10	--
MW5-5	10/11/2000	5	<5.00	<10	<25	<0.050	<0.050	<0.050	<0.10	--
MW5-35	10/11/2000	35	9.41	<10	<25	<0.050	<0.050	<0.050	0.328	--
SB1-38	5/27/2004	38	<1.0	<3.0	<10	<0.005	0.008	<0.005	<0.02	<0.05
SB2-37.5	5/27/2004	37.5	<1.0	<3.0	<10	<0.005	0.02	0.01	0.09	<0.05
SB3-12.5	5/27/2004	12.5	4,100	410	<200	<0.5	<0.5	0.7	5.6	<5.0
SB3-37.5	5/27/2004	37.5	2,900	560	<200	<1.0	37	33	200	<10
SB3-45.5	5/27/2004	45.5	3.7	3.5	<10	<0.005	0.01	0.006	0.03	<0.05
SB3-20	5/27/2004	20	6.6	<3.0	10	<0.005	<0.005	<0.005	0.02	<0.05
SB4-37.5	5/28/2004	37.5	<1.0	<3.0	<10	<0.005	<0.005	<0.005	<0.02	<0.05
SB5-37.5	5/28/2004	37.5	240	23	<10	<0.1	0.2	1.3	7.2	<1.0
SB5-45	5/28/2004	45	1.7	<3.0	<10	<0.005	0.02	0.01	0.08	<0.05
SB6-37.5	5/28/2004	37.5	<1.0	<3.0	<10	<0.005	0.01	0.008	0.04	<0.05
SB6-40	5/28/2004	40	<1.0	<3.0	<10	<0.005	0.02	0.01	0.07	<0.05
SB7-37.5	5/28/2004	37.5	<1.0	<3.0	<10	<0.005	0.009	<0.005	0.02	<0.05
SB8-12.5	6/1/2004	12.5	860	160	<10	<0.1	<0.1	0.1	0.3	<1.0
SB8-25	6/1/2004	25	<1.0	<3.0	<10	<0.005	0.01	<0.005	0.04	<0.05
SB8-37.5	6/1/2004	37.5	5,000	980	<500	<1.0	48	61	320	<10
SB9-37.5	6/1/2004	37.5	56	130	<100	<0.02	0.04	0.2	1	<0.2
SB9-45	6/1/2004	45	<1.0	<3.0	<10	<0.005	0.02	0.01	0.06	<0.05
SB10-37.5	6/1/2004	37.5	<1.0	<3.0	<10	<0.005	<0.005	<0.005	<0.02	<0.05
SB8-45	6/1/2004	45	<1.0	<3.0	<10	<0.005	0.005	<0.005	<0.02	<0.05
SB3-42.5	6/1/2004	42.5	<1.0	<3.0	<10	<0.005	0.02	<0.005	0.02	<0.05
MW-9-37.5	12/4/2006	37.5	<1.0	<3.0	<10	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005
MW-10-37.5	12/4/2006	37.5	<1.0	<3.0	<10	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005
Remedial Excavation Soil Analytical Results										
EX-W1-3	1/10/2004	3	<1.0	<3.0	<10	<0.005	<0.005	<0.005	<0.01	--
EX-W2-3	1/10/2004	3	<0.8	<3.0	<10	<0.004	<0.004	<0.004	<0.01	--

Table 3
 Soil Analytical Results
 Former Chevron Service Station No. 209335
 1201 - 1225 North 45th Street
 Seattle, Washington



Sample ID	Date	Depth	TPH-GRO	TPH-DRO	TPH-HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MTCA Method A Soil Cleanup Levels			30/100	2,000	2,000	0.03	7	6	9	0.1
EX-W3-3	1/10/2004	3	<0.9	4.1	31	<0.005	<0.005	<0.005	<0.01	--
EX-W4-7	9/12/2005	7	<1.1	<3.0	<10	<0.005	<0.005	<0.005	<0.02	--
EX-W5-7.5	9/12/2005	8	<1.1	4.2	80	<0.005	<0.005	<0.005	<0.02	--
EX-W5-13	9/19/2005	13	<0.9	<3.0	<10	<0.005	<0.005	<0.005	<0.01	--
EX-W6-7.5	9/12/2005	7.5	<1.1	3.2	28	<0.005	<0.005	<0.005	<0.02	--
EX-W6-10	9/15/2005	10.0	<1.3	<3.0	<10	<0.006	<0.006	<0.006	<0.02	--
EX-W6-13	9/19/2005	13.0	<1.0	<3.0	<10	<0.005	<0.005	<0.005	<0.02	--
EX-W7-7.5	9/12/2005	7.5	<0.9	<3.0	<10	<0.005	<0.005	<0.006	<0.01	--
EX-W7-10	9/15/2005	10.0	<0.9	<3.0	<10	<0.005	<0.005	<0.005	<0.01	--
EX-W7-13	9/19/2005	13.0	<1.0	<3.0	<10	<0.005	0.006	0.006	0.04	--
EX-W8-7.5	9/12/2005	7.5	<0.9	<3.0	<10	<0.005	<0.005	<0.005	<0.01	--
EX-W8-10	9/15/2005	10.0	26,000	60	<10	<1.0	42	110	870	--
EX-W8-13	9/19/2005	13.0	<1.1	<3.0	<10	<0.006	0.01	<0.006	0.04	--
EX-W9-7.5	9/12/2005	7.5	<1.0	<3.0	<10	<0.005	<0.005	<0.005	<0.02	--
EX-W9-13	9/19/2005	13	<0.9	<3.0	<10	<0.005	<0.005	<0.005	<0.01	--
EX-W10-7.5	9/12/2005	8	<1.1	7.7	36	<0.005	<0.005	<0.005	<0.02	--
EX-W10-13	9/19/2005	13	<1.0	<3.0	<10	<0.005	<0.005	<0.005	<0.02	--
EX-W11-7.5	9/12/2005	7.5	<0.9	<3.0	<10	<0.004	<0.004	<0.004	<0.01	--
EX-W12-8	9/15/2005	8.0	<1.8	<3.0	<10	<0.009	<0.009	<0.009	<0.03	--
EX-W13-8	9/15/2005	8.0	<1.0	<3.0	<10	<0.005	<0.005	<0.005	<0.02	--
EX-W14-8	9/15/2005	8.0	<1.0	<3.0	<10	<0.005	<0.005	<0.005	<0.02	--
SS1-13.5	10/7/2005	13.5	4.3	3.1	<10	<0.005	0.03	0.03	0.1	--
SS2-13.5	10/7/2005	13.5	<1.0	<3.0	<10	<0.005	<0.005	<0.005	<0.02	--
Bucket-Auger Boring Soil Analytical Results										
BA1-42	9/26/2005	42	3.7	<3.0	<10	<0.005	0.04	0.04	0.2	--
BA2-42	9/27/2005	42	4.3	<3.0	<10	<0.005	0.1	0.08	0.5	--
BA3-42	9/27/2005	42	4.5	<3.0	<10	<0.005	0.04	0.05	0.3	--
BA4-42	9/28/2005	42	<1.0	<3.0	<10	<0.005	<0.005	<0.005	<0.02	--
BA5-42	9/28/2005	42	<1.0	<3.0	<10	<0.005	0.005	<0.005	<0.02	--
BA6-42	9/29/2005	42	<1.0	<3.0	<10	<0.005	<0.005	<0.005	<0.02	--
BA7-42	9/29/2005	42	<1.0	<3.0	<10	<0.005	<0.005	<0.005	<0.02	--
BA8-42	9/29/2005	42	<1.0	<3.0	<10	<0.005	<0.005	<0.005	<0.02	--
BA9-42	9/30/2005	42	<1.0	<3.0	<10	<0.005	0.006	<0.005	0.02	--
BA10-42	9/30/2005	42	<1.0	<3.0	<10	<0.005	<0.005	<0.005	<0.02	--
BA11-42	10/3/2005	42	<1.0	<3.0	<10	<0.005	0.01	0.007	0.04	--
BA12-42	10/3/2005	42	<1.0	<3.0	<10	<0.005	0.01	0.007	0.03	--
BA13-40	10/4/2005	40	19	<3.0	<10	0.009	0.2	0.2	1.0	--
BA13-42	10/4/2005	42	<1.0	<3.0	<10	<0.005	<0.005	<0.005	0.02	--
BA14-42	10/4/2005	42	1.8	<3.0	<10	0.006	0.09	0.03	0.2	--
BA15-42	10/4/2005	42	<1.0	<3.0	<10	<0.005	0.008	0.009	0.04	--
BA17-42	10/5/2005	42	<1.0	<3.0	<10	<0.005	0.01	0.007	0.04	--
BA18-42	10/6/2005	42	<1.0	<3.0	<10	<0.005	<0.005	<0.005	<0.02	--
BA19-42	10/6/2005	42	<1.0	<3.0	<10	<0.005	0.01	0.03	0.09	--
BA20-39	10/6/2005	39	4,200	190	<50	<0.2	18	31	180	--
BA20-42	10/6/2005	42	<1.0	<3.0	<10	<0.005	<0.005	<0.005	<0.02	--

Table 3
 Soil Analytical Results
 Former Chevron Service Station No. 209335
 1201 - 1225 North 45th Street
 Seattle, Washington



Sample ID	Date	Depth	TPH-GRO	TPH-DRO	TPH-HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MTCA Method A Soil Cleanup Levels			30/100	2,000	2,000	0.03	7	6	9	0.1
Phase II Environmental Site Assessment, 4453 and 4455 Styone Way North										
FB-1	10/24/2016	35	< 6.8	< 30	< 60	< 0.0012	<0.0059	<0.0012	<0.0035	
FB-2	10/24/2016	30	< 6.2	< 29	< 57	< 0.0011	< 0.0056	< 0.0011	< 0.0034	

Notes

BOLD and highlighted values are greater than their respective MTCA Method A cleanup level

BOLD values are non-detect below the laboratory detection limit where the detection limit is higher than the MTCA Method A cleanup level

All results in milligrams per kilogram (mg/kg).

Soil Cleanup Level for gasoline mixtures (GRO) without benzene and the total of toluene, ethylbenzene, and xylenes are less than 1% of the gasoline mixture is 100 mg/kg. For all other gasoline mixtures, the GRO Soil Cleanup Level is 30 mg/kg

Ecology MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses, WAC Chapter 173-340-900, Table 740-1

Abbreviations:

ID = Identification

MTCA = Model Toxics Control Act

TPH = Total petroleum hydrocarbons

TPH - GRO = TPH - Gasoline range Organics analyzed by Ecology Method NWTPH-Gx

TPH - DRO = TPH - Diesel Range Organics analyzed by Ecology Method NWTPH-Dx

TPH - HO = TPH - Heavy Oil Range Organics analyzed by Ecology Method NWTPH-Dx

BTEX = benzene, toluene, ethylbenzene and total xylenes - collectively by EPA Method 8260C or 8020

-- = Not applicable, not available, or not analyzed

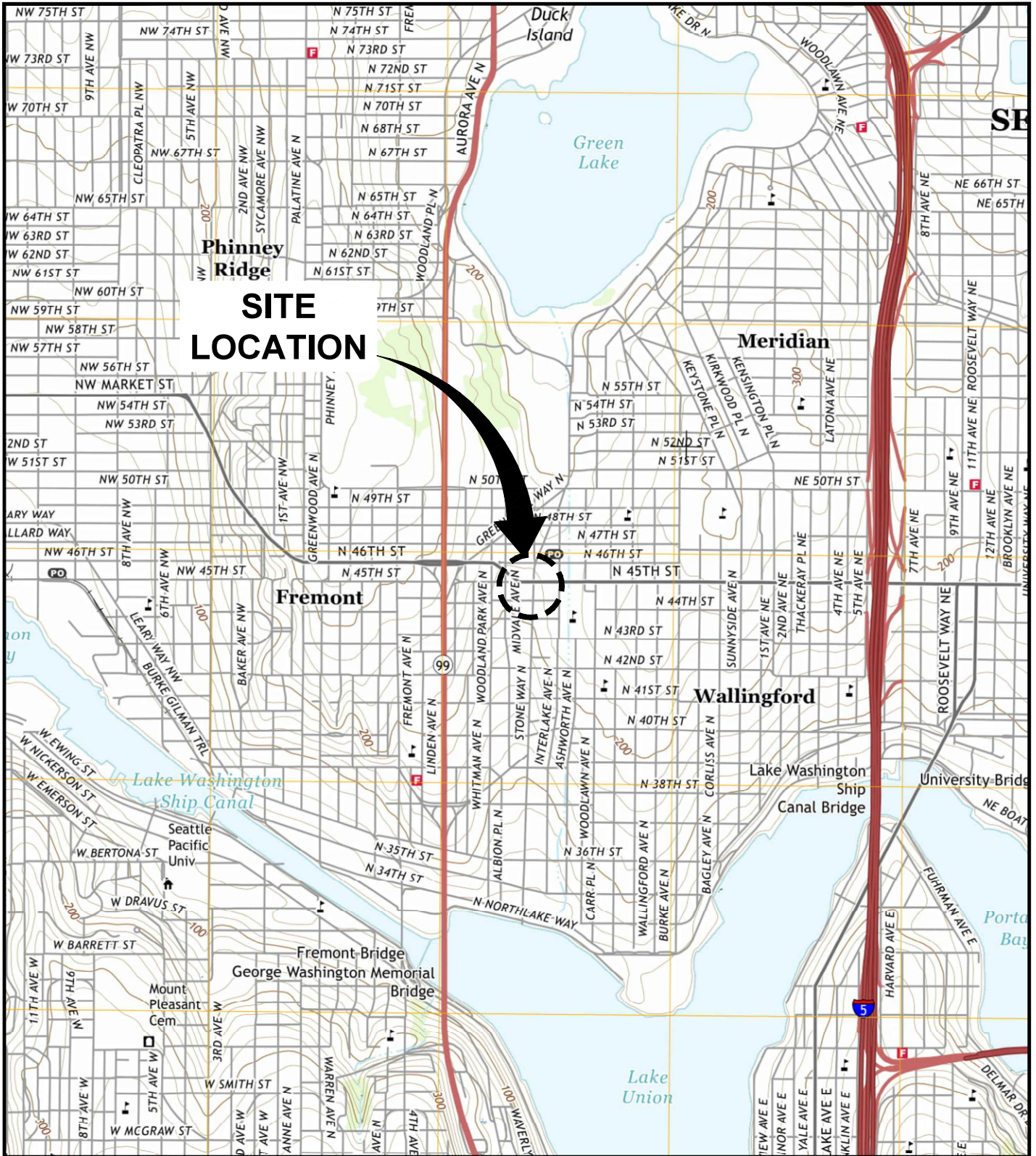
Depth = Depth of sample in feet below ground surface (bgs)

Grey text indicates that the sample area has been excavated.

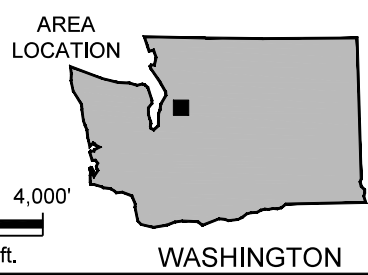
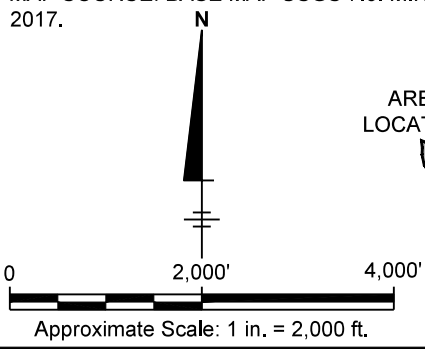
Laboratory Qualifiers

< = Not detected at or above laboratory method detection limit (MDL) for the given analysis, value shown is MDL

Figures



MAP SOURCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., SEATTLE NORTH AND SHISHOLE BAY, WASHINGTON KING CO, 2017.

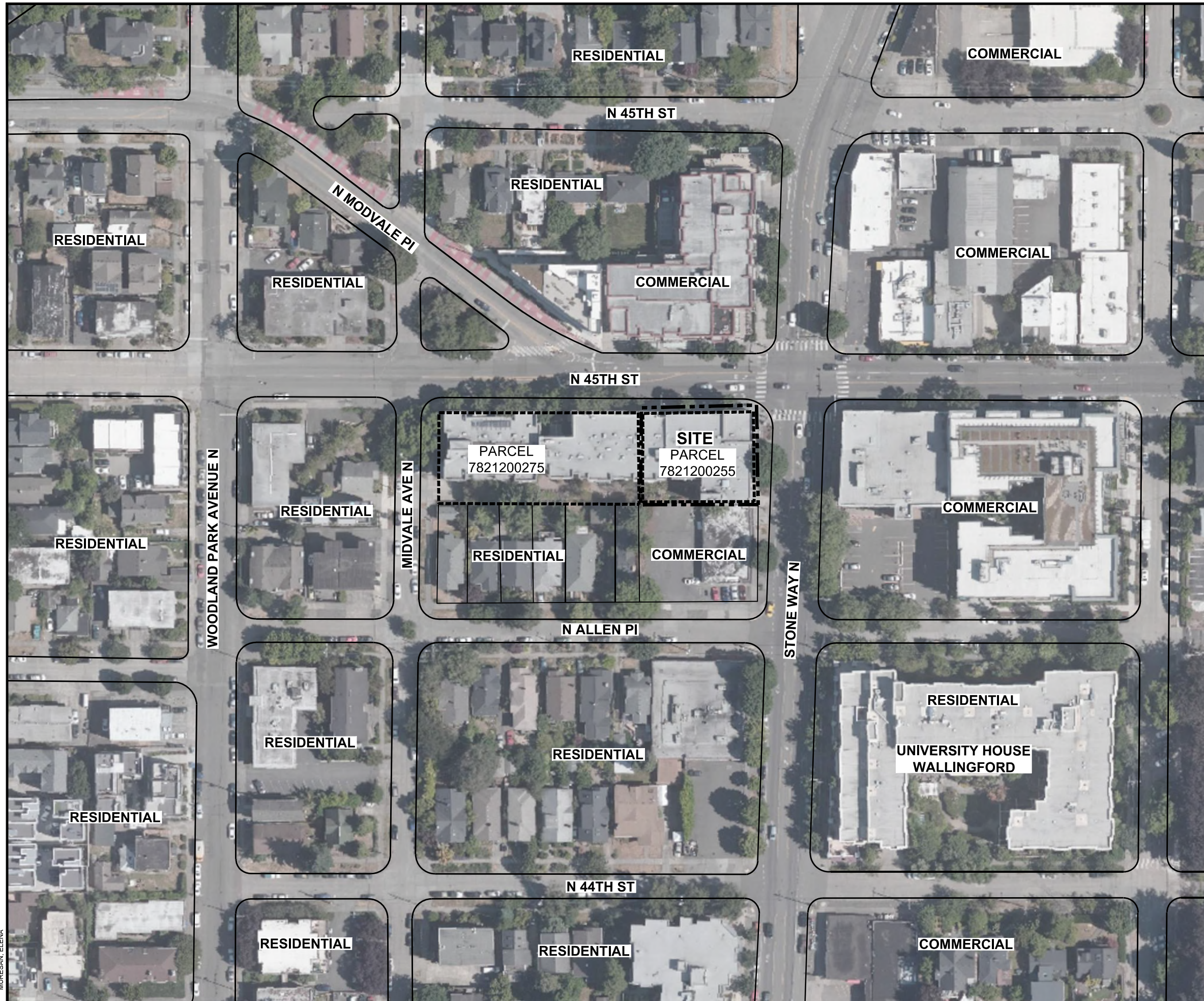


FORMER CHEVRON SERVICE STATION 209335
 1225 NORTH 45TH STREET
 SEATTLE, WASHINGTON.

SITE LOCATION MAP



FIGURE
1



LEGEND:
 - - - - - APPROXIMATE SITE BOUNDARY
 - - - - - TAX PARCEL BOUNDARY

NOTE:
 1. BASEMAP DIGITIZED FROM DIGITAL GLOBE @ CNES DISTRIBUTION AIRBUS DS

0 100' 200'
 APPROXIMATE SCALE 1 in. = 100 ft.

FORMER CHEVRON SERVICE STATION 209335
 1225 NORTH 45TH STREET
 SEATTLE, WASHINGTON.

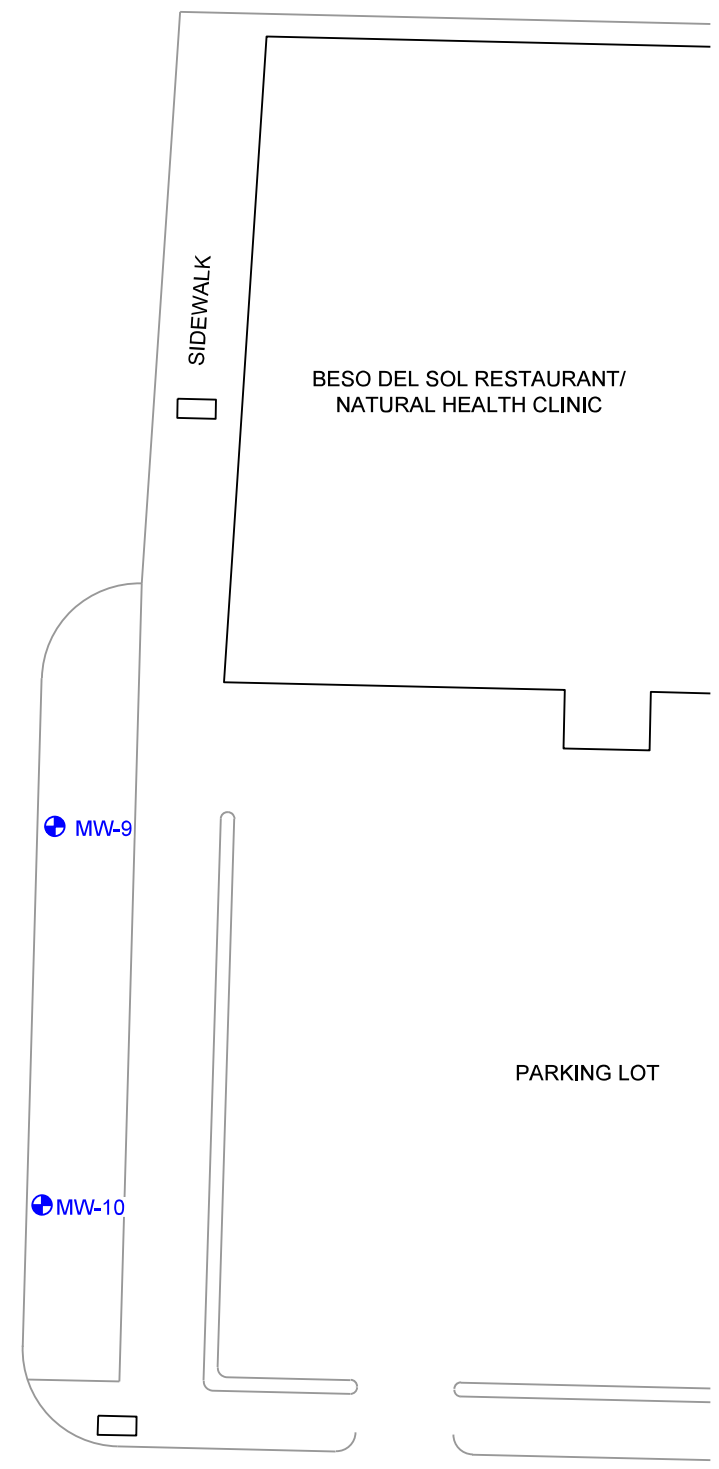
SITE VICINITY MAP

ARCADIS | FIGURE 2

CITY:\Regd\DIV\GROUP\Regd\DB\Regd\LD\Opt\PIC\Opt\PM\Regd\TM\Opt\LYR\CON\OFF+REF*
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STONE WAY NORTH



LEGEND:

- - - - - FORMER CHEVRON SERVICE STATION BOUNDARY
- APPROXIMATE SITE BOUNDARY
- + MW-6 GROUNDWATER MONITORING WELL LOCATION
- + MW-1 DECOMMISSIONED GROUNDWATER MONITORING WELL LOCATION
- UST UNDERGROUND STORAGE TANK



NOTES:

1. BASE MAP PROVIDED BY SAIC, DATED 11/24/2010, AT A SCALE OF 1"=20'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.



FORMER CHEVRON SERVICE STATION 209335
 1225 NORTH 45TH STREET
 SEATTLE, WASHINGTON.

SITE PLAN



FIGURE
3

CITY:\Revd\DIV\GROUP\Revd\DR\Revd\LD\Revd\PIC\Revd\PM\Revd\TM\Revd\LYR\COPY\ONE\OFF\REF*
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NORTH 45TH STREET



LEGEND:

- - - - FORMER CHEVRON SERVICE STATION BOUNDARY
- APPROXIMATE SITE BOUNDARY
- GROUNDWATER MONITORING WELL
- DECOMMISSIONED GROUNDWATER MONITORING WELL LOCATION
- ▲ SAIC SOIL BORING LOCATION
- EA SOIL BORING LOCATION
- BUCKET AUGER LOCATION
- EXCAVATION SAMPLE LOCATION
- UST UNDERGROUND STORAGE TANK
- 2005 EXCAVATION BOUNDARY (ENTIRE SITE EXCAVATED TO 13 FEET BGS)

NOTES:

1. BASE MAP PROVIDED BY SAIC, DATED 11/24/2010, AT A SCALE OF 1"=20'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.



FORMER CHEVRON SERVICE STATION 209335
 1225 NORTH 45TH STREET
 SEATTLE, WASHINGTON.

**SITE PLAN WITH SOIL SAMPLING
 LOCATIONS AND EXCAVATION
 EXTENTS**

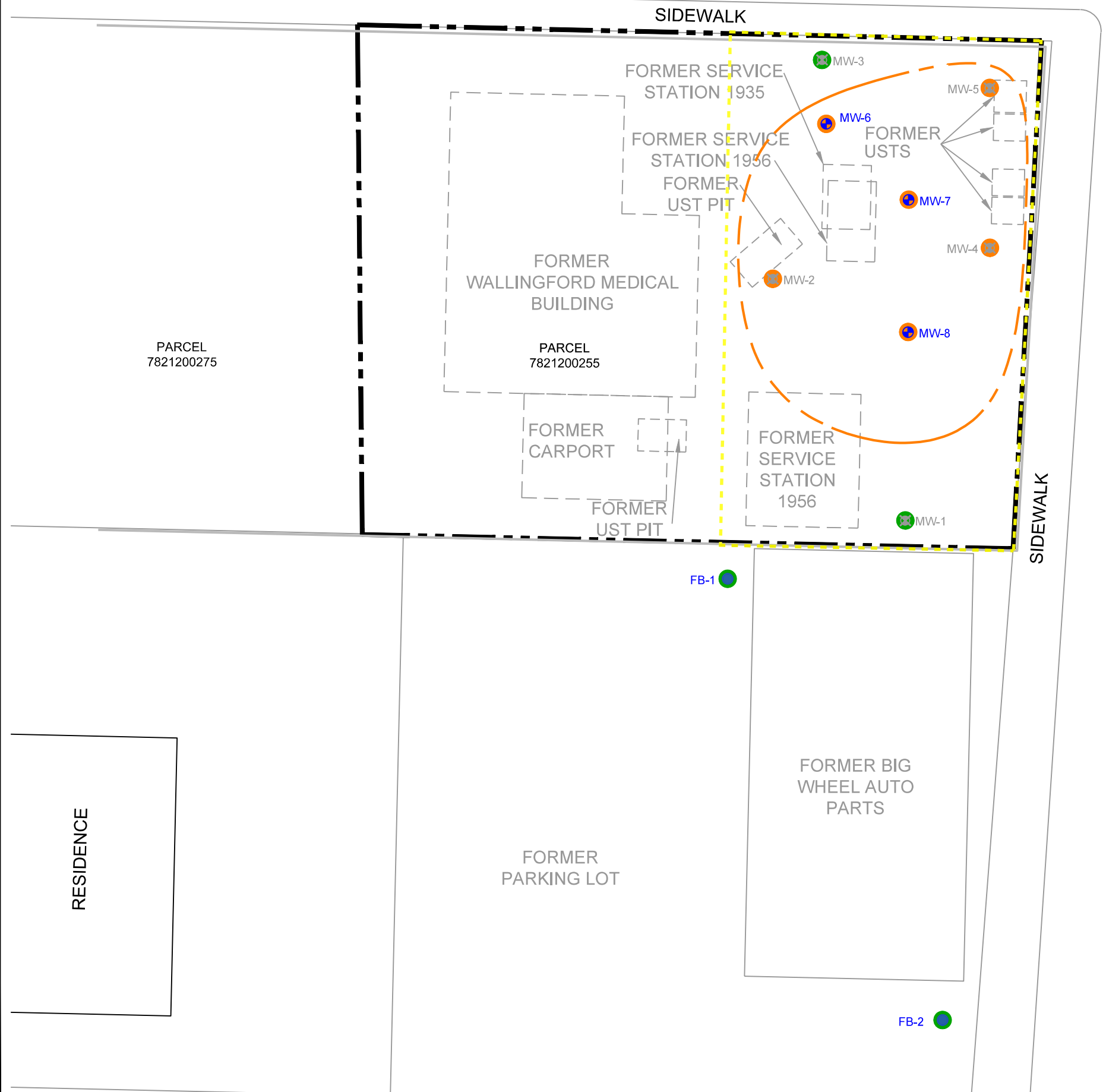
MW-10



FIGURE
4

CITY:\Revd\DIV\GROUP\Revd\DR\Revd\LD\Opt\PIC\Opt\PM\Revd\TM\Opt\LYR\Opt\ONE\OFF+REF*
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NORTH 45TH STREET

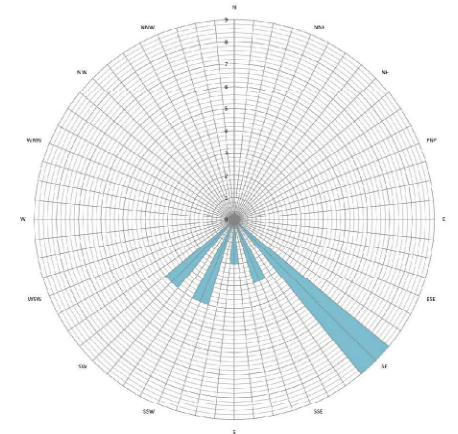


LEGEND:

- FORMER CHEVRON SERVICE STATION BOUNDARY
- APPROXIMATE SITE BOUNDARY
- MW-6 GROUNDWATER MONITORING WELL LOCATION
- MW-1 DECOMMISSIONED GROUNDWATER MONITORING WELL LOCATION
- FB-1 GROUNDWATER GRAB SAMPLE
- UST UNDERGROUND STORAGE TANK
- HISTORICAL GROUNDWATER CONCENTRATIONS OBSERVED AT LEAST ONCE ABOVE MTCA METHOD A CULs FOR PETROLEUM
- HISTORICAL GROUNDWATER CONCENTRATIONS OBSERVED BELOW MTCA METHOD A CULs FOR PETROLEUM
- HISTORICAL MTCA SITE BOUNDARY MAP FOR GROUNDWATER (DASHED WHERE INFERRED)

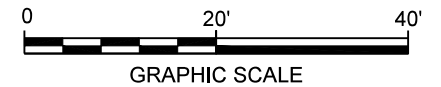


GROUNDWATER ROSE



NOTES:

1. BASE MAP PROVIDED BY SAIC, DATED 11/24/2010, AT A SCALE OF 1"=20'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. GROUNDWATER ROSE IS BASED OFF OF DATA FROM 2004 UNTIL 2017.



FORMER CHEVRON SERVICE STATION 209335
 1225 NORTH 45TH STREET
 SEATTLE, WASHINGTON.

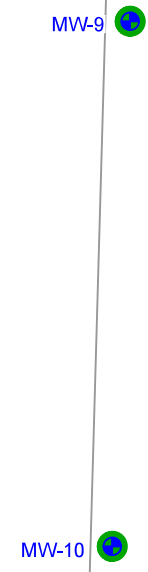
HISTORICAL GROUNDWATER MTCA BOUNDARY FOR PETROLEUM IMPACTS



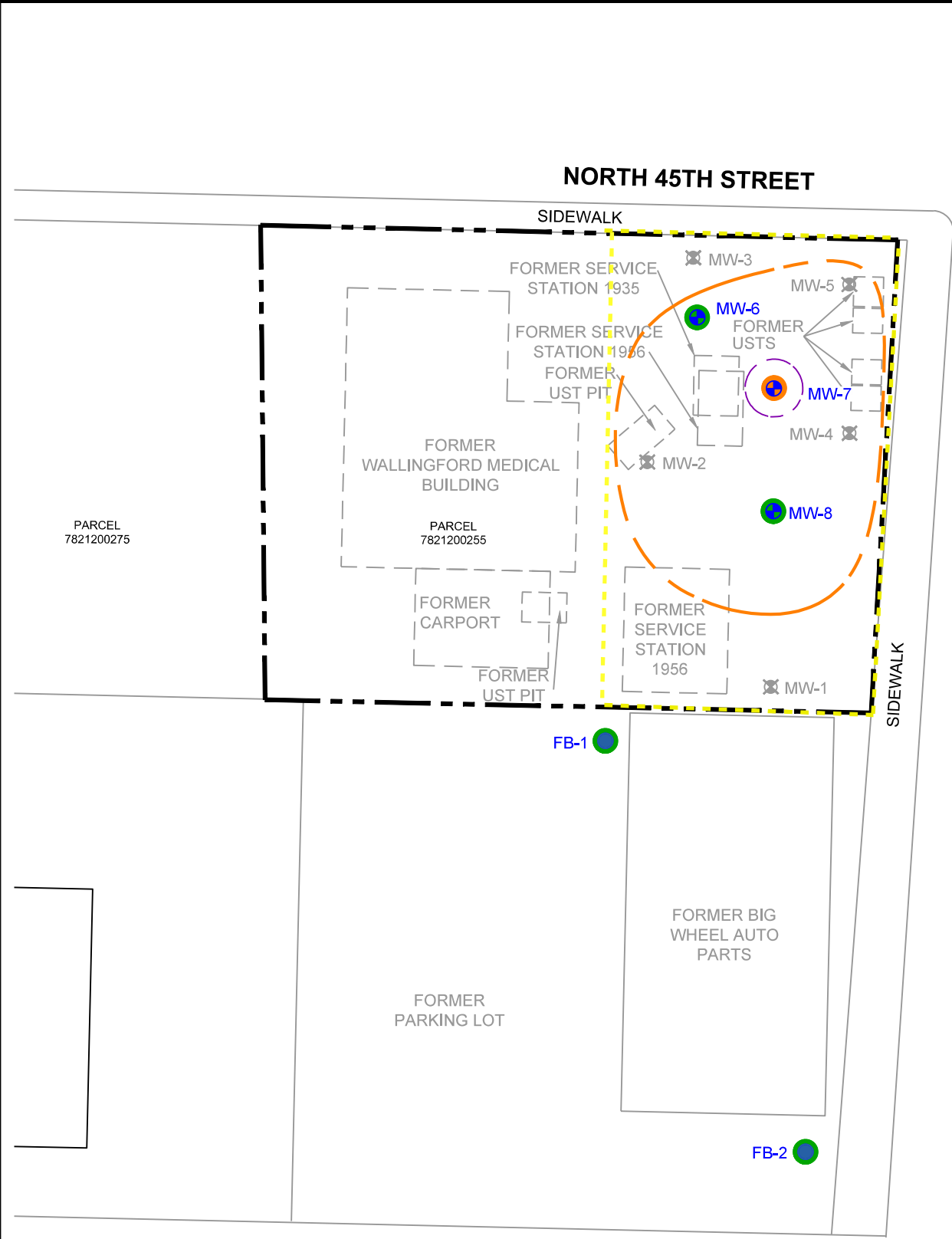
FIGURE

5

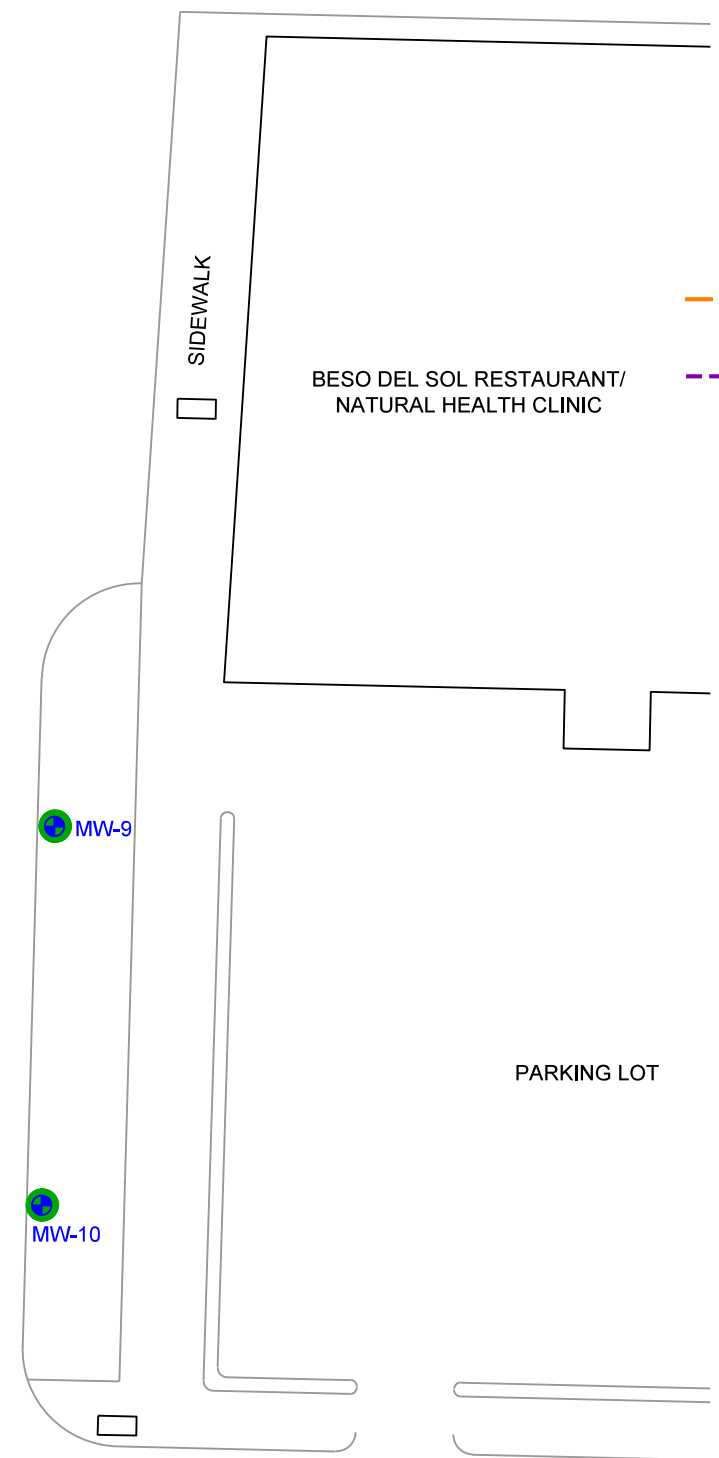
STONE WAY NORTH



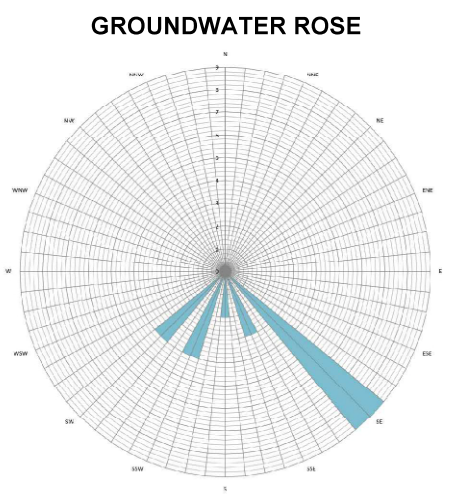
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STONE WAY NORTH



- LEGEND:**
- FORMER CHEVRON SERVICE STATION BOUNDARY
 - - - APPROXIMATE SITE BOUNDARY
 - MW-6 GROUNDWATER MONITORING WELL LOCATION
 - MW-1 DECOMMISSIONED GROUNDWATER MONITORING WELL LOCATION
 - FB-1 GROUNDWATER GRAB SAMPLE
 - UST UNDERGROUND STORAGE TANK
 - HISTORICAL GROUNDWATER CONCENTRATIONS OBSERVED AT LEAST ONCE ABOVE MTCA METHOD A CULs FOR PETROLEUM
 - HISTORICAL GROUNDWATER CONCENTRATIONS OBSERVED BELOW MTCA METHOD A CULs FOR PETROLEUM
 - - - HISTORICAL MTCA SITE BOUNDARY MAP FOR GROUNDWATER (DASHED WHERE INFERRED)
 - - - CURRENT MTCA SITE BOUNDARY MAP FOR GROUNDWATER (DASHED WHERE INFERRED)



- NOTES:**
1. BASE MAP PROVIDED BY SAIC, DATED 11/24/2010, AT A SCALE OF 1"=20'.
 2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
 3. LAST FOUR SAMPLING EVENTS OCCURED FROM OCTOBER 2016 THROUGH MAY 2018.
 4. GROUNDWATER ROSE IS BASED OFF OF DATA FROM 2004 UNTIL 2017.



FORMER CHEVRON SERVICE STATION 209335
1225 NORTH 45TH STREET
SEATTLE, WASHINGTON.

**CURRENT GROUNDWATER MTCA
BOUNDARY FOR PETROLEUM IMPACTS**

ARCADIS

FIGURE
6

