Remedial Investigation Report
North Lot Development
Seattle, Washington

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Prepared for

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TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

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LIST OF ABBREVIATIONS AND ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
ASTM	American Society for Testing and Materials
BGS	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CAP	Cleanup Action Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS NFRAP	Comprehensive Environmental Response, Compensation, and Liability Information System No Further Remedial Action Planned
cm/s	Centimeters per Second
cPAH	Carcinogenic Polycyclic Aromatic Hydrocarbon
CSCSL	Confirmed and Suspected Contaminated Sites List
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
FINDS	Facility Index System / Facility Registry System
FS	Feasibility Study
HCID	Hydrocarbon Identification
INST CONTROL	Institutional Control
LUST	Leaking Underground Storage Tank
MANIFEST	Hazardous Waste Manifest
MCL	Maximum Contaminant Level
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
MSL	Mean Sea Level
MTCA	Washington State Model Toxics Control Act
NAVD88	North American Vertical Datum of 1988
NFA	No Further Action
ng/kg	Nanogram per Kilogram
NLD	North Lot Development
NPDES	National Pollutant Discharge Elimination System
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PID	Photoionization Detector
ppm	Parts per Million
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
RI	Remedial Investigation
SEPA	Washington State Environmental Policy Act
SWPPP	Stormwater Pollution Prevention Plan
TEF	Toxicity Equivalency Factor
TEQ	Toxicity Equivalency Quotient
TPH	Total Petroleum Hydrocarbons
TPH-D	Diesel-Range Petroleum Hydrocarbons
TPH-G	Gasoline-Range Petroleum Hydrocarbons
TPH-O	Motor Oil-Range Petroleum Hydrocarbons
UCL	Upper Confidence Limit

µg/kg	Micrograms per Kilogram
µg/L	Micrograms per Liter
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Compound
WAC	Washington Administrative Code

1.0 INTRODUCTION

This document presents the remedial investigation (RI) for the North Lot Property (Property) in Seattle, Washington. North Lot Development (NLD), as prospective purchaser of the Property, has conducted various investigations to document and characterize soil and groundwater conditions at the Property. This RI documents and evaluates the nature and extent of contamination at the Property.

Investigation of the Property began with the Phase I environmental site assessment (ESA) conducted in 2007 (Landau Associates 2007), and continued with the soil and groundwater quality sampling and analysis conducted in 2008 and 2009.

1.1 PROPERTY DESCRIPTION AND BACKGROUND

The Property is known as the "North Lot Development" (King County parcel number 7666204878) and is located in Seattle, Washington's south end Central Business District adjacent to Qwest Field, as shown on Figure 1. The Property is comprised of 3.85 acres currently owned by King County, and is located southeast of the intersection of South King Street and Occidental Avenue South in Seattle, Washington (Figure 2). The Property consists of a paved parking lot, which is used for commuter parking and parking for events at Qwest Field. Based on a Phase I ESA completed by Landau Associates (dated March 28, 2007), the Property was originally undeveloped tideflats of Elliott Bay. The Property was filled in the late 1890s and early 1900s and was operated as a rail yard from the late 1800s until the late 1960s. Prior to filling, the area was initially developed with streets, buildings, and railroad tracks elevated and supported by pilings. Several sets of railroad tracks were formerly present on the Property. Structures associated with the rail yard included engine maintenance buildings, paint shops, track switching areas, and materials storage areas. In addition, two gasoline stations were formerly located in the northwestern portion of the Property at different times between the late 1930s and approximately 1966. King County purchased the Property in the 1970s to facilitate construction of the Kingdome stadium to the south of the Property, which was later demolished and replaced with the current Qwest Field development. The Property has been used as a parking lot since the 1970s (Landau Associates 2007). The Property is served by various utilities including a stormwater drainage system that consists of a series of four storm drain lines running north to south across the Property. A fifth storm drain line runs approximately northwest to southeast in the eastern half of the Property. The King County main storm drain runs along King Street to the north of the Property and the King County combined sewer main runs along Occidental Avenue to the west of the Property. Relevant historical Property features are illustrated on Figure 3. Existing Property features including the stormwater drainage system and other below-grade utilities on and adjacent to the Property are shown on Figure 4.

The Property will be developed by NLD as part of an Inter-Modal regional transit hub at King Street Station and will encompass two full city blocks with approximately 1.5 million gross square feet of buildable area. The planned development will include two podiums (east and west blocks) that contain residential/North Lot replacement parking, building lobbies, and retail uses. Above the podium on the east block will be a single office tower, and the west block will include more than 400 units of new housing stock (including 100 affordable units).

1.2 REGULATORY FRAMEWORK

Property cleanup, including this RI and the Feasibility Study (FS), which will be submitted as a separate document, is being accomplished under the Washington State Model Toxics Control Act (MTCA). The Property is currently owned by King County. NLD, as the prospective purchaser of the Property, has been in communication with Ecology since April 2008 regarding a suitable regulatory mechanism to facilitate the RI/FS and Cleanup Action Plan (CAP) review and concurrence by Ecology. NLD submitted a proposal for a Prospective Purchaser Agreement/Consent Decree to Ecology in May 2008. Proposal approval has been delayed due to limited Ecology and Attorney General staff resources. Ecology subsequently proposed temporary use of Voluntary Cleanup Program (VCP) staff for completion of the RI/FS work because VCP staff could be assigned immediately.

The NLD team submitted an initial VCP application and met with Mr. Bob Warren and Mr. Russ Olsen of Ecology in September 2008. During the meeting, the VCP process was discussed in the context of the NLD team's development schedule and obligations to the current owner (King County). NLD subsequently submitted a revised VCP application with a specific request for Ecology to review the Remedial Investigation Work Plan, which included proposed additional investigation of soil and groundwater at the Property to identify the source(s), nature, and extent of the contamination and potential exposure pathways, and to collect sufficient data to establish cleanup standards and select a cleanup action. The cover letter with the revised application requested a letter from Ecology stating that the proposed remedial action (i.e., pre-cleanup investigation activities) is likely to be sufficient to meet the specific substantive requirements of MTCA, chapter 70.105D RCW and its implementing regulations, chapter 173-340 WAC, for characterizing and addressing the release(s) at the Property. Ecology subsequently provided comments regarding the RI Work Plan via e-mail (Adams 2008). The Ecology comments were addressed in the Ecology Review Draft Report: *Remedial Investigation/Feasibility Study, North Lot Development, Seattle, Washington* dated February 24, 2009, which was submitted to Ecology for review.

Ecology provided an Opinion Letter dated April 21, 2009 that included its comments regarding the draft RI/FS report. The NLD team met with Ecology on May 28, 2009 to discuss the comments in the

Opinion Letter, and a plan to move forward and complete the RI/FS for the Property. Specific responses to the Ecology comments were provided in a letter dated June 12, 2009 (Landau Associates 2009a), which also included a summary of the topics discussed during the May 28 meeting and actions agreed to by NLD.

The NLD team also submitted a Work Plan (initial version dated June 18, 2009 and revised version dated July 7, 2009) detailing the Supplemental Investigation activities that were planned in response to the April 21, 2009 Opinion Letter and agreed to with Ecology. The NLD team, at Ecology's request, also submitted a letter (dated July 7, 2009; Landau Associates 2009b) clarifying how the proposed Supplemental Investigation activities outlined in the Work Plan will address Ecology comments. The July 7, 2009 letter included responses to additional comments received from Ecology via e-mail on June 30, 2009 regarding the Work Plan and responses to Ecology comments regarding the RI portion of the draft RI/FS report. The Work Plan was subsequently revised (and dated July 7, 2009) to be consistent with the July 7, 2009 clarification letter (Landau Associates 2009c). This RI report includes revisions to the draft RI report to address Ecology comments and incorporate the data from the Supplemental Investigation conducted in July and August 2009. The FS portion of the draft RI/FS report has been removed for revision and submittal as a separate document.

The use of VCP staff has allowed the RI/FS work to progress; however, the technical opinion letters available under the VCP will not provide sufficient liability protection for the viability of the proposed development for the Property. Therefore, NLD has requested that Ecology continue to consider the existing Prospective Purchaser Agreement/Consent Decree Proposal, and that Ecology formal program and Attorney General office staff be made available to oversee the cleanup action after the work with the VCP staff has been completed.

In anticipation of transfer of the project to the Ecology formal program, the documents for the remedial action (this RI report, the FS report, and the planned CAP) are being prepared in a format, and with sufficient detail, to meet the requirements of MTCA under both the VCP and formal programs. The documents will support transfer of the project from the VCP to the formal program during the first quarter of 2010.

1.3 PURPOSE

The purpose of the RI is to collect, develop, and evaluate sufficient information regarding the Property to enable the evaluation of suitable remedial action alternatives in the FS, and selection of a cleanup action. Specifically, the RI:

- Characterizes the nature and extent of contamination for affected media (i.e., soil and groundwater)

- Identifies cleanup standards for affected media.

This document presents the information collected and the evaluations performed to achieve this purpose.

1.4 REPORT ORGANIZATION

Section 2.0 of this report presents a summary of investigative activities conducted on-Property and off-Property for the RI. Section 3.0 presents the results of the RI, including characterization of the nature and extent of contamination using all data collected to date. Section 4.0 presents the summary and conclusions for the RI. Section 5.0 describes the uses of this report, and Section 6.0 provides references.

2.0 PROPERTY INVESTIGATIONS

This section provides a description of the investigative activities that were conducted to characterize conditions at the Property and to develop the data for this RI report. The Property investigations are presented in this section by the type of investigation or the media of concern (e.g., soil or groundwater) to provide the reader with a thorough understanding of the activities that were performed as part of the RI.

The findings of the Phase I ESA are provided in Section 2.2 to establish the context for the soil and groundwater investigations conducted at the Property during the Phase II investigation, the RI field investigation, and the Supplemental Investigation. Findings of the Phase II investigation, RI field investigation, and Supplemental Investigation that are related to the physical conditions at the Property are also included in this section. The analytical results for the samples collected during the Phase II investigation, RI soil and groundwater investigation, and Supplemental Investigation are presented in Section 3.0 and combined to present the physical conditions of the Property and the nature and extent of contamination to soil and groundwater for this RI report.

2.1 CHRONOLOGY OF PROPERTY INVESTIGATIONS

Four investigations were conducted at the Property to develop the data used in this RI report. A Phase I ESA was conducted in 2007 (Landau Associates 2007), and a focused Phase II soil and groundwater investigation was conducted in February 2008. The Phase II investigation included a geophysical survey, the drilling and sampling of soil borings at 22 locations on the Property, and the collection of groundwater samples from 12 of the boring locations.

The RI field investigation was conducted in October and November 2008 to further characterize soil and groundwater conditions at the Property in areas where soil or groundwater contamination was detected during the Phase II investigations, and to assess the potential for migration of the contamination detected on the Property. The RI field investigation included drilling and sampling of soil borings at 26 locations, the collection of groundwater samples from 4 of the boring locations, and the installation and sampling of 11 groundwater monitoring wells.

The Supplemental Investigation was conducted in July and August 2009 to further characterize the areal and vertical distribution and concentrations of hazardous substances in soil and groundwater. The Supplemental Investigation included drilling and sampling of soil borings at an additional 21 locations including 2 off-Property locations, the installation of 8 additional monitoring wells including wells at 2 off-Property locations, and sampling and analysis of groundwater from all 19 groundwater monitoring wells.

The investigations have included the drilling of more than 70 soil borings, the installation of 19 monitoring wells, and the collection and laboratory analysis of 90 soil samples and 48 groundwater samples from locations on and off the Property over a 3-year period. A summary of the sampling activities and the associated sample analyses are presented in Table 1. The sampling locations are shown on Figure 5. The following sections summarize the activities conducted during these investigations.

2.2 PHASE I ENVIRONMENTAL SITE ASSESSMENT

The Phase I ESA (Landau Associates 2007) consisted of a review of historical information regarding the Property and surrounding area; contacts with representatives of local, state, and federal government agencies regarding the Property and properties of potential concern within a 1-mile radius; a Property reconnaissance; data evaluation; and reporting. The Phase I ESA was conducted in accordance with the guidelines of the American Society for Testing and Materials (ASTM) as identified in its Standard Practice for Environmental Property Assessment Process, E 1527-05 (as currently applied in the state of Washington).

The goal of the assessment process outlined in ASTM E 1527-05 is to identify *recognized environmental conditions*, which are defined as the presence or likely presence of any hazardous substances or petroleum products under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the Property or into the ground, groundwater, or surface water of the Property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of the appropriate governmental agencies. The Phase I ESA identified various areas of potential environmental concern and *recognized environmental conditions* for the Property related to historical site operations and operations on sites in the surrounding area.

Included below is relevant historical, regulatory, and physical information regarding the Property and surrounding area developed during the Phase I ESA and during preparation of this RI report. Copies of selected historical Sanborn maps and aerial photographs are provided in Appendices A and B, respectively.

- According to historical Sanborn maps, the Property was operated as a rail yard from 1888 to 1969. Railroad tracks were originally located along the northern Property boundary (current location of South King Street) and ran diagonally from the northwestern portion to the southeastern portion of the Property. Structures associated with the rail yard included a roundhouse; turntables; coal boxes; a blacksmith shop; an office; a machine shop/storage area; a car repair, maintenance, and painting facility; and locomotive houses. The 1888 map shows the western portion of the Property as a rail yard and the portion of the Property located east of 2nd Avenue South (shown as South 3rd Street on this map) is shown as Elliott Bay, which at that time was likely tidal flats (see Appendix A). On the 1904 map, several of the structures are labeled “fire ruins,” indicating a fire occurred on the Property between 1888 and 1904. Prior to 1916, the configuration of the rail yard changed significantly. The railroad tracks, the roundhouse, and other structures were removed and replaced. South King Street is shown to the north of the Property. Railroad tracks ran north to south from South King Street and long, narrow sheds were located along the tracks. Both the railroad tracks and the freight sheds extended onto the adjacent property to the south (see Appendices A and B). In the 1950 map, a structure is shown in the northwestern portion of the Property, which is interpreted to have been a gasoline station based on records reviewed at the Puget Sound Regional Archives (see Appendix A). This building is not shown on the 1969 map (see Appendices A and B).

- The historical data review indicates that the western portion of the Property was filled and developed by 1888, before the eastern portion (i.e., east of the current location of 2nd Avenue and the Center Drive Lane on the Property), which appears to have been filled and developed by about 1904 and after the Great Seattle Fire of 1889.

- During operation of the Property as a rail yard, the railroad tracks were primarily located in the eastern portion of the Property and the associated structures were located in the western portion. Several of the structures were known to have been heated using oil. Typical contamination associated with rail yards includes degreasing solvents, polychlorinated biphenyl (PCB)-containing lubricating oils, heavy metals, paint, petroleum hydrocarbons, and creosote (from treated railroad tracks). The long history of the Property as a rail yard is considered a *recognized environmental condition*.

- Two gasoline stations were formerly located in the northwestern portion of the Property. The gasoline stations operated during different time periods in the same area of the Property. Given that the stations had two distinct configurations and a different number of gasoline pumps, it is possible that two sets of tanks were associated with the gasoline stations. There are no records available regarding the specific footprints of the stations or of removal or closure of the tanks associated with the gasoline stations. The former operation of gasoline stations on the Property is considered a *recognized environmental condition*.

- The Union Station property (Union Station) is located approximately 300 feet (ft) east of the Property and is listed on the CSCSL, FINDS, INST CONTROL, MANIFEST, CERCLIS NFRAP, and RCRA databases. Soil and groundwater impacts have been identified at Union Station. Union Station Associates entered into a Consent Decree with Ecology in 1997 that specified the remedial actions required for the Union Station property. The remedial actions, including soil excavation, paving, and the placement of an institutional control limiting the use of groundwater to industrial uses, have been completed. Ecology issued a Certification of Completion in January 2005 and Union Station is currently undergoing groundwater monitoring every 5 years. Gasoline-range and diesel-range petroleum hydrocarbons and related constituents, and arsenic have been detected in groundwater samples collected from the Union Station monitoring wells. The source of these constituents has not been identified, but is likely to be east of Union Station.

  Based on the results of the last two groundwater monitoring events at Union Station in 2004 and 2009, petroleum hydrocarbons and related constituents, and arsenic were detected in the monitoring wells at Union Station approximately 300 ft hydraulically upgradient from the eastern boundary of the Property. Groundwater beneath the Property has likely been impacted by petroleum hydrocarbons and related constituents, and/or arsenic. The potential presence of petroleum hydrocarbons and related constituents, and arsenic in the groundwater beneath the Property due to the contamination detected at this upgradient property is considered a *recognized environmental condition* for the Property.

Background-based screening levels were developed for Union Station based on concentrations of constituents of concern in groundwater sampled from offsite background wells. Background concentrations evaluated at Union Station may be considered reasonable background concentrations for the North Lot Property due to the proximity and upgradient location of Union Station.

- The King Street Center site is located adjacent to the north of the Property, across King Street. This site is listed on the ICR database for an interim cleanup report, which was submitted to Ecology in 1998, regarding petroleum detected in the groundwater. This site is also listed on the underground storage tank (UST) and leaking underground storage tank (LUST) databases. A release was reported from one of two USTs, which were removed in 1998. The release was reported cleaned up; however, a 2003 notice to the property owner from Ecology indicated that the level of contamination at this site may pose a risk to human health and the environment. Ecology requested additional investigation; however, investigations for the Phase I ESA and this RI found that no further information was available from King County regarding soil or groundwater investigation and cleanup at this site. Given that this site is located adjacent to the Property (across King Street), there is potential for impact to the groundwater beneath the Property as a result of this release; therefore, this release is considered a *recognized environmental condition* for the Property.

- The former Kingdome site is located adjacent to the south of the Property. A 1997 Phase I ESA conducted for the former Kingdome site (including the Property) by Shannon & Wilson identified potential impacts to the site soil and groundwater as a result of historical site practices, the nearby Union Station site (which was formerly operated as a coal gasification plant), and a former steam plant in the current location of the Weller Street Bridge Touchdown, which is located adjacent to the east of the Property. A 10,000-gallon fuel oil UST was removed from the southern side of the steam plant in 1996. Petroleum-contaminated soil encountered during the tank removal was removed and transported off site for disposal.

  Based on the findings of the 1997 Phase I ESA, additional environmental investigations were completed on the properties to the south of the Property, including the current Public Stadium Authority (PSA) parking lot, Qwest Field, and the Exhibition Center to the south of Qwest Field. Investigations were focused in this area in preparation for the development of Qwest Field and the Exhibition Center. Following the initial subsurface investigation, 13 impacted areas were identified on the former Kingdome site that were generally associated with USTs discovered prior to and during construction activities.

  The additional investigations identified soil and groundwater that had been impacted by total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), vinyl chloride (groundwater only), and metals. Groundwater was generally encountered from 7 to 10 ft below ground surface (BGS), and the direction of groundwater flow was stated to be to the southwest. No soil or groundwater investigations were conducted on the Property. Soil encountered during the investigations consisted of loose to medium dense, silty sand and gravel with intermixed materials (including coal, boulders, saw mill debris, brick, ash, building debris, railroad ties, rails, and concrete) to depths ranging from 4 to 18 ft BGS.

  Following remedial activities that generally consisted of removal of USTs and the surrounding impacted soils, the available information indicates that Ecology issued a No Further Action (NFA) determination for 12 of the 13 impacted areas. The NFA stated that elevated concentrations of PAHs and metals remain in place due to historical industrial use.

> The remaining area is located along Occidental Avenue to the southwest of the Property. Shannon & Wilson completed additional investigation in this area; however, information regarding the current status of this impacted area was not identified during the RI.

The records review conducted for the Phase I ESA for the Property did not identify any detailed information regarding remedial actions associated with the adjacent properties, or area groundwater flow information, other than the data for the Union Station site discussed above.

2.3 SOIL INVESTIGATIONS

The investigations for the Property included evaluation of soil quality during the Phase II investigation, the RI field investigations, and the Supplemental Investigation, and are discussed in this section chronologically by investigation. The soil sampling locations are shown on Figure 5. The soil sample descriptions, depths, and analytical parameters are provided in Table 1 and the conditions encountered during drilling are summarized in Table 2. Boring logs are provided in Appendix C.

2.3.1 PHASE II INVESTIGATION

The Phase II soil investigation was completed to evaluate the conditions of potential concern and *recognized environmental conditions* identified in the Phase I ESA. The Phase II investigation included sampling and chemical analysis of soil from areas of the Property likely to show significant impacts due to previous Property operations, including the locations of the former gasoline stations in the northwestern portion, the locations of the previous structures associated with the former rail yard in the western portion of the Property, and the former railroad track locations in the eastern portion. Samples were also collected near the Property boundaries to evaluate the potential for impact to the Property from neighboring properties.

Soil sampling was conducted from February 27 to February 29, 2008 at 22 locations (B-1 through B-22). Direct-push sampling technology was used to collect soil samples at discrete depths from each boring location. Twenty-two soil samples were collected from the borings for laboratory analysis.

The maximum depths of the borings ranged from about 7 to 24 ft BGS. The maximum depth was selected to target the base of the fill material, which is known from the Phase I ESA to have been placed in the area, and the interface of the fill with the native former tideflat surface. The actual depths were often determined by refusal during drilling due to subsurface obstructions. As shown in Table 2, the native former tideflat surface was encountered in five of the Phase II borings. As discussed below, the upper surface of the native former tideflat surface became a focus of the subsurface investigations after creosote-like material was encountered locally at the contact of the fill with the native material in the northeastern portion of the Property.

In addition to the soil and groundwater investigation, a geophysical survey was completed at the Property as part of the Phase II ESA. The results of the geophysical survey are presented in Section 2.3.1.2.

2.3.1.1 Sampling and Analysis

One soil sample was submitted for laboratory analysis from each of borings B-1 and B-3 through B-20. Two soil samples were submitted for laboratory analysis from each of borings B-2 and B-21. No soil samples were submitted for laboratory analysis from boring B-22 because this boring (along with B-21) was added to visually assess whether the creosote-like material encountered at nearby location B-2 was also present farther to the west. The soil analytical parameters were selected based on the historical Property use in the area where the boring was located. Soil samples were selected for laboratory analysis based on visual observations and field-screening information [i.e., photoionization detector (PID) measurements] collected during drilling.

Borings B-15 through B-20 were advanced in the area of the former gasoline stations in the northwestern portion of the Property. As shown in Table 1, soil samples were collected for selected laboratory analysis from borings B-15 through B-20 from depths ranging from about 5 to 8 ft BGS, based on field-screening evidence of potential contamination (i.e., elevated PID measurements and odor). As shown in Table 2, the highest PID measurements from the Phase II investigation were recorded at a depth of about 5 ft BGS from the borings in the northwestern portion of the Property.

Soil borings B-1, B-2, B-4, B-5, B-7, B-21, and B-22 were advanced in the northeastern portion of the Property. The creosote-like material, which was first encountered at a depth of about 18 ft BGS in boring B-2, was the only evidence of contamination encountered during drilling. As shown in Table 2, no elevated PID measurements were recorded during drilling of the soil borings in the northeastern portion of the Property. Therefore, the soil samples selected from these borings for laboratory analysis were collected from depths ranging from about 6 to 20 ft BGS, with most being from greater than 15 ft BGS, and analyzed for TPH, metals, and PAHs, based on the former rail yard operations in this portion of the Property. In addition, the soil sample collected from B-2 was analyzed for polychlorinated biphenyls (PCBs). One of the soil samples collected from B-21 (B-21-19-20) was analyzed only for metals. The other sample collected from B-21 (B-21-20-23) was analyzed as a product sample due to the presence of creosote-like material. The sample of creosote-like material was analyzed for TPH, metals, PCBs, and PAHs.

Soil borings B-3 and B-8 through B-14 were advanced in the central and southern areas of the Property and soil boring B-6 was advanced slightly south of the Property boundary to evaluate potential impact from the former rail yard operations and to evaluate subsurface conditions at the Property boundaries. Soil samples selected from these borings for laboratory analysis were collected from depths ranging from about 5 to 7.5 ft BGS and analyzed for TPH, metals, and PAHs.

2.3.1.2 Geophysical Survey

A geophysical survey was conducted at the Property as part of the Phase II investigation. The purpose of the survey was to determine if USTs were present in the area of the former gasoline stations in the northwestern portion of the Property and to identify subsurface conditions that could impact the proposed Property development. The Property was investigated using electromagnetic and ground-penetrating radar methods. A copy of the geophysical survey report is provided in Appendix D. Significant findings of the geophysical survey are as follows:

- The geophysical survey identified a "low anomalous zone" in the northwestern portion of the Property, in the area of borings B-17 and B-18 (see Figure 5), suggesting that scattered buried metal is likely present in this area. No evidence of USTs was identified in this area based on the geophysical survey.
- The geophysical survey results indicate an anomaly suggesting the presence of a large (approximately 45 ft x 20 ft) object about 1 ft below grade in the southeastern portion of the Property. According to the geophysical report, this anomaly is likely a buried concrete slab associated with a former structure.
- Scattered anomalies were identified in the western portion of the Property that may be indicative of former building foundations or other remnants of the former structures.
- The geophysical survey did not identify any significant subsurface anomalies in the northeastern portion of the Property.

In summary, the geophysical survey results indicate that scattered buried metal objects are present at the Property; however, no evidence of the presence of USTs was identified. Anomalous zones likely associated with foundations of former structures were also identified.

2.3.2 Remedial Investigation Field Investigation

The RI field investigation was conducted to fill data gaps remaining from the Phase II investigation. Information from the Phase II investigation indicated that localized contamination was present in the northwestern portion of the Property, in the area of the former retail gasoline stations, and in the northeastern portion of the Property where the creosote-like material was encountered at the depth of the former tideflat surface. The RI field investigation focused on further characterization of soil and groundwater conditions and the nature and extent of contamination in these areas, and on documentation of groundwater occurrence, quality, and flow at the Property. Additional soil borings were also advanced in the western half of the Property to characterize the vertical profile of PAH contamination identified in this area during the Phase II investigation. Boring depths were extended at selected locations to further evaluate the depth of the interface between the fill material and the underlying native silt of the former tideflat surface, and the extent of the creosote-like material.

During the RI field investigation, 26 additional direct-push borings were completed at the Property between October 7 and October 10, 2008 (B-23 through B-47; including B-31A and B-31B). The maximum depths of the borings ranged from about 12 to 32 ft BGS. As shown in Table 2, the native former tideflat surface was encountered in 14 of the RI field investigation direct-push borings. Forty soil samples were collected from 26 direct-push borings and submitted for laboratory analysis, including a sample of creosote-like material collected from boring B-41 that was submitted for forensic analysis/product identification. As discussed below, samples were not collected for laboratory analysis from eight borings (B-25, B-29, B-34, B-35, B-37, B-42, B-43, and B-46). Field-screening data from these borings were used in evaluating the nature and extent of contamination identified in the areas of these borings.

Eleven monitoring wells were installed between November 10 and November 14, 2008. Borings for the 11 monitoring wells (MW-1 through MW-9, including MW-7S and-7D, and MW-9S and -9D) were completed using hollow-stem auger drilling techniques. As discussed below, selected borings at the monitoring well locations were extended well below the planned maximum depth of the well(s) to collect additional stratigraphic information.

2.3.2.1 Sampling and Analysis

Soil borings B-23 through B-29, B-45, and B-46 were advanced in the northwestern portion of the Property to further evaluate contamination likely associated with the former gasoline stations. Soil samples from these borings were collected for laboratory analysis from depths ranging from 2.2 to 19 ft BGS based on elevated PID measurements, and analyzed for gasoline-range total petroleum hydrocarbons (TPH-G), benzene, toluene, ethylbenzene, and xylenes (BTEX), and PAHs. Samples collected from B-24 and B-27 were also analyzed for PCBs. No samples were collected for laboratory analysis from boring B-29 due to poor recovery and refusal at multiple attempts during direct-push exploration; however, a monitoring well was installed at this location (MW-2) that allowed for groundwater sample collection. Samples were not collected for laboratory analysis from boring B-25 because of similarities in soil types and conditions to other borings nearby, and there were no observations or field-screening data to indicate the potential presence of contamination. The analytical parameters were selected based on the constituents detected in soil or groundwater samples during the Phase II investigations. Soil samples were selected for laboratory analysis based on visual observations and field-screening information (i.e., the samples with the highest PID measurements) collected during drilling, or from specific zones in order to evaluate the vertical extent of contamination.

Soil borings B-34 through B-44 and B-47 were advanced in the northeastern portion of the Property to further evaluate the creosote-like material identified in this area during the Phase II investigation. These borings were drilled to maximum depths ranging from 24 to 32 ft BGS. The occurrence of the creosote-like material was evaluated by visual observation and field screening during drilling, and soil samples were collected periodically for selected laboratory analysis from depths ranging from 16.5 to 26.0 ft BGS from some of the borings (Table 1).

Soil borings B-30 through B-33 were advanced in the west-central and southern portions of the Property to further evaluate these areas and fill in data gaps. Soil samples from these borings were collected from depths ranging from 0.2 to 18.5 ft BGS and analyzed for TPH, metals, and PAHs to further characterize the fill material. Samples collected from B-30 and B-33 were also analyzed for PCBs.

2.3.3 SUPPLEMENTAL INVESTIGATION

The Supplemental Investigation was conducted to further characterize the areal and vertical distribution and concentrations of hazardous substances in soil and groundwater, address Ecology comments regarding the draft RI/FS report, and complete the RI for the Property. Twenty-one additional soil borings (B-50 through 68 including B-50A and B-63A) were drilled on July 27 and 28 and August 6, 2009 at locations on or adjacent to the Property including:

- In the northwestern portion of the Property to further characterize soil and groundwater in the former gasoline station area, including two off-Property borings
- In the western portion of the Property to further evaluate PAHs in soil greater than 15 ft BGS and to evaluate metals and semivolatile organic compounds (SVOCs) including PAHs in shallow soils about 1 to 2 ft BGS
- In the eastern portion of the Property to evaluate metals and SVOCs including PAHs in shallow soils about 1 to 2 ft BGS.

The maximum depths of the borings ranged from about 6 to 25 ft BGS. As shown in Table 2, the native former tideflat surface was encountered in 9 of the 21 Supplemental Investigation direct-push borings. Twenty-six soil samples were collected and submitted for laboratory analysis. The analytical parameters were selected based on the constituents detected in soil or groundwater samples during the Phase II and RI field investigations and as outlined in the Work Plan (Landau Associates 2009c). Soil samples were selected for laboratory analysis as outlined in the Work Plan. At least one sample was collected for laboratory analysis from each boring, except the locations where two borings were advanced (i.e., B-50 and B-63), then samples were only analyzed from one boring at each location (i.e., samples were collected from B-50A and B-63).

Eight additional monitoring wells were installed on August 3 and August 4, 2009 including two wells (MW-16D and -17D) located off-Property to the northeast. Borings for the eight monitoring wells

(MW-10 through MW-17D, including MW-15D) were completed using hollow-stem auger drilling techniques.

2.3.3.1 Sampling and Analysis

Soil borings B-50 through B-56 were advanced in the northwestern portion of the Property to further evaluate contamination likely associated with the former gasoline stations. Soil samples from these borings were collected for laboratory analysis from depths ranging from 5 to 16 ft BGS and analyzed for TPH-G and BTEX to evaluate the lateral and vertical extent of contamination. No samples were collected for laboratory analysis from boring B-50 due to poor recovery, but a sample was collected from B-50A at the same location.

Soil borings B-57 through B-63A were advanced in the western portion of the Property to further evaluate PAHs in soil greater than 15 ft BGS (B-57 through B-60) and to evaluate metals and SVOCs including PAHs in shallow soils about 1 to 2 ft BGS (B-57 through 63A). These borings were drilled to maximum depths ranging from 9 to 25 ft BGS. No sample was collected for laboratory analysis from boring B-63A, which was drilled to identify geologic data to 10 ft BGS after B-63 encountered refusal at 9 ft BGS. The shallow soil sample representative of the location for borings B-63 and B-63A was collected from B-63.

Soil borings B-64 through B-68 were advanced in the eastern portion of the Property to evaluate metals and SVOCs including PAHs in shallow soils about 1 to 2 ft BGS.

One surface soil sample from each of B-62 and B-65 was also submitted for dioxin/furan analysis per the Work Plan.

Soil samples were also collected for laboratory analysis from the borings for MW-11 (TPH-G and BTEX), MW-15D (PAHs), and MW-17D [HCID, diesel-range total petroleum hydrocarbons (TPH-Dx), metals, PAHs, and SVOCs] to supplement the direct-push boring data.

2.3.4 Physical Soil Characteristics and Field Observations

The drilling for the Phase II investigation, RI field investigation, and Supplemental Investigation for evaluation of subsurface conditions consisted of 68 direct-push borings, and 19 hollow-stem auger borings. The physical soil characteristics of the material encountered during drilling were evaluated using data from borings completed for environmental and geotechnical purposes. Borings that were completed for geotechnical evaluation purposes were included to allow for a more thorough understanding of the subsurface conditions below about 32 ft BGS, which was the approximate maximum extent of borings completed by Landau Associates for environmental purposes.

Five Landau Associates boring locations (B-38, B-34, B-44, B-33, and B-31b) were selected as locations for drilling of deeper borings by Terra Associates for use in their geotechnical evaluation for the Property. Terra Associates designated the deeper borings B-1, B-2, B-3, B-4, and B-5, respectively, and the conditions encountered during drilling were observed and logged by both Landau Associates and Terra Associates personnel. In the text of this report, discussion of Terra Associates borings will be indicated by including the Terra Associates name in parenthesis following the respective boring ID, otherwise the referenced boring was advanced by Landau Associates. Geologic logs developed for the borings by Landau Associates (B-1 through B-68 and MW-1 through MW-17D) and Terra Associates (B-1 through B-5) are provided in Appendix C.

Boring depths for soil characterization ranged from 7 ft BGS (B-11, B-14) to 32 ft BGS (B-40) for the direct-push borings and from 45.5 ft BGS (B-5, Terra Associates) to 80.5 ft BGS (B-3, Terra Associates) for the hollow-stem auger borings.

Soil conditions encountered during drilling consisted of various types of fill material to a maximum depth of 30.5 ft BGS (B-4 Terra Associates). The fill material was variable in consistency and included very loose to medium dense, fine to coarse sand, silty sand, silt, gravels, wood chips, sawdust, and solid wood. In places, coal, ash, concrete and brick fragments, metal debris, and glass fragments were observed in the fill.

Beneath the fill, the upper contact with a marine sediment layer (former native tideflat) was observed at 31 boring locations (see Table 2) at depths ranging from 18 ft BGS (B-7) to 30.75 ft BGS (B-4, Terra Associates). The marine sediment layer generally consisted of a medium stiff to very soft silt with varying percentages of sand, and usually contained shell fragments. Locally the unit consisted of silty fine to medium sand with shell fragments, fine to medium sand with silt, gravel and shell fragments, or silty gravel with sand and shell fragments.

Underlying the marine sediment layer was a thick layer of silty sand, with interbedded gravel, silt, clay, or peat in places, interpreted to be alluvial deposits. This layer was observed in boring B-40, and in borings B-1 through B-5 by Terra Associates. The upper contact with the alluvial deposits ranged from 25.0 ft BGS (B-40) to 45.5 ft BGS (B-2; Terra Associates).

Underlying the alluvial deposits was material interpreted to be a glacial unit with very similar characteristics to the alluvial deposits and consisting of generally fine to medium silty sand with gravel above a fine to coarse sand with gravel with intermixed layers of silt or clay. The transition between the alluvial deposits and glacial deposits corresponded with an increased material density from medium dense to dense increasing to dense to very dense. The occurrence of the glacial deposits was interpreted from B-1 through B-5 (Terra Associates) where they were encountered from a depth of 44 ft BGS (B-1, Terra Associates) to a maximum depth of 80.5 ft BGS (B-3, Terra Associates), which is also the maximum depth of the subsurface exploration for the investigations at the Property. Therefore, the thickness of this unit was not identified during this investigation.

Petroleum odor, sheen, or elevated PID measurements were observed in soil from borings drilled in the area of the former gasoline stations in the northwestern portion of the Property (B-16 through B-20, B-23 through B-28, B-45, and B-50 through B-52). PID measurements of 100 parts per million (ppm) or greater were observed in samples collected from B-17, B-18, B-24, B-26, B-28, B-50A, and B-57 at depths ranging from about 4.5 to 15 ft BGS.

A strong petroleum odor, sheen, and a creosote-like material were observed at boring locations B-2, B-21, B-22, B-35, B-37, B-38, B-40, and B-41 and B-1 (Terra Associates), which were drilled in the northeastern portion of the Property. The creosote-like material appears to be present at the contact between the fill unit and underlying marine sediment. This material was encountered from about 18 ft BGS at location B-2 to 23 ft BGS at location B-40, and ranged from 1 ft to 3 ft in thickness. PID readings of this affected material were collected at several locations, and ranged from 21.2 ppm at 22 ft BGS (B-37) up to 68.6 ppm at 25 ft BGS (B-40). Samples of the creosote-like material were collected for laboratory analysis from borings B-21 and B-41.

Observations during drilling in the northeastern, eastern, and southern portions of the Property and field screening (i.e., PID measurements, see Table 2) did not indicate the presence of potential contamination in the fill material from the surface to about 18 ft BGS, even in those areas where the creosote-like material was encountered.

2.4 GROUNDWATER INVESTIGATION

The groundwater investigation for the Property included evaluation of groundwater quality and/or flow characteristics during the Phase II investigation, RI field investigation, and Supplemental Investigation. The groundwater quality evaluation focused on impacted areas identified in the Phase II investigation including the northwestern portion of the Property in the area of the former gasoline stations and the northeastern portion of the Property in areas where creosote-like material was encountered during drilling. Groundwater samples were also collected from the Property boundaries in order to evaluate potential migration of impacted groundwater to or from the Property. Two off-Property wells were also installed to the northeast across King Street. Groundwater flow characteristics were evaluated by estimating groundwater gradients and flow direction based on measured groundwater elevations and estimating a range of hydraulic conductivity based on the soil types encountered within the fill (silty sand to clean sand) and published values (Freeze and Cherry 1979).

The groundwater investigations are discussed chronologically in this section. Although a comprehensive evaluation of the groundwater analytical results is presented in Section 3.3.2, general conclusions are presented in this section to provide the reader an understanding of groundwater conditions at the Property. Groundwater sampling locations are shown on Figure 5. Sample descriptions and analytical parameters for the groundwater samples are presented in Table 1. Construction details for monitoring wells installed during the RI field investigation are presented in Appendix C.

2.4.1 Phase II Investigation

The Phase II groundwater investigation was completed to evaluate areas of potential concern at the Property identified in the Phase I ESA. The Phase II investigation included sampling and chemical analysis of groundwater grab samples collected from direct-push borings in various areas of the Property to document groundwater quality and assess potential impacts due to previous on-Property activities, including the location of the former gasoline stations and the locations of the previous structures associated with the former rail yard. Samples were collected near the Property boundaries to document groundwater quality and evaluate the potential for impact to the Property from neighboring properties.

From February 27 to 29, 2008, 12 groundwater grab samples were collected from temporary well points installed using direct-push sampling technology. The groundwater samples were analyzed for volatile organic compounds (VOCs), TPH-G, TPH-D, motor oil-range total petroleum hydrocarbons (TPH-O), PAHs, and dissolved metals (MTCA metals arsenic, cadmium, chromium, lead, and mercury). The Phase II groundwater sampling locations are identified in Table 1 and shown on Figure 5. The analytical results for the Phase II groundwater grab samples are presented in Section 3.3.2.

2.4.2 Remedial Investigation Field Investigation

The RI field investigation included collection and laboratory analysis of groundwater grab samples from 4 additional direct-push borings, and the installation of 11 monitoring wells for the measurement of groundwater elevations and for collection of groundwater samples for laboratory analysis. The primary objectives of the RI groundwater investigation were to:

- Further evaluate groundwater quality in the vicinity of the former gasoline stations in the northwestern portion of the Property and in the area of creosote-like material identified in the northeastern portion of the Property
- Further evaluate groundwater quality at the Property boundaries and across the Property
- Evaluate groundwater elevation and flow.

The four additional groundwater grab samples were collected during the direct-push portion of the RI field investigation between October 7 and October 10, 2008. The groundwater grab samples were collected from temporary well points installed using direct-push technology in borings B-26, B-27, B-38, and B-41. The groundwater grab samples were analyzed for TPH only using Method NWTPH-HCID.

TPH-G was detected above the NWTPH-HCID laboratory reporting limit in the sample collected from B-26, which was located in the northwestern portion of the Property, but the result was not further quantified by additional analysis due to limited sample volume. TPH-G, TPH-D, and TPH-O were detected at concentrations above the NWTPH-HCID laboratory reporting limit in the sample collected from B-38, and diesel-range petroleum hydrocarbons were detected at concentrations above the reporting limit in the sample from B-41 in the northeastern portion of the Property; both samples were further analyzed for TPH-D and TPH-O using Method NWTPH-Dx to quantify the results.

2.4.2.1 Monitoring Well Installation and Development

Eleven groundwater monitoring wells, consisting of nine shallow (15 ft in depth) wells (MW-1 through MW-6, MW-7S, MW-8, and MW-9s) and two deeper (20 ft in depth) wells (MW-7D and MW-9d), were installed between November 10 and November 14, 2008. Drilling and construction of the monitoring wells were conducted in general accordance with the Minimum Standards for Construction and Maintenance of Wells (Ecology; WAC 173-160). The shallows wells were constructed with 2-inch PVC casing and 0.020 slot screens placed from 5 to 15 ft BGS to intersect the water table. The deeper wells were constructed with pre-packed well screens (0.010 slot screen packed inside 0.020 slot screen) placed from 15 to 25 ft BGS (MW-7D) and 15 to 20 ft BGS (MW-9D), and located immediately above the elevation of the top of the creosote-like material encountered in the northeastern portion of the Property. A 1-ft length of blank PVC casing was added to the bottom of the well screen to collect any creosote-like material entering the well. Boring and well construction logs for the monitoring wells are presented in Appendix C.

The monitoring wells were developed between November 13 and November 17, 2008. Wells were developed by surging and overpumping the wells using a centrifuge pump and new dedicated polyethylene tubing. A minimum of five casing volumes of water were purged from each well, and development was continued until the groundwater was visibly clear. Water from wells MW-3, MW-4, and MW-6 remained slightly turbid even after development.

2.4.2.2 Groundwater Elevation Monitoring

Depth to groundwater measurements were collected from the monitoring wells prior to sampling on November 24 and November 25, 2008 to provide data for evaluation of groundwater flow and gradient. A second round of water level measurements was collected on January 16, 2009. The groundwater elevation data are provided in Table 3 and groundwater contour maps based on the November 2008 and January 2009 data are presented on Figures 6 and 7, respectively.

2.4.2.3 Groundwater Quality Monitoring

Groundwater samples were collected for laboratory analysis from the 11 monitoring wells on November 24 and November 25, 2008. The samples were analyzed for constituents detected in soil or groundwater samples during the Phase II investigation or suspected to be present based on historical Property operations. The samples from the monitoring wells were analyzed for TPH-G, TPH-D, and TPH-O, VOCs including BTEX, PAHs, and dissolved metals.

The analytical results for groundwater samples are discussed in Section 3.3.2.

2.4.3 SUPPLEMENTAL INVESTIGATION

The Supplemental Investigation included the installation of 8 additional monitoring wells, including 2 off-Property wells, measurement of groundwater elevations, and collection and laboratory analysis of groundwater samples from all 19 of the monitoring wells installed for investigation of the Property. The primary objectives of the Supplemental Investigation for groundwater were:

- Further characterization of groundwater quality within and downgradient of the former gasoline station area in the northwestern portion of the Property
- Further characterization of groundwater quality and, specifically, the concentrations of PAHs in deeper groundwater in the eastern portion of the Property
- Further characterization of groundwater quality within and downgradient of the area of creosote-like material identified in the northeastern portion of the Property
- Further characterization of groundwater quality at the Property boundaries
- Evaluation of groundwater quality off-Property to the north-northeast
- Further evaluation of groundwater elevation and flow.

2.4.3.1 Monitoring Well Installation and Development

Eight groundwater monitoring wells, consisting of five shallow (approximately 15 ft in depth) wells (MW-10 through MW-14) and three deeper (MW-15D and MW-16D, approximately 25 ft in depth; MW-17D, approximately 21 ft in depth) wells, were installed on August 3 and 4, 2009. Drilling and construction of the monitoring wells were conducted in general accordance with the Minimum Standards for Construction and Maintenance of Wells (Ecology; WAC 173-160). The shallows wells were constructed with 2-inch PVC casing and 0.020 slot screens placed from about 5 to 15 ft BGS to intersect the water table. The deeper wells were constructed with 2-inch PVC casing and 0.020 slot screens placed with the base of the screen at or near the interface of the fill with the native former tideflat surface. Boring and well construction logs for the monitoring wells are presented in Appendix C.

The monitoring wells were developed on August 11, 2009. Wells were developed by surging and overpumping the wells using a centrifuge pump and new dedicated polyethylene tubing. A minimum of five casing volumes of water were purged from each well, and development was continued until the groundwater was visibly clear. Water from wells MW-10 through MW-17D remained turbid even after purging more than five casing volumes.

2.4.3.2 Groundwater Elevation Monitoring

Depth to groundwater was measured in the on-Property monitoring wells and at five wells located at Union Station to the east on June 3, 2009 prior to the installation of the Supplemental Investigation monitoring wells, and from the 19 wells installed for the RI (including the two off-Property wells) on August 25, 2009 prior to groundwater sampling to provide data for evaluation of groundwater flow and gradient. The groundwater elevation data are provided in Table 3 and groundwater contour maps for the June 3 and August 25, 2009 data are presented on Figures 8 and 9, respectively. Groundwater flow at the Property is discussed in Section 3.2.

2.4.3.3 Groundwater Quality Monitoring

Groundwater samples were collected for laboratory analysis from the 17 on-Property and the 2 off-Property monitoring wells from August 11 to 13, 2009. The samples were analyzed for constituents detected in soil or groundwater samples during the Phase II and RI field investigations and as outlined in the Work Plan. The samples from the monitoring wells were analyzed for TPH-G, TPH-D, and TPH-O, VOCs including BTEX, PAHs, and dissolved metals (i.e., arsenic, cadmium, chromium, copper, lead, mercury, and zinc).

The analytical results for groundwater samples are discussed in Section 3.3.2.

3.0 REMEDIAL INVESTIGATION RESULTS

This section presents the results of investigative activities conducted for the RI, and discusses the nature and extent of contamination and other relevant Property data. As noted above, the RI data were collected during the Phase II investigation conducted in February 2008, the RI field investigation conducted in October and November 2008, and the Supplemental Investigation conducted in July and August 2009. The results of these investigations and the associated data relevant to Property conditions are integrated in this section to provide the reader with a thorough understanding of Property conditions, and to make the RI a comprehensive document.

3.1 GEOLOGY

General geologic information for the Property was obtained from the *Geologic Map of Seattle* (Troost et al. 2005), *Preliminary Geotechnical Evaluation* (Terra Associates 2008), *Driven Piles for Safeco Field* (Miner and Gurtowski 2001), and from soil borings completed at the Property during the Phase II investigation, RI field investigation, and Supplemental Investigation. The borings drilled at the Property for the RI along with selected borings drilled prior to the RI by other consultants (B-1, GeoGroup Northwest, 1996; B-15, Metropolitan Engineers, 1966; BH-3 and BH-4, Geosciences Inc., 1998; and B-2, Shannon & Wilson, 1993) were used to interpret subsurface geologic conditions. Two east-west geologic cross sections, A-A' and B-B', and three north-south cross sections, C-C', D-D', and E-E' were developed for the Property from the geologic logs for the selected borings. The boring and cross-section locations are shown on Figure 10 and the cross sections are presented on Figures 11 through 14. Boring logs are provided in Appendix C.

The ground surface of the Property is generally level and is at an average elevation of 18 ft [North American Vertical Datum of 1988 (NAVD88)] (Pacific Geomatic Services 2008). The stratigraphy within the depth range of exploration at the Property consists primarily of four geologic units identified as: fill, marine sediments, alluvial deposits, and glacial deposits.

Fill is present directly below the existing parking lot pavement section extending to depths ranging from 18 to 30 ft BGS. The fill likely originated from the Jackson Street Regrade, and Duwamish Waterway dredging projects (Terra Associates 2008). As discussed in Section 2.3.3, the fill material is variable in composition, including very loose to medium dense, fine to coarse sand, silty sand, silt, gravels, wood chips, sawdust, and solid wood. In places, coal, ash, concrete and brick fragments, metal debris, and glass fragments were observed in the fill. In general, the fill encountered in the eastern portion of the Property appears more uniform (less variable) in composition and has less debris than the fill encountered in the western portion of the Property, likely due to the different filling episodes identified during the Phase I ESA. Layers of wood were encountered within the central portion of the Property, ranging from about 1 to 17 ft in thickness. Thinner, discontinuous layers of wood were observed in most of the borings throughout the Property.

The marine sediment directly underlying the fill consists of very soft to medium stiff silt, ranging from approximately 2 to 18 ft in thickness. As discussed above, locally the unit consisted of a silty, fine to medium sand with shell fragments, a fine to medium sand with silt, gravel and shell fragments, or a silty gravel with sand and shell fragments.

Alluvial deposits directly underlying the marine sediment consist of silty sand, with interbedded gravel, silt, clay, or peat. This unit was observed in B-1 through B-5 (Terra Associates) and recorded in boring logs B-1 (GeoGroup Northwest 1996), BH-3 and BH-4 (Geosciences Inc. 1998), B-15 (Metropolitan Engineers 1966), and B-2 (Shannon & Wilson 1993). As noted above, the depth of the upper contact of these alluvial deposits ranges from 25.0 ft BGS (B-40) to 45.5 ft BGS (BH-4) and the thickness of the alluvial deposits ranges from 11 ft (B-2, Shannon & Wilson) to 26 ft (B-3, Terra Associates).

Underlying the alluvial deposits, are glacial deposits, which are similar in composition to the alluvial deposits, but generally have a higher density. The glacial deposits range from dense to very dense; whereas the alluvial deposits are loose to medium dense. The upper contact of the glacial deposits was encountered in seven borings, B-1 through B-5 (Terra Associates), and BH-3 and BH-4 (Geosciences Inc.) at depths ranging from approximately 44 ft BGS (B-1, Terra Associates) to 68 ft BGS (BH-4, Geosciences, Inc). The glacial deposits were encountered to a maximum depth of 80.5 ft BGS (B-3, Terra Associates) during the RI field investigation.

3.2 HYDROGEOLOGY

Hydrogeologic conditions at the Property were evaluated using geologic data from previous investigations and data collected during the RI. Based on available boring and groundwater data, the uppermost hydrostratigraphic unit at the Property is the water table aquifer within the fill that overlies the marine sediment unit. The marine sediment unit forms the uppermost aquitard beneath the Property. Based on available information, the overall groundwater flow in the Property area is to the west toward Elliott Bay and Puget Sound.

Groundwater levels were measured in monitoring wells at and near the Property four times from November 2008 to August 2009. Groundwater elevation contours for the monitoring events are presented on Figures 6 through 9. The groundwater elevation contours presented on Figures 6 and 7 were developed from water level measurements collected from the initial 11 on-Property monitoring wells. The groundwater contours shown on Figure 8 were developed from water level measurements collected from the initial 11 on-Property wells plus five additional wells located near Union Station about 300 ft to the east (MW-101R, MW-102R, MW-104, MW-105, and HC-103). The groundwater elevation contours shown on Figure 9 were developed from water level measurements collected from the initial 11 on-Property wells and the 8 additional wells installed in August 2009. As shown on Figures 6 through 9, the local groundwater gradient and flow pattern across the Property are variable, which is characteristic of shallow unconfined aquifers consisting of fill material, especially in urban areas where constructed features, such as foundation drainage systems and utility trenches, can distort the groundwater table. As noted above, the available information indicates that the western and eastern portions of the Property were filled at different times and the fill encountered during drilling in the eastern portion of the Property was relatively less variable in composition than the fill encountered in the western portion. The different fill histories and compositions have likely resulted in the variable groundwater conditions observed at the Property. As part of this RI, local conditions were evaluated in an effort to identify features that could locally affect shallow groundwater flow. However, no specific features were identified that can be directly associated with the variable flow patterns across the Property. Based on the available groundwater elevation data, there is a localized area of relatively lower groundwater elevations (i.e., groundwater low) roughly between the corner of South King Street and 2nd Avenue South on the west and King Street Station on the east, and an area of relatively higher groundwater elevations (i.e., groundwater high) near monitoring well MW-14 in the central portion of the Property. The data from these areas strongly affect the groundwater flow directions calculated from the groundwater elevations measured in the Property and off-Property monitoring wells. The groundwater low is prominent on all four of the groundwater contour maps and results in apparent local groundwater flow to the northeast in the central and eastern portions of the Property. The most recent round of groundwater measurements (including the newest wells) indicates a groundwater high in the central portion of the Property, as shown on Figure 9. The groundwater high results in apparent local groundwater flow radially from the area of the high including flow to the west and northwest in the western portion of the Property. The local flow to the west-northwest is consistent with overall area flow toward Elliott Bay and Puget Sound. As noted above, no specific features have been identified to explain the groundwater low or the groundwater high. The existing monitoring well network at the Property includes wells along the perimeter of the Property and provides documentation of local groundwater flow on and off the Property.

The depths to groundwater measured during the RI range from about 5.5 to 11 ft BGS with groundwater elevations ranging from about 7.2 ft Mean Sea Level (MSL) to 11.7 ft MSL (Table 3). Based on the elevations measured to date (i.e., November 2008; January, June, and August 2009), the groundwater elevations do not appear to show any significant seasonal variation(s). Deeper groundwater beneath the marine silt unit was not evaluated as part of this study.

Hydrogeologic conditions for Union Station, which is located 300 ft east of the Property, were evaluated based on data from reports completed by Landau Associates in October 2004 and October 2009 as part of the Union Station Purchaser Consent Decree requirements. Based on available groundwater elevation contours from October 2009, the groundwater elevations at Union Station appear generally higher near the southeastern portion of the site, and lower near the western and northwestern portions of the site, suggesting localized groundwater flow toward the western and northwestern Union Station property boundary. No hydrogeologic data were available for the former Kingdome site (adjacent to the south) or King Street Center (adjacent to the north).

Hydrogeologic parameters for the uppermost hydrostratigraphic unit are discussed in the following subsections, including saturated thickness, flow direction, hydraulic conductivity, and groundwater velocity.

3.2.1 SATURATED THICKNESS AND FLOW DIRECTION

As noted above, the groundwater elevation data developed during the RI are presented in Table 3. The depths to groundwater measured during the RI ranged from approximately 5.5 to 11.0 ft BGS. The saturated thickness of the uppermost hydrostratigraphic unit generally ranges from approximately 11 ft to 25 ft in thickness, based on available geologic data and water level measurements.

The well reference elevations in conjunction with groundwater monitoring data were used to determine groundwater elevations at each well location. The direction of groundwater flow and groundwater flow gradient were estimated based on these data. Groundwater flow at the Property, based on the four rounds of monitoring from November 2008 to August 2009 noted above, is locally variable. Due to the groundwater low near the northeastern portion of the Property and the groundwater high in the central portion of the Property discussed above, the flow direction calculated from the measurements collected from the on- and off-Property wells for the RI is locally inconsistent with overall area groundwater flow to the west toward Elliott Bay and Puget Sound except in the western portion of the Property.

3.2.2 HYDRAULIC CONDUCTIVITY AND GROUNDWATER VELOCITY

Property-specific data were not collected to document aquifer properties, so the hydraulic conductivity of the uppermost hydrostratigraphic unit was estimated as a range based on the soil types encountered within the fill (silty sand to clean sand) and published values (Freeze and Cherry 1979). The highly variable nature of the fill results in a large range of estimated values for hydraulic conductivity from 10^{-3} to 10^{-1} centimeters per second (cm/s; approximately 28 to 2,800 ft/day). As discussed above, the fill generally tends to have slightly less fines and be coarser-grained in the eastern portion of the

Property than in the western portion, and in the west-central portion the fill contains significantly more wood debris. Therefore, the hydraulic conductivity of the fill in the eastern portion is more similar to that for clean sand (10^{-2} to 10^{-1} cm/s; approximately 280 to 2,800 ft/day), and the hydraulic conductivity of the fill in the western portion is more similar to that for silty sand to clean sand (10^{-3} to 10^{-2} cm/s; approximately 28 to 280 ft/day). No attempt was made to estimate the hydraulic conductivity for the wood debris.

Effective porosity (n) of the fill unit was estimated to range between 25 and 50 percent, based on a published porosity range for sand (Freeze and Cherry 1979). An average value of 37 percent (0.37) was used for effective porosity to estimate the groundwater velocity.

Average hydraulic gradients were calculated based on the water levels measured at the Property during the monitoring events in January 2009, June 2009, and August 2009. The gradients between selected well pairs (i.e., MW-4 and MW-6 in the eastern portion of the Property, MW-3 and MW-7 in the central portion, and MW-2 and MW-8 in the western portion) were calculated for each monitoring event and then an average gradient was calculated for each well pair. The average hydraulic gradient ranges from about 0.0025 ft/feet between wells MW-4 and MW-6 in the eastern portion to 0.012 ft/feet between wells MW-3 and MW-7 in the central portion (Table 3, Figures 7, 8, and 9). The average hydraulic gradient in the western portion of the Property was 0.0054 ft/feet between wells MW-2 and MW-8.

The groundwater average linear (seepage) velocity (V) is estimated for the eastern and western portions of the Property using the equation:

$$V = \frac{Ki}{n}$$

where:

K = hydraulic conductivity (L/t)

i = hydraulic gradient (dimensionless)

n = effective porosity (dimensionless).

Given the range in horizontal hydraulic gradient and soil composition across the Property, estimations of linear velocity were made for the eastern and western portions of the Property. In the eastern portion of the Property, the horizontal hydraulic gradient ranges from 0.0025 ft/feet to 0.0122 ft/feet and the hydraulic conductivity ranges from approximately 280 to 2,800 ft/day. In the western portion of the Property, the gradient ranges from 0.0054 ft/feet to 0.0122 ft/feet and the hydraulic conductivity ranges from approximately 28 to 280 ft/day. Given an effective porosity of 0.37 (mean value), the average seepage velocity is calculated to range between 2.4 ft/day and 92.3 ft/day in the eastern portion of the Property, and between 0.4 and 9.2 ft/day in the western portion. The calculations are as follows:

Eastern portion: $V_{\min} = \frac{(0.0025)(280)}{0.37} = 1.89$ (ft/day) and $V_{\max} = \frac{(0.0122)(2800)}{0.37} = 92.3$ (ft/day)

Western portion: $V_{\min} = \frac{(0.0054)(28)}{0.37} = 0.4$ (ft/day) and $V_{\max} = \frac{(0.0122)(280)}{0.37} = 9.2$ (ft/day)

3.2.3 POTENTIAL FOR VAPOR INTRUSION

Based on the RI analytical data, and as discussed above, the VOC benzene is present in shallow (less than 8 ft BGS) soil above the groundwater table in the northwestern portion of Property (in the former gasoline station area) at concentrations greater than the preliminary cleanup level. Benzene was not detected at concentrations greater than the preliminary cleanup level in any of the groundwater samples collected in the northwestern portion of the Property. Benzene was not detected above the preliminary cleanup level in shallow soil or shallow groundwater monitoring well samples collected in the eastern portion of the Property. Benzene was the only VOC that was detected at concentrations that pose a potential vapor intrusion concern and, therefore, was the only analyte evaluated for potential vapor intrusion.

Due to the detected concentrations of benzene in shallow soil and the planned commercial and residential uses for the western portion of the Property, the Johnson and Ettinger (1991) model was used to evaluate the potential incremental increase in risk to users of the building planned for the western portion of the Property from benzene that enters indoor air via vapor intrusion. The planned residential units will be located on the third floor and will be separated from the ground floor by a mechanically vented parking garage; therefore, vapor intrusion is not anticipated to be a concern for residential use. Therefore, employees and visitors of the ground floor commercial areas were considered in the model. Based on the results from the model, which are summarized in Appendix E, the benzene concentrations in soil indicate an incremental risk greater than 10^{-6} for occupants of a building in the northwestern portion of the Property. Results from the model indicate that if the one highest benzene concentration in soil (location B-23 in the northwesternmost corner of the Property) is removed from the data set, the risk would be at an acceptable level of less than 10^{-6}.

Based on this evaluation of the potential risk due to vapor intrusion to future users of the planned building on the Property, mitigation for vapor intrusion will be considered in the FS.

3.3 ENVIRONMENTAL CONDITIONS

This section describes Property environmental conditions including soil and groundwater quality. Property environmental conditions were evaluated based on analytical results for soil and groundwater generated during the Phase II investigation, the RI field investigation, and the Supplemental Investigation.

All analytical data were evaluated for data quality prior to use. The data quality evaluation was conducted in accordance with the procedures identified in the RI Work Plan (Landau Associates 2008). Accuracy of the data was determined through recovery of spiked surrogates, matrix spikes, duplicates, and spiked laboratory control samples. Control limits for spike recovery were based on laboratory acceptance limits generated according to EPA guidelines. A summary of data validation qualifiers is presented in Appendix F. No data were rejected and the data, as qualified, are acceptable for use.

The nature and extent of contamination were evaluated based on relevant criteria and standards for affected media. Groundwater quality was generally evaluated based on MTCA Method B groundwater cleanup levels, based on the lower of protection of groundwater as drinking water and protection of marine surface water. Soil quality was generally evaluated using MTCA Method B cleanup levels, based on the lowest of direct contact, protection of groundwater as drinking water, and protection of groundwater as marine surface water values. For soil and groundwater constituents that do not have a Method B soil cleanup level, MTCA Method A soil cleanup levels for unrestricted land uses, where available, were used.

These evaluation criteria are presented as preliminary cleanup levels in this document. Actual Property cleanup levels will be established by Ecology as part of the Cleanup Action Plan (CAP). A more detailed discussion of the development of the preliminary cleanup levels is presented in Appendix G.

3.3.1 SOIL QUALITY

Preliminary Method B soil cleanup levels (or for lead and TPH, MTCA Method A cleanup levels for soil) have been identified as preliminary soil cleanup levels for the detected constituents. MTCA Method B soil cleanup levels were developed based on the most stringent of the constituent concentrations in soil protective of groundwater as drinking water and marine surface water, and protection of human health based on direct contact (Method B standard formula values for carcinogens and non-carcinogens). MTCA Method A soil cleanup levels, where available, were used for lead, TPH-G, TPH-D, and TPH-O for which Method B cleanup levels could not be calculated. Cleanup levels were adjusted upward if the calculated cleanup level was lower than the natural background concentration for the constituent. Cleanup levels for non-carcinogens were evaluated based on total Property risk and were adjusted downward, where necessary, in order to achieve a total Property hazard index of 1. Adjustment of cleanup levels for carcinogens for total Property risk was not necessary.

Soil quality data and the associated preliminary soil cleanup levels for constituents detected in soil samples are presented in Table 4. The criteria used in developing the preliminary cleanup levels are provided in Table 5. The analytical results for constituents detected in soil at concentrations greater than the preliminary cleanup levels are presented in Table 6. The analytical results for all of the constituents tested for and the laboratory analytical reports are presented in Appendix F.

3.3.1.1 General Property Soil Quality

As noted above, based on the historical operations conducted at the Property, the constituents of concern for this RI are TPH, VOCs (including BTEX), PAHs, and metals. Five samples were analyzed for PCBs due to the various oils that may have been associated with historical Property operations. Two samples collected during the Supplemental Investigation were also analyzed for dioxins/furans. The number of soil samples analyzed for each of these constituents are listed below:

- 30 soil samples were analyzed for TPH using Method NWTPH-HCID
- 27 soil samples were analyzed for TPH-D and TPH-O using Method NWTPH-Dx
- 31 soil samples were analyzed for TPH-G using Method NWTPH-Gx
- 13 soil samples were analyzed for arsenic, cadmium, chromium, copper, lead, mercury, and zinc
- 29 soil samples were analyzed for arsenic, cadmium, chromium, lead, and mercury
- 28 soil samples were analyzed for BTEX
- 51 soil samples were analyzed for PAHs
- 13 soil samples were analyzed for SVOCs
- 5 soil samples were analyzed for PCBs
- 2 soil samples were analyzed for dioxins/furans.

Based on the analytical results for these samples, the detected concentration in one or more samples was greater than the preliminary cleanup levels in shallow soil (i.e., less than 15 ft BGS) for:

- TPH-O (1 sample; Figures 15)
- TPH-G (13 samples; Figure 21)
- BTEX (11 samples; Figure 21)
- Arsenic (4 samples; Figure 17)
- Mercury (10 samples; Figure 17)
- cPAHs (24 samples; Figure 19).

Based on the analytical results for these samples, the detected concentration in one or more samples was greater than the preliminary cleanup levels in deeper soil (i.e., greater than 15 ft BGS) for:

- TPH-D or TPH-O (3 samples; Figure16)
- TPH-G (6 samples; Figure 22)
- BTEX (5 samples; Figure 22)
- Arsenic (1 samples; Figure 18)
- Mercury (2 samples; Figure 18)
- cPAHs (12 samples; Figure 20).

PCBs were not detected in any of the soil samples at a concentration greater than the laboratory reporting limit.

Dioxins and furans were analyzed for and detected in two shallow soil samples from the western and eastern halves of the Property at borings B-62 and B-65, respectively. Analytical results for dioxin and furans are provided in Table 7 and discussed in Section3.3.1.4.

Based on these data, soil quality at the Property is impacted by one or more of the listed constituents in two primary areas:

- The northwestern portion in the area of the former gasoline stations
- The northeastern portion where the creosote-like material was observed.

In addition, PAHs, including primarily carcinogenic PAHs (cPAHs; Figures 19 and 20), were detected at concentrations greater than the preliminary cleanup levels at locations across the Property. Limited concentrations of metals including arsenic, copper, mercury, and zinc, and motor oil-range petroleum hydrocarbons were also detected at concentrations greater than the preliminary cleanup levels at various locations across the Property. The analytical results for soil samples collected in the two primary areas and those collected at locations throughout the Property are discussed further below by area.

3.3.1.2 Soil Quality in the Vicinity of the Former Gasoline Stations (Northwestern Portion)

Soil quality in the northwestern portion of the Property was primarily impacted by operations associated with the former gasoline stations, probably including the associated underground storage tanks (USTs), transfer piping, and/or dispenser islands. As discussed in the Phase I ESA (Landau Associates 2007), few details of the former station operations and footprints are available; however, the field-screening data and observations discussed in Section 2.3.3, the analytical data indicating the presence of TPH-G and BTEX, and the localized areal extent of the contamination suggest that the contamination is related to surface or shallow subsurface releases from the former station(s). The detected concentrations of TPH-G, usually along with one or more BTEX constituents, were greater than the preliminary cleanup levels in the soil samples collected from 13 borings at depths ranging from about 5 to 8 ft BGS (Figure 21) near the depth of the groundwater table at the time of drilling. Concentrations of TPH-G, benzene, toluene, and ethylbenzene were also greater than the preliminary cleanup levels in four (B-26-17.0, B-50A-15-16, B-51-15-15, and B-52-15-16) of the seven deeper soil samples collected from this area (Figure 22). The soil contamination appears to primarily be near the top of the groundwater table, but extends to a depth of at least 17 ft BGS locally; however, as noted below, TPH-G was detected at a concentration greater than the preliminary cleanup level in only 1 of 10 groundwater samples collected from eight locations (four temporary wells set in borings and four permanent wells) in this area (Figure 27). No BTEX was detected at concentrations greater than the preliminary cleanup levels in any of the groundwater samples from this area.

3.3.1.3 Soil Quality in the Northeastern Portion

As discussed in Section 2.3.3, no visual or field-screening evidence of potential contamination was identified in soils from the surface to about 20 ft BGS in any areas of the Property except the northwestern portion, discussed above. The drilling, and soil sampling and analysis in the northeastern portion focused on evaluation of the extent of the creosote-like material that was first encountered at boring B-2 at the base of the fill at the contact with the underlying marine sediments layer. The RI field investigation included drilling 11 borings in the area around B-2; soil samples were selected for laboratory analysis from near the contact with the marine sediments where the creosote-like material was encountered. The creosote-like material was encountered in nine borings at depths of about 18 to 23 ft BGS and was estimated to be up to about 3 ft in thickness (Table 2 and Figure 23). The analytical results for the two samples collected of the creosote-like material for laboratory analysis are discussed in Section 3.3.3.

The analytes detected in soil in the northeastern portion of the Property at concentrations greater than the preliminary cleanup levels were all in samples collected from greater than 15 ft BGS and consisted of:

- PAHs (B-36, B-38, B-39, B-40, B-41)
- cPAHs (B-38, B-39, B-40, B-47, MW-17D-15.5-16.5; Figure 20)
- TPH-D (B-2, B-36; Figure 16)
- TPH-O (B-2; Figure 16)
- TPH-G (B-36, B-38, B-41; Figure 22)
- BTEX (B-38, B-41, B-47; Figure 22).

Based on the field screening, observations during drilling, and analytical data, the soil contamination appears to be primarily associated with the creosote-like material at the base of the fill.

As noted below, four shallow groundwater monitoring wells and two deeper wells were installed in the northeastern portion of the Property. The groundwater samples from deeper well MW-9D indicated detected concentrations of PAHs, cPAHs, TPH-G, TPH-D, and BTEX greater than the preliminary cleanup levels (Figures 24, 26, and 27). Well MW-9D is screened from 15 to 20 ft BGS, at approximately the depth where the creosote-like material was encountered. Well MW-7D, located east of MW-9D but outside of the extent of creosote-like material observed in the soil borings, is also screened at the approximate depth of the creosote-like material. Unlike well MW-9D, well MW-7D has not had any constituents of concern detected at concentrations greater than preliminary cleanup levels, suggesting that groundwater contamination associated with the creosote-like material does not extend beyond locations where groundwater is in contact with the creosote-like material.

Two additional off-Property deeper groundwater monitoring wells (MW-16D and MW17-D) were installed to the north and the northeast of the Property during the Supplemental Investigation to further evaluate the extent of the creosote-like material. Due to the presence of various utilities and permanent structures, these two off-Property wells could not be located nearer to the Property boundaries. The creosote-like material was not encountered during installation and drilling of either MW-16D or MW-17D. Preliminary cleanup levels were not exceeded for any constituent in the groundwater sample from off-Property deeper well MW-16D to the north of the Property. The sample from off-Property deeper well MW-17D to the northeast of the Property indicated low concentrations of cPAHs [0.02 micrograms per liter (μg/L)] slightly above the cleanup level.

Based on the occurrence of the creosote-like material at the base of the fill material, and the lack of evidence of contamination within the fill at shallower depths, the creosote-like material appears to be from a distinct source and likely predates placement of the overlying fill. The creosote-like material was not observed in soil borings from MW-16D and MW-17D indicating the creosote-like material does not extend off-Property to those locations to the north and northeast.

3.3.1.4 Soil Quality Property-wide

Carcinogenic PAHs were detected at concentrations greater than preliminary cleanup levels in soil samples collected across the Property, as shown on Figures 19 and 20. In the shallow soil, cPAHs were detected above the preliminary cleanup level primarily in the western portion of the Property, although some cPAH exceedances were identified in the eastern portion of the Property as well (B-66 and B-67). The highest concentrations of cPAHs in the shallow soil were in the sample from 4.6 ft BGS at boring B-23, which is the location of monitoring well MW-8. In the deeper soil, concentrations of cPAHs were detected above the preliminary cleanup level at 10 of the 15 locations across the Property where samples were collected and analyzed. The occurrence of the cPAHs in soil at various depths throughout the Property (ranging from less than 1 ft to about 17 ft BGS on the western side of the Property to greater than 20 ft BGS on the eastern side) suggest the presence of a source within the fill material placed over the native marine sediments and/or impacts due to the Seattle Fire in1889.

Property-wide concentrations of the metals arsenic and mercury greater than the preliminary cleanup levels were identified in soil during the RI field investigation and the Supplemental Investigation. Arsenic was detected in shallow soils Property-wide, and exceeded the cleanup level at four locations, with the highest concentration at B-65 [30 milligrams per kilogram (mg/kg)]. In the deeper soils, arsenic exceeded the preliminary cleanup level in only the sample from off-Property location MW-17D (8 mg/kg). Because this location is off-Property, the detected concentration is likely indicative of area background concentrations. Due to the change in preliminary cleanup levels to include criteria for protection of marine surface water, the preliminary cleanup level for mercury decreased from the preliminary cleanup level presented in the draft RI/FS report and is equal to the Puget Sound background level (Ecology 1994). Mercury concentrations are greater than the revised preliminary cleanup level at 10 locations across the Property (9 in shallow soil, 1 in deeper soil), with the highest concentration of 1.88 mg/kg at B-33 from 17.5 to 18.5 BGS. These Property-wide detections of metals suggest the presence of a source within the fill material placed over the native marine sediments.

Dioxins and furans were detected in two shallow soil samples from the western and eastern halves of the Property at borings B-62 and B-65, respectively. The TEQ of dioxins/furans at B-62 was 0.0922 nanograms per kilogram (ng/kg), and the TEQ of dioxins/furans at B-65 was 34.4 ng/kg. Dioxins and furans may be formed during combustion of organic compounds in the presence of chloride. Typical sources include combustion of saltwater-soaked wood, waste incineration including home burn barrels, and some types of chemical manufacturing. Various studied have evaluated background levels of dioxin in soil. Ecology found dioxin/furan concentrations (as 2,3,7,8 TEQ) ranging from 0.13 ng/kg to 19 ng/kg in urban soil statewide (Ecology 1999); a recent study of dioxins/furans in soil from residential and undeveloped areas of Port Angeles found TEQ concentrations ranging from 0.49 ng/kg to 76 ng/kg (Ecology & Environment 2009). The concentrations found at North Lot are within this range and may reflect combustion in the downtown Seattle area prior to the Property being paved.

3.3.2 GROUNDWATER QUALITY

Preliminary Method B groundwater cleanup levels based on drinking water use and discharge to marine surface water, or MTCA Method A cleanup levels for groundwater were used to identify preliminary groundwater cleanup levels for detected constituents. MTCA Method B groundwater cleanup levels were developed based on the most stringent of the federal or state maximum contaminant levels (MCLs), state primary and secondary MCLs, protection of marine surface water, and Method B standard formula values. MTCA Method A groundwater cleanup levels, where available, were used for constituents for which Method B cleanup levels could not be calculated. Cleanup levels were adjusted upward if the calculated cleanup level was lower than the natural background concentration for the constituent. Cleanup levels for non-carcinogens were evaluated based on total Property risk and were adjusted downward, where necessary, in order to achieve a hazard index equal to or less than 1. Adjustment of cleanup levels for carcinogens for total Property risk was not necessary. Total risk adjustment tables are provided in Appendix G.

The western edge of Union Station is about 300 ft hydraulically upgradient of the Property. The groundwater monitoring data for Union Station from 1997 through 2009 indicate the presence of arsenic in groundwater at concentrations greater than the unadjusted preliminary MTCA Method B groundwater cleanup level. Dissolved arsenic concentrations in the June 2004 samples collected from six Union Station wells, which appear to be hydraulically upgradient of the Property (USMW-101R, USMW-102R, USMW-104, USMW-105, USMW-108R, USB-4R, and USB-6R[1]), ranged from 2.0 µg/L to 30 µg/L, with one non-detected value at a reporting limit of 5 µg/L. The samples collected in August 2009 had arsenic concentrations ranging from 1.4 µg/L to 31 µg/L with one non-detected value at a reporting limit of 2 µg/L. The arsenic background concentration calculated in 2004 was 36 µg/L; the arsenic background concentration being calculated for the 2009 data is expected to be similar to the 2004 value (Landau Associates 2004, 2009d).

An arsenic background concentration for the Property of 25 µg/L was calculated in accordance with WAC 173-340-709; the Ecology Toxics Cleanup Program guidance document, *Statistical Guidance for Ecology Site Managers* (Ecology 1992) using the MTCA Stat97 Background Module; and the 2004 and 2009 arsenic concentrations detected in the Union Station wells identified above. The MTCA Stat97 calculations worksheet for the background calculation showing the screening level based on the 90th percentile value as well as the data upon which it is based is provided in Appendix H. The calculated arsenic background level was used for comparison with groundwater data from Property monitoring wells because it is considered to represent conditions upgradient of the Property.

Groundwater quality data, along with the preliminary groundwater cleanup levels, for the constituents detected in the groundwater samples are presented in Table 8. The water quality criteria used in developing the preliminary cleanup levels is provided in Table 9. The analytical results for constituents detected in groundwater at concentrations greater than the preliminary cleanup levels are presented in Table 10. Analytical results for all constituents tested for and analytical laboratory reports are presented in Appendix F.

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1 A prefix of US is added to Union Station well names to prevent confusion with the Property wells that have similar names.

As discussed below, the available groundwater analytical data do not indicate off-Property migration of potential groundwater contamination. The groundwater elevations were compared to elevations of main sewer and storm drain pipes surrounding the Property to assess potential impacts to marine surface water due to groundwater infiltration into leaky underground pipes or along backfill associated with utility trenches. The 18-inch diameter combined sewer piping located in areas to the north and northwest of the Property is generally at elevations above the water table and, therefore, groundwater migration off-Property along the sewer alignment in these areas is not considered to be a concern. The 102-inch diameter main extending across the northern perimeter of the Property is at elevations below the groundwater table in most areas. As discussed below, the only groundwater contamination on the Property is limited to the northeastern portion of the Property and there is no evidence of migration off-Property; therefore, there is no concern regarding groundwater migration along the 102-inch diameter main sewer alignment. The evaluation of groundwater elevations compared to main sewer and storm drain elevations is presented in Table 11.

3.3.2.1 General Groundwater Quality

Groundwater quality was evaluated based on laboratory analysis of samples collected from 17 temporary wells installed at direct-push boring locations during the Phase II and RI field investigations, from samples collected from 11 monitoring wells installed during the RI field investigation, and from samples collected from 8 monitoring wells installed during the Supplemental RI field investigation. The 11 monitoring wells installed during the RI field investigation were also sampled during the Supplemental RI field investigation and those data are included in the discussion below. The samples were analyzed as follows:

- 43 groundwater samples were analyzed for TPH-G using Method NWTPH-Gx
- 43 groundwater samples were analyzed for TPH-D and TPH-O using Method NWTPH-Dx
- 43 groundwater samples were analyzed for PAHs
- 43 groundwater samples were analyzed for dissolved MTCA metals (arsenic, cadmium, copper, chromium, lead, mercury, and zinc)
- 24 groundwater samples were analyzed for VOCs, including BTEX
- 19 groundwater samples were analyzed for BTEX
- 4 groundwater samples were analyzed for TPH using Method NWTPH-HCID.

Based on the analytical results for these samples, a limited number of constituents were detected at concentrations greater than the laboratory reporting limit in one or more samples. With the exception of benzo(a)pyrene, all of the laboratory reporting limits were less than the preliminary cleanup levels. Concentrations greater than the preliminary cleanup levels were detected in samples from 4 of 19 monitoring wells, and from 8 of 17 temporary wells. The analytes detected in one or more samples at a concentration greater than the preliminary cleanup level, and the sample location are as follows:

- TPH-D or TPH-O (3 sample locations: MW-9D, and temporary wells B-38 and B-41; Figure 24)
- TPH-G (3 sample locations: MW-9D, and temporary wells B-18 and B-38; Figure 27)
- Benzene (2 sample locations: MW-9D and temporary well B-2; Figure 27)
- Metals (i.e., arsenic and/or lead) (4 sample locations: MW-5 and temporary wells B-1, B-3, and B-7; Figure 25)
- PAHs (2 sample locations: MW-9D and MW-17D; Figure 26).

Based on these data, groundwater contamination at the Property primarily occurs in the northeastern portion in the deeper portion of the shallow aquifer in the area where the creosote-like material was encountered (MW-9D). As noted above, most of the detections above the preliminary cleanup levels were in grab samples from the temporary direct-push wells and not in the monitoring well samples. In most cases, the detection from a temporary well sample was not duplicated in the sample from the nearby monitoring well. The temporary wells do not allow for proper development and, therefore, the sample results from these wells are considered valuable for screening purposes but are not considered representative of Property groundwater quality.

Due to the variable groundwater flow direction across the Property, monitoring wells installed during the RI and Supplemental Investigations were placed around the perimeter of the Property, including the two off-Property monitoring wells, to evaluate the potential migration of contaminants on to or off of the Property. Based on the groundwater quality data, there is no migration of contaminants on to or off of the Property.

The groundwater quality at the Property is discussed by area, similar to the soil quality discussion, as follows:

- The northwestern portion in the area of the former gasoline stations
- The northeastern portion where the creosote-like material was observed.

In addition, arsenic was detected in groundwater at concentrations greater than the preliminary cleanup level at seven locations in the eastern half of the Property and at one location in the north-central portion of the Property (Figure 25). Lead was detected in one groundwater sample at a concentration greater than the preliminary cleanup level at one location in the north-central portion of the Property (Figure 25). The analytical results for groundwater samples collected in the two areas noted above and those with metals concentrations greater than the preliminary cleanup levels from other areas of the Property are discussed below.

3.3.2.2 Groundwater Quality in the Northwestern Portion

The groundwater sampling identified minimal impact to groundwater quality in the vicinity of the former gasoline stations (northwestern portion of the Property). The only constituent that exceeded preliminary cleanup levels for groundwater in the northwestern portion of the Property was TPH-G, which was detected in the groundwater sample collected from the temporary well at direct boring B-18 at a concentration of 1.3 milligrams per liter (mg/L), as shown on Figure 27. The localized impact to groundwater appears to be the result of releases from former gasoline USTs and/or the associated piping and pump dispensers. No other constituents of concern were detected at concentrations greater than the preliminary cleanup levels in groundwater samples collected in this area of the Property.

3.3.2.3 Groundwater Quality in the Northeastern Portion

Based on the analytical data, constituents of concern were detected at concentrations greater than the preliminary cleanup levels at the following locations in the northeastern portion of the Property:

- MW-9D (TPH-D and TPH-G, benzene, ethylbenzene, naphthalene, 2-methylnaphthalene, cPAHs)
- B-38 (TPH-D, TPH-O, and TPH-G)
- B-41 (TPH-D)
- B-2 (benzene).

These impacts likely are the result of the presence of the creosote-like material identified at the fill/marine sediments interface in this area (see Section 3.3.3), and three of the four sampling locations are temporary wells. Monitoring well MW-9D is screened from 15 ft to 20 ft BGS, just at or above the top of where the creosote-like material was identified. Constituents of concern were not detected at concentrations greater than the preliminary cleanup levels in the groundwater samples collected from MW-9S, which is located in the immediate vicinity of MW-9D and is screened from 5 ft to 15 ft BGS. Groundwater samples collected from monitoring wells and soil borings in other areas of the Property support the conclusion that the groundwater impacts from PAHs and from TPH-D and TPH-O are localized at the northeastern portion of the Property. Groundwater impacts from TPH-G and BTEX compounds in this area do not appear to be related to the former gasoline station operations in the northwestern portion of the Property as samples collected from several locations between the northeastern and northwestern portions of the Property (MW-7S, MW-7D, B-3, MW-12, B-14, MW-11, B-27) did not contain reported concentrations of these constituents, with the exception of toluene, which was detected at a concentration slightly greater than the reporting limit [0.5 micrograms per liter (μg/L)] in the groundwater sample collected from MW-7D. In addition, the off-Property well to the north, MW-16D, did not contain reported concentrations of these constituents. The groundwater sample from off-Property well MW-17D to the northeast slightly exceeded the preliminary cleanup level for cPAHs; however, given that the creosote-like material was not encountered at MW-17D, it is unlikely that the cPAH exceedance at MW-17D is related to on-Property contamination.

3.3.2.4 Metals in Groundwater

Total arsenic was detected at a concentration greater than the calculated groundwater background level of 25 μg/L in samples from three locations (MW-5, B-1, and B-7). Lead was detected at a concentration greater than the preliminary cleanup level at one location (B-3).

The detected concentrations of arsenic greater than the calculated background level ranged from 29 μg/L to 58 μg/L, or 1.2 to approximately 2.3 times the calculated background level of 25 μg/L. The highest concentration of arsenic (58 μg/L) was detected at monitoring well MW-5 during the RI field investigation. During the Supplemental Investigation, monitoring well MW-5 was sampled again, and the arsenic concentration was 17 μg/L, which is significantly lower and below the calculated background level. Arsenic was detected at concentrations greater than the preliminary cleanup level in 5 of 42 soil samples analyzed for arsenic. Organic material (wood debris) was observed in soil borings advanced across the Property (Figure 8). The presence of organic material, including TPH, which is known to be present in groundwater hydraulically upgradient of the Property, has a significant potential to cause reducing conditions in groundwater and arsenic is more soluble under reducing conditions. Increased solubility of naturally occurring arsenic may be the cause of the elevated arsenic concentrations detected in groundwater.

The lead concentration greater than the preliminary groundwater cleanup level at B-3 was the only exceedance for this constituent, and the detected concentration of 26 μg/L was less than twice the preliminary cleanup level of 15 μg/L. In addition, lead was not detected in any of the soil samples collected from the Property during the RI or Supplemental Investigation (including the sample collected from B-3) at concentrations greater than the preliminary cleanup levels and there has been no source of lead identified on the Property. Because only one exceedance of the cleanup level was detected, and the exceedance was less than twice the cleanup level, lead is not anticipated to be a significant contaminant for Property groundwater.

As discussed in Section 3.3.1.4, at some locations Property-wide mercury was detected in soil at concentrations above the preliminary cleanup level. Mercury was not detected in any groundwater samples during either the RI or the Supplemental Investigation, demonstrating that the low concentrations of mercury detected across the Property are not mobile and are not affecting groundwater quality.

3.3.3 FORENSIC ANALYSIS

During the Phase II investigation, one soil sample was collected from the zone of creosote-like material observed in the northeastern portion of the Property and analyzed by the laboratory as a product sample due to the presence of free phase petroleum in the sample (Sample ID: B-21-20-23). The sample was analyzed for TPH (using Method NWTPH-HCID) and for TPH-D, TPH-O, total metals, PCBs and PAHs. The analytical results for this sample are presented in Table 12. TPH-D (77,000 mg/kg), TPH-O (36,000 mg/kg), chromium (5.4 mg/kg), lead (7 mg/kg), and PAHs [120,000 micrograms per kilogram (µg/kg) to 19,000,000 µg/kg] were detected in the sample at concentrations greater than the laboratory reporting limits. TPH-G and PCBs were not detected in the sample at concentrations greater then the reporting limits; however, the reporting limits for TPH-G were elevated.

During the RI field investigation, an additional sample of the creosote-like material was collected for forensic analysis by Friedman & Bruya, Inc. A hydrocarbon fuel scan was conducted by analyzing the sample using a gas chromatograph with a flame ionization detector. In addition, the sample was analyzed for parent and alkylated PAHs and sulfur. The analytical results are presented in Table 13 and the full laboratory report is included in Appendix F. Based on the analytical results, Friedman & Bruya, Inc. identified the material as coal tar, or a coal tar-based material such as creosote.

4.0 SUMMARY AND CONCLUSIONS

Landau Associates has prepared this remedial investigation (RI) for the approximately 3.85-acre North Lot Development property (Property), located at the southeastern corner of the intersection of South King Street (to the north) and Occidental Avenue South (to the west) in Seattle, Washington. The Property consists of a paved parking lot, which is currently used for commuter parking and parking for events at Qwest Field.

North Lot Development (NLD), as prospective purchaser of the Property from the owner, King County, has conducted various investigations to document and characterize soil and groundwater conditions at the Property and off-Property, and has identified localized contamination in soil and groundwater on the Property. The RI and FS, which will be prepared and submitted as a separate document, are being conducted, as required under the Washington State Model Toxics Control Act (MTCA; Chapter 173-340 WAC), to document and evaluate contamination at the Property and to identify the appropriate cleanup action.

NLD, as the prospective purchaser of the Property, has been in communication with Ecology since April 2008 regarding a suitable regulatory mechanism to facilitate the RI/FS and Cleanup Action Plan (CAP) review and concurrence by Ecology. NLD submitted a proposal for a Prospective Purchaser Agreement/Consent Decree to Ecology in May 2008. Proposal approval has been delayed due to limited Ecology and Attorney General staff resources. Ecology subsequently proposed temporary use of Voluntary Cleanup Program (VCP) staff for completion of the RI/FS work.

The use of VCP staff has allowed the RI/FS work to progress; however, the technical opinion letters available under the VCP will not provide sufficient liability protection for the viability of the proposed development for the Property. Therefore, NLD has requested that Ecology continue to consider the existing Prospective Purchaser Agreement/Consent Decree Proposal, and that Ecology formal program and Attorney General office staff be made available to oversee the cleanup action after the work with the VCP staff has been completed.

4.1 HISTORICAL INFORMATION, FIELD INVESTIGATIONS, AND PHYSICAL CONDITIONS

- The Property was originally undeveloped tideflats of Elliott Bay and was filled in the late 1890s and early 1900s. The Property was operated as a rail yard from the late 1800s until the late 1960s. In addition, two gasoline stations were formerly located in the northwestern corner of the Property at different times between the late 1930s and approximately 1966. The Property has been used as a parking lot since the 1970s.
- Based on the historical operations conducted on the Property, the constituents of concern for this RI are TPH, VOCs including BTEX, PAHs, metals, and PCBs.

- The field investigations included the drilling and sampling of 80 soil borings for evaluation of shallow (about 6 to 32 ft BGS) subsurface conditions (69 direct-push borings and 11 hollow-stem auger borings), installation of 19 groundwater monitoring wells (14 shallow wells and 5 deeper wells), and a geophysical survey.
- Five Landau Associates boring locations were selected as locations for drilling of deeper borings by Terra Associates for use in their geotechnical evaluation of the Property. These deeper (maximum depth of 80.5 ft BGS) boring data were used to assess geologic and hydrogeologic conditions at the Property.
- Soil conditions encountered during drilling consisted of: 1) various types of fill to maximum depths of 30.75 ft BGS; 2) beneath the fill, a marine sediment layer (former native tideflat) with the upper contact at depths ranging from 18 ft BGS to 30.75 ft BGS; 3) underlying the marine sediment layer, a unit interpreted to be alluvial deposits with the upper contact at depths ranging from 25.0 ft BGS to 45.5 ft BGS.
- The uppermost hydrostratigraphic unit consists of the water table aquifer within the fill that overlies the marine sediment unit, which is the uppermost aquitard beneath the Property. The depths to groundwater measured during the RI range from about 5.5 to 11.0 ft BGS. Based on the limited groundwater measurements collected for the RI, the groundwater elevations appear generally higher toward the southwestern portion of the Property, and lower toward the eastern portion of the Property, suggesting localized mounding and/or variable flow with some localized flow to the north and northeast. This is inconsistent with area and regional flow to the west toward Puget Sound. Deeper groundwater beneath the marine silt unit was not evaluated as part of this study. Groundwater elevations were measured during different seasons, and overall groundwater flow across the Property does not vary significantly with the seasons.
- Field-screening results indicated: 1) petroleum odor, sheen, and elevated PID measurements in shallow soil (less than 15 ft BGS) from borings drilled in the area of the former gasoline stations in the northwestern portion of the Property; and 2) a strong petroleum odor, sheen, and a creosote-like material at depths of about 18 to 23 ft BGS at boring locations in the northeastern portion of the Property. The creosote-like material appears to be present at the contact between the fill unit and underlying marine sediment, and ranges from 1 ft to 3 ft in thickness. Observations during drilling in the northeastern, eastern, and southern portions of the Property and field-screening did not indicate the presence of potential contamination in the fill material from the surface to about 18 ft BGS, even in those areas where the creosote-like material was encountered.

4.2 NATURE AND EXTENT OF CONTAMINATION

- **Northwestern Portion of the Property**: The laboratory analytical and field-screening data indicate that shallow soil (less than 15 ft BGS) has been impacted by releases resulting from the former gasoline station operations. The soil contamination appears to be primarily near the top of the groundwater table, but extends to a depth of at least 17 ft BGS locally. TPH-G was detected at a concentration greater than the preliminary cleanup level in one of six groundwater samples collected in this area. No BTEX was detected at concentrations greater than the preliminary cleanup levels in any of the groundwater samples from this area. Due to the presence of benzene in shallow soil in the northwestern portion of the Property, the potential for vapor intrusion was evaluated and will be addressed in the FS document.
- **Northeastern Portion of the Property**: Deeper soil (greater than 15 ft BGS) has been impacted by petroleum hydrocarbons and PAHs. Based on the field screening, observations

during drilling, and analytical data, the soil contamination appears to be primarily associated with the creosote-like material observed at the base of the fill. Groundwater impact was detected in one deeper well (screened from 15 to 20 ft BGS, at approximately the depth where the creosote-like material was encountered). Based on the occurrence of the creosote-like material at the base of the fill material, and the lack of evidence of contamination within the fill at shallower depths, the creosote-like material appears to be from a distinct source and likely predates placement of the overlying fill.

- **Other Portions of the Property**: PAHs including primarily cPAHs, were detected at concentrations greater than the preliminary cleanup levels in most of the soil samples collected across the southern portion of the Property. Arsenic and motor-oil-range petroleum hydrocarbons were also detected at concentrations greater than the preliminary cleanup levels in soil samples collected in the west-central portion of the Property. The occurrence of these analytes in shallow surface soil suggest a source within the fill material placed over the native marine sediment layer. PAHs were not detected at concentrations greater than the preliminary cleanup levels in groundwater samples collected from the southern portion of the Property. Arsenic was detected in several groundwater samples collected from the southern and western portions of the Property and lead was detected in one groundwater sample collected from the north-central portion of the Property; however, the concentrations of arsenic and lead detected above the preliminary cleanup levels in groundwater were low and are not considered a concern for the Property. Off-Property borings to the northwest of the Property, and off-Property wells to the north and northeast of the Property were generally clean and bounded contaminants of concern to demonstrate that contamination is not migrating off-Property. The analytes detected at off-Property well MW-17D are likely to be indicative of background concentrations and not Property-related due to the well's location relative to and distance from the Property.

4.3 CONCLUSIONS

The information developed and presented for the RI found that groundwater contamination at concentrations greater than the preliminary cleanup levels is present near the base of the water table aquifer (approximately 20 ft BGS) where creosote-like material is present, and that there is localized soil contamination due to gasoline constituents associated with the former gasoline stations in the northwestern portion of the Property near the depth of the water table. Based on the data collected for the RI, the extent of contamination from Property activities is limited to the Property. The FS document will identify the areas and volumes of contamination requiring remedial action and remedial action objectives, provide identification and screening of technologies, develop remedial action alternatives, and recommend a cleanup action plan.

5.0 USE OF THIS REPORT

This report was prepared for the exclusive use of North Lot Development, and applicable regulatory agencies, for specific application to the North Lot Development Property, including review by the public. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of Landau Associates. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau Associates, shall be at the user's sole risk. Landau Associates warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. We make no other warranty, either express or implied. This document was prepared under the supervision and direction of the undersigned.

LANDAU ASSOCIATES, INC.

Kathryn F. Hartley
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Senior Engineer

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Senior Associate Geologist

KFH/PMR/TLS/ccy

6.0 REFERENCES

Adams, M. 2008. E-mail message from Mark Adams, Toxics Cleanup Program, Washington State Department of Ecology, to Tim Syverson, Senior Associate Geologist, Landau Associates. Re: *Suggestions for the RI – North Lot*. October 7.

Baechler, M.C. and D.L. Hadley. 1992. *Sick Building Syndrome: Sources, Health Effects, Mitigation (Pollution Technology Review No. 205)*. Noyes Data Corporation. Park Ridge, New Jersey.

Ecology. 1999. Final Report: *Screening Survey for Metals and Dioxins in Fertilizer Products and Soils in Washington State*. Washington State Department of Ecology Publication No. 99-309. April.

Ecology. 1994. Natural *Background Soil Metals Concentrations in Washington State*. Washington State Department of Ecology Publication No. 94-115. October.

Ecology. 1992. *Statistical Guidance for Ecology Site Managers*. Washington State Department of Ecology Publication No. 92-54. August.

Ecology & Environment. 2009. Final: *Rayonier Mill Off-Property Soil Dioxin Study, Data Summary Technical Memorandum*. Prepared for Washington State Department of Ecology. February 24.

EPA website. 2006. *National Recommended Water Quality Criteria*. http://www.epa.gov/waterscience/criteria/wqctable/. U.S. Environmental Protection Agency. Accessed October 1, 2009.

Freeze, R.A., and J.A. Cherry. 1979. *Groundwater*. Prentice-Hall, Inc. Englewood Cliffs, New Jersey.

Johnson, P.C., and R.A. Ettinger. 1991. "Heuristic Model for Predicting the Intrusion Rate of Contaminant Vapors in Buildings. *Environmental Science and Technology*. 25: 1445-1452.

Landau Associates. 2009a. Letter: *Ecology Opinion Letter Dated April 21, 2009, North Lot Development, 201 South King Street, Seattle, Washington 98104*. *VCP Project No.: NW1986*. From Timothy L. Syverson, L.G., and Kristy J. Hendrickson, P.E., to Jing Liu, Washington State Department of Ecology. June 12.

Landau Associates. 2009b. Letter: *Ecology Opinion Letter Dated April 21, 2009, Proposed Supplemental Remedial Investigation, North Lot Development, 201 South King Street, Seattle, Washington 98104. VCP Project No.: NW1986*. From Timothy L. Syverson, L.G., and Kristy J. Hendrickson, P.E., to Jing Liu and Mark Adams, Washington State Department of Ecology. July 7.

Landau Associates. 2009c. *Revised Work Plan, Supplemental Remedial Investigation, North Lot Development, Seattle, Washington*. Prepared for North Lot Development, LLC. July 7.

Landau Associates. 2009d. Report: *Groundwater Monitoring, Union Station, Seattle, Washington*. Prepared for Union Station Associates. November 5.

Landau Associates. 2008. Technical Memorandum: *Remedial Investigation Work Plan, Additional Soil and Groundwater Characterization, North Lot Development, South King Street and Occidental Avenue South, Seattle, Washington*. From Tim Syverson, L.G., and Kathryn Hartley, to Alan Cornell, North Lot Development, LLC. September 21.

Landau Associates. 2007. Report: *Phase I Environmental Site Assessment, Qwest Field North Lot, Seattle, Washington*. Prepared for Nitze Stagen & Co., Inc. and Opus Northwest LLC. March 28.

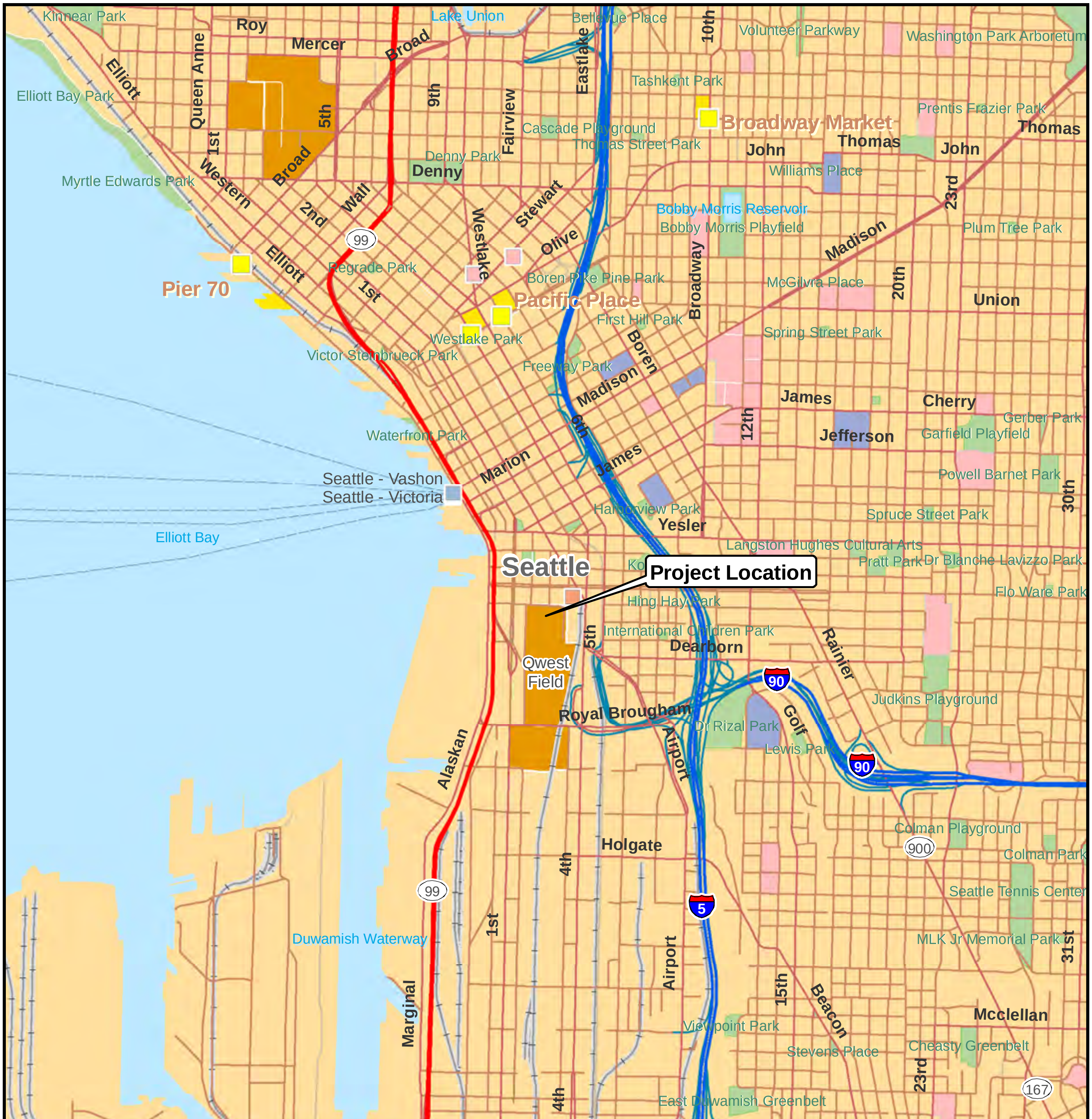
Landau Associates. 2004. Report: *Groundwater Monitoring, Union Station, Seattle, Washington*. Prepared for Union Station Associates. October 28.

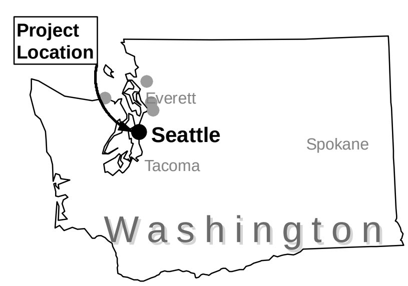
Miner, R., and T. Gurtowski. 2001. "Driven Piles for Safeco Field." In: *Proceedings of the Conference on Design and Installation of Cost-Efficient Driven Piles*. Pile Driving Contractors Association. Boulder, Colorado.

Pacific Geomatic Services. 2008. Land Survey Drawings: *Monitoring Well Exhibit Map, Quest Field (North Site), S. King Street, Seattle, Washington, King County*. Sheet Nos. 1 and 2. Signed and stamped by Robert W. Pusey, Jr., State of Washington Professional Land Surveyor No. 41964. December 17.

Terra Associates. 2008. *Preliminary Geotechnical Evaluation, North Lot Development, Seattle, Washington*. June 11.

Troost, K.G., D.B. Booth, A.P. Wisher, and S.A. Shimel. 2005. *The Geologic Map of Seattle – A Progress Report*. U.S. Geological Survey Open-File Report 2005-1252, Version 1.0. Available at http://pubs.usgs.gov/of/2005/1252/.





N

0 0.5 1

Miles

Data Source: ESRI 2008

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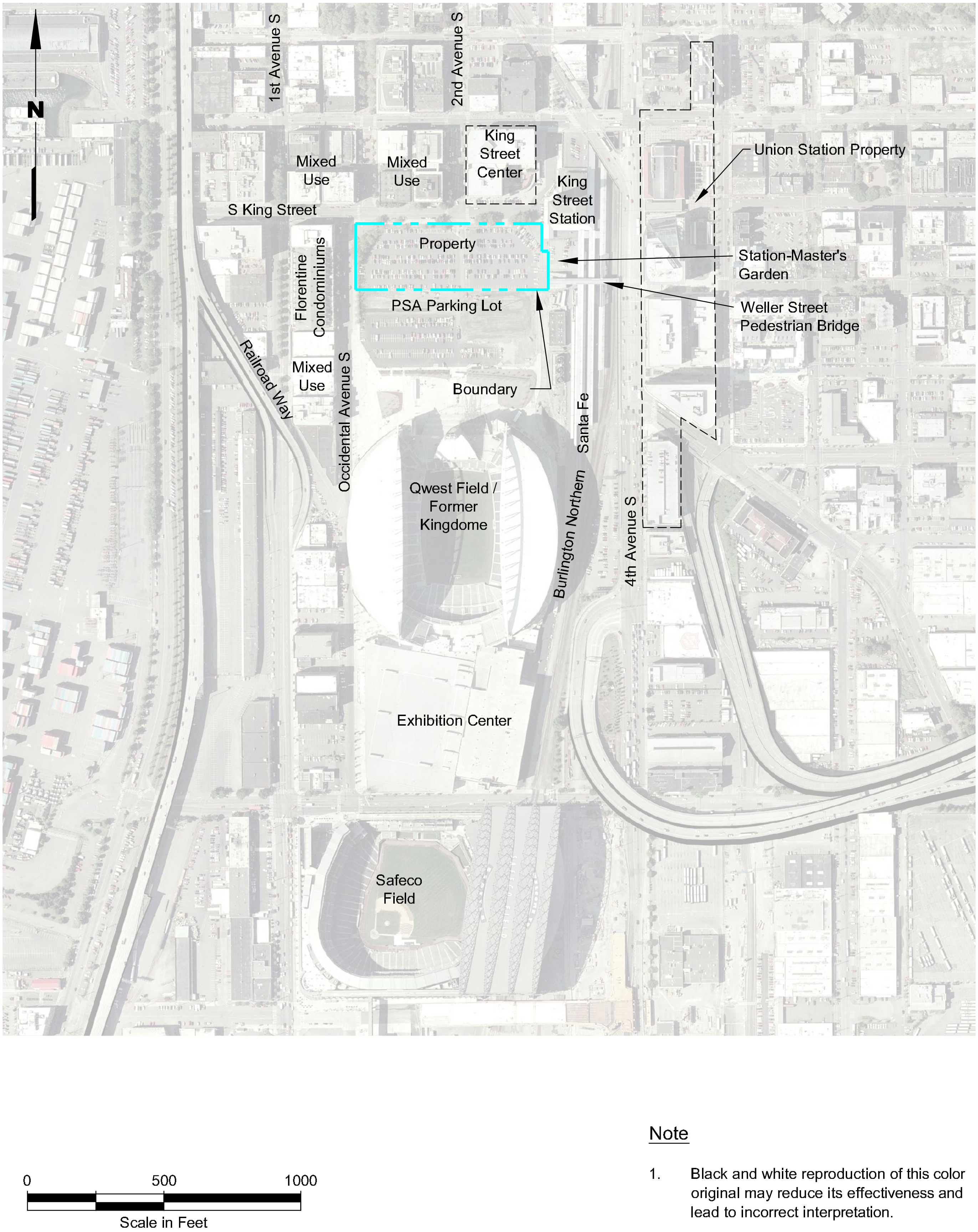
North Lot Development Seattle, Washington	**Vicinity Map**	Figure 1



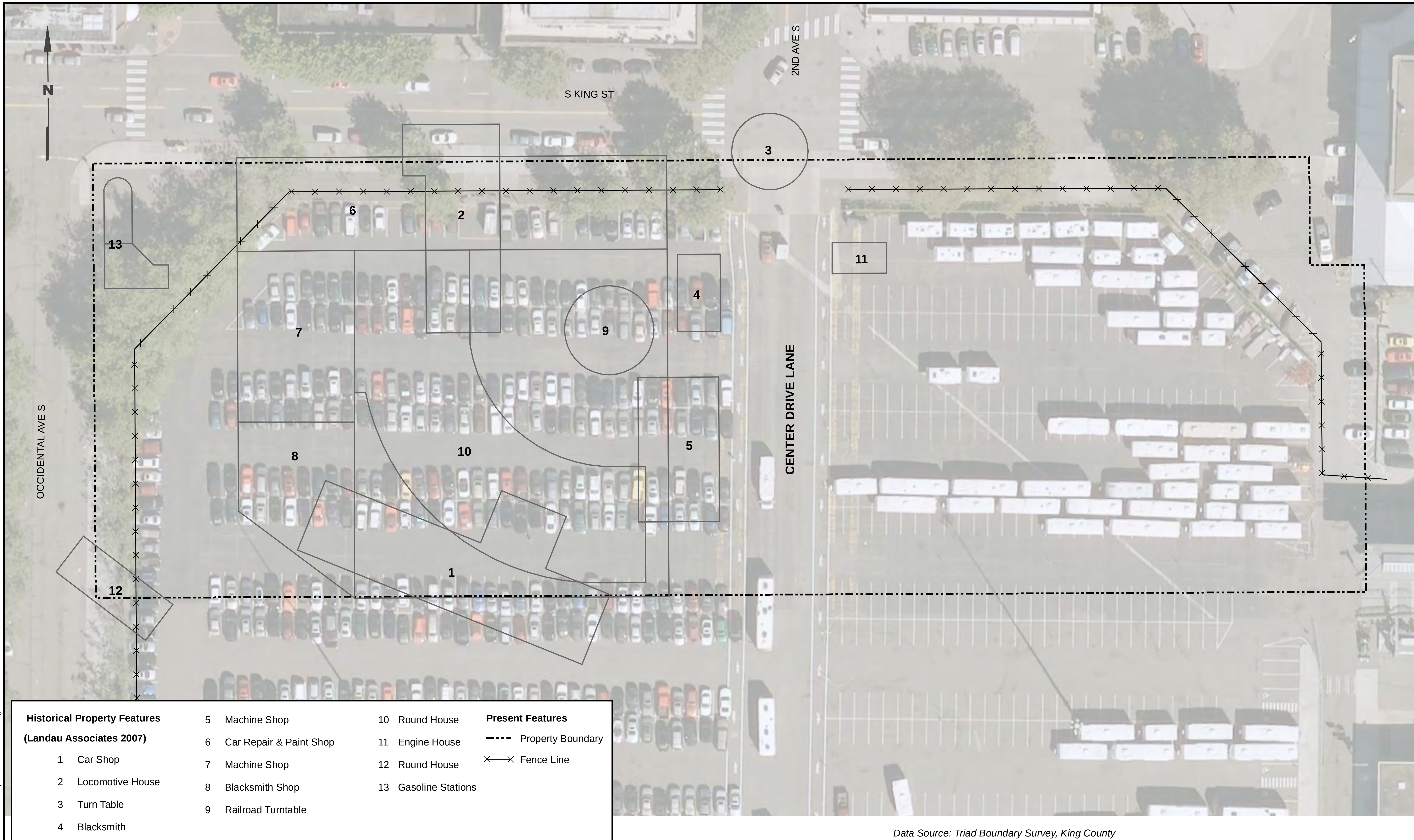
Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Qwest Field | V:\1014\D\Ecology Letter\Fig2_3.dwg (A) "Figure 2" 5/24/2011

LANDAU ASSOCIATES

North Lot Development Seattle, Washington	**Property Plan and Surrounding Area**	Figure 2



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Note
1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Data Source: Triad Boundary Survey, King County

North Lot Development
Seattle, Washington

Historical Property Features

Figure
3

0 50 100
Scale in Feet

Note
1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Data Source: Triad Boundary Survey, King County

North Lot Development Seattle, Washington	**Property Plan and Existing Features**	Figure 4

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Y:\Projects\1014001\Mapdocs\North Lot RI\Fig4-UtilitySitePlan.mxd 5/24/2011

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Legend

- Direct-Push Soil Boring and Monitoring Well Location
- Direct-Push Soil Boring Location
- Direct-Push Soil and Groundwater Sample Location
- Historical Building Outlines
- Fence Line
- Property Boundary

0 80 160

Scale in Feet

Data Source: Triad Boundary Survey, King County

Note

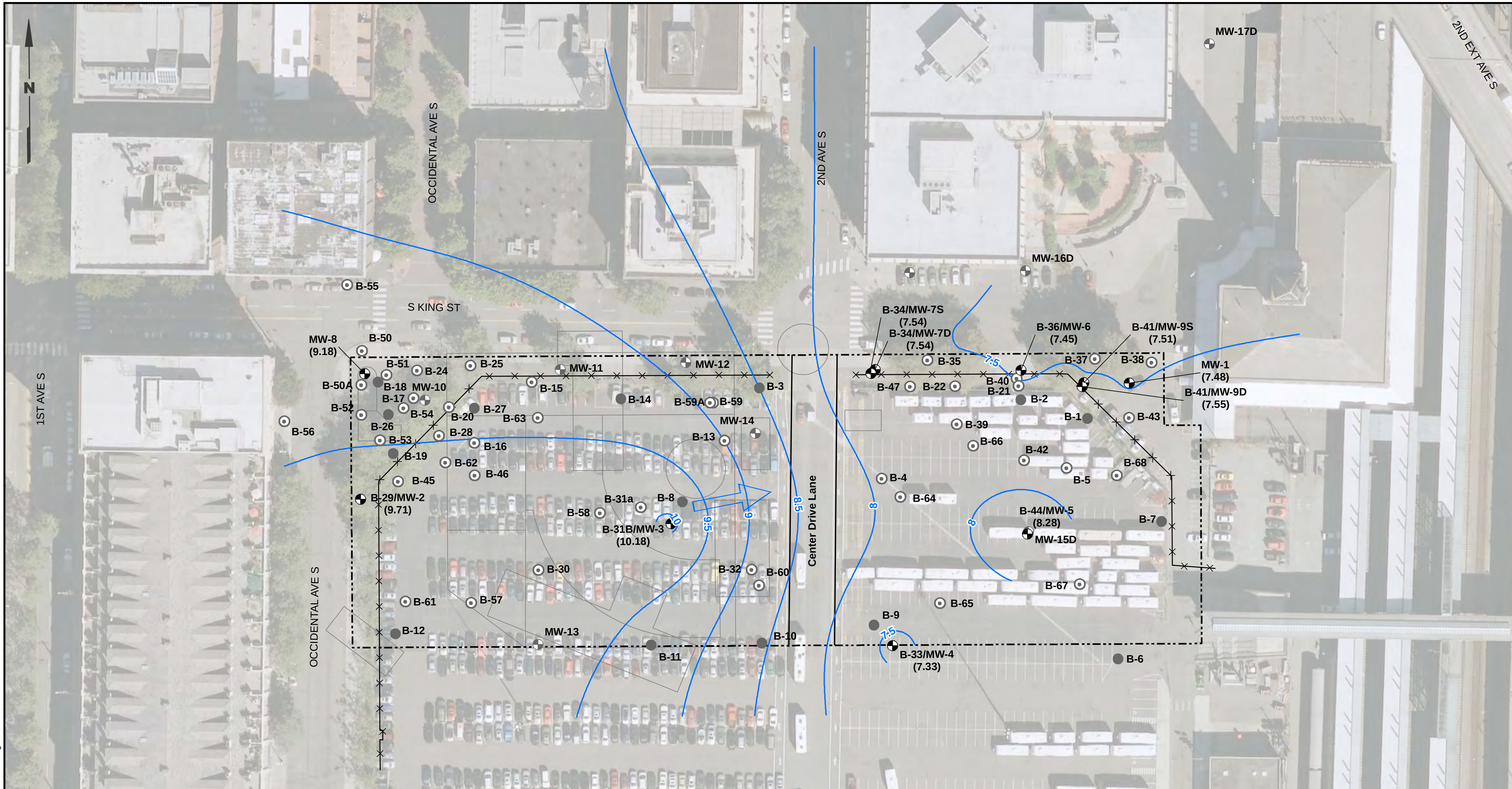
1. Refer to Figure 3 for Historical Property Features Legend.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

LANDAU ASSOCIATES

North Lot Development
Seattle, Washington

Sampling Locations

Figure 5



Legend

MW-8 (9.18)	Groudwater Monitoring Wells with Groundwater Elevations (ft) MSL	9.5	Groundwater Elevation Contour (ft)
	Direct-Push Soil Boring and Monitoring Well Location		Groundwater Flow Direction
	Direct-Push Soil Boring Location		Historical Building Outlines
	Direct-Push Soil and Groundwater Sample Location		Fence Line
			Property Boundary

Note
1. Refer to Figure 3 for Historical Property Features Legend.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Data Source: Triad Boundary Survey, King County

0 80 160
Scale in Feet

Landau Associates

North Lot Development
Seattle, Washington

Groundwater Elevation Contours for November 24, 2008

Figure 6

Y:\Projects\1014001\Mapdocs\North Lot RI\Old\Fig6-Nov08GWContours.mxd 5/24/2011

Legend

MW-8 (9.28) Groundwater Monitoring Wells with Groundwater Elevations (ft) MSL

Direct-Push Soil Boring and Monitoring Well Location

Direct-Push Soil Boring Location

Direct-Push Soil and Groundwater Sample Location

9.5 Groundwater Elevation Contour (ft)

Groundwater Flow Direction

Historical Building Outlines

Fence Line

Property Boundary

0 80 160

Scale in Feet

Note

1. Refer to Figure 3 for Historical Property Features Legend.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Data Source: Triad Boundary Survey, King County

Y:\Projects\1014001\Mapdocs\North Lot RI\Old\Fig7-Jan09GWContours.mxd 5/24/2011

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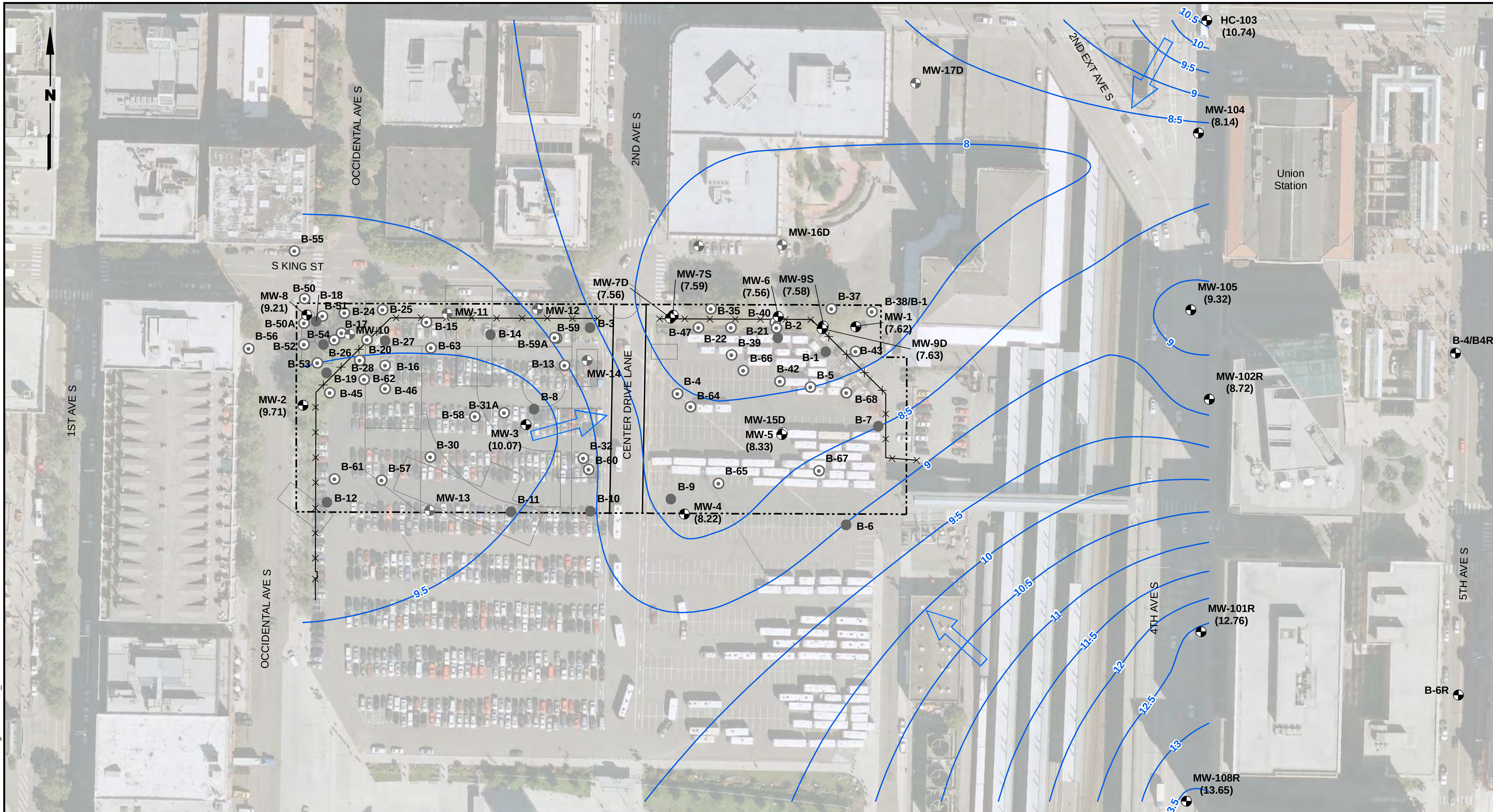
North Lot Development
Seattle, Washington

Groundwater Elevation Contours for January 16, 2009

Figure 7



Legend

MW-8 (9.21) Groundwater Monitoring Wells with Groundwater Elevations (ft) MSL

Direct-Push Soil Boring and Monitoring Well Location

Direct-Push Soil Boring Location

Direct-Push Soil and Groundwater Sample Location

9.5 Groundwater Elevation Contour (ft)

Groundwater Flow Direction

Historical Building Outlines

Fence Line

Property Boundary

Note
1. Refer to Figure 3 for Historical Property Features Legend.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Data Source: Triad Boundary Survey, King County

0 110 220

Scale in Feet

Y:\Projects\1014001\Mapdocs\North Lot RI\Old\Fig8-June09GW_Elevation.mxd 5/24/2011

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North Lot Development Seattle, Washington	**Groundwater Elevation Contours for June 3, 2009**	Figure 8

Legend

- MW-8 (8.90) — Groundwater Monitoring Wells with Groundwater Elevations
- Direct-Push Soil Boring and Monitoring Well Location
- Direct-Push Soil Boring Location
- Direct-Push Soil and Groundwater Sample Location
- 9.5 — Groundwater Elevation Contour (ft)
- Groundwater Flow Direction
- Historical Building Outlines
- Fence Line
- Property Boundary

0 80 160

Scale in Feet

Note

1. Refer to Figure 3 for Historical Property Features Legend.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Data Source: Triad Boundary Survey, King County

Y:\Projects\1014001\Mapdocs\North Lot RI\Old\Fig9-Aug09GWContours.mxd 5/24/2011

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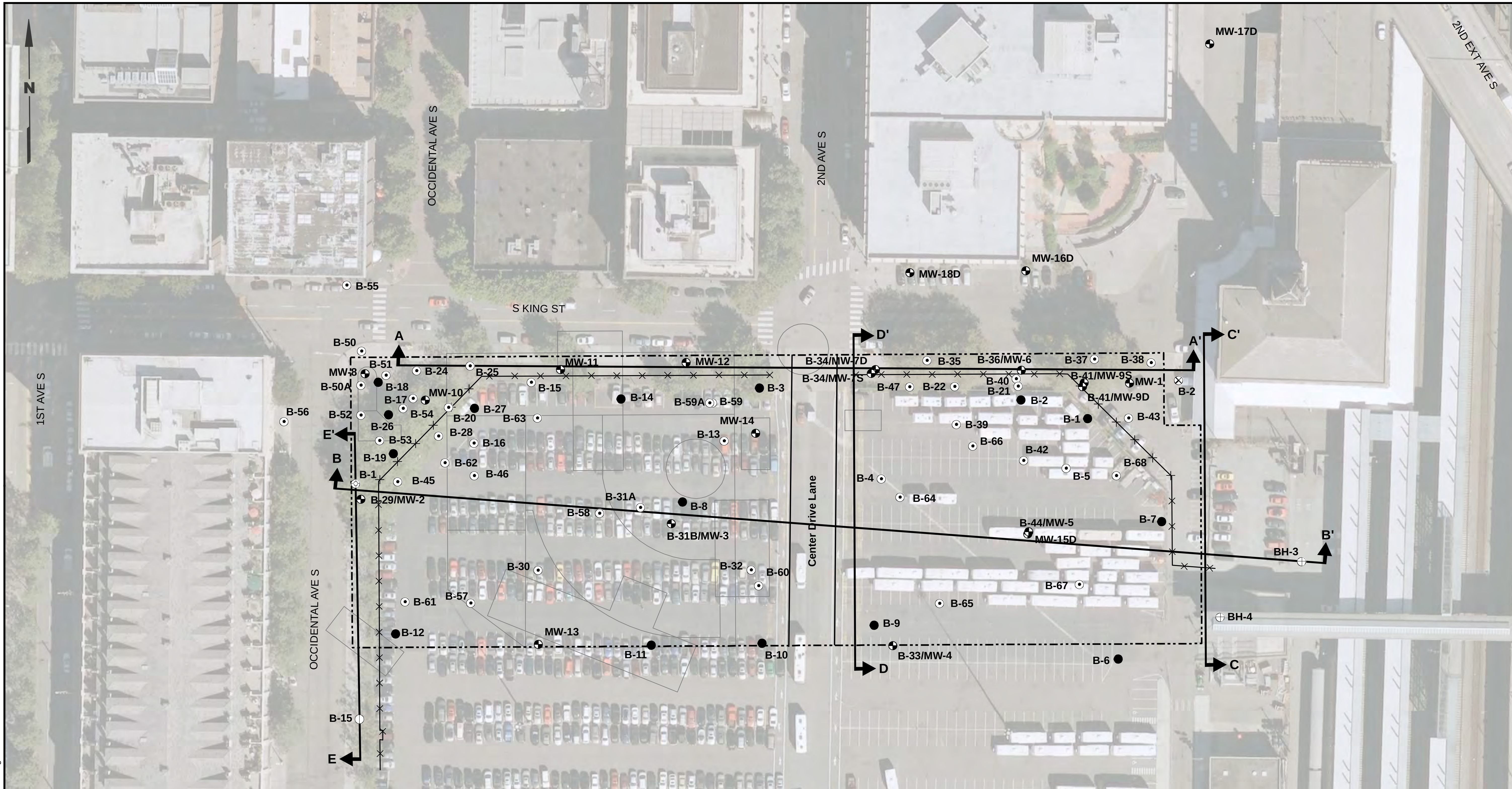
North Lot Development
Seattle, Washington

Groundwater Elevation Contours for August 25, 2009

Figure 9



Legend

- Direct-Push Soil Boring and Monitoring Well Location
- Direct-Push Soil Boring Location
- Direct-Push Soil and Groundwater Sample Location
- Previous Boring - Metropolitan Engineers, 1966
- Previous Boring - Shannon & Wilson, 1993
- Previous Boring - Geosciences Inc, 1998
- Previous Boring - Geogroup NW, 1996
- Historical Building Outlines
- Fence Line
- Property Boundary

Scale in Feet: 0, 80, 160

Data Source: Triad Boundary Survey, King County

Note
1. Refer to Figure 3 for Historical Property Features Legend.

North Lot Development Seattle, Washington	**Cross-Section Locations**	Figure 10

LANDAU ASSOCIATES

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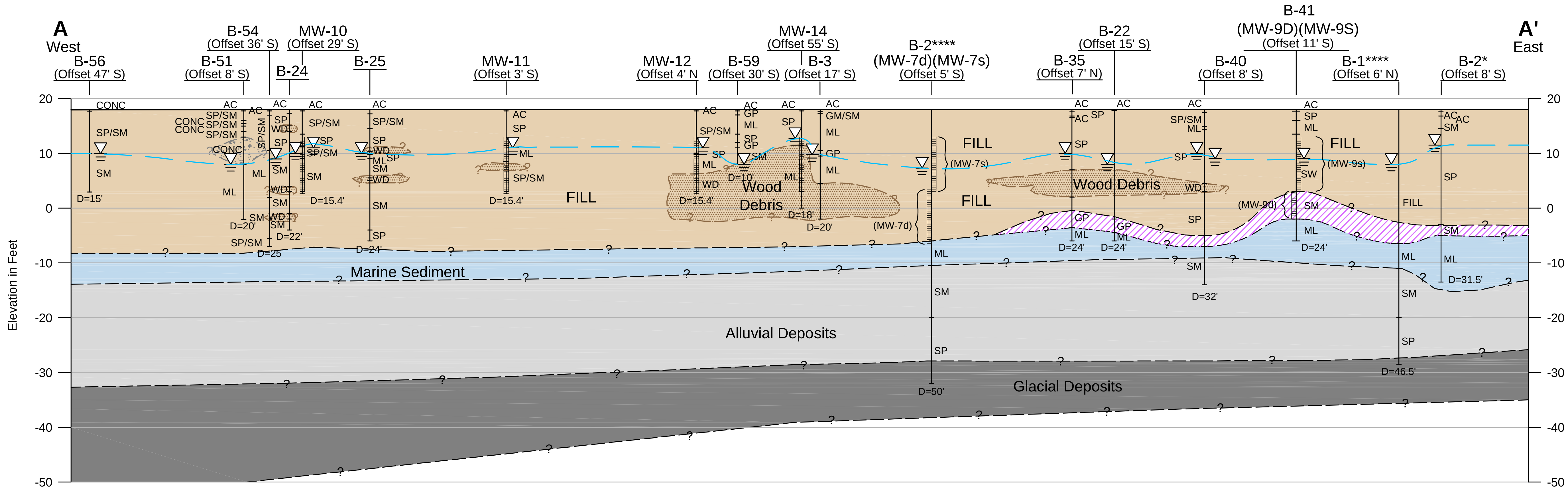

Legend

*	Shannon & Wilson 1993
**	Geogroup NW 1996
***	Geosciences Inc. 1998
****	Terra Associates 2008
*****	Metropolitan Engineers 1966
B-1	Project Exploration Designation
(Offset 160' W)	Offset Distance in Feet and Direction
	Top of Exploration
	Groundwater Level (At time of drilling)
GM	Unified Soils Classification Symbol (see Appendix A-1)
	Inferred Groundwater Table
	Inferred Geologic Contact
	Well Screen Interval (If a Monitoring Well was Constructed)
	Bottom of Exploration
D=14'	Total Depth of Exploration

Fill	Primarily SAND, with varying percentages of silt and gravel; SILT with varying percentages of sand; GRAVEL with varying percentages of sand and silt; Debris contained in matrix includes concrete, brick, and trace to substantial percentages of wood.
Creosote Affected Zone	Creosote-l ke material in soil
Wood Debris	Brown wood debris as sawdust, wood chippings, and timber (loose to very dense)
Concrete Debris	Crushed concrete
Marine Sediment	Primarily SILT, with varying percentages of sand; SAND with varying percentages of silt; trace shell fragments contained in matrix (very soft to medium stiff).
Alluvial Deposits	Primarily SAND with varying percentages of silt, gravel, and clay (very loose to dense).
Glacial Deposits	Mixture of sand, gravels, silt, and clay (dense to very dense). Contact between alluvial deposits and glacial deposits corresponds to increased material density.

Notes

1. This cross section has been interpreted and generalized from project field data. Variations between this cross section and actual conditions may exist. The project boring logs and written report must be referenced for a proper understanding of the nature of the subsurface conditions. This cross section was prepared for environmental interpretation purposes and is not intended to be used for geotechnical planning purposes.
2. See report text for descriptions of geologic units.
3. For cross-section line location, see Figure 7.
4. Water level data for borings B-2 and B-1 (Terra Associates 2008) adjusted based on data from monitoring wells MW-7 and MW-1.
5. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Data Source: Triad Boundary Survey, King County

0 60 120
Horizontal Scale: 1" = 60'
Vertical Scale: 1" = 20'

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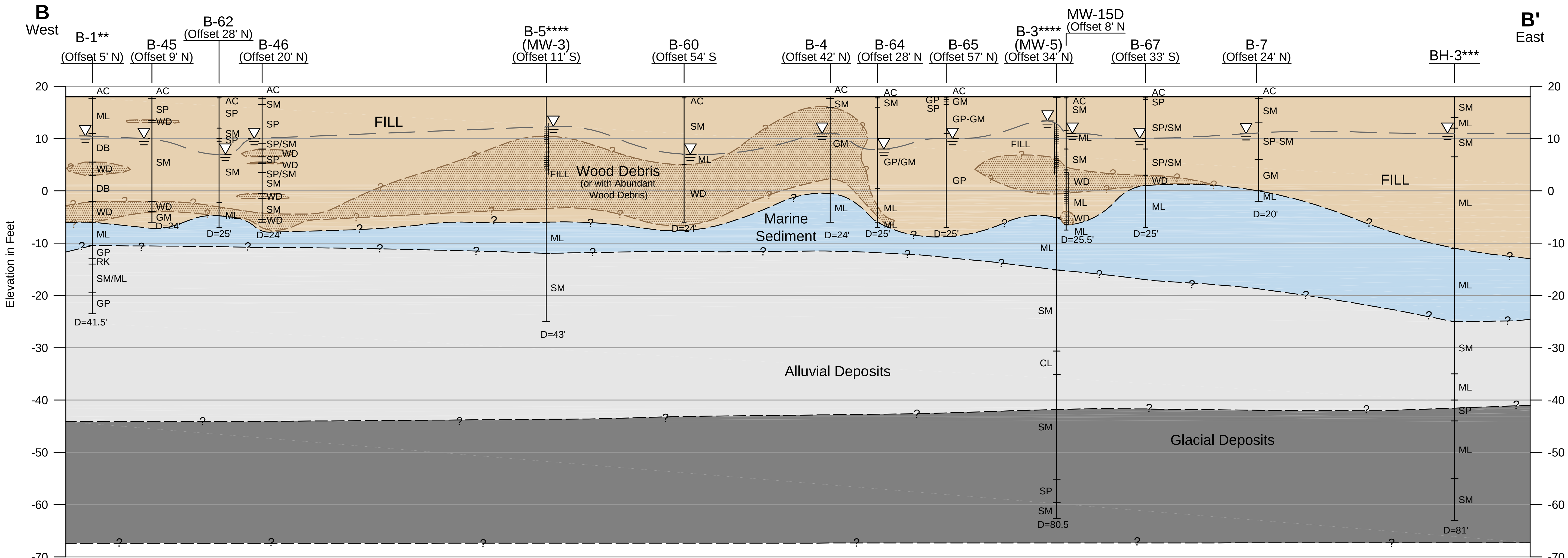
North Lot Development
Seattle, Washington

Geologic Cross Section A-A'

Figure 11



Legend

*	Shannon & Wilson 1993
**	Geogroup NW 1996
***	Geosciences Inc. 1998
****	Terra Associates 2008
*****	Metropolitan Engineers 1966
B-1	Project Exploration Designation
(Offset 160' W)	Offset Distance in Feet and Direction
	Top of Exploration
	Groundwater Level (At time of drilling)
GM	Unified Soils Classification Symbol (see Appendix A-1)
	Inferred Groundwater Table
	Inferred Geologic Contact
	Well Screen Interval (If a Monitoring Well was Constructed)
	Bottom of Exploration
D=14'	Total Depth of Exploration

Unit	Description
Fill	Primarily SAND, with varying percentages of silt and gravel; SILT with varying percentages of sand; GRAVEL with varying percentages of sand and silt; Debris contained in matrix includes concrete, brick, and trace to substantial percentages of wood.
Creosote Affected Zone	Creosote-l ke material in soil
Wood Debris	Brown wood debris as sawdust, wood chippings, and timber (loose to very dense).
Marine Sediment	Primarily SILT, with varying percentages of sand; SAND with varying percentages of silt; trace shell fragments contained in matrix (very soft to medium stiff).
Alluvial Deposits	Primarily SAND with varying percentages of silt, gravel, and clay (very loose to dense).
Glacial Deposits	Mixture of sand, gravels, silt, and clay (dense to very dense). Contact between alluvial deposits and glacial deposits corresponds to increased material density.

Notes

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2. See report text for descriptions of geologic units.
3. For cross-section line location, see Figure 7.
4. Water level data from borings B-5 and B-3 (Terra Associates 2008) adjusted based on data from monitoring wells MW-3 and MW-5.
5. Wood debris observations in B-5 and B-3 (Terra Associates 2008) noted from co-located borings B-31b and B-44.
6. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Data Source: Triad Boundary Survey, King County

0 60 120
Horizontal Scale: 1" = 60'
Vertical Scale: 1" = 20'

Qwest Field | V:\1014\040\044\Supplemental RIFS\Fig11-14.dwg (A) "Figure 12" 5/24/2011

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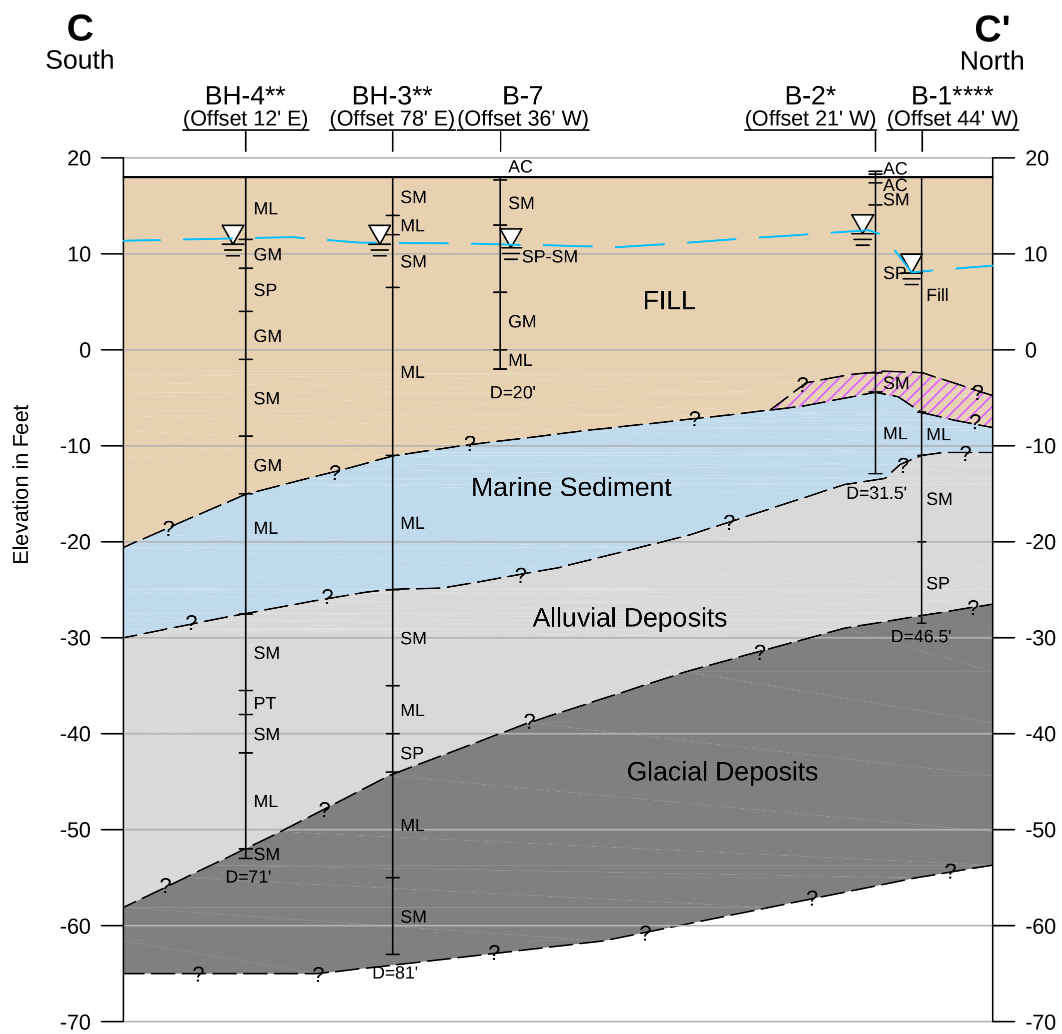
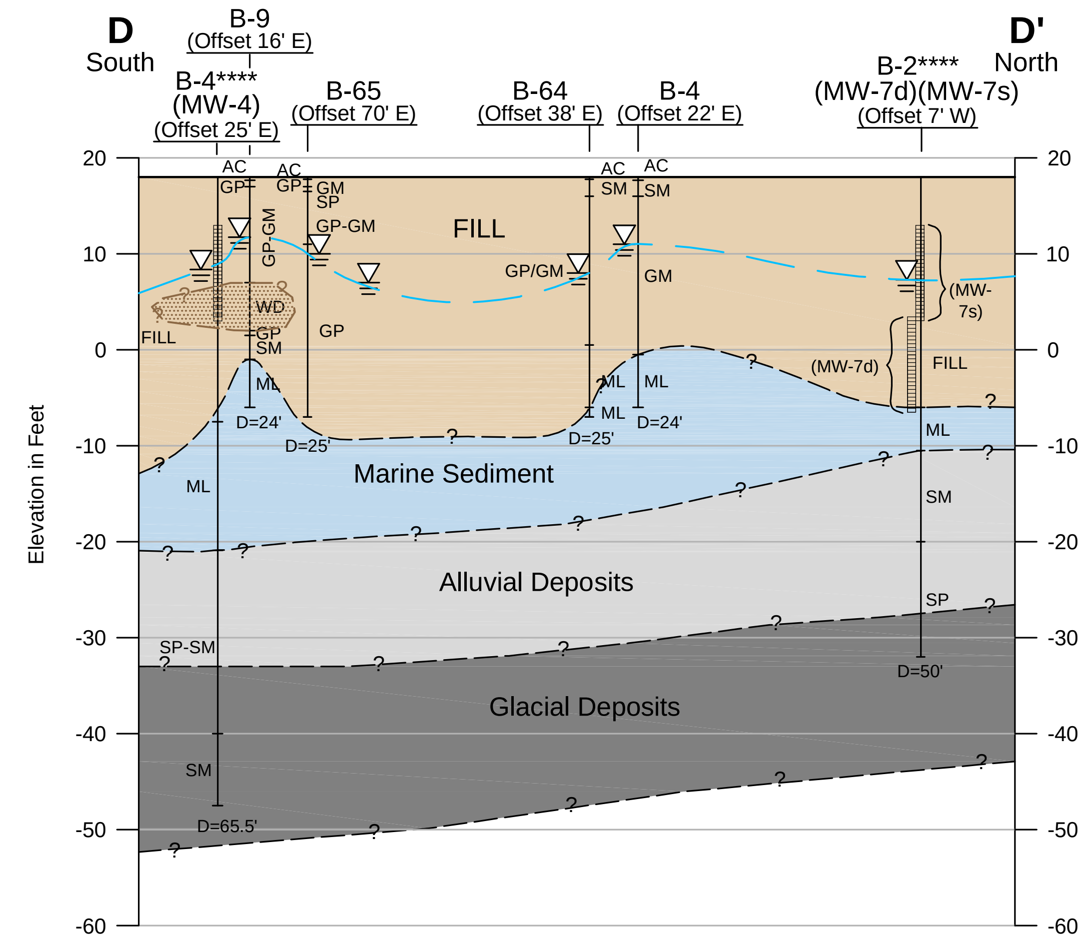
North Lot Development
Seattle, Washington

Geologic Cross Section B-B'

Figure 12





Legend

*	Shannon & Wilson 1993
**	Geogroup NW 1996
***	Geosciences Inc. 1998
****	Terra Associates 2008
*****	Metropolitan Engineers 1966
B-1	Project Exploration Designation
(Offset 160' W)	Offset Distance in Feet and Direction
	Top of Exploration
	Groundwater Level (At time of drilling)
GM	Unified Soils Classification Symbol (see Appendix A-1)
	Inferred Groundwater Table
	Inferred Geologic Contact
	Well Screen Interval (If a Monitoring Well was Constructed)
	Bottom of Exploration
D=14'	Total Depth of Exploration

Fill	Primarily SAND, with varying percentages of silt and gravel; SILT with varying percentages of sand; GRAVEL with varying percentages of sand and silt; Debris contained in matrix includes concrete, brick, and trace to substantial percentages of wood.
Creosote Affected Zone	Creosote-like material in soil
Wood Debris	Brown wood debris as sawdust, wood chippings, and timber (loose to very dense).
Marine Sediment	Primarily SILT, with varying percentages of sand; SAND with varying percentages of silt; trace shell fragments contained in matrix (very soft to medium stiff).
Alluvial Deposits	Primarily SAND with varying percentages of silt, gravel, and clay (very loose to dense).
Glacial Deposits	Mixture of sand, gravels, silt, and clay (dense to very dense). Contact between alluvial deposits and glacial deposits corresponds to increased material density.

Notes

1. This cross section has been interpreted and generalized from project field data. Variations between this cross section and actual conditions may exist. The project boring logs and written report must be referenced for a proper understanding of the nature of the subsurface conditions. This cross section was prepared for environmental interpretation purposes and is not intended to be used for geotechnical planning purposes.
2. See report text for descriptions of geologic units.
3. For cross-section line location, see Figure 7.
4. Water level data from borings B-1, B-4, and B-2 (Terra Associates 2008) adjusted based on data from monitoring wells MW-1, MW-4, and MW-7.
5. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

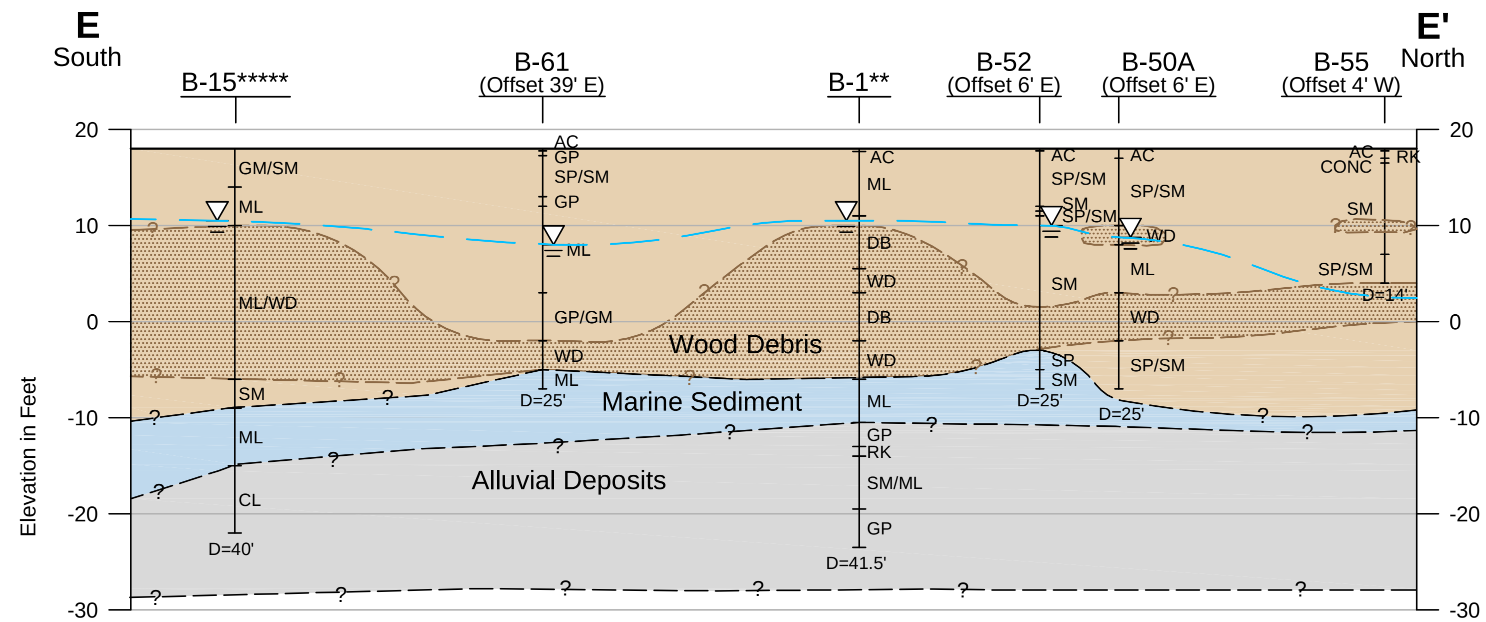
0 60 120
Horizontal Scale: 1" = 60'
Vertical Scale: 1" = 20'

Data Source: Triad Boundary Survey, King County

Qwest Field | V:\101\040\044\Supplemental RI\FS\Fig11-14.dwg (A) "Figure 13" 5/24/2011

Landau Associates

North Lot Development Seattle, Washington	**Geologic Cross Sections C-C' & D-D'**	Figure 13



Legend

*	Shannon & Wilson 1993
**	Geogroup NW 1996
***	Geosciences Inc. 1998
****	Terra Associates 2008
*****	Metropolitan Engineers 1966
B-1	Project Exploration Designation
(Offset 160' W)	Offset Distance in Feet and Direction
	Top of Exploration
	Groundwater Level (At time of drilling)
GM	Unified Soils Classification Symbol (see Appendix A-1)
	Inferred Groundwater Table
	Inferred Geologic Contact
	Well Screen Interval (If a Monitoring Well was Constructed)
	Bottom of Exploration
D=14'	Total Depth of Exploration

Fill	Primarily SAND, with varying percentages of silt and gravel; SILT with varying percentages of sand; GRAVEL with varying percentages of sand and silt; Debris contained in matrix includes concrete, brick, and trace to substantial percentages of wood.
Creosote Affected Zone	Creosote-like material in soil
Wood Debris	Brown wood debris as sawdust, wood chippings, and timber (loose to very dense).
Marine Sediment	Primarily SILT, with varying percentages of sand; SAND with varying percentages of silt; trace shell fragments contained in matrix (very soft to medium stiff).
Alluvial Deposits	Primarily SAND with varying percentages of silt, gravel, and clay (very loose to dense).
Glacial Deposits	Mixture of sand, gravels, silt, and clay (dense to very dense). Contact between alluvial deposits and glacial deposits corresponds to increased material density.

Notes

1. This cross section has been interpreted and generalized from project field data. Variations between this cross section and actual conditions may exist. The project boring logs and written report must be referenced for a proper understanding of the nature of the subsurface conditions. This cross section was prepared for environmental interpretation purposes and is not intended to be used for geotechnical planning purposes.
2. See report text for descriptions of geologic units.
3. For cross-section line location, see Figure 7.
4. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 60 120

Horizontal Scale: 1" = 60'
Vertical Scale: 1" = 20'

Data Source: Triad Boundary Survey, King County

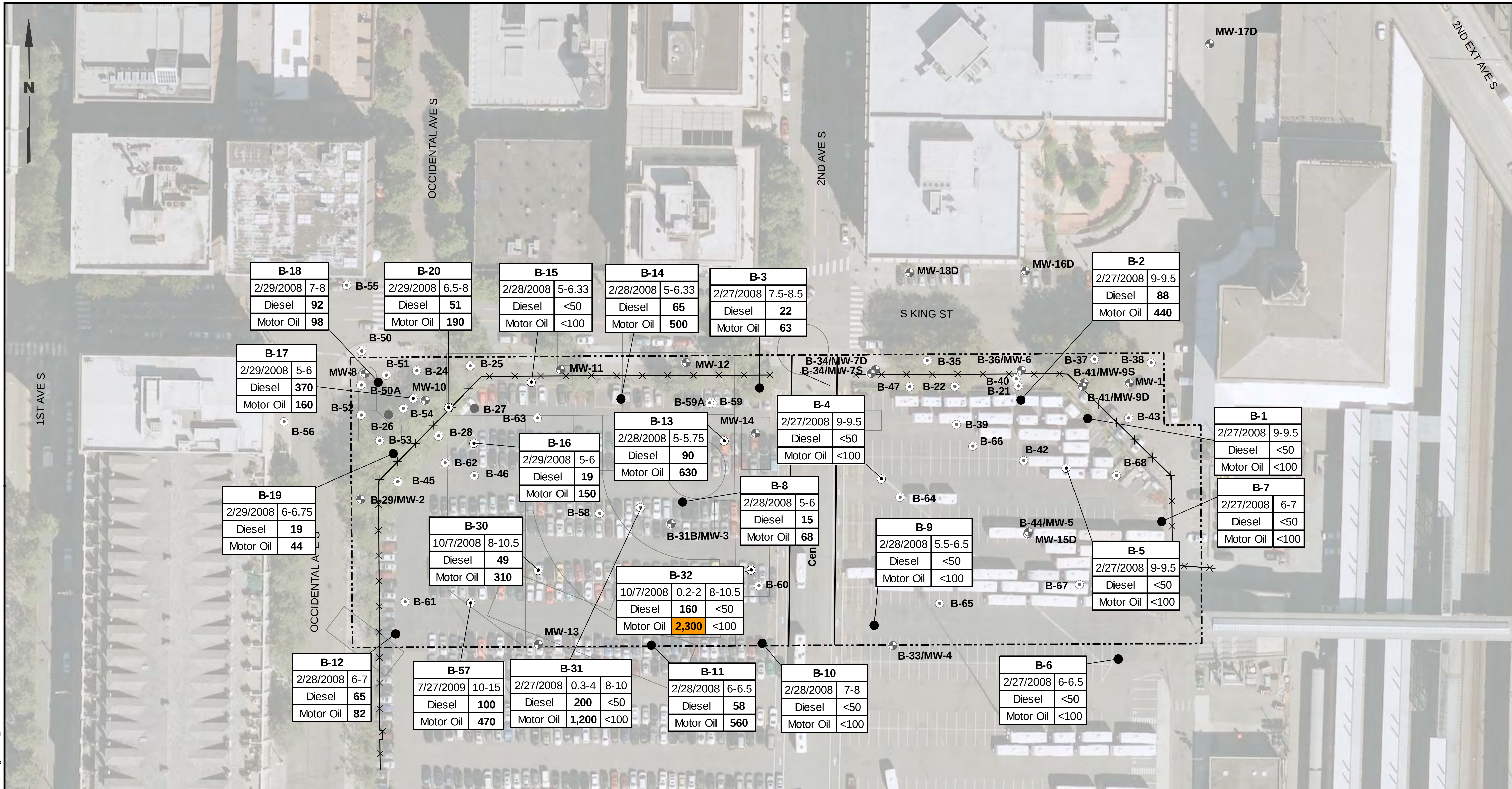
Landau Associates

North Lot Development
Seattle, Washington

Geologic Cross Section E-E'

Figure 14

Qwest Field | V:\1014\040\044\Supplemental RIFS\Fig11-14.dwg (A) "Figure 14" 5/24/2011



Legend

- Direct-Push Soil Boring and Monitoring Well Location
- Direct-Push Soil Boring Location
- Direct-Push Soil and Groundwater Sample Location
- Historical Building Outlines
- Fence Line
- Property Boundary

Location ID	
Date	Depth (ft)
Diesel	Result mg/kg
Motor Oil	Result mg/kg

Notes

1. Gray symbol indicates sample was not analyzed for this constituent at this depth.
2. Depths are in feet below ground surface.
3. Diesel soil cleanup level is 2,000 mg/kg, Motor Oil soil cleanup level is 2,000 mg/kg.
4. **Bold** values indicate compound was detected at the reported concentration. Orange highlight indicates compound exceeds cleanup level.
5. <1.00 = The analyte was not detected at the reported concentration
6. Refer to Figure 3 for Historical Property Features Legend.
7. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 80 160
Scale in Feet

Data Source: Triad Boundary Survey, King County

Y:\Projects\1014001\Mapdocs\North Lot RI\Fig15-DM_0-15.mxd 5/24/2011

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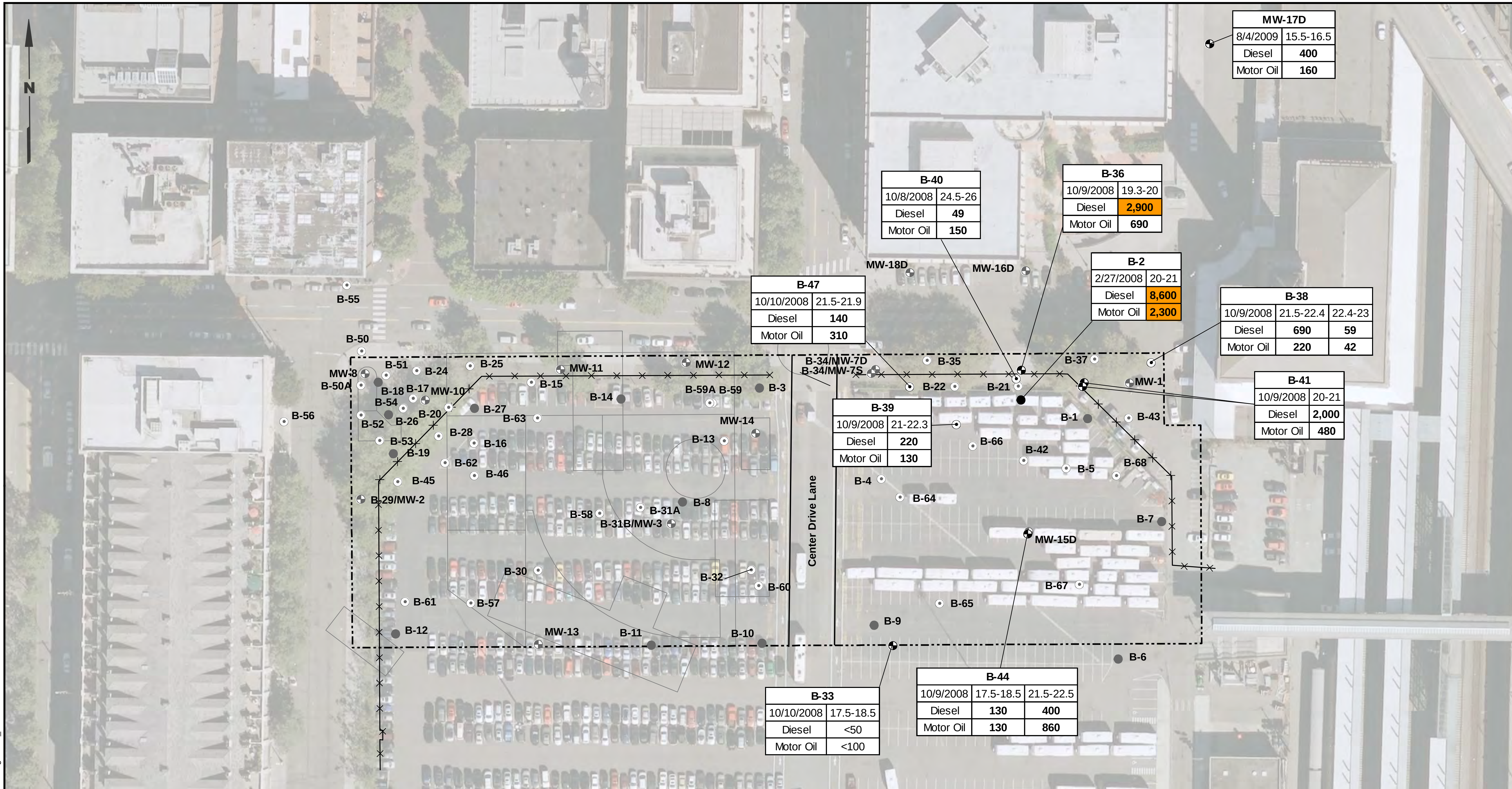
North Lot Development Seattle, Washington	Diesel and Motor Oil Detected in Soil 0-15 Feet Below Ground Surface	Figure 15



Legend

- Direct-Push Soil Boring and Monitoring Well Location
- Direct-Push Soil Boring Location
- Direct-Push Soil and Groundwater Sample Location
- Historical Building Outlines
- Fence Line
- Property Boundary

Location ID	
Date	Depth (ft)
Diesel	Result mg/kg
Motor Oil	Result mg/kg

Notes

1. Gray symbol indicates sample was not analyzed for this constituent at this depth.
2. Depths are in feet below ground surface.
3. Diesel soil cleanup level is 2,000 mg/kg, Motor Oil soil cleanup level is 2,000 mg/kg.
4. **Bold** values indicate compound was detected at the reported concentration. Orange highlight indicates compound exceeds cleanup level.
5. <1.00 = The analyte was not detected at the reported concentration
6. Refer to Figure 3 for Historical Property Features Legend.
7. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 80 160
Scale in Feet

Data Source: Triad Boundary Survey, King County

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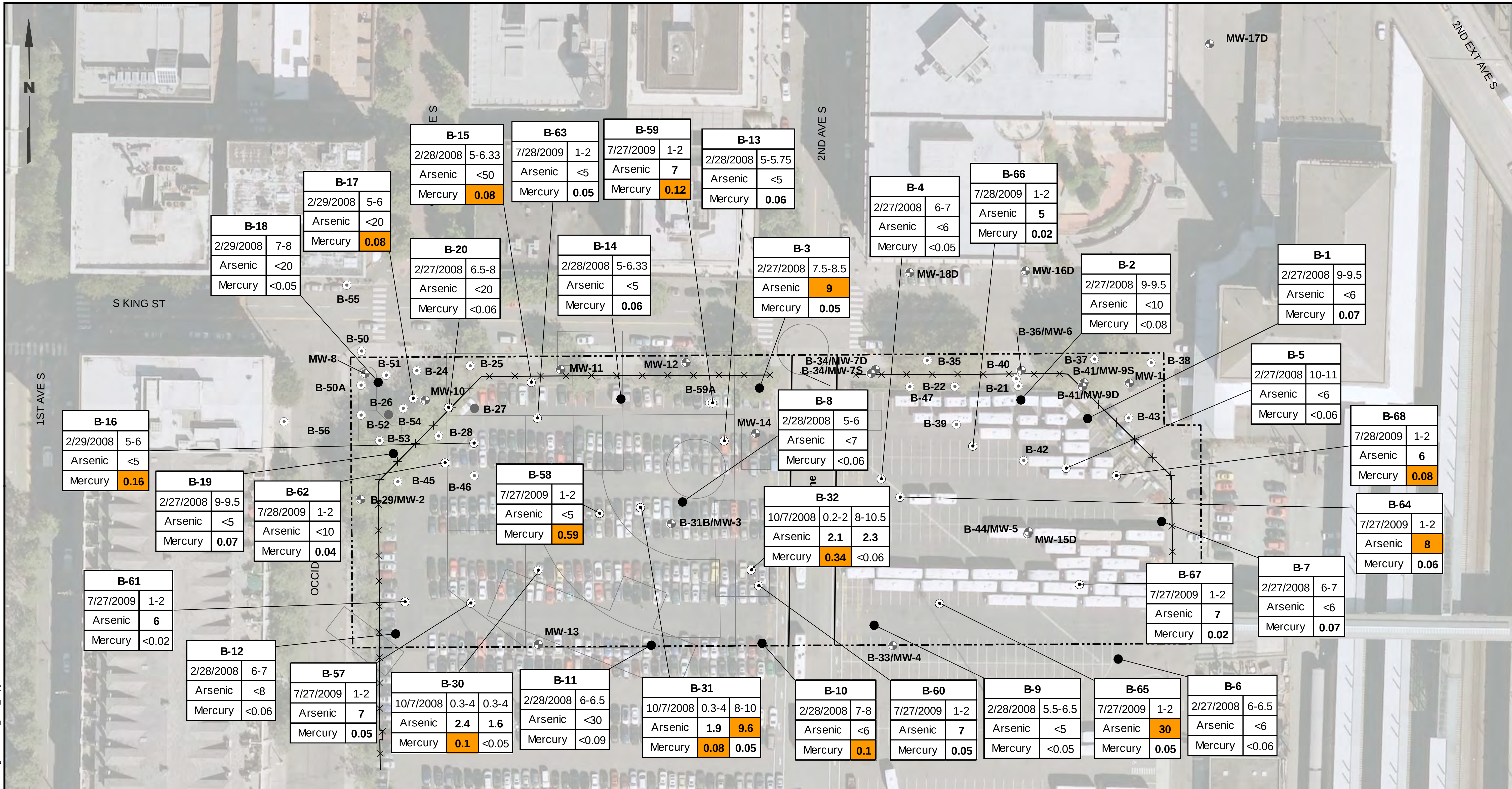
North Lot Development
Seattle, Washington

Diesel and Motor Oil Detected in Soil 15+ Feet Below Ground Surface

Figure 16

Y:\Projects\1014001\Mapdocs\North Lot RI\Fig16-DM_15+.mxd 5/24/2011



Legend

- Direct-Push Soil Boring and Monitoring Well Location
- Direct-Push Soil Boring Location
- Direct-Push Soil and Groundwater Sample Location
- Historical Building Outlines
- Fence Line
- Property Boundary

Location ID	
Date	Depth (ft)
Arsenic	Result mg/kg
Mercury	Result mg/kg

Notes

1. Gray symbol indicates sample was not analyzed for this constituent at this depth.
2. Depths are in feet below ground surface.
3. Soil cleanup levels for metals are as follows: Arsenic is 7 mg/kg, Mercury is 0.07 mg/kg.
4. NA = Not Analyzed
5. **Bold** values indicate compound was detected at the reported concentration. Orange highlight indicates compound exceeds cleanup level.
6. <1.00 = The analyte was not detected at the reported concentration
7. Refer to Figure 3 for historical property features legend.
8. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Data Source: Triad Boundary Survey, King County

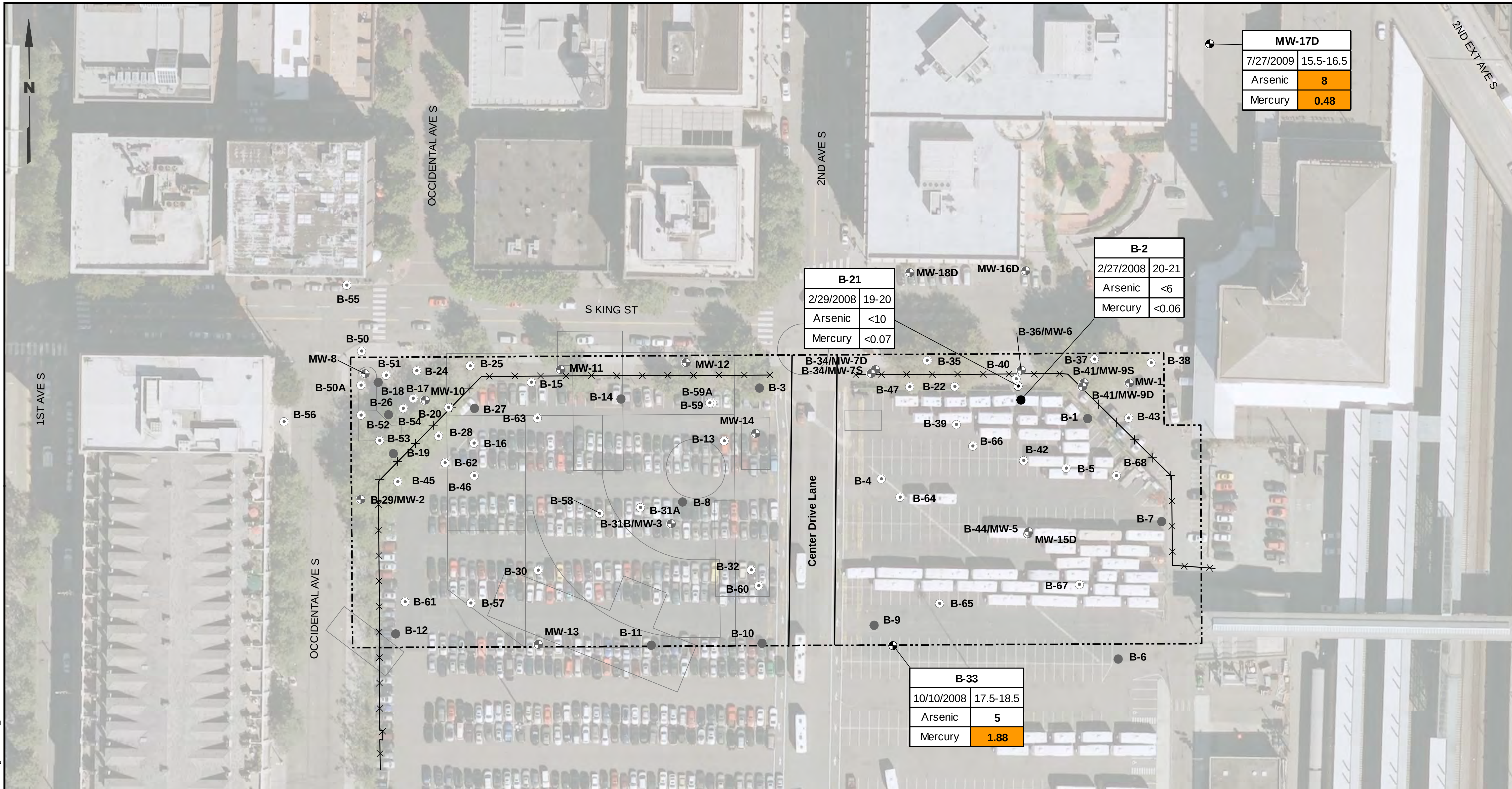
Y:\Projects\1014001\Mapdocs\North Lot RI\Fig17-Metals_0-15_copy.mxd 5/24/2011

LANDAU ASSOCIATES

North Lot Development
Seattle, Washington

Arsenic, and Mercury Detected in Soil 0-15 Feet Below Ground Surface

Figure 17



Legend

⊕	Direct-Push Soil Boring and Monitoring Well Location
⊙	Direct-Push Soil Boring Location
●	Direct-Push Soil and Groundwater Sample Location
——	Historical Building Outlines
×—×	Fence Line
- · -	Property Boundary

Location ID	
Date	Depth (ft)
Arsenic	Result mg/kg
Mercury	Result mg/kg

Notes

1. Gray symbol indicates sample was not analyzed for this constituent at this depth.
2. Depths are in feet below ground surface.
3. Metal soil cleanup levels are as follows: Arsenic = 7 mg/kg, Mercury = 0.07 mg/kg
4. **Bold** values indicate compound was detected at the reported concentration. Orange highlight indicates compound exceeds cleanup level.
5. NA = Not Analyzed
6. <1.00 = The analyte was not detected at the reported concentration
7. Refer to Figure 3 for Historical Property Features Legend.
8. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

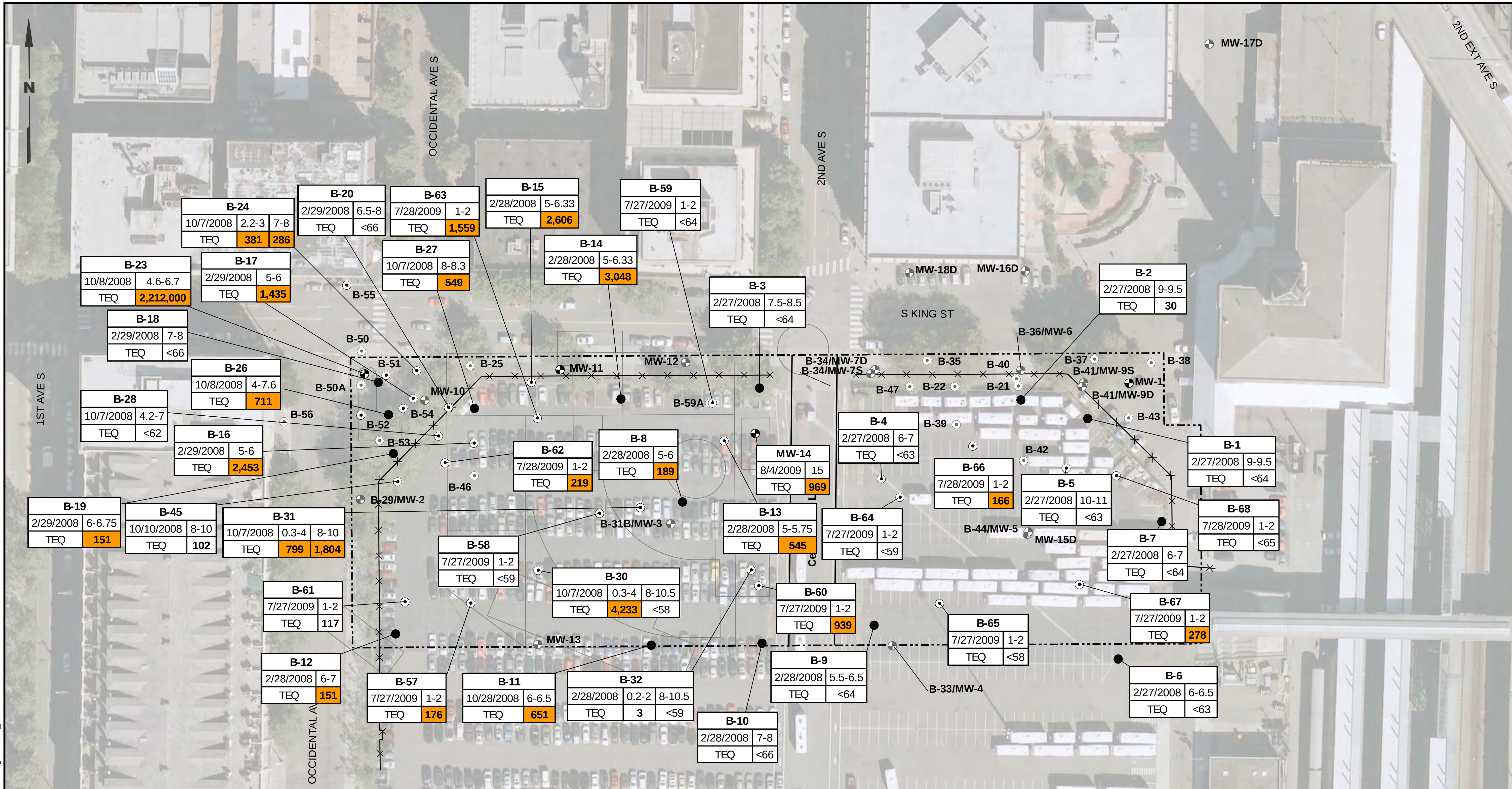
0 80 160
Scale in Feet

Data Source: Triad Boundary Survey, King County

LANDAU ASSOCIATES

Y:\Projects\1014001\Mapdocs\North Lot RI\Fig18-Metals_15+.mxd 5/24/2011

North Lot Development Seattle, Washington	Arsenic, and Mercury Detected in Soil 15+ Feet Below Ground Surface	Figure 18



Legend

- Direct-Push Soil Boring and Monitoring Well Location
- Direct-Push Soil Boring Location
- Direct-Push Soil and Groundwater Sample Location
- Historical Building Outlines
- Fence Line
- Property Boundary

Location ID	
Date	Depth (ft)
TEQ	Result µg/kg

Notes

1. Gray symbol indicates sample was not analyzed for this constituent at this depth.
2. Depths are in feet below ground surface.
3. Soil cPAH TEQ cleanup level is 140 µg/kg.
4. **Bold** values indicate compound was detected at the reported concentration. Orange highlight indicates compound exceeds cleanup level.
5. <1.00 = The analyte was not detected at the reported concentration.
6. Refer to Figure 3 for Historical Property Features Legend.
7. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 80 160

Scale in Feet

Data Source: Triad Boundary Survey, King County

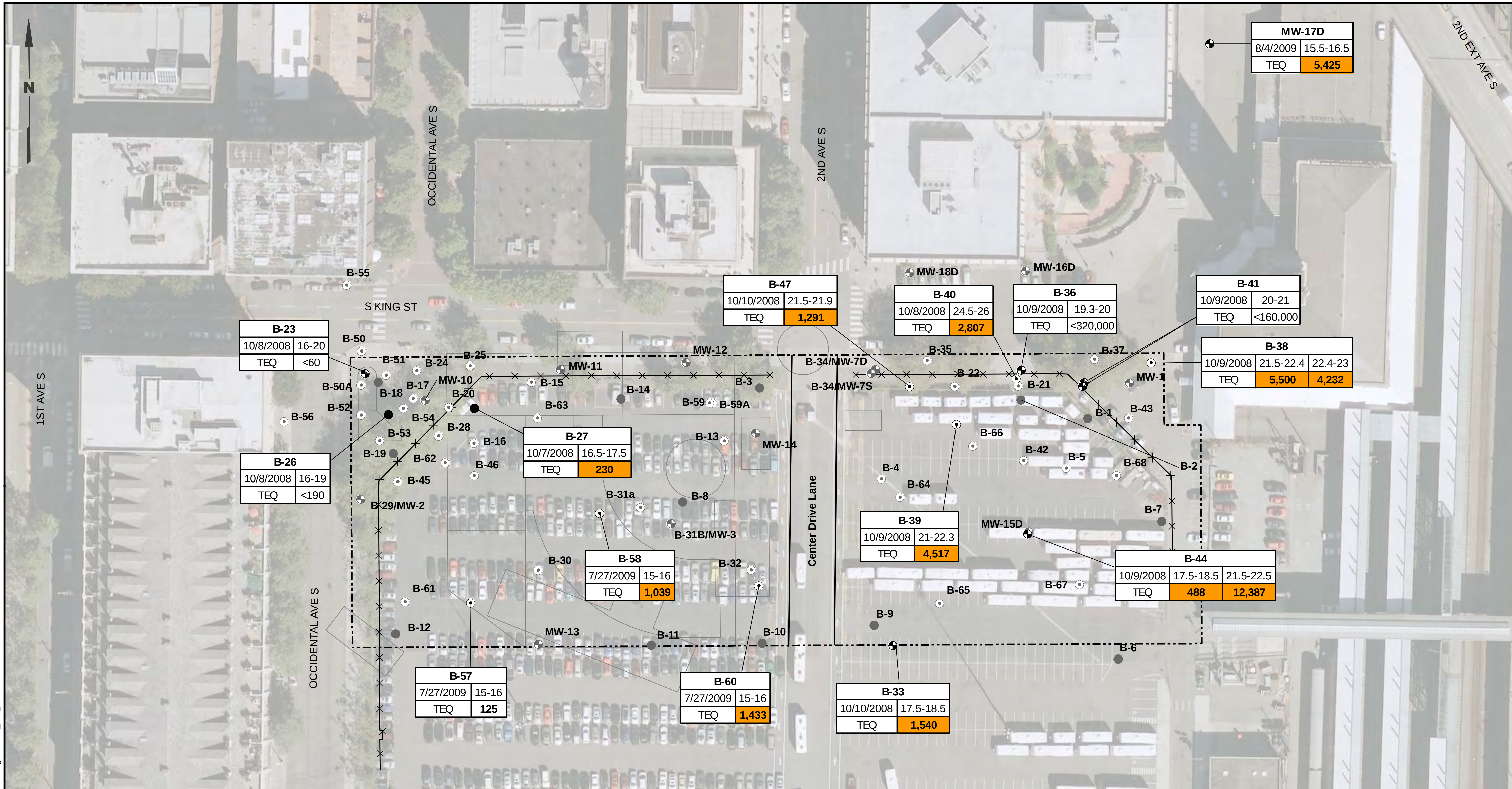
Y:\Projects\1014001\Mapdocs\North Lot RI\Fig19-cPAH_0-15.mxd 5/24/2011

LANDAU ASSOCIATES

North Lot Development
Seattle, Washington

cPAHs (TEQ) Detected in Soil 0-15 Feet Below Ground Surface

Figure 19



Y:\Projects\1014001\Mapdocs\North Lot RI\Fig20-cPAH_Soil_15+.mxd 5/24/2011

Legend

- Direct-Push Soil Boring and Monitoring Well Location
- Direct-Push Soil Boring Location
- Direct-Push Soil and Groundwater Sample Location
- Historical Building Outlines
- Fence Line
- Property Boundary

Location ID	
Date	Depth (ft)
TEQ	Result µg/kg

Notes

1. Gray symbol indicates sample was not analyzed for this constituent at this depth.
2. Depths are in feet below ground surface.
3. Soil cPAH TEQ is 140 µg/kg.
4. **Bold** values indicate compound was detected at the reported concentration. Orange highlight indicates compound exceeds cleanup level.
5. <1.00 = The analyte was not detected at the reported concentration
6. Refer to Figure 3 for Historical Property Features Legend.
7. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 80 160
Scale in Feet

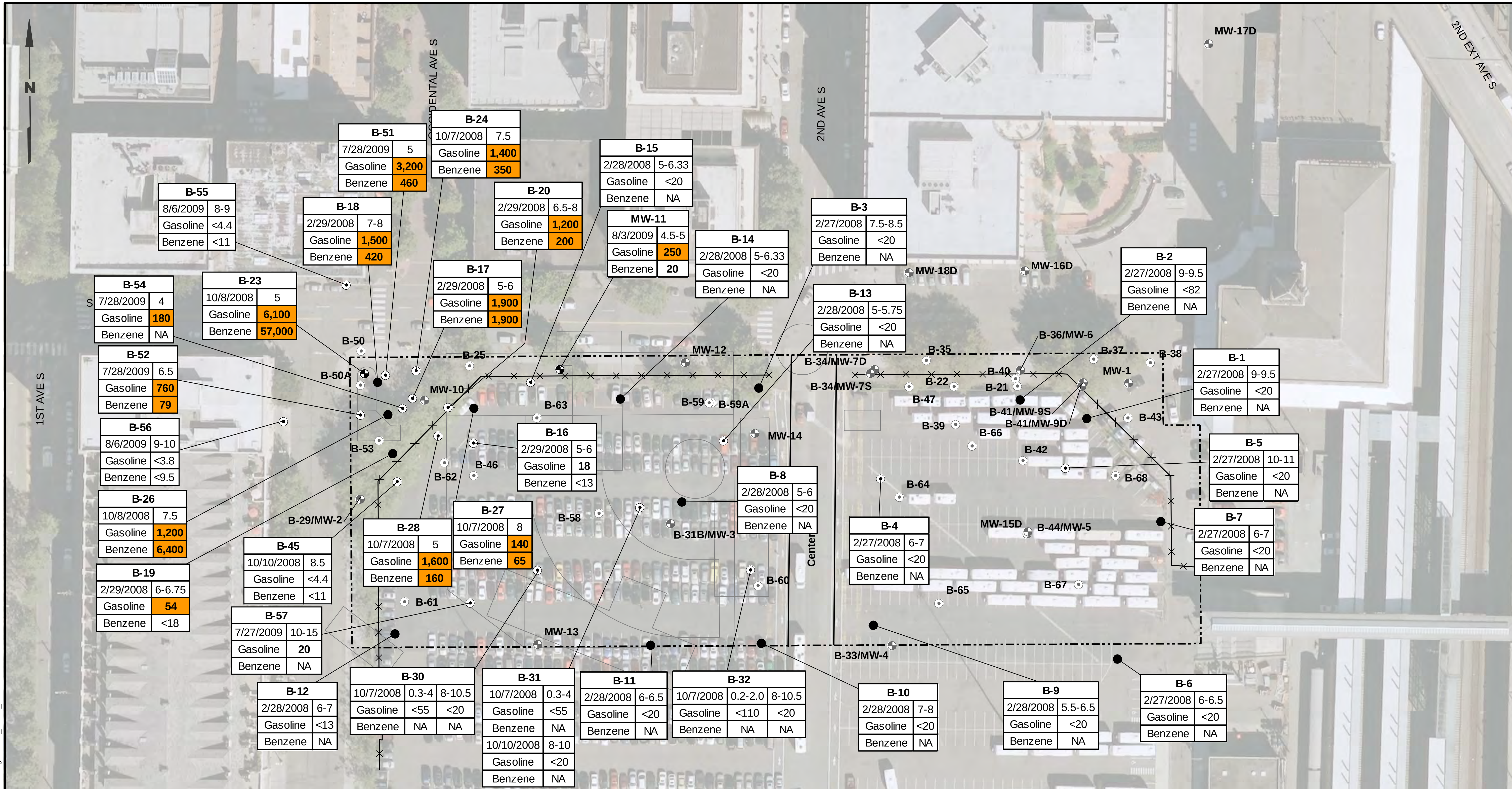
Data Source: Triad Boundary Survey, King County

LANDAU ASSOCIATES

North Lot Development
Seattle, Washington

cPAHs (TEQ) Detected in Soil 15+ Feet Below Ground Surface

Figure 20



Legend

- Direct-Push Soil Boring and Monitoring Well Location
- Direct-Push Soil Boring Location
- Direct-Push Soil and Groundwater Sample Location
- Historical Building Outlines
- Fence Line
- Property Boundary

Location ID	
Date	Depth (ft)
Gasoline	Result mg/kg
Benzene	Result µg/kg

Notes

1. Gray symbol indicates sample was not analyzed for the constituent at this depth.
2. Depths are in feet below ground surface.
3. Gasoline soil cleanup level is 30 mg/kg. Benzene soil cleaup level is 25 µg/kg, which was revised based on revisions to Feasibility Study.
4. **Bold** values indicate compound was detected at the reported concentration. Orange highlight indicates compound exceeds cleanup level.
5. <1.00 = The analyte was not detected at the reported concentration.
6. Refer to Figure 3 for Historical Property Features Legend.
7. NA = Not Analyzed.
8. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 80 160

Scale in Feet

Data Source: Triad Boundary Survey, King County

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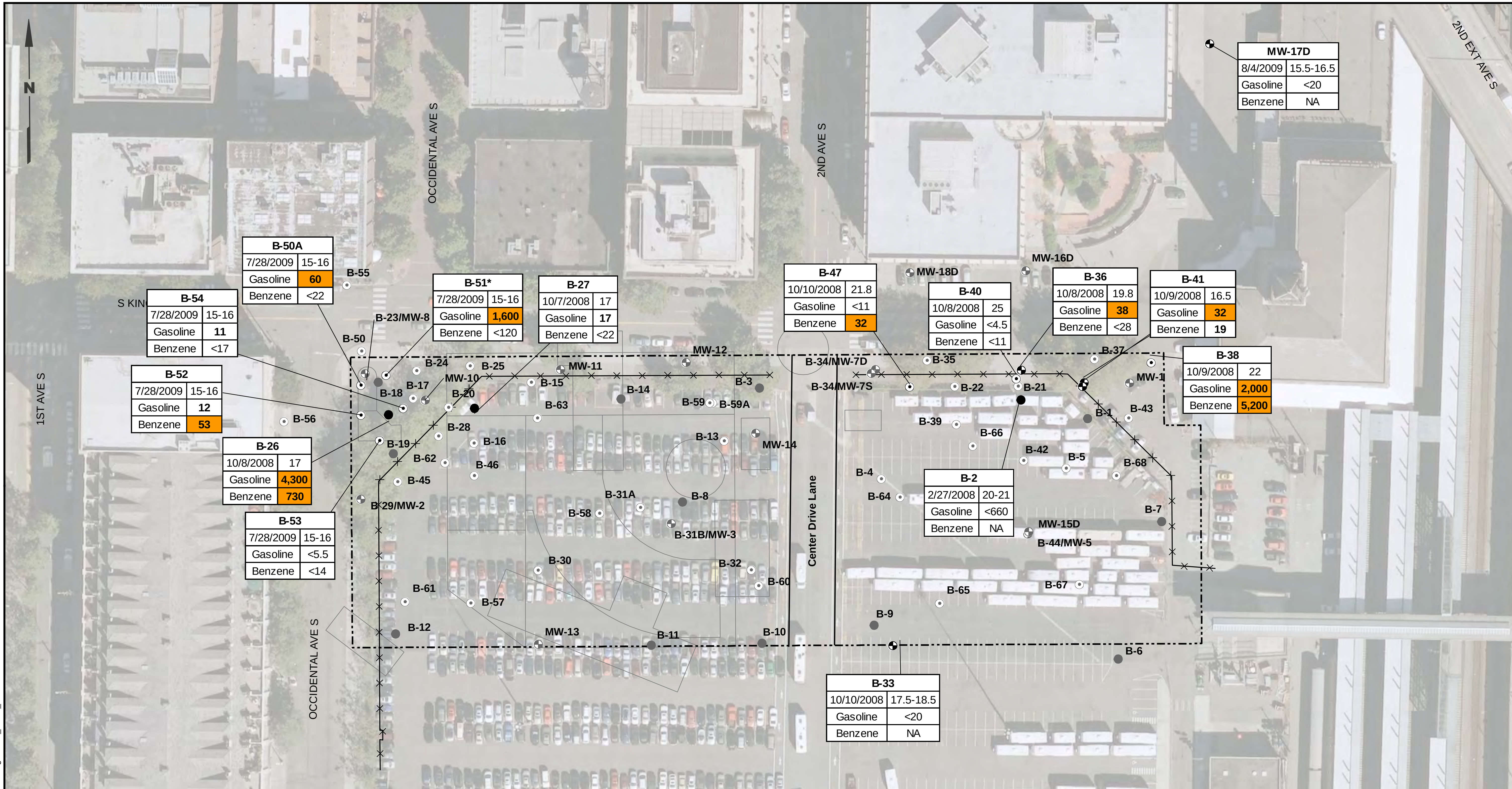
North Lot Development
Seattle, Washington

Gasoline and Benzene Detected in Soil 0-15 Feet Below Ground Surface

Figure 21

Y:\Projects\1014001\Mapdocs\North Lot RI\Fig21-Gas_BTEX_0-15.mxd 5/24/2011



Y:\Projects\1014001\Mapdocs\North Lot RI\Fig22-Gas_BTEX_15+.mxd 5/24/2011

Legend

- Direct-Push Soil Boring and Monitoring Well Location
- Direct-Push Soil Boring Location
- Direct-Push Soil and Groundwater Sample Location
- Historical Building Outlines
- Fence Line
- Property Boundary

Location ID	
Date	Depth (ft)
Gasoline	Result mg/kg
Benzene	Result µg/kg

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Notes

1. Gray symbol indicates sample was not analyzed for this constituent at this depth.
2. Depths are in feet below ground surface.
3. Gasoline soil cleanup level is 30 mg/kg. Benzene soil cleanup level is 25 µg/kg, which was revised based on revisions to Feasibility Study.
4. **Bold** values indicate compound was detected at the reported concentration. Orange highlight indicates compound exceeds cleanup level.
5. <1.00 = The analyte was not detected at the reported concentration.
6. Refer to Figure 3 for Historical Property Features Legend.
7. NA = Not Analyzed.
8. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

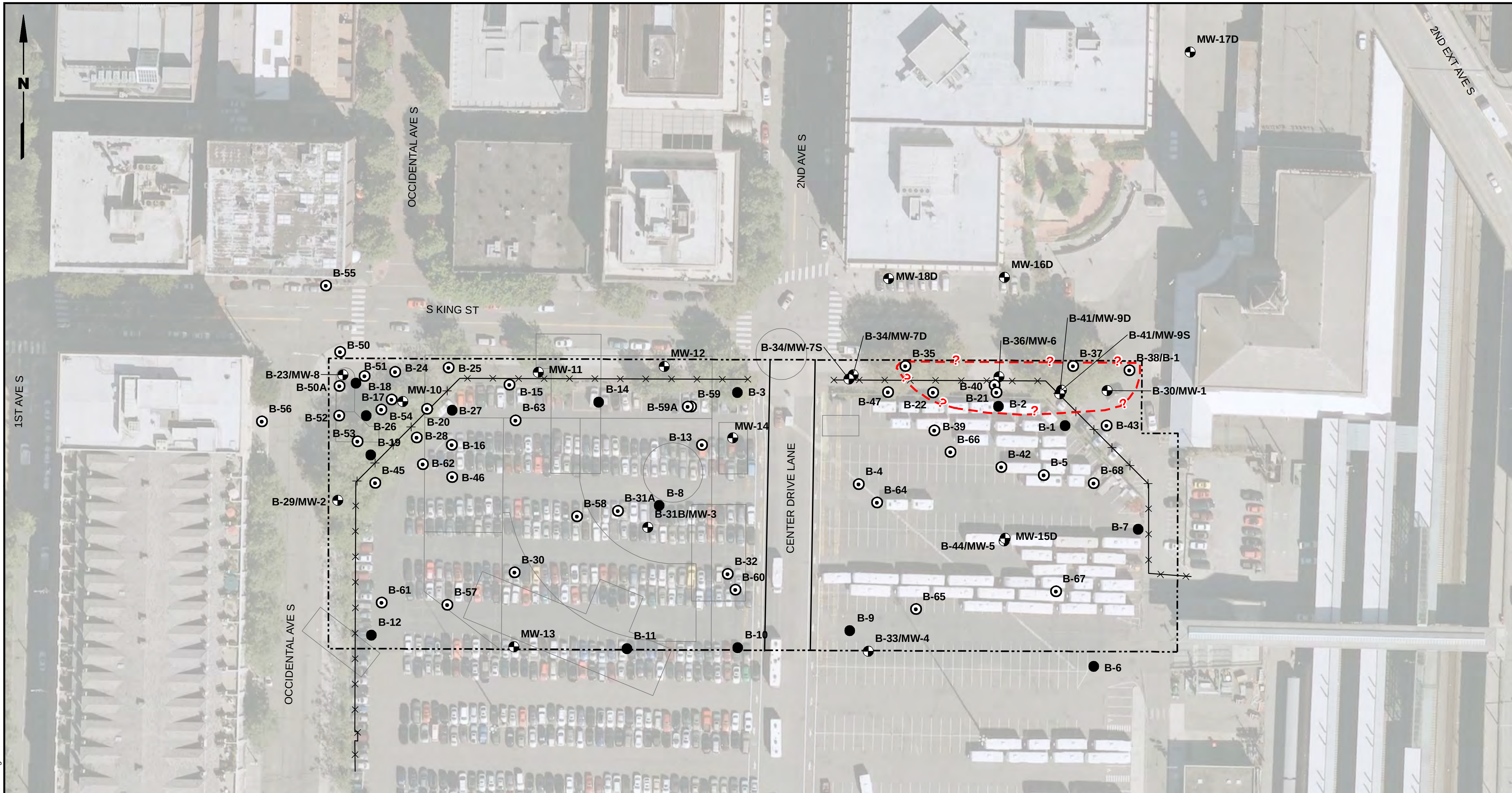
* Benzene reporting limit elevated at B-51 due to sample conditions. Toluene was detected at B-51 at 700 µg/kg.

0 70 140

Scale in Feet

Data Source: Triad Boundary Survey, King County

North Lot Development Seattle, Washington	**Gasoline and Benzene Detected in Soil 15+ Feet Below Ground Surface**	Figure 22



Y:\Projects\1014001\Mapdocs\North Lot RI\Fig23-CreosotePlume.mxd 5/24/2011

Legend

- Approximate Extent of Creosote-Like Material
- Direct-Push Soil Boring and Monitoring Well Location
- Direct-Push Soil Boring Location
- Direct-Push Soil and Groundwater Sample Location
- Historical Building Outlines
- Fence Line
- Property Boundary

Note
1. Refer to Figure 3 for Historical Property Features Legend.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

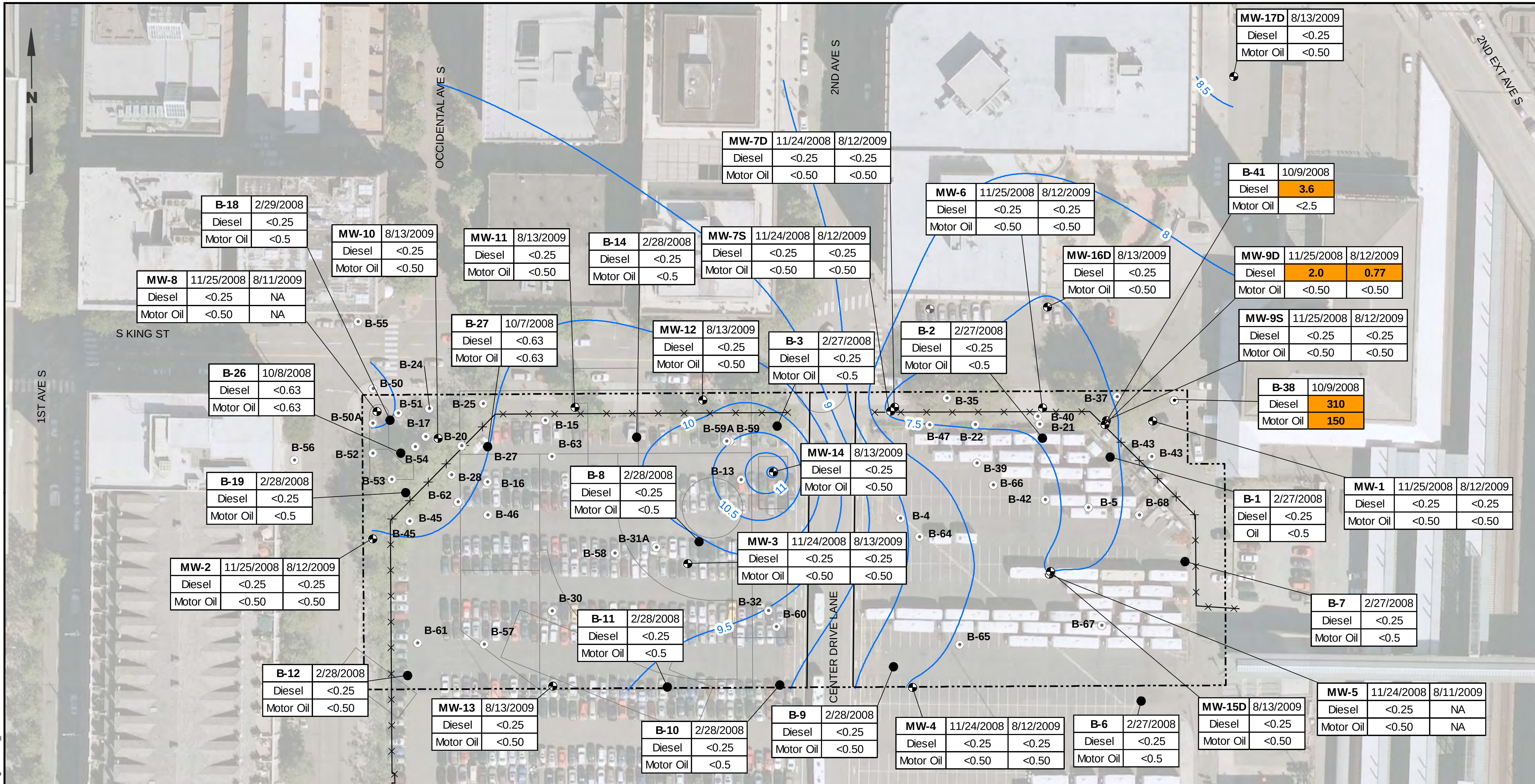
Data Source: Triad Boundary Survey, King County

Landau Associates

North Lot Development
Seattle, Washington

Approximate Extent of Observed Creosote-Like Material

Figure 23



Legend

Direct-Push Soil Boring and Monitoring Well Location	Groundwater Elevation Contour (ft) August 2009
Direct-Push Soil Boring Location	Historical Building Outlines
Direct-Push Soil and Groundwater Sample Location	Fence Line
	Property Boundary

Location ID	Date
Diesel	Result mg/L
Motor Oil	Result mg/L

Notes

1. Gray symbol indicates groundwater was not analyzed for this constituent at this location.
2. Depths are in feet below ground surface.
3. Diesel groundwater cleanup level is 0.5 mg/L, Motor Oil groundwater cleanup level is 0.5 mg/L.
4. **Bold** values indicate compound was detected at the reported concentration. Orange highlight indicates compound exceeds cleanup level.
5. <1.00 = The analyte was not detected at the reported concentration.
6. Refer to Figure 3 for Historical Property Features Legend.
7. NA = Not Analyzed.
8. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 80 160
Scale in Feet

Data Source: Triad Boundary Survey, King County

Y:\Projects\1014001\Mapdocs\North Lot RI\Fig24-DMO_GW.mxd 5/24/2011

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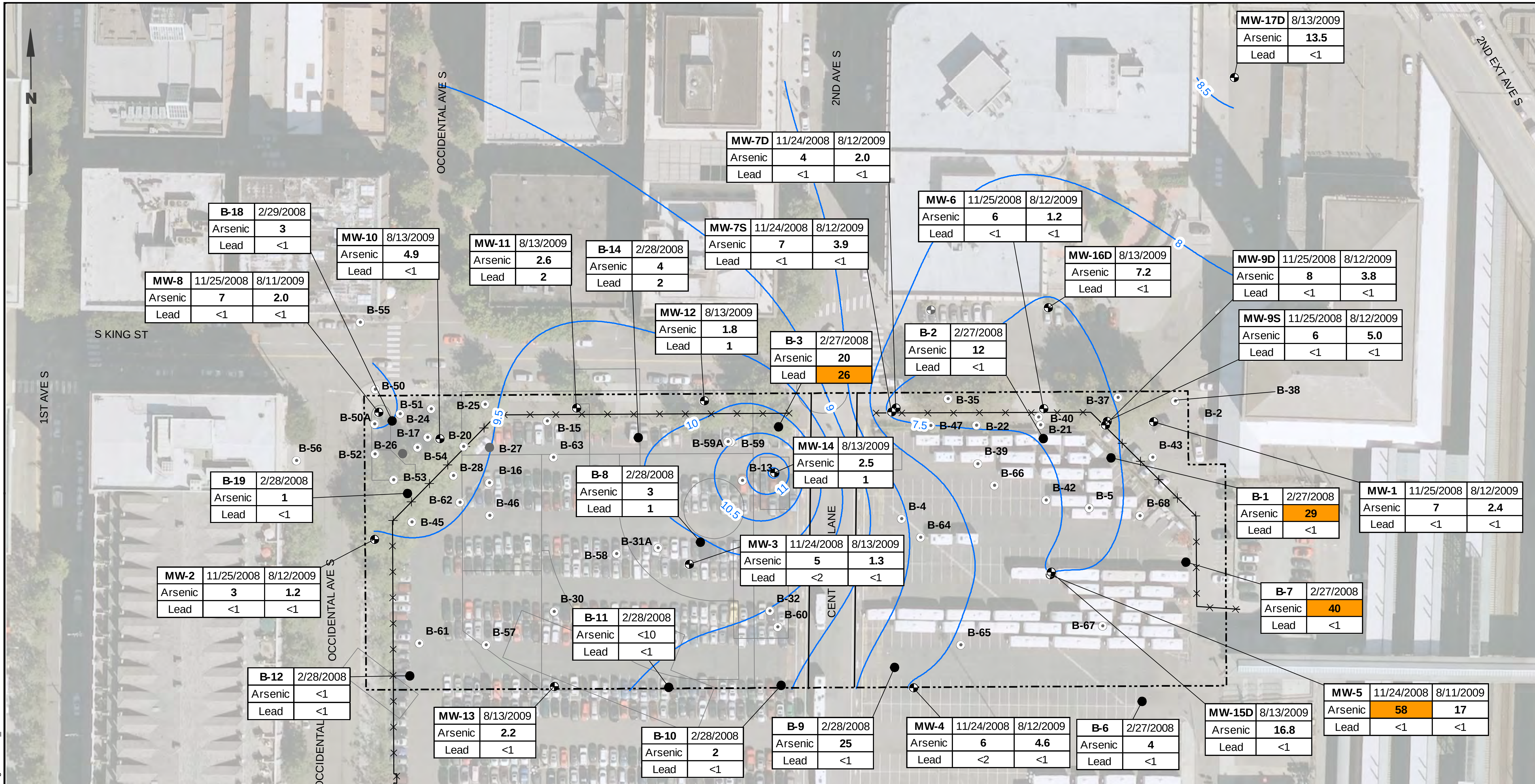
North Lot Development
Seattle, Washington

Diesel and Motor Oil Detected in Groundwater

Figure
24



Y:\Projects\1014001\Mapdocs\North Lot RI\Fig25-Metals_GW.mxd 5/24/2011

Legend

- Direct-Push Soil Boring and Monitoring Well Location
- Direct-Push Soil Boring Location
- Direct-Push Soil and Groundwater Sample Location
- Groundwater Elevation Contour (ft) August 2009
- Historical Building Outlines
- Fence Line
- Property Boundary

Location ID	Date
Arsenic	Result µg/L
Lead	Result µg/L

Notes

1. Gray symbol indicates groundwater was not analyzed for this constituent at this location.
2. Depths are in feet below ground surface.
3. Dissolved Arsenic groundwater cleanup level is 25 µg/L, dissolved Lead cleanup level is 15 µg/L.
4. **Bold** values indicate compound was detected at the reported concentration. Orange highlight indicates compound exceeds cleanup level.
5. <1.00 = The analyte was not detected at the reported concentration.
6. Refer to Figure 3 for Historical Property Features Legend.
7. NA = Not Analyzed.
8. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 80 160

Scale in Feet

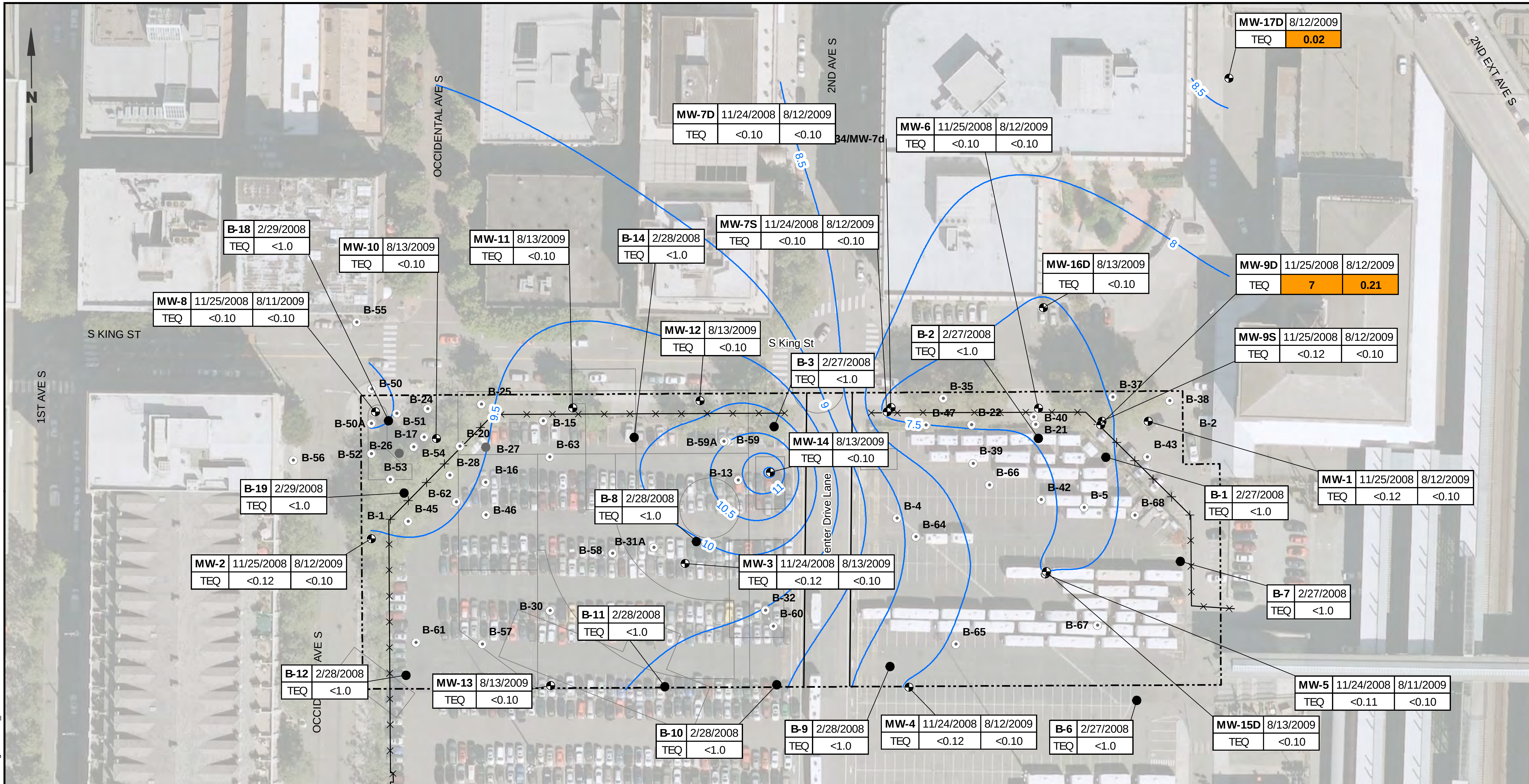
Data Source: Triad Boundary Survey, King County

LANDAU ASSOCIATES

North Lot Development
Seattle, Washington

Arsenic and Lead Detected in Groundwater

Figure 25



Legend

- Direct-Push Soil Boring and Monitoring Well Location
- Direct-Push Soil Boring Location
- Direct-Push Soil and Groundwater Sample Location
- Groundwater Elevation Contour (ft) April 2009
- Historical Building Outlines
- Fence Line
- Property Boundary

Location ID	Date
TEQ for cPAHs	Result µg/L

Notes

1. Gray symbol indicates groundwater was not analyzed for this constituent at this location.
2. Depths are in feet below ground surface.
3. Groundwater cPAH TEQ cleanup level is 0.012 µg/L.
4. **Bold** values indicate compound was detected at the reported concentration. Orange highlight indicates compound exceeds cleanup level.
5. <1.00 = The analyte was not detected at the reported concentration.
6. Refer to Figure 3 for Historical Property Features Legend.
7. NA = Not Analyzed.
9. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 80 160
Scale in Feet

Data Source: Triad Boundary Survey, King County

Y:\Projects\1014001\Mapdocs\North Lot RI\Old\Fig26-CPAH_GW.mxd 5/24/2011

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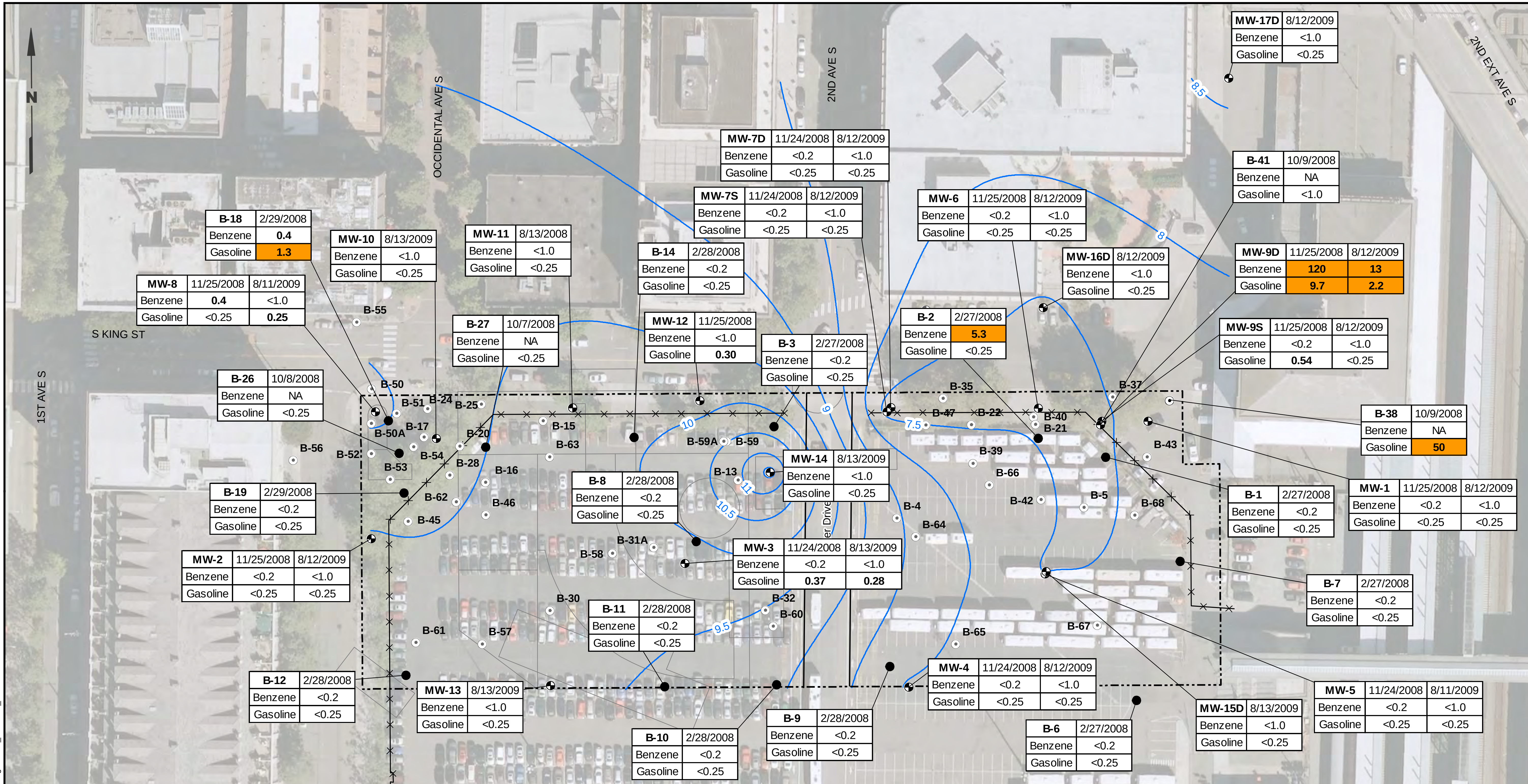
North Lot Development Seattle, Washington	**cPAHs (TEQ) Detected in Groundwater**	Figure 26



Legend

Direct-Push Soil Boring and Monitoring Well Location	Groundwater Elevation Contour (ft) August 2009
Direct-Push Soil Boring Location	Historical Building Outlines
Direct-Push Soil and Groundwater Sample Location	Fence Line
	Property Boundary

Location ID	Date
Benzene	Result µg/L
Gasoline	Result mg/L

Notes
1. Gray symbol indicates groundwater was not analyzed for this constituent at this location.
2. Depths are in feet below ground surface.
3. Gasoline groundwater cleanup level is 0.8 mg/L, Benzene groundwater cleanup level is 0.8 µg/L.
4. **Bold** values indicate compound was detected at the reported concentration. Orange highlight indicates compound exceeds cleanup level.
5. <1.00 = The analyte was not detected at the reported concentration.
6. Refer to Figure 3 for Historical Property Features Legend.
7. NA = Not Analyzed.
8. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 80 160
Scale in Feet

Data Source: Triad Boundary Survey, King County

Y:\Projects\1014001\Mapdocs\North Lot RI\Fig27-Gas_Benzene_GW.mxd 5/24/2011

LANDAU ASSOCIATES

North Lot Development
Seattle, Washington

Gasoline and Benzene Detected in Groundwater

Figure 27

TABLE 1
SUMMARY OF SAMPLES AND ANALYSES
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Analysis and Depth of Sample in Feet																		
	Maximum	Soil										Water (a)							
Location	Depth (ft BGS)	HCID	TPH-G	TPH-Dx	PAHs	Metals (As, Cd, Cr, Cu, Pb, Hg, Zn)	BTEX	PCBs	SVOCs	Sulfur	Dioxin/ Furans	HCID	TPH-G	TPH-Dx	PAHs	Dissolved Metals (As, Cd, Cr, Cu, Pb, Hg, Zn)	VOCs	BTEX	SVOCs
		NWTPH-HCID	NWTPH-Gx	NWTPH-DxSG	SW8270D/ SW8270DSIM	6000/7000 Series	SW8021B Mod	SW8082	SW8270D		SW8290	NWTPH-HCID	NWTPH-Gx	NWTPH-DxSG	SW8270D/ SW8270DSIM	200.8/6010B/7470A	SW8260B	SW8021B Mod	
Phase II ESA (February 2008)																			
B-1	16	9-9.5	9-9.5		9-9.5	9-9.5							X	X	X	X	X		
B-2	21	9-9.5	9-9.5	9-9.5	9-9.5	9-9.5		20-21					X	X	X	X	X		
B-3	20	7.5-8.5	7.5-8.5	7.5-8.5	7.5-8.5	7.5-8.5							X	X	X	X	X		
B-4	24	6-7			6-7	6-7													
B-5	20	10-11			10-11	10-11													
B-6	16	6-6.5			6-6.5	6-6.5							X	X	X	X	X		
B-7	20	6-7			6-7	6-7							X	X	X	X	X		
B-8	13.5	5-6		5-6	5-6	5-6							X	X	X	X	X		
B-9	24	5.5-6.5			5.5-6.5	5.5-6.5							X	X	X	X	X		
B-10	12	7-8			7-8	7-8							X	X	X	X	X		
B-11	7	6-6.5		6-6.5	6-6.5	6-6.5							X	X	X	X	X		
B-12	12	6-7	6-7	6-7	6-7	6-7							X	X	X	X	X		
B-13	8	5-5.75		5-5.75	5-5.75	5-5.75													
B-14	7	5-6.33		5-6.33	5-6.33	5-6.33							X	X	X	X	X		
B-15	8	5-6.33			5-6.33	5-6.33													
B-16	16	5-6	5-6	5-6	5-6	5-6	5-6												
B-17	16	5-6	5-6	5-6	5-6	5-6	5-6												
B-18	16	7-8	7-8	7-8	7-8	7-8	7-8						X	X	X	X	X		
B-19	16	6-6.75	6-6.75	6-6.75	6-6.75	6-6.75	6-6.75						X	X	X	X	X		
B-20	11.8	6.5-8	6.5-8	6.5-8	6.5-8	6.5-8	6.5-8												
B-21	24				20-23	19-20 & 20-23		20-23											
B-22	24																		
RI Field Investigation (October and November 2008)																			
B-23	21		5		4.6-6.7 & 16-20		5												
B-24	22		7.5		2.2-3 & 7-8		7.5	7-8											
B-25	24																		
B-26	22.8		7.5 & 17		4-7.6 & 16-19		7.5 & 17					X							
B-27	24		8 & 17		8-8.3 & 16.5-17.5		8 & 17	16.5-17.5				X							
B-28	24		5		4.2-7		5												
B-29	16																		
B-30	12	0.3-4 & 8-10.5		8-10.5	0.3-4 & 8-10.5	0.3-4 & 8-10.5		8-10.5											
B-31 (a)	28	0.3-4 & 8-10		0.3-4	0.3-4 & 8-10	0.3-4 & 8-10													
B-32	12	0.2-2 & 8-10.5		0.2-2	0.2-2 & 8-10.5	0.2-2 & 8-10.5		8-10.5											
B-33	20	17.5-18.5			17.5-18.5	17.5-18.5													
B-34	26																		
B-35	24																		
B-36	20		19.8	19.3-20	19.3-20		19.8												
B-37	24																		
B-38	24		22	21.5-22.4 & 22.4-23	21.5-22.4 & 22.4-23		22					X		X					
B-39	24			21-22.3	21-22.3														
B-40	32		25	24.5-26	24.5-26		25												
B-41	24		16.5	20-21	20-21		16.5		20-21	20-21	20-21	X		X					
B-42	20																		
B-43	28																		
B-44	24			17.5-18.5 & 21.5-22.5	17.5-18.5 & 21.5-22.5														

TABLE 1
SUMMARY OF SAMPLES AND ANALYSES
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Analysis and Depth of Sample in Feet																		
	Maximum	Soil										Water (a)							
Location	Depth (ft BGS)	HCID	TPH-G	TPH-Dx	PAHs	Metals (As, Cd, Cr, Cu, Pb, Hg, Zn)	BTEX	PCBs	SVOCs	Sulfur	Dioxin/ Furans	HCID	TPH-G	TPH-Dx	PAHs	Dissolved Metals (As, Cd, Cr, Cu, Pb, Hg, Zn)	VOCs	BTEX	SVOCs
B-45	24		8.5		8-10		8.5												
B-46	24																		
B-47	24		21.8	21.5-21.9	21.5-21.9		21.8												
MW-1													X	X	X	X	X		
MW-2													X	X	X	X	X		
MW-3													X	X	X	X	X		
MW-4													X	X	X	X	X		
MW-5													X	X	X	X	X		
MW-6													X	X	X	X	X		
MW-7S													X	X	X	X	X		
MW-7D													X	X	X	X	X		
MW-8													X	X	X	X	X		
MW-9S													X	X	X	X	X		
MW-9D													X	X	X	X	X		
Supplemental Investigation (July and August 2009)																			
B-50	6																	X	
B-50A	25		15-16				15-16											X	
B-51	25		5 & 15-16				5 & 15-16											X	
B-52	25		6.5 & 15-16				6.5 & 15-16											X	
B-53	21		15-16				15-16											X	
B-54	25		4				4											X	
B-55	14		8-9				8-9											X	
B-56	15		9-10				9-10											X	
B-57	25	10-15	10-15	10-15	15-16	1-2			1-2						X				X
B-58	19				15-16	1-2			1-2						X				X
B-59	20					1-2			1-2										X
B-60	25				15-16	1-2			1-2						X				X
B-61	25					1-2			1-2										X
B-62	25					1-2			1-2		1-2								X
B-63	9					1-2			1-2										X
B-63A	10																		X
B-64	25					1-2			1-2										X
B-65	25					1-2			1-2		1-2								X
B-66	25					1-2			1-2										X
B-67	25					1-2			1-2										X
B-68	15					1-2			1-2										X
MW-10	15.4																		
MW-11	15.4		4.5-5				4.5-5						X	X	X	X		X	
MW-12	15.4												X	X	X	X			
MW-13	15.4												X	X	X	X			
MW-14	18				15								X	X	X	X			
MW-15D	25.5												X	X	X	X			
MW-16D	24.5												X	X	X	X			
MW-17D	21.5	15.5-16.5		15.5-16.5	15.5-16.5	15.5-16.5			15.5-16.5				X	X	X	X			X

TABLE 1
SUMMARY OF SAMPLES AND ANALYSES
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

(a) Groundwater grab samples collected from temporary well (direct-push boring).
(b) Samples collected from boring B-31A; no samples were collected from boring B-31B (see Table 1).
BGS = Below Ground Surface
HCID = Hydrocarbon Identification
TPH-G = Gasoline-range Total Petroleum Hydrocarbons
TPH-Dx = Diesel-range (Extended) Total Petroleum Hydrocarbons
PAH = Polycyclic Aromatic Hydrocarbons
Metals = Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, and Zinc
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
PCBs = Polychlorinated Biphenyls
VOCs = Volatile Organic Compounds
SVOCs = Semivolatile Organic Compounds
MW = Monitoring Well

TABLE 2
SUMMARY OF SUBSURFACE CONDITIONS ENCOUNTERED DURING DRILLING
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

Boring ID (alternate IDs)	Boring Depth (ft)	Native Soil Encountered (ft)	Native Material at Contact	Creosote-Like Material Encountered? (depth in ft)	Highest PID Reading in ppm (depth in ft)	Notes/Observations
B-01	16	Not Encountered		No	0	
B-02	21	Not Encountered		Yes (18-21)	57.5 (20.5)	
B-03	20	Not Encountered		No	0	
B-04	24	18.5 - 24	SILT	No	0	
B-05	20	Not Encountered		No	0	
B-06	16	Not Encountered		No	0	
B-07	20	18 - 20	SILT	No	0	
B-08	13.5	Not Encountered		No	0	
B-09	24	19 - 24	SILT	No	0	
B-10	12	Not Encountered		No	0	
B-11	7	Not Encountered		No	0	
B-12	12	Not Encountered		No	11.2 (4.5)	
B-13	8	Not Encountered		No	0	
B-14	7	Not Encountered		No	0	
B-15	8	Not Encountered		No	0	
B-16	16	Not Encountered		No	6.2 (4.5)	
B-17	16	Not Encountered		No	104 (4.5)	
B-18	16	Not Encountered		No	99.8 (4.5)	
B-19	16	Not Encountered		No	5.1 (4.5)	
B-20	11.75	Not Encountered		No	63.7 (4.5)	
B-21	24	23 - 24	SILT	Yes (20-23)	N/A	
B-22	24	22.5 - 24	SILT	Yes (20-22.5)	N/A	
B-23 (MW-8)	21	Not Encountered		No	45.6 (5)	
B-24	22	Not Encountered		No	106 (7.5)	
B-25	24	Not Encountered		No	4.2 (8)	
B-26	22.75	19.5 - 22.75	Silty, fine to medium SAND	No	106 (6)	
B-27	24	Not Encountered		No	23.4 (8)	
B-28	24	22.5 - 24	SAND with silt, gravel & shells	No	101 (5.5)	
B-29 (MW-2)	16	Not Encountered		No	0	
B-30	12	Not Encountered		No	N/A	
B-31A	6	Not Encountered		No	0	

TABLE 2
SUMMARY OF SUBSURFACE CONDITIONS ENCOUNTERED DURING DRILLING
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

Boring ID (alternate IDs)	Boring Depth (ft)	Native Soil Encountered (ft)	Native Material at Contact	Creosote-Like Material Encountered? (depth in ft)	Highest PID Reading in ppm (depth in ft)	Notes/Observations
B-31B	28	Not Encountered		No	N/A	
B-31C (MW-3)(B-5 Terra Associates)	45.5	22.75 - 28.75	SILT	No	N/A	
B-32	12	Not Encountered		No	0	
B-33	20	Not Encountered		No	0	
B-33B (MW-4)(B-4 Terra Associates)	65.5	30.75 - 40.8	SILT	No	N/A	
B-34 (MW-7)	26	24-25	SILT	No	0	
B-34B (B-2 Terra Associates)	50.1	24-25	SILT	No	N/A	
B-35	24	21.5- 24	SILT	Yes (18.5-21.5)	0	Creosote sample attempt unsuccessful, depth estimated
B-36 (MW-6)	20	19.5-20	SILT	No	N/A	Creosote-like material present in fill, with strong sheen and creosote odor
B-37	24	Not Encountered		Yes (21-24)	21.2 (22)	Creosote sample attempt unsuccessful
B-38 (MW-1)	24	22.5 - 24	SILT	Yes (21.5-22.5)	N/A	
B-38B (B-1 Terra Associates)	46.5	25.5 - 33	SILT	Yes (20-21.5)	N/A	
B-39	24	22 - 24	SILT	No	N/A	
B-40	32	25 - 32	Silty SAND with shells	Yes (23-25)	68.6 (25)	Boring overdriven from 24-32 ft, poor recovery, contacts estimated; creosote-like material thickness estimated
B-41	24	20 - 24	SILT	Yes (19-21)	0	Creosote-like material saturated silt, creososte layer estimated
B-42	20	18.5 - 20	SILT	No	0	
B-43	28	Not Encountered		No	0	
B-44 (MW-5)	24	22 - 24	SILT	No	N/A	
B-44B (B-3 Terra Associates)	80.5	23.25 - 33	SILT	No	N/A	
B-45	24	22 - 24	Silty GRAVEL with sand & shells	No	6.2 (9.5)	
B-46	24	Not Encountered		No	0	
B-47	24	21.5 - 24	SILT	No	0	
B-50	6	Not Encountered		No	1.7	
B-50A	25	Not Encountered		No	219	

TABLE 2
SUMMARY OF SUBSURFACE CONDITIONS ENCOUNTERED DURING DRILLING
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

Boring ID (alternate IDs)	Boring Depth (ft)	Native Soil Encountered (ft)	Native Material at Contact	Creosote-Like Material Encountered? (depth in ft)	Highest PID Reading in ppm (depth in ft)	Notes/Observations
B-51	20	Not Encountered		No	36	
B-52	25	Not Encountered		No	0.8	
B-53	21	Not Encountered		No	1.9	
B-54	25	Not Encountered		No	23.4	
B-55	14	Not Encountered		No	0	
B-56	15	Not Encountered		No	0	
B-57	25	23 - 25	SILT	No	132	
B-58	19	Not Encountered		No	85.3	
B-59	10	Not Encountered		No	0	
B-60	24	Not Encountered		No	0	
B-61	25	23 - 25	SILT with shell fragments	No	0	
B-62	25	20.5 - 25	SILT	No	0.5	
B-63	9	Not Encountered		No	0	
B-63A	10	Not Encountered		No	0	
B-64	25	24.5 - 25	SILT	No	1	
B-65	25	Not Encountered		No	0	
B-66	25	Not Encountered		No	0	
B-67	25	18 - 25	SILT	No	0	
B-68	15	Not Encountered		No	13.7	
MW-10	15.4	Not Encountered		No	3.0	
MW-11	15.4	Not Encountered		No	0	
MW-12	15.4	Not Encountered		No	30.1	
MW-13	15.4	Not Encountered		No		
MW-14	18	Not Encountered		No	0	
MW-15D	25.5	24.5 - 25.5	SILT	No	0	
MW-16D	24.5	24 - 24.5	SILT	No	0	
MW-17D	21.5	18 - 21.5	SILT	No	0	Creosote-like odor noted at about 16 ft BGS, but no visible evidence of creosote-like material.

N/A = Not available.

TABLE 3
MONITORING WELL GROUNDWATER ELEVATIONS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

Monitoring Well	Elevation of Top of PVC Casing		Depth to Water (ft)				Groundwater Elevation (ft)			
			11/24/08	1/16/09	6/3/09	8/25/09	11/24/08	1/16/09	6/3/09	8/25/09
MW-1	17.48	(a)	10.00	9.96	9.86	10.00	7.48	7.52	7.62	7.48
MW-2	16.89	(a)	7.18	7.07	7.18	7.35	9.71	9.82	9.71	9.54
MW-3	15.51	(a)	5.33	5.51	5.44	5.82	10.18	10.00	10.07	9.69
MW-4	16.88	(a)	9.55	8.64	8.66	8.94	7.33	8.24	8.22	7.94
MW-5	16.48	(a)	8.20	8.19	8.15	8.32	8.28	8.29	8.33	8.16
MW-6	17.71	(a)	10.26	10.22	10.15	10.28	7.45	7.49	7.56	7.43
MW-7S	18.29	(a)	10.75	10.78	10.70	10.95	7.54	7.51	7.59	7.34
MW-7D	18.24	(a)	10.70	10.74	10.68	11.00	7.54	7.50	7.56	7.24
MW-8	17.57	(a)	8.39	8.29	8.36	8.67	9.18	9.28	9.21	8.90
MW-9S	17.26	(a)	9.75	9.77	9.68	9.88	7.51	7.49	7.58	7.38
MW-9D	17.30	(a)	9.75	9.78	9.67	9.90	7.55	7.52	7.63	7.40
MW-10	17.62	(b)	(c)	(c)	(c)	8.46	(c)	(c)	(c)	9.16
MW-11	17.90	(b)	(c)	(c)	(c)	7.90	(c)	(c)	(c)	10.00
MW-12	17.64	(b)	(c)	(c)	(c)	7.86	(c)	(c)	(c)	9.78
MW-13	16.71	(b)	(c)	(c)	(c)	7.16	(c)	(c)	(c)	9.55
MW-14	17.04	(b)	(c)	(c)	(c)	5.30	(c)	(c)	(c)	11.74
MW-15D	16.18	(b)	(c)	(c)	(c)	9.00	(c)	(c)	(c)	7.18
MW-16D	17.55	(b)	(c)	(c)	(c)	10.13	(c)	(c)	(c)	7.42
MW-17D	17.28	(b)	(c)	(c)	(c)	8.63	(c)	(c)	(c)	8.65

Notes:

(a) Top of casing elevation surveyed by Pacific Geomatic Services, Inc. on December 12, 2008.
(b) Top of casing elevation surveyed by Pacific Geomatic Services, Inc. on August 13, 2009.
(c) Well not yet installed at time of measurement.

TABLE 4
SOIL ANALYTICAL RESULTS - DETECTED COMPOUNDS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Level (a)	B-1-9-9.5 MK66A 2/27/2008	B-2-9-9 5 MK66B 2/27/2008	B-2-20-21 MK66G 2/27/2008	B-3-7.5-8.5 MK66H 2/27/2008	B-4-6-7 MK66C 2/27/2008	B-5-10-11 MK66D 2/27/2008	B-6-6-6.5 MK66E 2/27/2008	B-7-6-7 MK66F 2/27/2008	B-8-5-6 MK82A 2/28/2008	B-9-5.5-6.5 MK82B 2/28/2008	B-10-7-8 MK82C 2/28/2008	B-11-6-6.5 MK82D 2/28/2008	B-12-6-7 MK82E 2/28/2008	B-13-5-5.75 MK82F 2/28/2008	B-14-5-6.33 MK82G 2/28/2008	B-15-5-6.33 MK82H 2/28/2008	B-16-5-6 ML02A 2/29/2008	B-17-5-6 ML02B 2/29/2008	B-18-7-8 ML02C 2/29/2008	B-19-6-6.75 ML02D 2/29/2008	B-20-6.5-8 ML02E 2/29/2008	B-21-19-20 ML02F 2/29/2008
NWTPH-HCID (mg/kg)																							
Gasoline Range Organics	30	20 U	82 U	**> 660**	**> 20**	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**> 20**	20 U	20 U	20 U	20 U	**> 20**	**> 20**	20 U	**> 20**	
Diesel Range Organics	2,000	50 U	210 U	**> 1,600**	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	**> 50**	**> 50**	**> 50**	**> 50**	**> 50**	**> 50**	**> 50**	**> 50**	50 U	**> 50**	
Motor Oil	2,000	100 U	**> 410**	**> 3,300**	**> 100**	100 U	100 U	100 U	100 U	**> 100**	100 U	100 U	**> 100**	**> 100**	**> 100**	**> 100**	**> 100**	**> 100**	**> 100**	**> 100**	100 U	**> 100**	
NWTPH-DxSG (mg/kg)																							
Diesel Range Hydrocarbons	2,000		**88**	**8,600**	**22**					**15**			**58**	**65**	**90**	**65**		**19**	**370**	**92**	**19**	**51**	
Motor Oil	2,000		**440**	**2,300**	**63**					**68**			**560**	**82**	**630**	**500**		**150**	**160**	**98**	**44**	**190**	
NWTPH-GX (mg/kg)																							
Gasoline	30													13 U				**18**	**1,900**	**1,500**	**54**	**1,200**	
TOTAL METALS (mg/kg)																							
Method 6000/7000 series																							
Arsenic	7	6 U	10 U	6 U	**9**	6 U	6 U	6 U	6 U	7 U	5 U	6 U	30 U	8 U	5 U	5 U	50 U	5 U	20 U	20 U	5 U	20 U	10 U
Cadmium	1	0.2 U	0.4 U	0 3 U	0.3 U	0.2 U	0.2 U	0.2 U	0 3 U	0.3 U	0.2 U	0 2 U	1 U	0.3 U	0.2 U	0.2 U	2 U	0 2 U	0.7 U	0.7 U	0.2 U	0.6 U	0.4 U
Chromium	120,000	**28.5**	**6**	**11.1**	**30.6**	**28.9**	**12.6**	**17.9**	**11.1**	**21.5**	**29.6**	**38.9**	**12**	**7.0**	**36.3**	**34.5**	**39**	**19.5**	**12**	**11**	**26.2**	**6**	**11**
Copper	3,000																						
Lead	250	**13** J	**5**	**5**	**143**	**7**	**3**	**5**	**3**	**39**	**3**	**25**	**10**	**5**	**10**	**85**	**70**	2 U	**38**	**18**	**22**	**8**	**5**
Mercury	0.07	**0.07**	0 08 U	0.06 U	**0.05**	0.05 U	0.06 U	0 06 U	**0.07**	0.06 U	0 05 U	**0.10**	0.09 U	0.06 U	**0.06**	**0.06**	**0.08**	**0.16**	**0.08**	0.05 U	**0.07**	0 06 U	0.07 U
Zinc	24,000																						
BTEX (µg/kg)																							
Method SW8021BMod																							
Benzene	4.5																	13 U	**1,900**	**420**	18 U	**200**	
Toluene	580																	13 U	**1,800**	**1,000**	18 U	**180**	
Ethylbenzene	2,400																	13 U	**3,200**	**1,800**	18 U	**240**	
m,p-Xylene																		26 U	**5,100**	**4,700**	36 U	**700**	
o-Xylene																		13 U	**1,900**	**1,900**	18 U	**870**	
Total Xylenes	15,000																	ND	**7,000**	**6,600**	ND	**1,570**	
PAHs (µg/kg)																							
Method SW8270D/SW8270DSIM																							
Naphthalene	4,500	64 U	**300**		64 U	63 U	63 U	63 U	64 U	66 U	64 U	66 U	64 U	66 U	**66**	65 U	**280**	**83**	**1,600**	**1,000**	64 U	66 U	
2-Methylnaphthalene	320,000	64 U	**580**		64 U	63 U	63 U	63 U	64 U	66 U	64 U	66 U	64 U	**80**	64 U	65 U	**330**	**78**	**3,000**	**1,200**	64 U	66 U	
1-Methylnaphthalene		64 U	**640**		64 U	63 U	63 U	63 U	64 U	66 U	64 U	66 U	64 U	**95**	64 U	65 U	**350**	64 U	**2,200**	**1,200**	64 U	66 U	
Acenaphthylene		64 U	66 U		64 U	63 U	63 U	63 U	64 U	66 U	64 U	66 U	64 U	66 U	64 U	65 U	65 U	64 U	65 U	66 U	64 U	66 U	
Acenaphthene	25,000	64 U	**66**		64 U	63 U	63 U	63 U	64 U	66 U	64 U	66 U	**100**	66 U	**75**	**150**	**730**	**240**	**320**	66 U	64 U	66 U	
Fluorene	79,000	64 U	66 U		64 U	63 U	63 U	63 U	64 U	66 U	64 U	66 U	**110**	66 U	**89**	**200**	**830**	**300**	**240**	66 U	64 U	66 U	
Phenanthrene		64 U	**510**		**130**	63 U	63 U	63 U	64 U	**190**	64 U	66 U	**1,000**	**180**	**940**	**2,900**	**6,400**	**2,300**	**2,400**	**70**	**230**	66 U	
Anthracene	2,300,000	64 U	**90**		64 U	63 U	63 U	63 U	64 U	66 U	64 U	66 U	**220**	66 U	**200**	**500**	**1,700**	**650**	**680**	66 U	64 U	66 U	
Fluoranthene	49,000	64 U	**450**		64 U	63 U	63 U	63 U	64 U	**310**	64 U	66 U	**1,700**	**200**	**1,200**	**7,200**	**6,200**	**3,800**	**2,900**	66 U	**280**	66 U	
Pyrene	140,000	64 U	**290**		64 U	63 U	63 U	63 U	64 U	**230**	64 U	66 U	**1,000**	**170**	**810**	**3,500**	**4,100**	**2,800**	**2,500**	66 U	**210**	66 U	
Benzo(a)anthracene		64 U	**120**		64 U	63 U	63 U	63 U	64 U	**130**	64 U	66 U	**520**	**97**	**380**	**2,100**	**1,800** J	**1,500**	**1,100**	66 U	**110**	66 U	
Chrysene		64 U	**160**		64 U	63 U	63 U	63 U	64 U	**150**	64 U	66 U	**600**	**130**	**500**	**2,400**	**1,900**	**1,800**	**1,200**	66 U	**120**	66 U	
Benzo(b)fluoranthene		64 U	**66**		64 U	63 U	63 U	63 U	64 U	**120**	64 U	66 U	**520**	**99**	**370**	**3,000**	**1,700** J	**2,000**	**1,000**	66 U	**86**	66 U	
Benzo(k)fluoranthene		64 U	**100**		64 U	63 U	63 U	63 U	64 U	**150**	64 U	66 U	**460**	**100**	**420**	**2,100**	**1,700**	**2,000**	**860**	66 U	**100**	66 U	
Benzo(a)pyrene	140	64 U	66 U		64 U	63 U	63 U	63 U	64 U	**140**	64 U	66 U	**480**	**120**	**410**	**2,200**	**2,000**	**1,800**	**1,100**	66 U	**120**	66 U	
Indeno(1,2,3-cd)pyrene		64 U	66 U		64 U	63 U	63 U	63 U	64 U	**71**	64 U	66 U	**150**	66 U	**130**	**740**	**580**	**590**	**270**	66 U	64 U	66 U	
Dibenz(a,h)anthracene		64 U	66 U		64 U	63 U	63 U	63 U	64 U	66 U	64 U	66 U	64 U	66 U	64 U	**300**	**91**	**260**	65 U	66 U	64 U	66 U	
Benzo(g,h,i)perylene		64 U	66 U		64 U	63 U	63 U	63 U	64 U	66 U	64 U	66 U	**140**	66 U	**130**	**660**	**600**	**520**	**260**	66 U	64 U	66 U	
Dibenzofuran	160,000	64 U	**180**		64 U	63 U	63 U	63 U	64 U	66 U	64 U	66 U	**67**	66 U	64 U	**140**	**290**	**120**	**150**	66 U	64 U	66 U	
TEQ	140	ND	**30**		ND	ND	ND	ND	ND	**189**	ND	ND	**651**	**151**	**545**	**3,048**	**2,606**	**2,453**	**1,435**	ND	**151**	ND	

TABLE 4
SOIL ANALYTICAL RESULTS - DETECTED COMPOUNDS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Level (a)	B-1-9-9.5 MK66A 2/27/2008	B-2-9-9 5 MK66B 2/27/2008	B-2-20-21 MK66G 2/27/2008	B-3-7.5-8.5 MK66H 2/27/2008	B-4-6-7 MK66C 2/27/2008	B-5-10-11 MK66D 2/27/2008	B-6-6-6.5 MK66E 2/27/2008	B-7-6-7 MK66F 2/27/2008	B-8-5-6 MK82A 2/28/2008	B-9-5.5-6.5 MK82B 2/28/2008	B-10-7-8 MK82C 2/28/2008	B-11-6-6.5 MK82D 2/28/2008	B-12-6-7 MK82E 2/28/2008	B-13-5-5.75 MK82F 2/28/2008	B-14-5-6.33 MK82G 2/28/2008	B-15-5-6.33 MK82H 2/28/2008	B-16-5-6 ML02A 2/29/2008	B-17-5-6 ML02B 2/29/2008	B-18-7-8 ML02C 2/29/2008	B-19-6-6.75 ML02D 2/29/2008	B-20-6.5-8 ML02E 2/29/2008	B-21-19-20 ML02F 2/29/2008
SEMIVOLATILES (µg/kg)																							
Method SW8270D																							
Phenol	22,000																						
4-Methylphenol																							
Naphthalene	4,500																						
2-Methylnaphthalene	320,000																						
Acenaphthylene																							
Acenaphthene	25,000																						
Dibenzofuran	160,000																						
Fluorene	79,000																						
Phenanthrene																							
Carbazole	320																						
Anthracene	2,300,000																						
Di-n-Butylphthalate	57,000																						
Fluoranthene	49,000																						
Pyrene	140,000																						
Benzo(a)anthracene																							
Chrysene																							
Benzo(b)fluoranthene																							
Benzo(k)fluoranthene																							
Benzo(a)pyrene	140																						
Indeno(1,2,3-cd)pyrene																							
Dibenz(a,h)anthracene																							
Benzo(g,h,i)perylene																							
1-Methylnaphthalene																							
TEQ	140																						

TABLE 4
SOIL ANALYTICAL RESULTS - DETECTED COMPOUNDS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Level (a)	B-23-4.6-6.7 NT63B 10/8/2008	B-23-5.0 NT63A 10/8/2008	B-23-16.0-20 0 NT63C 10/8/2008	B-24-2 2-3.0 NT61M 10/7/2008	B-24-7 0-8.0 NT61O 10/7/2008	B-24-7 5 NT61N 10/7/2008	B-26-4.0-7.6 NT63F 10/8/2008	B-26-7.5 NT63E 10/8/2008	B-26-16-19 NT63J 10/8/2008	B-26-17.0 NT63I 10/8/2008	B-27-8 0-8.3 NT61I 10/7/2008	B-27-8.0 NT61H 10/7/2008	B-27-16.5-17 5 NT61K 10/7/2008	B-27-17.0 NT61J 10/7/2008	B-28-4.2-7 0 NT61F 10/7/2008	B-28-5 0 NT61G 10/7/2008	B-30-0.3-4.0 NT61D 10/7/2008	B-30-8.0-10 5 NT61E 10/7/2008	B-31-0.3-4.0 (b) NT61C 10/7/2008	B-31-8.0-10 0 (b) NU11C 10/10/2008	B-32-0.2-2.0 NT61A 10/7/2008
NWTPH-HCID (mg/kg)																						
Gasoline Range Organics	30																	55 U	20 U	55 U	20 U	110 U
Diesel Range Organics	2,000																	>140	50 U	>140	50 U	280 U
Motor Oil	2,000																	>280	100 U	>270	100 U	>550
NWTPH-DxSG (mg/kg)																						
Diesel Range Hydrocarbons	2,000																		49	200		160
Motor Oil	2,000																		310	1,200		2,300
NWTPH-GX (mg/kg)																						
Gasoline	30		6,100				1,400		1,200		4,300		140		17		1,600					
TOTAL METALS (mg/kg)																						
Method 6000/7000 series																						
Arsenic	7																	2.4	1.6	1.9	9.6	2.1
Cadmium	1																	0.2 U	0.2 U	0.2	0.2 U	0.2 U
Chromium	120,000																	28.7	21.7	31.5	26.7	31.2
Copper	3,000																					
Lead	250																	24	19	37	22	12.4
Mercury	0.07																	0.10	0 05 U	0.08	0.05	0.34
Zinc	24,000																					
BTEX (µg/kg)																						
Method SW8021BMod																						
Benzene	4.5		57,000				350		6,400		730		65		22 U		160					
Toluene	580		34,000				390		810		1,100		40		22 U		190					
Ethylbenzene	2,400		5,900				29 U		2,600		3,600		15 U		22 U		21 U					
m,p-Xylene			43,000				2,200		1,200		1,800		100		43 U		410					
o-Xylene			18,000				1,100		850		2,000		52		22 U		730					
Total Xylenes	15,000		61,000				3,300		2,050		3,800		152		ND		1,140					
PAHs (µg/kg)																						
Method SW8270D/SW8270DSIM																						
Naphthalene	4,500	5,500,000		120	390	1,100		4,100		1,900		360		330		2,300		180 U	58 U	170 U	190 U	180 U
2-Methylnaphthalene	320,000	760,000		74	500	1,300		9,500		5,300		1,200		210		2,100		180 U	58 U	170 U	190 U	180 U
1-Methylnaphthalene		440,000		90	470	900		7,300		4,900		880		230		1,500		180 U	58 U	170 U	190 U	180 U
Acenaphthylene		1,600,000		60 U	64 U	62 U		62 U		190 U		65 U		100		62 U		180 U	58 U	170 U	190 U	180 U
Acenaphthene	25,000	300,000		60 U	66	64		100		190 U		82		93		62 U		280	58 U	170 U	230	180 U
Fluorene	79,000	1,200,000		60 U	64 U	74		100		190 U		110		240		62 U		320	58 U	170 U	420	180 U
Phenanthrene		7,400,000		71	810	940		1,700		380		1,000		1,300		270		4,000	94	1,100 J	3,700	200
Anthracene	2,300,000	1,600,000		60 U	120	100		280		190 U		120		260		62 U		1,100	58 U	250 J	1,300	180 U
Fluoranthene	49,000	5,000,000		60 U	610	610		780		190 U		980		650		62 U		12,000	95	1,300 J	3,500	540
Pyrene	140,000	5,300,000		60 U	560	440		680		210		670		420		62 U		6,600	74	1,400 J	3,700 J	330
Benzo(a)anthracene		1,400,000		60 U	270	130		500		190 U		430		170		62 U		3,100	58 U	580 J	1,600	180 U
Chrysene		1,600,000		60 U	360	320		700		190 U		590		270		62 U		3,800	58 U	660 J	1,600	290
Benzo(b)fluoranthene		1,200,000		60 U	220	160		390		190 U		390		130		62 U		2,900	58 U	430 J	830	180 U
Benzo(k)fluoranthene		1,000,000		60 U	210	190		410		190 U		360		110		62 U		3,200	58 U	460 J	1,100	180 U
Benzo(a)pyrene	140	1,700,000		60 U	280	220		540		190 U		410		180		62 U		3,100	58 U	610 J	1,400	180 U
Indeno(1,2,3-cd)pyrene		1,100,000		60 U	200	150		250		190 U		150		66		62 U		1,300	58 U	350 J	350	180 U
Dibenz(a,h)anthracene		260,000		60 U	69	62 U		94		190 U		65 U		60 U		62 U		450	58 U	170 U	190 U	180 U
Benzo(g,h,i)perylene		1,200,000		60 U	230	180		270		190 U		140		63		62 U		950	58 U	400 J	340	180 U
Dibenzofuran	160,000	810,000		60 U	120	240		470		190 U		110		200		120		180	58 U	170 U	190 U	180 U
TEQ	140	2,212,000		ND	381	286		711		ND		549		230		ND		4,233	ND	799	1,804	3

TABLE 4
SOIL ANALYTICAL RESULTS - DETECTED COMPOUNDS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Level (a)	B-23-4.6-6.7 NT63B 10/8/2008	B-23-5.0 NT63A 10/8/2008	B-23-16.0-20 0 NT63C 10/8/2008	B-24-2 2-3.0 NT61M 10/7/2008	B-24-7 0-8.0 NT61O 10/7/2008	B-24-7 5 NT61N 10/7/2008	B-26-4.0-7.6 NT63F 10/8/2008	B-26-7.5 NT63E 10/8/2008	B-26-16-19 NT63J 10/8/2008	B-26-17.0 NT63I 10/8/2008	B-27-8 0-8.3 NT61I 10/7/2008	B-27-8.0 NT61H 10/7/2008	B-27-16.5-17 5 NT61K 10/7/2008	B-27-17.0 NT61J 10/7/2008	B-28-4.2-7 0 NT61F 10/7/2008	B-28-5 0 NT61G 10/7/2008	B-30-0.3-4.0 NT61D 10/7/2008	B-30-8.0-10 5 NT61E 10/7/2008	B-31-0.3-4.0 (b) NT61C 10/7/2008	B-31-8.0-10 0 (b) NU11C 10/10/2008	B-32-0.2-2.0 NT61A 10/7/2008
SEMIVOLATILES (µg/kg)																						
Method SW8270D																						
Phenol	22,000																					
4-Methylphenol																						
Naphthalene	4,500																					
2-Methylnaphthalene	320,000																					
Acenaphthylene																						
Acenaphthene	25,000																					
Dibenzofuran	160,000																					
Fluorene	79,000																					
Phenanthrene																						
Carbazole	320																					
Anthracene	2,300,000																					
Di-n-Butylphthalate	57,000																					
Fluoranthene	49,000																					
Pyrene	140,000																					
Benzo(a)anthracene																						
Chrysene																						
Benzo(b)fluoranthene																						
Benzo(k)fluoranthene																						
Benzo(a)pyrene	140																					
Indeno(1,2,3-cd)pyrene																						
Dibenz(a,h)anthracene																						
Benzo(g,h,i)perylene																						
1-Methylnaphthalene																						
TEQ	140																					

TABLE 4
SOIL ANALYTICAL RESULTS - DETECTED COMPOUNDS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Level (a)	B-32-8 0-10.5 NT61B 10/7/2008	B-33-17.5-18.5 NU11B 10/10/2008	B-36-19.3-20 0 NT85I 10/9/2008	B-36-19.8 NT85H 10/9/2008	B-38-21.5-22.4 NT85E 10/9/2008	B-38-22 0 NT85D 10/9/2008	B-38-22.4-23.0 NT85F 10/9/2008	B-39-21 0-22 3 NT85J 10/9/2008	B-40-24.5-26 0 NT63G 10/8/2008	B-40-25 0 NT63H 10/8/2008	B-41-16.5 NT85A 10/9/2008	B-41-20 0-21.0 NT85B 10/9/2008	B-44-17.5-18.5 NT85K 10/9/2008	B-44-21.5-22.5 NU11A 10/10/2008	B-45-8.0-10.0 NU11E 10/10/2008	B-45-8 5 NU11D 10/10/2008	B-47-21.5-21.9 NU11G 10/10/2008	B-47-21.8 NU11F 10/10/2008	B50A-15-16 PI35A 7/28/2009	B51-5 PI35C 7/28/2009	B51-15-16 PI35B 7/28/2009
NWTPH-HCID (mg/kg)																						
Gasoline Range Organics	30	20 U	20 U																			
Diesel Range Organics	2,000	50 U	50 U																			
Motor Oil	2,000	100 U	100 U																			
NWTPH-DxSG (mg/kg)																						
Diesel Range Hydrocarbons	2,000			**2,900**		**690**		**59**	**220**	**49**			**2,000**	**130**	**400**			**140** J				
Motor Oil	2,000			**690**		**220**		**42**	**130**	**150**			**480**	**130**	**860**			**310**				
NWTPH-GX (mg/kg)																						
Gasoline	30				**38**		**2,000**				4.5 U	**32**					4.4 U		11 U	**60**	**3200**	**1600**
TOTAL METALS (mg/kg)																						
Method 6000/7000 series																						
Arsenic	7	**2.3**	**5.0**																			
Cadmium	1	0.3 U	0.3 U																			
Chromium	120,000	**16.6**	**22.9**																			
Copper	3,000																					
Lead	250	**9.2**	**33**																			
Mercury	0.07	0.06 U	**1.88**																			
Zinc	24,000																					
BTEX (µg/kg)																						
Method SW8021BMod																						
Benzene	4.5				28 U		**5,200**				11 U	**19**					11 U		**32**	22 U	**460**	120 U
Toluene	580				**35**		**6,100**				11 U	**93**					11 U		**48**	**81**	**2200**	**700**
Ethylbenzene	2,400				**170**		**35,000**				11 U	**150**					11 U		27 U	**55**	**1400**	**510**
m,p-Xylene					**180**		**34,000**				23 U	**440**					22 U		55 U	**170**	**3800**	**1200**
o-Xylene					**110**		**14,000**				11 U	**230**					11 U		27 U	22 U	**1700**	**640**
Total Xylenes	15,000				**290**		**48,000**				ND	**670**					ND		ND	**170**	**5500**	**1840**
PAHs (µg/kg)																						
Method SW8270D/SW8270DSIM																						
Naphthalene	4,500	**300**	**360**	**1,400,000**		**1,700,000**		**49,000**	**170,000**	**23,000**			**1,500,000**	**1,200** J	**5,000**	60 U		**500**				
2-Methylnaphthalene	320,000	59 U	180 U	**500,000**		**590,000**		**9,100**	**51,000**	**8,100**			**460,000**	**2,100**	**1,100** J	60 U		**150** J				
1-Methylnaphthalene		59 U	180 U	320,000 U		**360,000**		**6,400**	**33,000**	**5,000**			**290,000**	**3,100**	**850**	60 U		**170**				
Acenaphthylene		59 U	180 U	320,000 U		**30,000**		**160**	**1,000**	**1,600**			160,000 U	64 U	**320**	60 U		**110**				
Acenaphthene	25,000	59 U	**320**	320,000 U		**380,000**		**4,700**	**28,000**	**4,100**			**260,000**	**170**	**2,000**	60 U		**480**				
Fluorene	79,000	59 U	**470**	320,000 U		**240,000**		**4,000**	**16,000**	**4,100**			**180,000**	**290**	**2,400**	60 U		**320**				
Phenanthrene		59 U	**3,700**	**650,000**		**820,000**		**12,000**	**38,000**	**12,000**			**570,000**	**2,000** J	**19,000**	**73**		**1,200**				
Anthracene	2,300,000	59 U	**820**	320,000 U		**150,000**		**3,800**	**5,600** E	**2,400**			160,000 U	**230**	**3,800**	60 U		**580**				
Fluoranthene	49,000	59 U	**2,400** J	320,000 U		**310,000**		**7,300**	**11,000** E	**4,900**			**200,000**	**830** J	**20,000**	**280**		**1,900**				
Pyrene	140,000	59 U	**3,000** J	320,000 U		**330,000**		**6,900**	**12,000** E	**5,900**			**220,000**	**700** J	**17,000** J	**230** J		**1,600** J				
Benzo(a)anthracene		59 U	**1,100**	320,000 U		**120,000**		**3,400**	**3,800**	**2,200**			160,000 U	**380**	**7,800**	**97**		**1,000**				
Chrysene		59 U	**1,200**	320,000 U		**84,000** E		**3,400**	**3,700**	**2,000**			160,000 U	**530** J	**7,800**	**100**		**1,100**				
Benzo(b)fluoranthene		59 U	**820**	320,000 U		**45,000** E		**1,800**	**370**	**1,300**			160,000 U	**200** J	**7,200**	**64**		**490**				
Benzo(k)fluoranthene		59 U	**970**	320,000 U		**47,000** E		**1,900**	**380**	**1,200**			160,000 U	**290**	**7,300**	**71**		**850**				
Benzo(a)pyrene	140	59 U	**1,200**	320,000 U		**100,000** E		**3,300**	**3,800**	**2,200**			160,000 U	**380**	**9,700**	**78**		**1,000**				
Indeno(1,2,3-cd)pyrene		59 U	**390**	320,000 U		**41,000**		**1,400**	**1,700**	**940**			160,000 U	**160**	**2,900**	60 U		**370**				
Dibenz(a,h)anthracene		59 U	180 U	320,000 U		**14,000**		**480**	**550**	**230**			160,000 U	64 U	**890**	60 U		**91**				
Benzo(g,h,i)perylene		59 U	**390**	320,000 U		**32,000**		**1,200**	**1,400**	**730**			160,000 U	**200**	**3,000**	60 U		**370**				
Dibenzofuran	160,000	59 U	**210**	320,000 U		100 000 U		**1,300**	**4,900**	**900**			160,000 U	**510** J	**1,700**	60 U		**130**				
TEQ	140	ND	**1,540**	ND		**5,500**		**4,232**	**4,517**	**2,807**			ND	**488**	**12,387**	**102**		**1,291**				

TABLE 4
SOIL ANALYTICAL RESULTS - DETECTED COMPOUNDS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Level (a)	B-32-8 0-10.5 NT61B 10/7/2008	B-33-17.5-18.5 NU11B 10/10/2008	B-36-19.3-20 0 NT85I 10/9/2008	B-36-19.8 NT85H 10/9/2008	B-38-21.5-22.4 NT85E 10/9/2008	B-38-22 0 NT85D 10/9/2008	B-38-22.4-23.0 NT85F 10/9/2008	B-39-21 0-22 3 NT85J 10/9/2008	B-40-24.5-26 0 NT63G 10/8/2008	B-40-25 0 NT63H 10/8/2008	B-41-16.5 NT85A 10/9/2008	B-41-20 0-21.0 NT85B 10/9/2008	B-44-17.5-18.5 NT85K 10/9/2008	B-44-21.5-22.5 NU11A 10/10/2008	B-45-8.0-10.0 NU11E 10/10/2008	B-45-8 5 NU11D 10/10/2008	B-47-21.5-21.9 NU11G 10/10/2008	B-47-21.8 NU11F 10/10/2008	B50A-15-16 PI35A 7/28/2009	B51-5 PI35C 7/28/2009	B51-15-16 PI35B 7/28/2009
SEMIVOLATILES (µg/kg)																						
Method SW8270D																						
Phenol	22,000																					
4-Methylphenol																						
Naphthalene	4,500																					
2-Methylnaphthalene	320,000																					
Acenaphthylene																						
Acenaphthene	25,000																					
Dibenzofuran	160,000																					
Fluorene	79,000																					
Phenanthrene																						
Carbazole	320																					
Anthracene	2,300,000																					
Di-n-Butylphthalate	57,000																					
Fluoranthene	49,000																					
Pyrene	140,000																					
Benzo(a)anthracene																						
Chrysene																						
Benzo(b)fluoranthene																						
Benzo(k)fluoranthene																						
Benzo(a)pyrene	140																					
Indeno(1,2,3-cd)pyrene																						
Dibenz(a,h)anthracene																						
Benzo(g,h,i)perylene																						
1-Methylnaphthalene																						
TEQ	140																					

TABLE 4
SOIL ANALYTICAL RESULTS - DETECTED COMPOUNDS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Level (a)	B52-6.5 PI35E 7/28/2009	B52-15-16 PI35D 7/28/2009	B53-15-16 PI35F 7/28/2009	B54-4 PI35H 7/28/2009	B54-15-16 PI35G 7/28/2009	B-55-8-9 PJ46A 8/6/2009	B-56-9-10 PJ46B 8/6/2009	B57-1-2 PI16A 7/27/2009	B57-10-15 PI16B/PI54A 7/27/2009	B57-15-16 PI16C 7/27/2009	B58-1-2 PI16D 7/27/2009	B58-15-16 PI16E 7/27/2009	B59-1-2 PI16K 7/27/2009	B60-1-2 PI16F 7/27/2009	B60-15-16 PI16G 7/27/2009	B61-1-2 PI16H 7/27/2009	B62-1-2 PI35I 7/28/2009	B63-1-2 PI35J 7/28/2009	B64-1-2 PI16L 7/27/2009	B65-1-2 PI16I 7/27/2009	B66-1-2 PI35K 7/28/2009	B67-1-2 PI16J 7/27/2009	B68-1-2 PI35L 7/28/2009
NWTPH-HCID (mg/kg)																								
Gasoline Range Organics	30																							
Diesel Range Organics	2,000									**50**														
Motor Oil	2,000									**100**														
NWTPH-DxSG (mg/kg)																								
Diesel Range Hydrocarbons	2,000									**100**														
Motor Oil	2,000									**470**														
NWTPH-GX (mg/kg)																								
Gasoline	30	**760**	**12**	5.5 U	**180**	**11**	4.4 U	3.8 U		**20**														
TOTAL METALS (mg/kg)																								
Method 6000/7000 series																								
Arsenic	7								**7**			5 U		**7**	**7**		**6**	10 U	5 U	**8**	**30**	**5**	**7**	**6**
Cadmium	1								0.2 U			0.2 U		0.2 U	0.2 U		0.2 U	0.5 U	0.2 U	0.2 U	**0.4**	0.2 U	0.2 U	0.2 U
Chromium	120,000								**13.2**			**31.9**		**38.5**	**28.5**		**10.8**	**26**	**32.7**	**18.0**	**42.1**	**22.2**	**26.2**	**25.9**
Copper	3,000								**75.5**			**26.9**		**33.5**	**29.8**		**49.1**	**36.3**	**23.4**	**34.9**	**64.3**	**47.7**	**25.1**	**38.9**
Lead	250								**59** J			**25**		**67**	**37**		**17**	**53**	**39**	**6**	**132**	**6**	**12**	**41**
Mercury	0.07								**0.05**			**0.59**		**0.12**	**0.05**		0.02 U	**0.04**	**0.05**	**0.06**	**0.05**	**0.02**	**0.02**	**0.08**
Zinc	24,000								**74**			**58**		**82**	**56**		**31**	**94**	**57**	**42**	**104**	**47**	**41**	**71**
BTEX (µg/kg)																								
Method SW8021BMod																								
Benzene	4.5	**79**	**53**	14 U	17 U		11 U	9.5 U																
Toluene	580	**110**	**26**	**18**	17 U		11 U	9.5 U																
Ethylbenzene	2,400	**430**	**20**	14 U	17 U		11 U	9.5 U																
m,p-Xylene		**530**	**62**	27 U	33 U		22 U	19 U																
o-Xylene		**440**	**180**	14 U	17 U		**160**	9.5 U																
Total Xylenes	15,000	**970**	**242**	ND	ND		**160**	ND																
PAHs (µg/kg)																								
Method SW8270D/SW8270DSIM																								
Naphthalene	4,500										**100**		**210**			**28**								
2-Methylnaphthalene	320,000										**180**		**150**			**12**								
1-Methylnaphthalene											**220**		**130**			**7.2**								
Acenaphthylene											**12**		**150**			**37**								
Acenaphthene	25,000										**19**		**140** J			**5.8**								
Fluorene	79,000										**48**		**370** J			**19**								
Phenanthrene											**260** J		**1800** J			**260** J								
Anthracene	2,300,000										**39**		**500**			**210**								
Fluoranthene	49,000										**120** J		**2000** J			**1400** J								
Pyrene	140,000										**130**		**1600**			**1400**								
Benzo(a)anthracene											**82**		**840**			**1100**								
Chrysene											**120**		**800**			**1100**								
Benzo(b)fluoranthene											**55** J		**610** J			**720** J								
Benzo(k)fluoranthene											**73**		**570**			**720**								
Benzo(a)pyrene	140										**96**		**790**			**1100**								
Indeno(1,2,3-cd)pyrene											**43**		**260**			**360**								
Dibenz(a,h)anthracene											**29** J		**130** J			**320** J								
Benzo(g,h,i)perylene											**43**		**210**			**410**								
Dibenzofuran	160,000										**50**		**170** J			**8.6**								
TEQ	140										**125**		**1,039**			**1,433**								

TABLE 4
SOIL ANALYTICAL RESULTS - DETECTED COMPOUNDS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Level (a)	B52-6.5 PI35E 7/28/2009	B52-15-16 PI35D 7/28/2009	B53-15-16 PI35F 7/28/2009	B54-4 PI35H 7/28/2009	B54-15-16 PI35G 7/28/2009	B-55-8-9 PJ46A 8/6/2009	B-56-9-10 PJ46B 8/6/2009	B57-1-2 PI16A 7/27/2009	B57-10-15 PI16B/PI54A 7/27/2009	B57-15-16 PI16C 7/27/2009	B58-1-2 PI16D 7/27/2009	B58-15-16 PI16E 7/27/2009	B59-1-2 PI16K 7/27/2009	B60-1-2 PI16F 7/27/2009	B60-15-16 PI16G 7/27/2009	B61-1-2 PI16H 7/27/2009	B62-1-2 PI35I 7/28/2009	B63-1-2 PI35J 7/28/2009	B64-1-2 PI16L 7/27/2009	B65-1-2 PI16I 7/27/2009	B66-1-2 PI35K 7/28/2009	B67-1-2 PI16J 7/27/2009	B68-1-2 PI35L 7/28/2009
SEMIVOLATILES (µg/kg)																								
Method SW8270D																								
Phenol	22,000								63 U			59 U		64 U	63 U		62 U	61 U	58 U	59 U	58 U	64 U	60 U	65 U
4-Methylphenol									63 U			59 U		64 U	63 U		62 U	61 U	58 U	59 U	58 U	64 U	60 U	65 U
Naphthalene	4,500								**1300**			59 U		**270**	**69**		**130**	61 U	**130**	59 U	58 U	**180**	**71**	65 U
2-Methylnaphthalene	320,000								**2800**			59 U		64 U	63 U		**410**	61 U	**180**	59 U	58 U	**200**	**83**	65 U
Acenaphthylene									63 U			59 U		64 U	**180**		62 U	61 U	58 U	59 U	58 U	64 U	60 U	65 U
Acenaphthene	25,000								63 U			59 U		**100**	63 U		62 U	61 U	**370**	59 U	58 U	64 U	60 U	65 U
Dibenzofuran	160,000								**580**			59 U		64 U	63 U		62 U	61 U	**210**	59 U	58 U	64 U	60 U	65 U
Fluorene	79,000								**150**			59 U		**70**	63 U		62 U	61 U	**520**	59 U	58 U	64 U	60 U	65 U
Phenanthrene									**1900**			**120**		**170**	**340**		**350**	**250**	**3600**	59 U	58 U	**190**	**100**	65 U
Carbazole	320								**140**			59 U		64 U	63 U		62 U	61 U	**300**	59 U	58 U	64 U	60 U	65 U
Anthracene	2,300,000								**130**			59 U		64 U	**94**		62 U	61 U	**750**	59 U	58 U	64 U	60 U	65 U
Di-n-Butylphthalate	57,000								**72**			59 U		64 U	63 U		62 U	61 U	58 U	59 U	58 U	64 U	60 U	65 U
Fluoranthene	49,000								**230**			**110**		**67**	**1300**		**150**	**390**	**2900**	59 U	58 U	**160**	**260**	65 U
Pyrene	140,000								**300**			**110**		64 U	**1500**		**160**	**300**	**2700**	59 U	58 U	**150**	**310**	65 U
Benzo(a)anthracene									**260**			59 U		64 U	**720**		**98**	**160**	**1100**	59 U	58 U	**91**	**180**	65 U
Chrysene									**420**			59 U		64 U	**920**		**160**	**180**	**1100**	59 U	58 U	**140**	**190**	65 U
Benzo(b)fluoranthene									**130**			59 U		64 U	**500**		**85**	**160**	**890**	59 U	58 U	**140**	**140**	65 U
Benzo(k)fluoranthene									**130**			59 U		64 U	**840**		**75**	**150**	**700**	59 U	58 U	**120**	**180**	65 U
Benzo(a)pyrene	140								**120**			59 U		64 U	**680**		**90**	**160**	**1200**	59 U	58 U	**120**	**220**	65 U
Indeno(1,2,3-cd)pyrene									63 U			59 U		64 U	**320**		62 U	**100**	**570**	59 U	58 U	**93**	**64**	65 U
Dibenz(a,h)anthracene									63 U			59 U		64 U	**120**		62 U	61 U	**220**	59 U	58 U	64 U	60 U	65 U
Benzo(g,h,i)perylene									63 U			59 U		64 U	**320**		62 U	**120**	**680**	59 U	58 U	**120**	**62**	65 U
1-Methylnaphthalene									**2900**			59 U		**97**	63 U		**270**	61 U	**180**	59 U	58 U	**120**	60 U	65 U
TEQ	140								**176**			ND		ND	**939.2**		**117**	**219**	**1559**			**166**	**278**	

TABLE 4
SOIL ANALYTICAL RESULTS - DETECTED COMPOUNDS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Level (a)	MW-11-4.5-5 PI99A 8/3/2009	MW-14-15 PJ11A 8/4/2009	MW-17D-15 5-16.5 PJ11B/PJ23A 8/4/2009
NWTPH-HCID (mg/kg)				
Gasoline Range Organics	30			20 U
Diesel Range Organics	2,000			**50**
Motor Oil	2,000			**100**
NWTPH-DxSG (mg/kg)				
Diesel Range Hydrocarbons	2,000			**400**
Motor Oil	2,000			**160**
NWTPH-GX (mg/kg)				
Gasoline	30	**250**		
TOTAL METALS (mg/kg)				
Method 6000/7000 series				
Arsenic	7			**8**
Cadmium	1			0.3 U
Chromium	120,000			**41.6**
Copper	3,000			**35.8**
Lead	250			**24**
Mercury	0.07			**0.48**
Zinc	24,000			**61**
BTEX (µg/kg)				
Method SW8021BMod				
Benzene	4.5	**20**		
Toluene	580	**48**		
Ethylbenzene	2,400	**170**		
m,p-Xylene		**140**		
o-Xylene		**200**		
Total Xylenes	15,000	**340**		
PAHs (µg/kg)				
Method SW8270D/SW8270DSIM				
Naphthalene	4,500		**160**	**1,900**
2-Methylnaphthalene	320,000		**81**	**1,400**
1-Methylnaphthalene			**69**	**1,100**
Acenaphthylene			**36**	**180**
Acenaphthene	25,000		**74**	**3,300**
Fluorene	79,000		**100**	**2,900**
Phenanthrene			**1,100** J	**14,000** J
Anthracene	2,300,000		**250** J	**4,200** J
Fluoranthene	49,000		**2,200**	**8,900**
Pyrene	140,000		**1,600**	**7,700**
Benzo(a)anthracene			**780**	**4,200**
Chrysene			**820**	**4,400**
Benzo(b)fluoranthene			**620**	**2,000**
Benzo(k)fluoranthene			**770**	**3,100**
Benzo(a)pyrene	140		**700**	**4,200**
Indeno(1,2,3-cd)pyrene			**310** J	**1,700** J
Dibenz(a,h)anthracene			**130** J	**810** J
Benzo(g,h,i)perylene			**280**	**1,500**
Dibenzofuran	160,000		**90**	**1,400**
TEQ	140		**969**	**5,425**

TABLE 4
SOIL ANALYTICAL RESULTS - DETECTED COMPOUNDS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Level (a)	MW-11-4.5-5 PI99A 8/3/2009	MW-14-15 PJ11A 8/4/2009	MW-17D-15 5-16.5 PJ11B/PJ23A 8/4/2009
SEMIVOLATILES (µg/kg)				
Method SW8270D				
Phenol	22,000			**460**
4-Methylphenol				**400**
Naphthalene	4,500			**10,000**
2-Methylnaphthalene	320,000			**6,700**
Acenaphthylene				**1,100**
Acenaphthene	25,000			**17,000**
Dibenzofuran	160,000			**7,600** J
Fluorene	79,000			**14,000**
Phenanthrene				**69,000**
Carbazole	320			**3,400**
Anthracene	2,300,000			**22,000**
Di-n-Butylphthalate	57,000			180 U
Fluoranthene	49,000			**45,000**
Pyrene	140,000			**40,000**
Benzo(a)anthracene				**18,000**
Chrysene				**21,000**
Benzo(b)fluoranthene				**13,000**
Benzo(k)fluoranthene				**7,200**
Benzo(a)pyrene	140			**18,000**
Indeno(1,2,3-cd)pyrene				**5,600**
Dibenz(a,h)anthracene				**2,700**
Benzo(g,h,i)perylene				**4,800**
1-Methylnaphthalene				**5,500**
TEQ	140			**22860**

(a) See Table 5 for criteria used to develop preliminary cleanup levels.
(b) Samples collected from boring B-31A; no samples were collected from boring B-31B (see Table 1).
U = Indicates the compound was undetected at the reported concentration.
J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
E = The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate.
Bold = Detected compound.
Box = Exceedance of preliminary cleanup level.
mg/kg = Milligrams per kilogram
µg/kg = Micrograms per kilogram

TABLE 5
PRELIMINARY SOIL CLEANUP LEVELS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

Analyte	Protection of Groundwater and Marine Surface Water (Fixed Parameter 3-Phase Model) mg/kg	Direct Contact Pathway (Ingestion Only) Method B: Unrestricted Land Use For soil from 0 - 15 ft BGS Standard Formula Values		Preliminary Cleanup Levels (Before adjustment for background) mg/kg	Background Soil Metals Concentrations Puget Sound Region 90th Percentile value mg/kg	Preliminary Cleanup Levels (After adjustment for background) mg/kg	Preliminary Cleanup Levels (After adjustment for total site risk) mg/kg	Preliminary Cleanup Levels in Final Units	Units
		Carcinogen mg/kg	Non-carcinogen mg/kg						
TPH									
Gasoline-Range Petroleum Hydrocarbons	(b) (c)		30 (b,c)	30		30		30	mg/kg
Diesel-Range Petroleum Hydrocarbons	(b)		2,000 (b)	2,000		2,000		2,000	mg/kg
Motor Oil-Range Petroleum Hydrocarbons	(b)		2,000 (b)	2,000		2,000		2,000	mg/kg
TOTAL METALS									
Arsenic	0 034	0.67	24	0.034	7	7		7	mg/kg
Chromium	1,000,000		120,000 (d)	120,000	42 (e)	120,000		120,000	mg/kg
Lead	3,000		250 (b)	250	17	250		250	mg/kg
Cadmium	0.69		80	0.69	1	1		1	mg/kg
Zinc	(h)		24,000	24,000	86	24,000		24,000	mg/kg
Copper	(h)		3,000	3,000	36	3,000		3,000	mg/kg
Mercury	0 026		24	0.026	0.07	0.07		0.07	mg/kg
BTEX									
Benzene	0.0045	18.0	320	0.0045		0.0045		4.5	µg/kg
Toluene	4.60		6,400	4.6		4.6	0.58	580	µg/kg
E hylbenzene	6.10		8,000	6.1		6.1	2.4	2,400	µg/kg
Total Xylenes	15.0		16,000	15		15		15,000	µg/kg
PAHs									
Naph halene	4.5		1,600	4.5		4.5		4,500	µg/kg
2-Methylnaphthalene	(a)		320	320		320		320,000	µg/kg
1-Methylnaphthalene	(a)					---		---	
Acenaphthylene	(a)					---		---	
Acenaphthene	98		4,800	98		98	25	25,000	µg/kg
Fluorene	100		3,200	100		100	79	79,000	µg/kg
Phenanthrene	(a)					---		---	µg/kg
Anthracene	2,300		24,000	2,300		2,300		2,300,000	µg/kg

TABLE 5
PRELIMINARY SOIL CLEANUP LEVELS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

Analyte	Protection of Groundwater and Marine Surface Water (Fixed Parameter 3-Phase Model) mg/kg	Direct Contact Pathway (Ingestion Only) Method B: Unrestricted Land Use For soil from 0 - 15 ft BGS Standard Formula Values		Preliminary Cleanup Levels (Before adjustment for background) mg/kg	Background Soil Metals Concentrations Puget Sound Region 90th Percentile value mg/kg	Preliminary Cleanup Levels (After adjustment for background) mg/kg	Preliminary Cleanup Levels (After adjustment for total site risk) mg/kg	Preliminary Cleanup Levels in Final Units	Units
		Carcinogen mg/kg	Non-carcinogen mg/kg						
Fluoran hene	630		3,200	630		630	49	49,000	µg/kg
Pyrene	660		2,400	660		660	140	140,000	µg/kg
Benzo(a)anthracene	(f)	(g)		(g)		(g)		(g)	µg/kg
Chrysene	(f)	(g)		(g)		(g)		(g)	µg/kg
Benzo(b)fluoranthene	(f)	(g)		(g)		(g)		(g)	µg/kg
Benzo(k)fluoranthene	(f)	(g)		(g)		(g)		(g)	µg/kg
Benzo(a)pyrene	0.23	0.14		0.14		0.14		140	µg/kg
Indeno(1,2,3-cd)pyrene	(f)	(g)		(g)		(g)		(g)	µg/kg
Dibenz(a,h)anthracene	(f)	(g)		(g)		(g)		(g)	µg/kg
Benzo(g,h,i)perylene	(a)					---		---	
Dibenzofuran	(a)		160	160		160		160,000	µg/kg
SVOCs									
Phenol	22		48,000	22		22		22,000	µg/kg
4-Methylphenol	(a)					---		---	
Di-n-butylphthalate	57		8000	57		57		57,000	µg/kg
Carbazole	0.32	50		0.32		0.32		320	µg/kg
DIOXINS/FURANS									
2,3,7,8-TCDD	0.00000027	0.000011		0.00000027		0 00000027		0.27	ng/kg

TABLE 5
PRELIMINARY SOIL CLEANUP LEVELS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

Notes:

Screening level based on lowest of soil concentrations for protection of groundwater and protection of human direct contact (Method B standard formula values for carcinogens and non-carcinogens).

Cleanup levels are developed for all constituents detected above laboratory reporting limits in soil.
Shading indicates basis for cleanup level.
--- = No screening criteria available.
mg/kg = Milligrams per kilogram.
µg/kg = Micrograms per kilogram.
ng/kg = Nanograms per kilogram.

(a) Values for K_{oc} and Henry's Law Constant are not available; therefore, cleanup levels protec ive of groundwater can not be calculated using the three-phase partitioning model.
(b) MTCA Method A soil cleanup levels are used for gasoline-range, diesel-range, motor oil-range petroleum hydrocarbons, and lead.
(c) For gasoline-range petroleum hydrocarbons, if benzene is present. If benzene is not present, screening level is 100 mg/kg.
(d) Value is for chromium III. Based on site history, chormium VI is not expected to be present.
(e) Value is for total chromium.
(f) If toxicity equivalency factors (TEFs) are considered, cleanup levels protective of groundwater for other cPAHs are less than the value for benzo(a)pyrene.
(g) Evaluated using toxicity equivalency quotient (TEQ) based on benzo(a)pyrene.
(h) Based on an empirical demonstration (Appendix H), the existing concentrations of copper and zinc in soil are protective of groundwater. Therefore, Me hod B soil standard formula values for unrestricted land use will be used as the preliminary soil cleanup levels for copper and zinc at the Property.

TABLE 6
CONSTITUENTS DETECTED IN SOIL AT CONCENTRATIONS GREATER THAN THE PRELIMINARY CLEANUP LEVELS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Level (a)	B-1-9-9.5 MK66A 2/27/2008	B-2-9-9.5 MK66B 2/27/2008	B-2-20-21 MK66G 2/27/2008	B-3-7.5-8.5 MK66H 2/27/2008	B-4-6-7 MK66C 2/27/2008	B-5-10-11 MK66D 2/27/2008	B-6-6-6.5 MK66E 2/27/2008	B-7-6-7 MK66F 2/27/2008	B-8-5-6 MK82A 2/28/2008	B-9-5.5-6.5 MK82B 2/28/2008	B-10-7-8 MK82C 2/28/2008	B-11-6-6.5 MK82D 2/28/2008	B-12-6-7 MK82E 2/28/2008	B-13-5-5.75 MK82F 2/28/2008	B-14-5-6.33 MK82G 2/28/2008	B-15-5-6 33 MK82H 2/28/2008	B-16-5-6 ML02A 2/29/2008	B-17-5-6 ML02B 2/29/2008	B-18-7-8 ML02C 2/29/2008	B-19-6-6.75 ML02D 2/29/2008
NWTPH-DxSG (mg/kg)																					
Diesel Range Hydrocarbons	2,000		**88**	**8,600**	**22**					**15**			**58**	**65**	**90**	**65**		**19**	**370**	**92**	**19**
Motor Oil	2,000		**440**	**2,300**	**63**					**68**			**560**	**82**	**630**	**500**		**150**	**160**	**98**	**44**
NWTPH-GX (mg/kg)																					
Gasoline	30													13 U				**18**	**1,900**	**1,500**	**54**
TOTAL METALS (mg/kg)																					
Method 6000/7000 series																					
Arsenic	7	6 U	10 U	6 U	**9**	6 U	6 U	6 U	6 U	7 U	5 U	6 U	30 U	8 U	5 U	5 U	50 U	5 U	20 U	20 U	5 U
Mercury	0.07	**0.07**	0.08 U	0.06 U	**0.05**	0.05 U	0.06 U	0 06 U	**0.07**	0.06 U	0.05 U	**0.10**	0.09 U	0.06 U	**0.06**	**0.06**	**0.08**	**0.16**	**0.08**	0.05 U	**0.07**
BTEX (µg/kg)																					
Method SW8021BMod																					
Benzene	4.5																	13 U	**1,900**	**420**	18 U
Toluene	580																	13 U	**1,800**	**1,000**	18 U
E hylbenzene	2,400																	13 U	**3,200**	**1,800**	18 U
Total Xylenes	15,000																	ND	**7,000**	**6,600**	ND
PAHs (µg/kg)																					
Method SW8270D/SW8270DSIM																					
Naph halene	4,500	64 U	**300**		64 U	63 U	63 U	63 U	64 U	66 U	64 U	66 U	64 U	66 U	**66**	65 U	**280**	**83**	**1,600**	**1,000**	64 U
2-Methylnaphthalene	320,000	64 U	**580**		64 U	63 U	63 U	63 U	64 U	66 U	64 U	66 U	64 U	**80**	64 U	65 U	**330**	**78**	**3,000**	**1,200**	64 U
Acenaphthene	25,000	64 U	**66**		64 U	63 U	63 U	63 U	64 U	66 U	64 U	66 U	**100**	66 U	**75**	**150**	**730**	**240**	**320**	66 U	64 U
Fluorene	79,000	64 U	66 U		64 U	63 U	63 U	63 U	64 U	66 U	64 U	66 U	**110**	66 U	**89**	**200**	**830**	**300**	**240**	66 U	64 U
Fluoran hene	49,000	64 U	**450**		64 U	63 U	63 U	63 U	64 U	**310**	64 U	66 U	**1,700**	**200**	**1,200**	**7,200**	**6,200**	**3,800**	**2,900**	66 U	**280**
Pyrene	140,000	64 U	**290**		64 U	63 U	63 U	63 U	64 U	**230**	64 U	66 U	**1,000**	**170**	**810**	**3,500**	**4,100**	**2,800**	**2,500**	66 U	**210**
Benzo(a)pyrene	140	64 U	66 U		64 U	63 U	63 U	63 U	64 U	**140**	64 U	66 U	**480**	**120**	**410**	**2,200**	**2,000**	**1,800**	**1,100**	66 U	**120**
Dibenzofuran	160,000	64 U	**180**		64 U	63 U	63 U	63 U	64 U	66 U	64 U	66 U	**67**	66 U	64 U	**140**	**290**	**120**	**150**	66 U	64 U
TEQ	140	ND	**30**		ND	ND	ND	ND	ND	**189**	ND	ND	**651**	**151**	**545**	**3,048**	**2,606**	**2,453**	**1,435**	ND	**151**
SEMIVOLATILES (µg/kg)																					
Method SW8270D																					
Naph halene	4,500																				
Carbazole	320																				
Benzo(a)pyrene	140																				
TEQ	140																				

TABLE 6
CONSTITUENTS DETECTED IN SOIL AT CONCENTRATIONS GREATER THAN THE PRELIMINARY CLEANUP LEVELS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Level (a)	B-20-6.5-8 ML02E 2/29/2008	B-21-19-20 ML02F 2/29/2008	B-23-4.6-6.7 NT63B 10/8/2008	B-23-5.0 NT63A 10/8/2008	B-23-16.0-20.0 NT63C 10/8/2008	B-24-2.2-3.0 NT61M 10/7/2008	B-24-7.0-8.0 NT61O 10/7/2008	B-24-7.5 NT61N 10/7/2008	B-26-4.0-7.6 NT63F 10/8/2008	B-26-7 5 NT63E 10/8/2008	B-26-16-19 NT63J 10/8/2008	B-26-17.0 NT63I 10/8/2008	B-27-8.0-8.3 NT61I 10/7/2008	B-27-8.0 NT61H 10/7/2008	B-27-16.5-17.5 NT61K 10/7/2008	B-27-17.0 NT61J 10/7/2008	B-28-4.2-7.0 NT61F 10/7/2008	B-28-5.0 NT61G 10/7/2008
NWTPH-DxSG (mg/kg)																			
Diesel Range Hydrocarbons	2,000	**51**																	
Motor Oil	2,000	**190**																	
NWTPH-GX (mg/kg)																			
Gasoline	30	**1,200**			**6,100**				**1,400**		**1,200**		**4,300**		**140**		**17**		**1,600**
TOTAL METALS (mg/kg)																			
Method 6000/7000 series																			
Arsenic	7	20 U	10 U																
Mercury	0.07	0 06 U	0.07 U																
BTEX (µg/kg)																			
Method SW8021BMod																			
Benzene	4.5	**200**			**57,000**				**350**		**6,400**		**730**		**65**		22 U		**160**
Toluene	580	**180**			**34,000**				**390**		**810**		**1,100**		**40**		22 U		**190**
E hylbenzene	2,400	**240**			**5,900**				29 U		**2,600**		**3,600**		15 U		22 U		21 U
Total Xylenes	15,000	**1,570**			**61,000**				**3,300**		**2,050**		**3,800**		**152**		ND		**1,140**
PAHs (µg/kg)																			
Method SW8270D/SW8270DSIM																			
Naph halene	4,500	66 U		**5,500,000**		**120**	**390**	**1,100**		**4,100**		**1,900**		**360**		**330**		**2,300**	
2-Methylnaphthalene	320,000	66 U		**760,000**		**74**	**500**	**1,300**		**9,500**		**5,300**		**1,200**		**210**		**2,100**	
Acenaphthene	25,000	66 U		**300,000**		60 U	**66**	**64**		**100**		190 U		**82**		**93**		62 U	
Fluorene	79,000	66 U		**1,200,000**		60 U	64 U	**74**		**100**		190 U		**110**		**240**		62 U	
Fluoran hene	49,000	66 U		**5,000,000**		60 U	**610**	**610**		**780**		190 U		**980**		**650**		62 U	
Pyrene	140,000	66 U		**5,300,000**		60 U	**560**	**440**		**680**		**210**		**670**		**420**		62 U	
Benzo(a)pyrene	140	66 U		**1,700,000**		60 U	**280**	**220**		**540**		190 U		**410**		**180**		62 U	
Dibenzofuran	160,000	66 U		**810,000**		60 U	**120**	**240**		**470**		190 U		**110**		**200**		**120**	
TEQ	140	ND		**2,212,000**		ND	**381**	**286**		**711**		ND		**549**		**230**		ND	
SEMIVOLATILES (µg/kg)																			
Method SW8270D																			
Naph halene	4,500																		
Carbazole	320																		
Benzo(a)pyrene	140																		
TEQ	140																		

TABLE 6
CONSTITUENTS DETECTED IN SOIL AT CONCENTRATIONS GREATER THAN THE PRELIMINARY CLEANUP LEVELS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Level (a)	B-30-0.3-4.0 NT61D 10/7/2008	B-30-8.0-10.5 NT61E 10/7/2008	B-31-0.3-4.0 (b) NT61C 10/7/2008	B-31-8.0-10.0 (b) NU11C 10/10/2008	B-32-0.2-2.0 NT61A 10/7/2008	B-32-8.0-10.5 NT61B 10/7/2008	B-33-17.5-18.5 NU11B 10/10/2008	B-36-19 3-20.0 NT85I 10/9/2008	B-36-19.8 NT85H 10/9/2008	B-38-21.5-22.4 NT85E 10/9/2008	B-38-22.0 NT85D 10/9/2008	B-38-22.4-23.0 NT85F 10/9/2008	B-39-21.0-22.3 NT85J 10/9/2008	B-40-24.5-26.0 NT63G 10/8/2008	B-40-25.0 NT63H 10/8/2008	B-41-16.5 NT85A 10/9/2008	B-41-20.0-21.0 NT85B 10/9/2008	B-44-17.5-18.5 NT85K 10/9/2008
NWTPH-DxSG (mg/kg)																			
Diesel Range Hydrocarbons	2,000		49	200		160			2,900		690		59	220	49			2,000	130
Motor Oil	2,000		310	1,200		2,300			690		220		42	130	150			480	130
NWTPH-GX (mg/kg)																			
Gasoline	30									38		2,000				4.5 U	32		
TOTAL METALS (mg/kg)																			
Method 6000/7000 series																			
Arsenic	7	2.4	1.6	1.9	9.6	2.1	2.3	5.0											
Mercury	0.07	0.10	0.05 U	0.08	0.05	0.34	0.06 U	1.88											
BTEX (µg/kg)																			
Method SW8021BMod																			
Benzene	4.5									28 U		5,200				11 U	19		
Toluene	580									35		6,100				11 U	93		
E hylbenzene	2,400									170		35,000				11 U	150		
Total Xylenes	15,000									290		48,000				ND	670		
PAHs (µg/kg)																			
Method SW8270D/SW8270DSIM																			
Naph halene	4,500	180 U	58 U	170 U	190 U	180 U	300	360	1,400,000		1,700,000		49,000	170,000	23,000			1,500,000	1,200 J
2-Methylnaphthalene	320,000	180 U	58 U	170 U	190 U	180 U	59 U	180 U	500,000		590,000		9,100	51,000	8,100			460,000	2,100
Acenaphthene	25,000	280	58 U	170 U	230	180 U	59 U	320	320,000 U		380,000		4,700	28,000	4,100			260,000	170
Fluorene	79,000	320	58 U	170 U	420	180 U	59 U	470	320,000 U		240,000		4,000	16,000	4,100			180,000	290
Fluoran hene	49,000	12,000	95	1,300 J	3,500	540	59 U	2,400 J	320,000 U		310,000		7,300	11,000 E	4,900			200,000	830 J
Pyrene	140,000	6,600	74	1,400 J	3,700 J	330	59 U	3,000 J	320,000 U		330,000		6,900	12,000 E	5,900			220,000	700 J
Benzo(a)pyrene	140	3,100	58 U	610 J	1,400	180 U	59 U	1,200	320,000 U		100,000 E		3,300	3,800	2,200			160,000 U	380
Dibenzofuran	160,000	180	58 U	170 U	190 U	180 U	59 U	210	320,000 U		100,000 U		1,300	4,900	900			160,000 U	510 J
TEQ	140	4,233	ND	799	1,804	3	ND	1,540	ND		5,500		4,232	4,517	2,807			ND	488
SEMIVOLATILES (µg/kg)																			
Method SW8270D																			
Naph halene	4,500																		
Carbazole	320																		
Benzo(a)pyrene	140																		
TEQ	140																		

TABLE 6
CONSTITUENTS DETECTED IN SOIL AT CONCENTRATIONS GREATER THAN THE PRELIMINARY CLEANUP LEVELS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Level (a)	B-44-21 5-22.5 NU11A 10/10/2008	B-45-8.0-10.0 NU11E 10/10/2008	B-45-8.5 NU11D 10/10/2008	B-47-21.5-21.9 NU11G 10/10/2008	B-47-21.8 NU11F 10/10/2008	B50A-15-16 PI35A 7/28/2009	B51-5 PI35C 7/28/2009	B51-15-16 PI35B 7/28/2009	B52-6.5 PI35E 7/28/2009	B52-15-16 PI35D 7/28/2009	B53-15-16 PI35F 7/28/2009	B54-4 PI35H 7/28/2009	B54-15-16 PI35G 7/28/2009	B-55-8-9 PJ46A 8/6/2009	B-56-9-10 PJ46B 8/6/2009	B57-1-2 PI16A 7/27/2009	B57-10-15 PI16B/PI54A 7/27/2009	B57-15-16 PI16C 7/27/2009	B58-1-2 PI16D 7/27/2009
NWTPH-DxSG (mg/kg)																				
Diesel Range Hydrocarbons	2,000	**400**			**140** J													**100**		
Motor Oil	2,000	**860**			**310**													**470**		
NWTPH-GX (mg/kg)																				
Gasoline	30			4.4 U		11 U	**60**	**3200**	**1600**	**760**	**12**	5.5 U	**180**	**11**	4.4 U	3.8 U		**20**		
TOTAL METALS (mg/kg)																				
Method 6000/7000 series																				
Arsenic	7																**7**			5 U
Mercury	0.07																**0.05**			**0.59**
BTEX (µg/kg)																				
Method SW8021BMod																				
Benzene	4.5			11 U		**32**	22 U	**460**	120 U	**79**	**53**	14 U	17 U		11 U	9.5 U				
Toluene	580			11 U		**48**	**81**	**2200**	**700**	**110**	**26**	**18**	17 U		11 U	9.5 U				
E hylbenzene	2,400			11 U		27 U	**55**	**1400**	**510**	**430**	**20**	14 U	17 U		11 U	9.5 U				
Total Xylenes	15,000			ND		ND	**170**	**5500**	**1840**	**970**	**242**	ND	ND		**160**	ND				
PAHs (µg/kg)																				
Method SW8270D/SW8270DSIM																				
Naph halene	4,500	**5,000**	60 U		**500**														**100**	
2-Methylnaphthalene	320,000	**1,100** J	60 U		**150** J														**180**	
Acenaphthene	25,000	**2,000**	60 U		**480**														**19**	
Fluorene	79,000	**2,400**	60 U		**320**														**48**	
Fluoran hene	49,000	**20,000**	**280**		**1,900**														**120** J	
Pyrene	140,000	**17,000** J	**230** J		**1,600** J														**130**	
Benzo(a)pyrene	140	**9,700**	**78**		**1,000**														**96**	
Dibenzofuran	160,000	**1,700**	60 U		**130**														**50**	
TEQ	140	**12,387**	**102**		**1,291**														**125**	
SEMIVOLATILES (µg/kg)																				
Method SW8270D																				
Naph halene	4,500																**1300**			59 U
Carbazole	320																**140**			59 U
Benzo(a)pyrene	140																**120**			59 U
TEQ	140																**176**			ND

TABLE 6
CONSTITUENTS DETECTED IN SOIL AT CONCENTRATIONS GREATER THAN THE PRELIMINARY CLEANUP LEVELS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Level (a)	B58-15-16 PI16E 7/27/2009	B59-1-2 PI16K 7/27/2009	B60-1-2 PI16F 7/27/2009	B60-15-16 PI16G 7/27/2009	B61-1-2 PI16H 7/27/2009	B62-1-2 PI35I 7/28/2009	B63-1-2 PI35J 7/28/2009	B64-1-2 PI16L 7/27/2009	B65-1-2 PI16I 7/27/2009	B66-1-2 PI35K 7/28/2009	B67-1-2 PI16J 7/27/2009	B68-1-2 PI35L 7/28/2009	MW-11-4.5-5 PI99A 8/3/2009	MW-14-15 PJ11A 8/4/2009	MW-17D-15.5-16.5 PJ11B/PJ23A 8/4/2009
NWTPH-DxSG (mg/kg)																
Diesel Range Hydrocarbons	2,000															**400**
Motor Oil	2,000															**160**
NWTPH-GX (mg/kg)																
Gasoline	30													**250**		
TOTAL METALS (mg/kg)																
Method 6000/7000 series																
Arsenic	7		**7**	**7**		**6**	10 U	5 U	**8**	**30**	**5**	**7**	**6**			**8**
Mercury	0.07		**0.12**	**0.05**		0.02 U	**0.04**	**0.05**	**0.06**	**0.05**	**0.02**	**0.02**	**0.08**			**0.48**
BTEX (µg/kg)																
Method SW8021BMod																
Benzene	4.5													**20**		
Toluene	580													**48**		
E hylbenzene	2,400													**170**		
Total Xylenes	15,000													**340**		
PAHs (µg/kg)																
Method SW8270D/SW8270DSIM																
Naph halene	4,500	**210**			**28**										**160**	**1,900**
2-Methylnaphthalene	320,000	**150**			**12**										**81**	**1,400**
Acenaphthene	25,000	**140** J			**5.8**										**74**	**3,300**
Fluorene	79,000	**370** J			**19**										**100**	**2,900**
Fluoran hene	49,000	**2000** J			**1400** J										**2,200**	**8,900**
Pyrene	140,000	**1600**			**1400**										**1,600**	**7,700**
Benzo(a)pyrene	140	**790**			**1100**										**700**	**4,200**
Dibenzofuran	160,000	**170** J			**8.6**										**90**	**1,400**
TEQ	140	**1,039**			**1,433**										**969**	**5,425**
SEMIVOLATILES (µg/kg)																
Method SW8270D																
Naph halene	4,500		**270**	**69**		**130**	61 U	**130**	59 U	58 U	**180**	**71**	65 U			**10,000**
Carbazole	320		64 U	63 U		62 U	61 U	**300**	59 U	58 U	64 U	60 U	65 U			**3,400**
Benzo(a)pyrene	140		64 U	**680**		**90**	**160**	**1200**	59 U	58 U	**120**	**220**	65 U			**18,000**
TEQ	140		ND	**939.2**		**117**	**219**	**1559**			**166**	**278**				**22860**

(a) See Table 5 for criteria used to develop preliminary cleanup levels.
(b) Samples collected from boring B-31A; no samples were collected from boring B-31B (see Table 1).
U = Indicates he compound was undetected at the reported concentration.
J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
E = The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an es imate.
Bold = Detected compound.
Box = Exceedance of preliminary cleanup level.

TABLE 7
DIOXIN/FURAN ANALYTICAL RESULTS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Levels	B62-1-2 PI35I 7/28/2009	B65-1-2 PI16I 7/27/2009
DIOXIN AND FURANS (ng/kg)			
Method 8290			
2,3,7,8-TCDD		8.25 UJ	12.4 UJ
1,2,3,7,8-PeCDD		41.2 UJ	62.2 UJ
1,2,3,4,7,8-HxCDD		41.2 UJ	62.2 UJ
1,2,3,6,7,8-HxCDD		41.2 UJ	62.2 UJ
1,2,3,7,8,9-HxCDD		41.2 UJ	62.2 UJ
1,2,3,4,6,7,8-HpCDD		**7.70** J	**131** J
OCDD		**50.5** J	**1020** J
2,3,7,8-TCDF		8.25 UJ	12.4 UJ
1,2,3,7,8-PeCDF		41.2 UJ	62.2 UJ
2,3,4,7,8-PeCDF		41.2 UJ	**92.1** J
1,2,3,4,7,8-HxCDF		41.2 UJ	62.2 UJ
1,2,3,6,7,8-HxCDF		41.2 UJ	**19.3** J
2,3,4,6,7,8-HxCDF		41.2 UJ	**19.8** J
1,2,3,7,8,9-HxCDF		41.2 UJ	62.2 UJ
1,2,3,4,6,7,8-HpCDF		41.2 UJ	**115** J
1,2,3,4,7,8,9-HpCDF		41.2 UJ	62.2 UJ
OCDF		82.5 UJ	**198** J
Total TCDD		8.25 UJ	12.4 UJ
Total PeCDD		41.2 UJ	62.2 UJ
Total HxCDD		41.2 UJ	**76.0** J
Total HpCDD		**15.7** J	**214** J
Total TCDF		8.25 UJ	**110** J
Total PeCDF		41.2 UJ	**795** J
Total HxCDF		41.2 UJ	**583** J
Total HpCDF		41.2 UJ	**315** J
TEQ (ND=0)	0 27	**0.0922** J	**34.4** J

U = Indicates the compound was undetected at the reported concentration.
J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ = The analyte was not detected in the sample; the reported sample repor ing limit is an estimate.
Bold = Detected compound.
Box = Exeedance of preliminary cleanup level.
TEQ = Total toxic equivalent concentration of 2,3,7,8 TCDD.

TABLE 8
GROUNDWATER ANALYTICAL RESULTS - DETECTED COMPOUNDS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Levels (a)	B-1 MK66I 2/27/2008	B-2 MK66M 2/27/2008	B-3 MK66J 2/27/2008	B-6 MK66K 2/27/2008	B-7 MK66L 2/27/2008	B-8 MK82I 2/28/2008	B-9 MK82J 2/28/2008	B-10 MK82K 2/28/2008	B-11 MK82L 2/28/2008	B-12 MK82M 2/28/2008	B-14 MK82N 2/28/2008	B-18 ML02H 2/29/2008	B-19 ML02I 2/29/2008	B-26 NT63K 10/7/2008	B-27 NT61L 10/7/2008	B-38 NT85G 10/9/2008	B-41 NT85C 10/9/2008
NWTPH-HCID (mg/L)																		
Gas	0.8														**>0.25**	0.25 U	**>50**	1.0 U
Diesel	0.5														0.63 U	0.63 U	**>120**	**>2.5**
Oil	0.5														0.63 U	0.63 U	**>120**	2.5 U
NWTPH-DxSG (mg/L)																		
Diesel Range Organics	0.5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0 25 U	0.25 U			**310**	**3.6**
Motor Oil	0.5	0.50 U	0.50 U	0 50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0 50 U	0.50 U			**150**	2.5 U
NWTPH-GX (mg/L)																		
Gasoline	0.8	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	**1.3**	0.25 U				
BTEX (µg/L) Method SW8021BMod																		
Benzene	0.8																	
Toluene	80																	
E hylbenzene	275																	
m,p-Xylene																		
o-Xylene																		
Total Xylenes	1600																	
PAHs (µg/L) Method SW8270D/SW8270DSIM																		
Naph halene	160	1.0 U	**43**	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	**3.1**	1.0 U	1.0 U	1.0 U	1 0 U				
2-Methylnaphthalene	32	1.0 U	**5.1**	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
1-Methylnaphthalene		1.0 U	**3.2**	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
Acenaphthene	250	1.0 U	**1.5**	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
Fluorene	500	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
Anthracene	4800	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
Fluoran hene	50	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
Pyrene	100	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
Benzo(a)anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
Chrysene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
Benzo(b)fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
Benzo(k)fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
Benzo(a)pyrene	0.012	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
Indeno(1,2,3-cd)pyrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
Benzo(g,h,i)perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
Dibenzofuran	32	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U				
TEQ	0.012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND				

TABLE 8
GROUNDWATER ANALYTICAL RESULTS - DETECTED COMPOUNDS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Levels (a)	B-1 MK66I 2/27/2008	B-2 MK66M 2/27/2008	B-3 MK66J 2/27/2008	B-6 MK66K 2/27/2008	B-7 MK66L 2/27/2008	B-8 MK82I 2/28/2008	B-9 MK82J 2/28/2008	B-10 MK82K 2/28/2008	B-11 MK82L 2/28/2008	B-12 MK82M 2/28/2008	B-14 MK82N 2/28/2008	B-18 ML02H 2/29/2008	B-19 ML02I 2/29/2008	B-26 NT63K 10/7/2008	B-27 NT61L 10/7/2008	B-38 NT85G 10/9/2008	B-41 NT85C 10/9/2008
DISSOLVED METALS (µg/L)																		
Method 200.8/6010B/7470A																		
Arsenic	25 (b)	**29**	**12**	**20**	**4**	**40**	**3**	**25**	**2**	10 U	1 U	**4**	**3**	**1**				
Lead	15	1 U	1 U	**26**	1 U	1 U	**1**	1 U	1 U	1 U	1 U	**2**	1 U	1 U				
VOLATILES (µg/L)																		
Method SW8260B																		
Chloromethane	3.4	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0 2 U				
Methylene Chloride	3	0.5 U	0.5 U	0.5 U	0.5 U	**1.3**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0 5 U				
Acetone	35	3.0 U	3.0 U	3.0 U	3.0 U	**6.6**	**3.1**	**7.0**	3.0 U	**4.8**	3.0 U	**4.2**	3.0 U	3 0 U				
Carbon Disulfide	400	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.4**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0 2 U				
Chloroform	7.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0 2 U				
2-Butanone	2400	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2 5 U				
Benzene	0.8	0.2 U	**5.3**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.4**	0 2 U				
Toluene	80	0.2 U	**2.2**	0.2 U	0.2 U	0.2 U	**0.3**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.5**	0 2 U				
E hylbenzene	275	0.2 U	**5.9**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.2**	0 2 U				
Styrene	1.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0 2 U				
m,p-Xylene		0.4 U	**5.7**	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	**1.1**	0.4 U				
o-Xylene		0.2 U	**2.5**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.5**	0 2 U				
Total Xylenes	1600	ND	**8.2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.6**	ND				
1,3,5-Trimethylbenzene	400	0.2 U	**0.6**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0 2 U				
1,2,4-Trimethylbenzene	400	0.2 U	**1.1**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.4**	0.2 U	0.2 U	**0.4**	0 2 U				
Isopropylbenzene		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.2**	0 2 U				
n-Propylbenzene		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.1**	0 2 U				
tert-Butylbenzene		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.0**	0 2 U				
sec-Butylbenzene		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.6**	0 2 U				
4-Isopropyltoluene		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.8**	**0.3**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.3**				
n-Butylbenzene		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.3**	0 2 U				
Naph halene	160	0.5 U	**68**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**6.5**	0.5 U	0.5 U	0.5 U	0 5 U				

TABLE 8
GROUNDWATER ANALYTICAL RESULTS - DETECTED COMPOUNDS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Levels (a)	MW-1 OB80A 11/25/08	MW-1 PK34B 08/12/09	MW-2 OB80B 11/25/08	MW-2 PK34A 08/12/09	MW-3 OB80C 11/24/08	MW-3 PK44A 08/13/09	MW-4 OB80D 11/24/08	MW-4 PK34C 08/12/09	MW-5 OB80E 11/24/08	MW-5 PK15A 08/11/09	MW-6 OB80F 11/25/08	MW-6 PK34D 08/12/09	MW-7D OB80G 11/24/08	MW-7D PK34F 08/12/09	MW-7S OB80H 11/24/08	MW-7S PK34E 08/12/09	MW-8 OB80I 11/25/08	MW-8 PK15B 08/11/09
NWTPH-HCID (mg/L)																			
Gas	0.8																		
Diesel	0.5																		
Oil	0.5																		
NWTPH-DxSG (mg/L)																			
Diesel Range Organics	0.5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U		0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0 25 U	0.25 U	
Motor Oil	0.5	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U		0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0 50 U	0.50 U	
NWTPH-GX (mg/L)																			
Gasoline	0.8	0.25 U	0.25 U	0.25 U	0.25 U	**0.37**	**0.28**	0.25 U	0.25 U	0.25 U	0 25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0 25 U	0.25 U	0.25 U
BTEX (µg/L)																			
Method SW8021BMod																			
Benzene	0.8		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U
Toluene	80		1.0 U		1.0 U		**22**		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U
E hylbenzene	275		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U
m,p-Xylene			1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		**1.1**
o-Xylene			1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U
Total Xylenes	1600		ND		ND		ND		ND		ND		ND		ND		ND		**1.1**
PAHs (µg/L)																			
Method SW8270D/SW8270DSIM																			
Naph halene	160	**5.6**	**0.13**	**7.8**	0.10 U	**9.3**	0.10 U	**4.4**	**0.29**	**1.7**	0.10 U	**1.1**	**0.32**	**0.58**	**1.9**	**0.40**	**0.73**	**4.0**	0.10 U
2-Methylnaphthalene	32	**0.61**	0.10 U	**0.85**	0.10 U	**1.1**	0.10 U	**0.45**	0.10 U	**0.18**	0.10 U	**0.13**	0.10 U	0.10 U	**0.39**	0.10 U	**0.19**	**0.47**	0.10 U
1-Methylnaphthalene		**0.32**	0.10 U	**0.44**	0.10 U	**0.57**	0.10 U	**0.29**	0.10 U	**0.11**	0.10 U	0.10 U	0.10 U	0.10 U	**0.25**	0.10 U	**0.10**	**0.28**	0.10 U
Acenaphthylene		0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Acenaphthene	250	**0.15**	0.10 U	**0.20**	0.10 U	**0.30**	0.10 U	**0.39**	**0.26**	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	**0.15**	0.10 U	0.10 U	**0.11**	0.10 U
Fluorene	500	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Phenanthrene		0.12 U	0.10 U	0.12 U	0.10 U	**0.17**	0.10 U	**0.27**	**0.32**	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Anthracene	4800	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Fluoran hene	50	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Pyrene	100	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)anthracene		0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)fluoranthene		0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(k)fluoranthene		0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)pyrene	0.012	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)pyrene		0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)perylene		0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenzofuran	32	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
TEQ	0.012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 8
GROUNDWATER ANALYTICAL RESULTS - DETECTED COMPOUNDS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Levels (a)	MW-1 OB80A 11/25/08	MW-1 PK34B 08/12/09	MW-2 OB80B 11/25/08	MW-2 PK34A 08/12/09	MW-3 OB80C 11/24/08	MW-3 PK44A 08/13/09	MW-4 OB80D 11/24/08	MW-4 PK34C 08/12/09	MW-5 OB80E 11/24/08	MW-5 PK15A 08/11/09	MW-6 OB80F 11/25/08	MW-6 PK34D 08/12/09	MW-7D OB80G 11/24/08	MW-7D PK34F 08/12/09	MW-7S OB80H 11/24/08	MW-7S PK34E 08/12/09	MW-8 OB80I 11/25/08	MW-8 PK15B 08/11/09
DISSOLVED METALS (µg/L)																			
Method 200.8/6010B/7470A																			
Arsenic	25 (b)	**7**	**2.4**	**3**	**1.2**	**5**	**1.3**	**6**	**4.6**	**58**	**17**	**6**	**1.2**	**4**	**2.0**	**7**	**3.9**	**7**	**2.0**
Lead	15	1 U	1 U	1 U	1 U	2 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
VOLATILES (µg/L)																			
Method SW8260B																			
Chloromethane	3.4	0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U	
Methylene Chloride	3	0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U	
Acetone	35	3.0 U		**6.2**		**27**		**10**		**3.6**		**3.4**		**4.1**		**8.4**		**7.5**	
Carbon Disulfide	400	0.2 U		0.2 U		0.2 U		**0.3**		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U	
Chloroform	7.2	0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		**0.5**		0.2 U		0.2 U	
2-Butanone	2400	2.5 U		2.5 U		**7.4**		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U		2.5 U	
Benzene	0.8	0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		**0.4**	
Toluene	80	**0.3**		0.2 U		**0.9**		**0.3**		0.2 U		0.2 U		**0.5**		0.2 U		**0.9**	
E hylbenzene	275	0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		**0.4**	
Styrene	1.5	0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U	
m,p-Xylene		0.4 U		0.4 U		0.4 U		0.4 U		0.4 U		0.4 U		0.4 U		0.4 U		**1.8**	
o-Xylene		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		**0.5**	
Total Xylenes	1600	ND		ND		ND		ND		ND		ND		ND		ND		**2.3**	
1,3,5-Trimethylbenzene	400	0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U	
1,2,4-Trimethylbenzene	400	0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U	
Isopropylbenzene		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U	
n-Propylbenzene		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U	
tert-Butylbenzene		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U	
sec-Butylbenzene		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U	
4-Isopropyltoluene		0.2 U		**7.2**		**130**		**0.4**		0.2 U		**0.4**		0.2 U		0.2 U		**36**	
n-Butylbenzene		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U		0.2 U	
Naph halene	160	0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U		0.5 U	

TABLE 8
GROUNDWATER ANALYTICAL RESULTS - DETECTED COMPOUNDS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Levels (a)	MW-88 PK15C 08/11/09	MW-9D OB80J 11/25/08	MW-9D PK34G 08/12/09	MW-9S OB80K 11/25/08	MW-9S PK34H 08/12/09	MW-10 PK44B 8/13/2009	MW-11 PK44C 8/13/2009	MW-12 PK44D 8/13/2009	MW-13 PK44E 8/13/2009	MW-14 PK44F 8/13/2009	MW-15D PK44G 8/13/2009	MW-16D PK34I 08/12/09	MW-17D PK34J 08/12/09
NWTPH-HCID (mg/L)														
Gas	0.8													
Diesel	0.5													
Oil	0.5													
NWTPH-DxSG (mg/L)														
Diesel Range Organics	0.5		**2.0**	**0.77**	0 25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0 25 U	0.25 U	0.25 U	0.25 U
Motor Oil	0.5		0.50 U	0.50 U	0 50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0 50 U	0.50 U	0.50 U	0.50 U
NWTPH-GX (mg/L)														
Gasoline	0.8	**0.25**	**9.7**	**2.2**	**0.54**	0.25 U	0.25 U	0.25 U	**0.30**	0.25 U	0 25 U	0.25 U	0.25 U	0.25 U
BTEX (µg/L)														
Method SW8021BMod														
Benzene	0.8	1.0 U		**13**		1.0 U	1.0 U	1.0 U	1.0 U	1 0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	80	1.0 U		**3.1**		1.0 U	1.0 U	1.0 U	1.0 U	1 0 U	1.0 U	1.0 U	1.0 U	1.0 U
E hylbenzene	275	1.0 U		**37**		1.0 U	1.0 U	1.0 U	1.0 U	1 0 U	1.0 U	1.0 U	1.0 U	1.0 U
m,p-Xylene		**1.2**		**28**		1.0 U	1.0 U	1.0 U	1.0 U	1 0 U	1.0 U	1.0 U	1.0 U	1.0 U
o-Xylene		1.0 U		**16**		1.0 U	1.0 U	1.0 U	1.0 U	1 0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Xylenes	1600	**1.2**		**44**		ND	ND	ND	ND	ND	ND	ND	ND	ND
PAHs (µg/L)														
Method SW8270D/SW8270DSIM														
Naph halene	160	0.10 U	**4,800**	**880**	**16**	**0.99**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**1.8**	**0.28**	**8.3**
2-Methylnaphthalene	32	0.10 U	**660**	**230**	**1.9**	**0.23**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**0.23**	0.10 U	**3.1**
1-Methylnaphthalene		0.10 U	**360**	**130**	**1.1**	**0.15**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**0.20**	0.10 U	**4.2**
Acenaphthylene		0.10 U	**13**	**2.6**	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Acenaphthene	250	0.10 U	**240**	**120**	**0.67**	**0.16**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**0.31**	**0.27**	**6.5**
Fluorene	500	0.10 U	**70**	**56**	**0.19**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**0.19**	0.10 U	**3.9**
Phenanthrene		0.10 U	**95**	**73**	**0.27**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**0.54**	**0.16**	**10**
Anthracene	4800	0.10 U	**17**	**7.9**	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**1.8**
Fluoran hene	50	0.10 U	**20**	**4.7**	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**0.13**	0.10 U	**1.6**
Pyrene	100	0.10 U	**23**	**6.6**	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**0.15**	0.10 U	**1.8**
Benzo(a)anthracene		0.10 U	**6.2**	**0.36**	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**0.16**
Chrysene		0.10 U	**5.7**	**0.31**	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**0.15**
Benzo(b)fluoranthene		0.10 U	**2.6**	**0.10**	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(k)fluoranthene		0.10 U	**3.1**	**0.10**	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)pyrene	0.012	0.10 U	**5.5**	**0.15**	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)pyrene		0.10 U	**2.3**	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)perylene		0.10 U	**2.4**	0.10 U	0.12 U	0.10 U	0.10 U	**0.14**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenzofuran	32	0.10 U	**24**	**15**	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**0.11**	0.10 U	**2.0**
TEQ	0.012	ND	**7.0**	**0.21**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.02**

TABLE 8
GROUNDWATER ANALYTICAL RESULTS - DETECTED COMPOUNDS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Levels (a)	MW-88 PK15C 08/11/09	MW-9D OB80J 11/25/08	MW-9D PK34G 08/12/09	MW-9S OB80K 11/25/08	MW-9S PK34H 08/12/09	MW-10 PK44B 8/13/2009	MW-11 PK44C 8/13/2009	MW-12 PK44D 8/13/2009	MW-13 PK44E 8/13/2009	MW-14 PK44F 8/13/2009	MW-15D PK44G 8/13/2009	MW-16D PK34I 08/12/09	MW-17D PK34J 08/12/09
DISSOLVED METALS (µg/L)														
Method 200.8/6010B/7470A														
Arsenic	25 (b)	**1.8**	**8**	**3.8**	**6**	**5.0**	**4.9**	**2.6**	**1.8**	**2.2**	**2.5**	**16.8**	**7.2**	**13.5**
Lead	15	1 U	1 U	1 U	1 U	1 U	1 U	**2**	**1**	1 U	**1**	1 U	1 U	1 U
VOLATILES (µg/L)														
Method SW8260B														
Chloromethane	3.4		**0.2**		0.2 U									
Methylene Chloride	3		0.5 U		0.5 U									
Acetone	35		3.0 U		3.0 U									
Carbon Disulfide	400		0.2 U		0.2 U									
Chloroform	7.2		**0.2**		0.2 U									
2-Butanone	2400		2.5 U		2.5 U									
Benzene	0.8		**120**		0.2 U									
Toluene	80		**60** E		**0.3**									
E hylbenzene	275		**370**		0.2 U									
Styrene	1.5		**0.9**		0.2 U									
m,p-Xylene			**310**		0.4 U									
o-Xylene			**150**		0.2 U									
Total Xylenes	1600		**460**		ND									
1,3,5-Trimethylbenzene	400		**58** E		0.2 U									
1,2,4-Trimethylbenzene	400		**110**		0.2 U									
Isopropylbenzene			**20** E		0.2 U									
n-Propylbenzene			0.2 U		0.2 U									
tert-Butylbenzene			0.2 U		0.2 U									
sec-Butylbenzene			0.2 U		0.2 U									
4-Isopropyltoluene			0.2 U		0.2 U									
n-Butylbenzene			0.2 U		0.2 U									
Naph halene	160		**7,400**		**0.6**									

(a) See Table 8 for criteria used to develop preliminary cleanup levels
(b) Calculated background concentration.
U = Indicates the compound was undetected at the reported concentration
E = The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate
Bold = Detected compound.
Box = Exceedance of preliminary cleanup level.
mg/L = Milligrams per liter.
µg/L = Micrograms per liter.

TABLE 9
PRELIMINARY GROUNDWATER CLEANUP LEVELS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Protective of Drinking Water							Protective of Marine Surface Water															
	MCL Treatment Technique			WA State Board of Health MCLs		Standard Formula Values		AWQC for Protection of Aquatic Life (a)		National Toxics Rule (b)			National Recommended Water Quality Criteria (c)			Standard Formula Values							
										AWQC for						Carcinogen	Non Carcinogen						
Analyte	MCL µg/L	Action Level µg/L	MCL Goal µg/L	Primary µg/L	Secondary µg/L	Carcinogen µg/L	Non-carcinogen µg/L	Acute µg/L	Chronic µg/L	Acute µg/L	Chronic µg/L	AWQC for Protection of Human Health µg/L	Protection of Aquatic Life - Acute µg/L	Protection of Aquatic Life - Chronic µg/L	Protection of Human Health µg/L	µg/L	µg/L	Preliminary Cleanup Levels (Before adjustment for background) µg/L	Background Groundwater from PTI 1989 Draft Report 90th Percentile µg/L	Preliminary Cleanup Levels (After adjustment for background) µg/L	Preliminary Cleanup Levels (After adjustment for total site risk) µg/L	Preliminary Cleanup Levels in Final Units	Units
TPH																							
Gasoline-Range Petroleum Hydrocarbons							800 (d,e)										800 (d,e)			800		0.8	mg/L
Diesel-Range Petroleum Hydrocarbons							500 (d)										500 (d)			500		0.5	mg/L
Oil-Range Petroleum Hydrocarbons							500 (d)										500 (d)			500		0.5	mg/L
BTEX																							
Benzene	5		0	5		0.8	32					71			51	23	2,000	0.8		0.8		0.8	µg/L
Toluene	1,000		1,000	1,000			640					200,000			15,000		19,000	640		640	80	80	µg/L
E hylbenzene	700		700	700			800					29,000			2,100		6,900	700		700	275	275	µg/L
Total Xylenes	10,000		10,000	10,000			1,600 (f)											1,600 (f)		1,600 (f)		1,600 (f)	µg/L
PAHs																							
Naph halene							160										4,900	160		160		160	µg/L
2-Methylnaphthalene							32											32		32		32	µg/L
1-Methylnaphthalene																				---		---	
Acenaphthylene																				---		---	
Acenaphthene							960								990		640	640		640	250	250	µg/L
Fluorene							640					14,000			5,300		3,500	640		640	500	500	µg/L
Phenanthrene																				---		---	
Anthracene							4,800					110,000			40,000		26,000	4,800		4,800		4,800	µg/L
Fluoran hene							640					370			140		90	90		90	50	50	µg/L
Pyrene							480					11,000			4,000		2,600	480		480	100	100	µg/L
Benzo(a)anthracene						(g)						0.031			0.018	(g)		(g)		(g)		(g)	µg/L
Chrysene						(g)						0.031			0.018	(g)		(g)		(g)		(g)	µg/L
Benzo(b)fluoranthene						(g)						0.031			0.018	(g)		(g)		(g)		(g)	µg/L
Benzo(k)fluoranthene						(g)						0.031			0.018	(g)		(g)		(g)		(g)	µg/L
Benzo(a)pyrene	0.2		0	0.2		0.012						0.031			0.018	0 030		0.012 (g)		0.012 (g)		0.012 (g)	µg/L
Indeno(1,2,3-cd)pyrene						(g)						0.031			0.018	(g)		(g)		(g)		(g)	µg/L
Dibenzo(a,h)anthracene						(g)						0.031			0.018	(g)		(g)		(g)		(g)	µg/L
Benzo(g,h,i)perylene																				---		---	
Dibenzofuran							32											32		32		32	µg/L
DISSOLVED METALS																							
Arsenic	10			10		0.058	4.8	69	36	69	36	0.14	69	36	0.14	0.10	18	0.058	25 (i)	25		25	µg/L
Lead		15	0				15 (d)	210	8.1	210	8.1		210	8.1					10	15		15	µg/L
Chromium	100		100	100			24,000 (h)										240,000	100	10	100		100	µg/L
Cadmium	5		5	5			8.0	42	9.3	42	9.3		40	8 8			20	5	2	5		5	µg/L
Zinc					5,000		4,800	90	81	90	81		90	81	26,000		17,000	81	160	160		160	µg/L
Copper		1,300	1,300	1,300			590	4.8	3.1	2.4	2.4		4.8	3.1			2,700	2.4	20	20		20	µg/L
Mercury	2		2	2			4.8	1.8	0.025	2.1	0.025	0.15	1.8	0.94	0.3			0.025		0.025		0.025	µg/L

TABLE 9
PRELIMINARY GROUNDWATER CLEANUP LEVELS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

Analyte	Protective of Drinking Water: MCL Treatment Technique: MCL µg/L	MCL Treatment Technique: Action Level µg/L	MCL Treatment Technique: MCL Goal µg/L	WA State Board of Health MCLs: Primary µg/L	WA State Board of Health MCLs: Secondary µg/L	Standard Formula Values: Carcinogen µg/L	Standard Formula Values: Non-carcinogen µg/L	Protective of Marine Surface Water: AWQC for Protection of Aquatic Life (a): Acute µg/L	AWQC for Protection of Aquatic Life (a): Chronic µg/L	National Toxics Rule (b): AWQC for: Acute µg/L	National Toxics Rule (b): AWQC for: Chronic µg/L	National Toxics Rule (b): AWQC for Protection of Human Health µg/L	National Recommended Water Quality Criteria (c): Protection of Aquatic Life - Acute µg/L	National Recommended Water Quality Criteria (c): Protection of Aquatic Life - Chronic µg/L	National Recommended Water Quality Criteria (c): Protection of Human Health µg/L	Standard Formula Values: Carcinogen µg/L	Standard Formula Values: Non Carcinogen µg/L	Preliminary Cleanup Levels (Before adjustment for background) µg/L	Background Groundwater from PTI 1989 Draft Report 90th Percentile µg/L	Preliminary Cleanup Levels (After adjustment for background) µg/L	Preliminary Cleanup Levels (After adjustment for total site risk) µg/L	Preliminary Cleanup Levels in Final Units	Units
VOLATILES																							
Chloromethane						3.4										130		3		3		3	µg/L
Methylene Chloride	5		0	5		5.8	480					1,600			590	960	170,000	5		5	3	3	µg/L
Acetone							800											800		800	35	35	µg/L
Carbon Disulfide							800											800		800	350	350	µg/L
Chloroform	80			80		7.2	80					470			470	280	6,900	7.2		7.2		7.2	µg/L
2-Butanone							4,800											4,800		4,800	2,400	2,400	µg/L
Styrene	100		100	100		1.5	1600														1.5		
1,3,5-Trimethylbenzene							400											400		400		400	µg/L
1,2,4-Trimethylbenzene							400											400		400		400	µg/L
Isopropylbenzene																				---		---	
n-Propylbenzene																				---		---	
tert-Butylbenzene																				---		---	
sec-Butylbenzene																				---		---	
4-Isopropyltoluene																				---		---	
n-Butylbenzene																				---		---	
SEMIVOLATILES																							
Phenol							4,800					4,600,000			1,700,000		1,100,000	4,800		4,800		4,800	µg/L
4-Methylphenol																				---		---	
Di-n-butylphthalate							1,600					12,000			4,500		2,900	1,600		1,600		1,600	µg/L
Carbazole						4.4												4.4		4.4		4.4	µg/L
DIOXINS AND FURANS																				---		---	
2,3,7,8-TCDD	3.0E-05			3 0E-05								1.4E-08			5.1E-09			5.1E-09		5.1E-09		5.1E-03	pg/L

Notes:

Preliminary cleanup level is based on lowest of federal or state MCL, state secondary MCL, and Method B standard formula values,
for carcinogens without federal or state MCLs on the Method B standard formula value, and for carcinogens with federal or state MCLs.
Preliminary cleanup levels are developed for all constituents detected in groundwater or soil.
Shading indicates basis for preliminary cleanup level.
--- = No cleanup level available.
mg/L = Milligrams per liter.
µg/L = Micrograms per liter.
pg/L = Picograms per liter.
(a) Ambient water quality criteria for protection of aquatic life from WAC 173-201A-240.
(b) Ambient water quality criteria for protection of human health from 40 CFR Part 131d (National Toxics Rule).
(c) National Recommended Water Quality Criteria (EPA website 2006).
(d) MTCA Method A groundwater cleanup levels are used for gasoline-range, diesel-range, oil-range petroleum hydrocarbons, and lead.
(e) For gasoline-range petroleum hydrocarbons, if benzene is present. If benzene is not present, screening level is 1,000 µg/L (1.0 mg/L).
(f) Screening level is for total xylenes.
(g) Evaluated using toxicity equivalency quotient (TEQ) based on benzo(a)pyrene.
(h) Value is for chromium III. Based on site history, chromium VI is not expected to be present.
(i) Calculated background concentration.

TABLE 10
CONSTITUENTS DETECTED IN GROUNDWATER AT CONCENTRATIONS GREATER THAN THE PRELIMINARY CLEANUP LEVELS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Levels (a)	B-1 MK66I 2/27/2008	B-2 MK66M 2/27/2008	B-3 MK66J 2/27/2008	B-6 MK66K 2/27/2008	B-7 MK66L 2/27/2008	B-8 MK82I 2/28/2008	B-9 MK82J 2/28/2008	B-10 MK82K 2/28/2008	B-11 MK82L 2/28/2008	B-12 MK82M 2/28/2008	B-14 MK82N 2/28/2008	B-18 ML02H 2/29/2008	B-19 ML02I 2/29/2008	B-38 NT85G 10/9/2008	B-41 NT85C 10/9/2008
NWTPH-DxSG (mg/L)																
Diesel Range Organics	0.5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0 25 U	0.25 U	**310**	**3.6**
Motor Oil	0.5	0.50 U	0.50 U	0 50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0 50 U	0.50 U	**150**	2.5 U
NWTPH-GX (mg/L)																
Gasoline	0.8	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	**1.3**	0.25 U		
BTEX (µg/L)																
Method SW8021BMod																
Benzene	0.8															
PAHs (µg/L)																
Method SW8270D/SW8270DSIM																
Naph halene	160	1.0 U	**43**	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	**3.1**	1.0 U	1.0 U	1.0 U	1 0 U		
2-Methylnaphthalene	32	1.0 U	**5.1**	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U		
Benzo(a)pyrene	0.012	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 0 U		
TEQ	0.012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
DISSOLVED METALS (µg/L)																
Method 200.8/6010B/7470A																
Arsenic	25 (b)	**29**	**12**	**20**	**4**	**40**	**3**	**25**	**2**	10 U	1 U	**4**	**3**	**1**		
Lead	15	1 U	1 U	**26**	1 U	1 U	**1**	1 U	1 U	1 U	1 U	**2**	1 U	1 U		
VOLATILES (µg/L)																
Method SW8260B																
Benzene	0.8	0.2 U	**5.3**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.4**	0 2 U		
E hylbenzene	275	0.2 U	**5.9**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.2**	0 2 U		
Naph halene	160	0.5 U	**68**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**6.5**	0.5 U	0.5 U	0.5 U	0 5 U		

TABLE 10
CONSTITUENTS DETECTED IN GROUNDWATER AT CONCENTRATIONS GREATER THAN THE PRELIMINARY CLEANUP LEVELS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Levels (a)	MW-1 OB80A 11/25/08	MW-1 PK34B 08/12/09	MW-2 OB80B 11/25/08	MW-2 PK34A 08/12/09	MW-3 OB80C 11/24/08	MW-3 PK44A 08/13/09	MW-4 OB80D 11/24/08	MW-4 PK34C 08/12/09	MW-5 OB80E 11/24/08	MW-5 PK15A 08/11/09	MW-6 OB80F 11/25/08	MW-6 PK34D 08/12/09	MW-7D OB80G 11/24/08	MW-7D PK34F 08/12/09	MW-7S OB80H 11/24/08	MW-7S PK34E 08/12/09	MW-8 OB80I 11/25/08	MW-8 PK15B 08/11/09
NWTPH-DxSG (mg/L)																			
Diesel Range Organics	0.5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U		0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0 25 U	0.25 U	
Motor Oil	0.5	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U		0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0 50 U	0.50 U	
NWTPH-GX (mg/L)																			
Gasoline	0.8	0.25 U	0.25 U	0.25 U	0.25 U	**0.37**	**0.28**	0.25 U	0.25 U	0.25 U	0 25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0 25 U	0.25 U	0.25 U
BTEX (µg/L)																			
Method SW8021BMod																			
Benzene	0.8		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U		1.0 U
PAHs (µg/L)																			
Method SW8270D/SW8270DSIM																			
Naph halene	160	**5.6**	**0.13**	**7.8**	0.10 U	**9.3**	0.10 U	**4.4**	**0.29**	**1.7**	0.10 U	**1.1**	**0.32**	**0.58**	**1.9**	**0.40**	**0.73**	**4.0**	0.10 U
2-Methylnaphthalene	32	**0.61**	0.10 U	**0.85**	0.10 U	**1.1**	0.10 U	**0.45**	0.10 U	**0.18**	0.10 U	**0.13**	0.10 U	0.10 U	**0.39**	0.10 U	**0.19**	**0.47**	0.10 U
Benzo(a)pyrene	0.012	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.12 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
TEQ	0.012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DISSOLVED METALS (µg/L)																			
Method 200.8/6010B/7470A																			
Arsenic	25 (b)	**7**	**2.4**	**3**	**1.2**	**5**	**1.3**	**6**	**4.6**	58	**17**	**6**	**1.2**	**4**	**2.0**	**7**	**3.9**	**7**	**2.0**
Lead	15	1 U	1 U	1 U	1 U	2 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
VOLATILES (µg/L)																			
Method SW8260B																			
Benzene	0.8	0.2 U		0 2 U		0.2 U		0.2 U		0 2 U		0.2 U		0.2 U		0.2 U		**0.4**	
E hylbenzene	275	0.2 U		0 2 U		0.2 U		0.2 U		0 2 U		0.2 U		0.2 U		0.2 U		**0.4**	
Naph halene	160	0.5 U		0 5 U		0.5 U		0.5 U		0 5 U		0.5 U		0.5 U		0.5 U		0.5 U	

TABLE 10
CONSTITUENTS DETECTED IN GROUNDWATER AT CONCENTRATIONS GREATER THAN THE PRELIMINARY CLEANUP LEVELS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	Preliminary Cleanup Levels (a)	MW-88 PK15C 08/11/09	MW-9D OB80J 11/25/08	MW-9D PK34G 08/12/09	MW-9S OB80K 11/25/08	MW-9S PK34H 08/12/09	MW-10 PK44B 8/13/2009	MW-11 PK44C 8/13/2009	MW-12 PK44D 8/13/2009	MW-13 PK44E 8/13/2009	MW-14 PK44F 8/13/2009	MW-15D PK44G 8/13/2009	MW-16D PK34I 08/12/09	MW-17D PK34J 08/12/09
NWTPH-DxSG (mg/L)														
Diesel Range Organics	0.5		**2.0**	**0.77**	0 25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0 25 U	0.25 U	0.25 U	0.25 U
Motor Oil	0.5		0.50 U	0.50 U	0 50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0 50 U	0.50 U	0.50 U	0.50 U
NWTPH-GX (mg/L)														
Gasoline	0.8	**0.25**	**9.7**	**2.2**	**0.54**	0.25 U	0.25 U	0.25 U	**0.30**	0.25 U	0 25 U	0.25 U	0.25 U	0.25 U
BTEX (µg/L)														
Method SW8021BMod														
Benzene	0.8	1.0 U		**13**		1.0 U	1.0 U	1.0 U	1.0 U	1 0 U	1.0 U	1.0 U	1.0 U	1.0 U
PAHs (µg/L)														
Method SW8270D/SW8270DSIM														
Naph halene	160	0.10 U	**4,800**	**880**	**16**	**0.99**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**1.8**	**0.28**	**8.3**
2-Methylnaphthalene	32	0.10 U	**660**	**230**	**1.9**	**0.23**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**0.23**	0.10 U	**3.1**
Benzo(a)pyrene	0.012	0.10 U	**5.5**	**0.15**	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
TEQ	0.012	ND	**7.0**	**0.21**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.02**
DISSOLVED METALS (µg/L)														
Method 200.8/6010B/7470A														
Arsenic	25 (b)	**1.8**	**8**	**3.8**	**6**	**5.0**	**4.9**	**2.6**	**1.8**	**2.2**	**2.5**	**16.8**	**7.2**	**13.5**
Lead	15	1 U	1 U	1 U	1 U	1 U	1 U	**2**	**1**	1 U	**1**	1 U	1 U	1 U
VOLATILES (µg/L)														
Method SW8260B														
Benzene	0.8		**120**		0.2 U									
E hylbenzene	275		**370**		0.2 U									
Naph halene	160		**7,400**		**0.6**									

(a) See Table 9 for criteria used to develop preliminary cleanup levels
(b) Calculated background concentration
U = Indicates the compound was undetected at the reported concentration
E = The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate
Bold = Detected compound.
Box = Exceedance of preliminary cleanup level
mg/L = Milligrams per liter.
µg/L = Micrograms per liter.

TABLE 11
MAINLINE SEWER/STORM DRAIN ELEVATIONS COMPARED TO GROUNDWATER ELEVATIONS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

Diameter (inches)	Type	Rim Elevation (a) (ft)	Corrected Rim Elevation (b) (ft)	Invert Elevation (a) (ft)	Corrected Invert Elevation (b) (ft)	Corrected Top of Pipe Elevation (c) (ft)	Above Average GW Elevation? (d)
18	Combined Mainline	8.2	17.9	1.7	11.4	12.9	yes
18	Combined Mainline	8	17.7	0.94	10.64	12.14	yes
18	Combined Mainline	8.9	18.6	0.62	10.32	11.82	yes
18	Combined Mainline	8.6	18.3	-0.09	9.61	11.11	yes
18	Combined Mainline	8.93	18.63	1.96	11.66	13.16	yes
102	Metro Mainline	---	---	-12.02	-2.32	6.18	no
102	Metro Mainline	---	---	-12.77	-3.07	5.43	no
102	Metro Mainline	---	---	-12.79	-3.09	5.41	no
102	Metro Mainline	---	---	-12.75	-3.05	5.45	no

Notes:

(a) Elevations are Rim and Invert elevations based on City of Seattle Datum given on side sewer cards.

(b) Corrected elevations were determined by adding 9.7 ft to City of Seattle datum to convert to NAVD88 datum.

(c) Corrected Top of Pipe Elevation was calculated by adding the diameter of the line in feet to the corrected invert elevation.

(d) Average GW elevation is 8.34 ft. Average was calculated across all groundwater elevations measured during each event Property-wide.

TABLE 12
PRODUCT ANALYTICAL RESULTS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	B-21-20-23 ML02G 2/29/2008
NWTPH-HCID (mg/kg)	
Gasoline Range Organics	> 1,800 U
Diesel Range Organics	**> 4,600**
Motor Oil	**> 9,300**
NWTPH-DxSG (mg/kg)	
Diesel Range Hydrocarbons	**77,000**
Motor Oil	**36,000**
TOTAL METALS (mg/kg)	
Method 6000/7000 series	
Arsenic	8 U
Cadmium	0.3 U
Chromium	**5.4**
Lead	**7**
Mercury	0.07 U
PCBs (µg/kg)	
Method SW8082	
PCB-Aroclor 1016	170 U
PCB-Aroclor 1242	170 U
PCB-Aroclor 1248	170 U
PCB-Aroclor 1254	170 U
PCB-Aroclor 1260	170 U
PCB-Aroclor 1221	170 U
PCB-Aroclor 1232	170 U
PAHs (µg/kg)	
Method SW8270D	
Naph halene	**19,000,000**
2-Methylnaphthalene	**7,300,000**
1-Methylnaphthalene	**3,800,000**
Acenaphthylene	**500,000**
Acenaphthene	**3,800,000**
Dibenzofuran	**590,000**
Fluorene	**2,900,000**
Phenanthrene	**7,900,000**
Anthracene	**1,600,000**
Fluoran hene	**3,500,000**
Pyrene	**2,900,000**
Benzo(a)anthracene	**1,100,000**
Chrysene	**980,000**
Benzo(b)fluoranthene	**610,000**
Benzo(k)fluoranthene	**390,000**
Benzo(a)pyrene	**1,000,000**
Indeno(1,2,3-cd)pyrene	**280,000**
Dibenz(a,h)anthracene	**120,000**
Benzo(g,h,i)perylene	**270,000**
TEQ	**1,259,800**

U = Indicates he compound was undetected at the reported concentration
Bold indicates detected compound.
mg/kg = Milligrams per kilogram
µg/kg = Micrograms per kilogram

TABLE 13
SOIL ANALYTICAL FORENSIC RESULTS
NORTH LOT DEVELOPMENT
SEATTLE, WASHINGTON

	B-41-20.0-21.0 08-27351-NT85B 10/9/2008
SEMIVOLATILES (mg/kg)	
Method SW8270C	
Decalin	20 U
C1-Decalins	20 U
C2-Decalins	20 U
C3-Decalins	20 U
C4-Decalins	20 U
Naph halene	**1,500**
C1-naphthalenes	**730**
C2-naphthalenes	**330**
C3-naphthalenes	**84**
C4-naphthalenes	20 U
Biphenyl	**130**
Acenaphthylene	**63**
Acenaphthene	**400**
Dibenzofuran	**78**
Fluorene	**270**
C1-fluorenes	**110**
C2-fluorenes	**27**
C3-fluorenes	20 U
Dibenzothiophene	**43**
C1-dibenzo hiophenes	**27**
C2-dibenzo hiophenes	20 U
C3-dibenzo hiophenes	20 U
C4-dibenzo hiophenes	20 U
Phenanthrene	**760**
Anthracene	**160**
C1-phenanthrenes/anthracenes	**260**
C2-phenanthrenes/anthracenes	**78**
C3-phenanthrenes/anthracenes	**23**
C4-phenanthrenes/anthracenes	20 U
Fluoran hene	**330**
Pyrene	**330**
C1-fluoranthenes/pyrenes	**190**
C2-fluoranthenes/pyrenes	**48**
C3-fluoranthenes/pyrenes	20 U
Benzo(a)anthracene	**110**
Chrysene	**99**
C1-benzo(a)anthracenes/chrysenes	**61**
C2-benzo(a)anthracenes/chrysenes	20 U
C3-benzo(a)anthracenes/chrysenes	20 U
C4-benzo(a)anthracenes/chrysenes	20 U
Benzo(e)pyrene	**49**
Benzo(a)pyrene	**110**
Perylene	**24**
Benzo(b)fluoranthene	**79**
Benzo(k)fluoranthene	**36**
Indeno(1,2,3-cd)pyrene	**48**
Dibenz(a,h)anthracene	20 U
Benzo(g,h,i)perylene	**49**
Sulfur (wt %)	
Method D-1152	**0.64**

U = Indicates the compound was undetected at the reported concentration.
Bold indicates detected compound.
mg/kg = Milligrams per kilogram.