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September 7, 2012

Reference No. 060561

Ms. Libby Goldstein
Washington State Department of Ecology
3190 160th Avenue SE
Bellevue, Washington 98008-5452

Re: Cleanup Action Report
Shell-Branded Wholesale Facility
22588 84th Avenue South
Kent, Washington
VCP No.: NW2043
Agency ID No.: 55129449

Dear Ms. Goldstein:

Please find the enclosed Cleanup Action Report for the Shell-branded wholesale facility located at 22588 84th Avenue, Kent, Washington. We are requesting Ecology's review and opinion on this report. If you have any questions regarding the contents of the enclosed document, please contact Michael Lam at 425-563-6508.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Michael Lam

ML/cd/2
Encl.

Cleanup Action Report

cc: Perry Pineda, Shell Oil Products US
PacWest Energy LLC

Equal
Employment
Opportunity Employer



CLEANUP ACTION REPORT

**SHELL-BRANDED WHOLESALE FACILITY
22588 84TH AVENUE SOUTH
KENT, WASHINGTON**

**SAP CODE 120930
INCIDENT NO. 97739078
AGENCY NO. 55129449
VCP NO. NW2043**

**Prepared For:
Shell Oil Products US
20945 S. Wilmington Ave
Carson, CA 90810**

**SEPTEMBER 11, 2012
REF. NO. 060561 (7)**

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**Prepared by:
Conestoga-Rovers
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CLEANUP ACTION REPORT

**SHELL-BRANDED WHOLESALE FACILITY
22588 84TH AVENUE SOUTH
KENT, WASHINGTON**

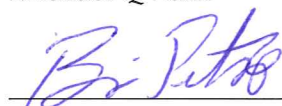
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VCP NO. NW2043

Prepared For:

**Shell Oil Products US
20945 S. Wilmington Ave
Carson, CA 90810**



Michael Q Lam



Brian Peters, LG



BRIAN C. PETERS

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1.0 INTRODUCTION

1.1 SITE INFORMATION

<i>Site Name:</i>	Shell-branded Wholesale Facility
<i>Site Address:</i>	22588 84 th Avenue South, Kent, Washington
<i>Voluntary Cleanup Program Number:</i>	NW2043
<i>Project Consultant:</i>	Conestoga-Rovers & Associates
<i>Project Consultant Contact Information:</i>	Michael Q Lam 20818 44 th Avenue West, Suite 190 Lynnwood, Washington, 98036 Office - 425.563.6500 Direct - 425.563.6508
<i>Current Owner/Operator:</i>	PacWest Energy LLC

1.2 PURPOSE

Conestoga-Rovers & Associates (CRA) prepared this Cleanup Action (CA) report on behalf of Equilon Enterprises LLC (Equilon) dba Shell Oil Products US (Shell) for the Shell-branded wholesale facility located on the northeast corner of the intersection of 84th Avenue South and an off-ramp for Highway (State Route) 167 in Kent, King County, Washington (Property; Figure 1).

This CA report was prepared to demonstrate that all requirements under Washington Administrative Code (WAC) 173-340 have been met for a No Further Action (NFA) determination based on site conditions and all environmental investigation findings associated with the petroleum hydrocarbon release at the Property. The previous environmental activities described in this report are a summary of historical investigations and documents prepared by CRA and previous consultants. A list of historical environmental documents associated with this release is included as Appendix A.

2.0 SITE IDENTIFICATION AND DESCRIPTION

2.1 SITE DISCOVERY AND REGULATORY STATUS

In October 2002, a site investigation was conducted under Shell's Groundwater Assessment Program (GRASP) as a proactive measure to monitor the groundwater quality at sites with no known environmental releases but within close proximity to public water supply. Monitoring wells MW-1 through MW-3 were installed as part of the investigation and no soil impact was encountered. Periodic groundwater monitoring was completed between May 2003 and October 2006 with no reported impact. In May 2007, benzene concentrations exceeding the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup level were first reported in groundwater samples collected from well MW-2, and confirmed by the re-sampling event in June 2007. In addition, soils impacted with petroleum hydrocarbons greater than MTCA Method A cleanup levels were also confirmed during the pump dispenser upgrade in June 2007.

Ecology received a UST Notice of Confirmed Release on June 4, 2007 (release ID #592206). The site was then listed with Ecology's leaking underground storage tank (LUST) program (Facility ID #6298). The site was entered into Ecology's Voluntary Cleanup Program (VCP) in December 2008 and issued site number NW2043. The VCP document indicated that hydrocarbon impacted groundwater and soil were first identified by Delta Consultants (Delta) in May and June 2007, respectively. The site is listed on Ecology's LUST list with a release status "Awaiting Cleanup" and a date of June 4, 2007.

For purposes of discussion of investigation results, MTCA Method A cleanup levels for soil and groundwater will be used as screening levels. Cleanup standards are discussed in more detail in Section 6.

2.2 SITE AND PROPERTY LOCATION/DEFINITION

The Property is a Shell-branded wholesale facility located at the northeast corner of the intersection of 84th Avenue South and an off-ramp for Highway (State Route) 167 in Kent, Washington (Figure 2). A legal description of the Property, including past and present property owners and operators, is included in Appendix B.

The MTCA site (Site) is defined as all currently and/or historically affected areas from the petroleum release associated with the Property and potentially impacted adjacent parcels. The Site boundary is limited to the Property (Figure 2).

2.3 NEIGHBORHOOD SETTING

According to the City of Kent Zoning Map (2012), the Property and adjacent properties are zoned as commercial and designated as Gateway Commercial. Surrounding properties to the south of Highway 167 and to the east of 84th Avenue South are zoned as commercial and designated as General Commercial. Planned or future use for the Property is uncertain; however, due to its location and zoning, it will likely continue as a commercial-use property. The nearest single and multi-family residential areas are located approximately 1100 feet east of Property across Highway 167 (Figure 3). The Property is fronted by 84th Avenue South to the west and bounded by Highway 167 to the south/southeast. Across 84th Avenue is an Extended Stay America hotel. A Burger King restaurant borders the Site to the north. The nearest surface water body is Green River, located approximately 2.2 miles west of the Property.

2.4 PHYSIOGRAPHIC SETTING/TOPOGRAPHY

The Property is situated at approximately 38 feet above mean seal level (amsl). The local topography at the Site and immediate surrounding is relatively flat. The Property is paved with asphalt and concrete.

2.5 PAST AND CURRENT PROPERTY USES AND FACILITIES

Based on King County Assessor's records and Ecology's regulated underground storage tank (UST) database, the Property appeared to be initially developed as a gasoline station in 1988. The Property operated as a Texaco-branded service station from approximately 1988 to 1998 when the ownership transferred to Equilon. PacWest Energy LLC purchased the Property in 2009 and continued to operate as a retail service station. The current Property facilities include a station building, four 10,000-gallon USTs (three gasoline and one diesel) located in a common excavation east of the station building, two dispenser islands oriented east-west, and a car wash located in the southeast portion of the Property. A list of the current USTs at the Property, the contents, and the dates of installation and decommission is presented below:

<i>UST Volume</i>	<i>Content</i>	<i>Date Installed</i>	<i>Date Decommissioned</i>
10,000-gallon	Unleaded Gasoline	1988	Operational
10,000-gallon	Unleaded Gasoline	1988	Operational
10,000-gallon	Unleaded Gasoline	1988	Operational
10,000-gallon	Diesel	1988	Operational

2.6 UTILITIES AND WATER SUPPLY

Subsurface utilities present beneath and adjacent to the Property include sanitary sewer, storm water, water, and communications (Figure 2). Additional subsurface utilities may be present, but were not identified by CRA. An 8-inch water line runs parallel to 84th Avenue South adjacent to the northwestern Property boundary at approximate 4 feet below ground surface (bgs). An 8-inch sanitary sewer line at approximately 8 feet bgs runs north-south within 84th Avenue South, and enters the Property from the northwest corner. A telephone line runs northwest-southeast from the northern Property boundary to the station building. A cable line runs north-south along the sidewalk of 84th Avenue South. Several catch basins and a strip drain are located throughout the Property to collect surface water runoff. Trench drains are located at the dispenser islands perimeter and near the northwestern Property boundary, which are connected to an oil water separator west of the dispenser islands. Two catch basins, located in 84th Avenue South along the southwestern Property boundary are connected to the storm drain running southwest to a drainage ditch.

Potable water is supplied by the City of Kent and sourced from various aquifers including Clark Springs and Kent Springs, both of which are more than 1 mile from the Property, along with a number of water wells located throughout the local regions. Of the City's 20 water supply wells, only one well is located within the approximate 1-mile radius of the Property. This well is referred to as the City's O'Brien Well and is located approximately 4,700 feet northeast of the Property and screened across the deep aquifer between depths ranging from 192 to 246 feet bgs. Based on the cross-gradient location, distance from the Property, and the aquifer depth, this well is not likely to be adversely affected by the release at the Site.

Based on well logs publicly available through the Ecology database, seven additional water wells are located within 0.5 mile of the Property. Detailed information of these seven wells is as followed:

Well Name/Location	Direction	Distance (mile)	Well Type	Depth (feet bgs)	Screen Interval (feet bgs)
Silver Springs Apartments	E (up-gradient to cross-gradient)	0.2	Dewater	30	10-30
Raymond R and Florence B. Reiter	NE (cross-gradient)	0.3	Unknown	180	170-180
Carpinito Brothers	S (cross-gradient)	0.35	Irrigation	377	355-375
O'Brien Water Users Associates (private well)	E (up- and cross-gradient)	0.39	Unknown	170	150-170
Sears Logistic Center	SW (cross-gradient)	0.47	Dewater	30	10-30
City of Kent	N (cross-gradient)	0.49	Dewater	33.5	13.5-33.5
Alderbrook Apartments	SW (cross-gradient)	0.49	Dewater	35	15-35

Based on the up-gradient or cross-gradient locations, distances from the Property, and well screen depths, it is unlikely that the two wells with unknown use (possible supply well use) would be adversely affected by the release at the Site.

2.7 POTENTIAL SOURCES OF CONTAMINATION FROM NEIGHBORING PROPERTIES

Based on Ecology's LUST database, there are two active LUST sites located within a 0.5-mile radius of the Property. A chemical facility (Liquid Air) is located approximately 0.3 mile northwest (down-gradient) of the Property. A release was reported to Ecology in 1990 and the facility status is "Cleanup Started" as of July 2011. Non-Halogenated Solvents were suspected above MTCA Method A cleanup levels in soil and groundwater at this site. A produce farm (Carpinito Brothers) is located approximately 0.36 miles south (approximately cross-gradient) of the Property. A release was reported to Ecology in 1999 and the facility status is "Reported Cleanup" as of January 2002. Based on the down-gradient or cross-gradient locations, distance from the Property, or the cleanup status, the two LUST sites are not considered a potential source of contamination to the Property. In addition, a total of eleven LUST sites are located between 0.5 miles and 1 mile of the Property. However, based on the down-gradient and/or cross-gradient

locations of these LUST sites, they are not likely potential sources of contamination to the Property.

3.0 NATURAL CONDITIONS

3.1 GEOLOGY

The Site is located in the Duwamish Valley, a former marine embayment filled with alluvial deposits from the Duwamish and Green Rivers. The Site is underlain by soil consisting of medium grained sand with various amounts of gravel and silt to the explored depth of 15.5 feet bgs. All soil sampling locations are presented on Figure 4 and the cross sections depicting subsurface soil characteristics are included as Figures 5 and 6.

3.2 GROUNDWATER

The Property is located in the Puget-Willamette Trough lowland regional aquifer between the Cascade and Olympic Mountain ranges in Washington. Shallow groundwater beneath the Site is present within a perched water bearing zone consisting of unconsolidated sediments with an average depth of approximately 6.8 feet bgs. Maximum historical high and low have been recorded at monitoring wells on the Property at approximately 4.51 and 9.86 feet bgs, respectively. Historical depth to groundwater beneath the Site has remained generally consistent over time. Seasonal fluctuations at the Site are typical, with higher groundwater elevations in the winter and spring and lower groundwater elevations in summer and fall. Groundwater flow direction at the Site appears to be predominantly west-northwest (Figure 7). There are also components of southwesterly and northeasterly flows. The hydraulic gradients have generally ranged from 0.002 to 0.006 feet per foot. Table 2 presents historical groundwater elevations and groundwater monitoring data.

3.3 SURFACE WATER

Surface waters near the Site include the Green River, located approximately 2.2 miles west and a creek or drainage ditch located approximately 1800 feet west. The drainage ditch appears to be a comprehensive drainage system for surface water in the local regions. At the Property, surface water run-off drains into the catch basins located throughout the Property.

3.4 TERRESTRIAL AND ECOLOGICAL RECEPTORS

The Site qualifies for an exclusion from further terrestrial ecological evaluation (TEE) because there is less than 1.5 acres of contiguous undeveloped land within 500 feet of the Site. The TEE exclusion form and an aerial map depicting a 500-foot radius surrounding the Site are included in Appendix E.

4.0 CONTAMINANT OCCURRENCE AND MOVEMENT

4.1 SUMMARY OF PREVIOUS AND RECENT INVESTIGATIONS

The following reports summarize previous environmental investigations completed approximately between 2003 and 2011:

- *2003 GRASP Site Assessment Report, KHM*
- *2007 Station Upgrade - Soil Sampling Report, Delta*
- *2008 Due Diligence Site Assessment, Delta*
- *2010 Remedial Investigation Report, Delta*
- *2012 Subsurface Investigation Report, CRA*

A complete chronological summary of the previous Site investigations is included as Appendix D. A summary of historical soil analytical data is presented in Table 1 and a summary of groundwater monitoring results is presented in Table 2. All available historical boring logs for the previous investigations are included in Appendix E.

4.2 SOIL

Multiple soil investigations have been conducted at the Site between 2007 and 2011. Figure 4 presents the locations of all soil sampling conducted during the investigation activities at the Site. A summary of all soil sample locations submitted for analyses, including the date of the sample, depth, consultant performing sampling, and analytical methods and results are presented in Table 1. The majority of soil sampling has been conducted in the vicinity of dispenser islands at western portion of the Property. The depths of soil samples collected ranged from 0.5 to 5.0 feet bgs.

The extent of soil impacts has been defined to the extent practicable and is confined to the Property boundary. Soil impacts were limited to areas underneath the northern pump dispensers, as well as within two localized areas northeast and southeast of the dispenser islands. The soil impacts were defined to north by B-5, to east by B-4, B-3 and

MW-1, to the south by B-2, and to the west by B-1, MW-2, and MW-5. The locations of historical soil samples exceeding MTCA Method A screening levels are presented in Figure 4.

Historically, four soil samples collected during dispenser island upgrade in 2007 contained concentrations of petroleum hydrocarbons exceeding MTCA Method A screening levels: two samples D-3-4.0 and D-4-4.0 from underneath the northern dispenser islands at approximately 4.0 feet bgs, and two samples SE-1-0.5 and NE-1-0.5 at approximately 0.5 feet bgs located southeast and northeast of dispenser islands, respectively. In 2011, CRA advanced two soil borings, SB-6 and SB-7, adjacent to the locations of the historical impacted soil samples SE-1-0.5 and NE-1-0.5. Analytical results confirmed all petroleum hydrocarbon concentrations to be below MTCA Method A screening levels, indicating natural degradation has occurred over the approximate 4-year period.

Due to the presence of underground utilities and product lines, confirmatory soil sampling was not completed at the inaccessible historically impacted D-3-4.0 and D-4-4.0 locations at the north pump dispensers as part of the investigation in 2011. Therefore, the current concentrations of petroleum hydrocarbon compounds at these two inaccessible locations were estimated using the analytical model for petroleum source depletion via biodegradation. The analytical model assumes a first-order decay rate and is expressed with the following equations:

$$k = \left(\ln \left(\frac{N}{N_0} \right) \right) \times \left(\frac{1}{t} \right)$$

$$N = N_0 e^{-kt}$$

where:

k = degradation constant

N_0 = initial soil concentration

N = final soil concentration

t = the time period between the initial and final sampling in years

The degradation constants for each petroleum compound were calculated based on confirmatory soil sampling data collected in 2007 and 2001 from two locations the northeast and southeast corners of the dispenser islands with sample pairs of SB-7 and NE-1-0.5, and SB-6 and SE-1-0. Based on the calculations, the more conservative degradation constant was then used to estimate the current residual petroleum compound concentrations.

Appendix F presents the TPH degradation calculation results which indicate the concentration of TPH as gasoline (TPHg) at sample D-3-4.0 has degraded from

1580 milligrams per kilogram (mg/kg) in 2007 to an estimated current value of 3.19 mg/kg, which is below the MTCA Method A screening level. Concentrations of TPH as diesel (TPHd) at sample D-4-4.0 have degraded from 3920 mg/kg in 2007 to an estimated current value 1001.87 mg/kg, which is also below the MTCA Method A screening level. Similarly, concentrations of benzene, toluene, ethylbenzene, and total xylenes (BTEX) at the historical D-3-4.0 location have also been shown to degrade to below MTCA Method A screening levels. Thus, no soil impact exceeding the MTCA Method A screening levels remains at the Site.

4.3 GROUNDWATER

A total of five groundwater monitoring wells have been installed at the Site. Wells MW-1 through MW-3 were installed in 2002, well MW-4 was installed in 2008, and well MW-5 was installed in 2011. MW-5 was installed in response to Ecology's Further Action Letter dated May 3, 2010 stating that MW-3 was not adequate in capturing groundwater conditions due to soil impact beneath the north pump dispensers and that an additional monitoring well was needed at a location closer to former boring B6 to observe for potential groundwater impact. The locations of all monitoring wells at the Site are presented in Figure 2. Groundwater monitoring has been conducted since 2003 on a quarterly to semi-annually basis and quarterly beginning in May 2008. Table 2 presents available groundwater monitoring data to date. The groundwater contour and chemical concentration map for the May 2012 sampling event including a rose diagram depicting groundwater flow directions since 2003 is presented in Figure 7.

In general, benzene and total lead have been the only two compounds historically detected in groundwater at the Site. Benzene was detected at elevated concentrations at MW-2 during the three sampling events (one of which was a confirmational follow up) between May 2007 and October 2007. No benzene concentrations exceeding the MTCA Method A screening level have been detected since 2007. Elevated total lead concentrations historically have been detected at MW-1 and MW-4, likely due to the presence of suspended solids. No elevated lead concentrations have been detected since August 2009.

At well MW-5, abnormal and elevated TPHd and TPHo concentrations were reported by the laboratory in April 2012. Successive, follow up sampling later in April and May 2012 confirmed no detection of TPHd and TPHo, indicating the anomalous elevated concentrations were likely due to a laboratory error in sample handling.

Groundwater in all Site monitoring wells currently do not contain petroleum hydrocarbon concentrations above MTCA Method A screening levels.

4.4 SURFACE WATER

No surface water has been sampled as there has been no indication that surface water has been impacted from the Site.

4.5 AIR/SOIL VAPOR

There have been no investigations of soil vapor at the Site. Based on the concentrations and depths of historical and current soil and groundwater, and current and likely future use of the Property as a retail gasoline service station or commercial business, potential impact to the Site from soil vapor is unlikely.

4.6 SEDIMENT

No indication of surface water impact has been identified in association with the Site; therefore, no sediment sampling has been conducted.

5.0 CONCEPTUAL MODEL

Petroleum hydrocarbons appeared to be released into soil at the service station sometime around 2007 with the detections of benzene in groundwater at MW-2 and TPH and BTEX in soils at the dispenser islands. It is not certain how the release occurred, but the source of the release was likely from the dispenser islands and associated conveyance piping. Excavation activities completed during the 2007 dispenser island upgrade reduced the extent of petroleum-impacted soil. However, soils containing residual hydrocarbon concentrations above the MTCA Method A screening levels were left in-place at the time, underneath north pump dispensers, and at the northeast and southeast corners of the dispenser islands.

The Property has been capped by asphalt and concrete since development and therefore has not been exposed to infiltrating surface water. Subsurface soils at the Site are generally comprised of medium grained sand with various amounts of gravel and silt to the explored depth of 15.5 feet bgs. Groundwater beneath the Site is shallow with a predominant flow direction of west-northwest and an average depth of approximately 6.8 feet bgs. All historical soil impacts were detected at depths ranging between approximately 0.5 and 4.0 feet bgs. Elevated benzene concentrations above the MTCA Method A screening level in well MW-2 located adjacent to the southwest pump dispenser could have been the result of the soil to groundwater leaching pathway or the

result of surface infiltration through the trench drains surrounding the dispenser island. However, at least four consecutive quarters of clean groundwater in all Site monitoring wells indicate that residual soil concentrations have likely degraded and are no longer impacting groundwater.

Based on current soil data and appropriate source depletion calculations for the remaining soil concentrations of petroleum compounds at historically impacted locations, no impacted soil remains above the MTCA Method A screening levels, and therefore, the direct soil contact pathway is not complete.

Based on the distance to the nearby surface water, the groundwater to surface water and the soil leaching to surface water pathways are incomplete. Based on the TEE, the historical petroleum release at the Site does not appear to pose any risk to terrestrial and ecological receptors; this exposure pathway is incomplete. Based on the current and likely future use of the Property and current soil and groundwater conditions, soil vapor concentrations of petroleum hydrocarbon compounds are not likely a potential risk to human health.

6.0 CLEANUP STANDARDS – SOIL AND GROUNDWATER

In accordance with MTCA, development of cleanup levels includes identifying potential exposure pathways for humans and environmental impacts based on the planned land use. The Property is currently zoned for commercial use, and future zoning is not anticipated to change. The constituents of concern (COCs) based on current and past use of the Property include the compounds listed in MTCA 173-340-900 Table 830-1 *Required Testing for Petroleum Releases*.

6.1 GROUNDWATER

MTCA Method A groundwater cleanup levels for the COCs at the Site are used. The point of compliance for this Site is defined as the point at which the groundwater cleanup level must be attained; thus, the point of compliance is the entire Site. The groundwater cleanup levels are presented in Table 2.

6.2 SOIL

Based on the potential for future beneficial use of groundwater in this area, MTCA Method A soil cleanup levels are used. The point of compliance for soil cleanup levels based on the protection of groundwater is all soil throughout the site to groundwater. The soil cleanup levels are presented in Table 1.

7.0 INTERIM ACTIONS

During the June 2007 station upgrades, soil was removed from underneath the four dispenser islands in order to replace equipment associated with the fueling dispensers and the concrete pad was removed in order to remove the old dispensers. Soil underneath the southeastern dispenser island has been over-excavated as a result of the soil discoloration and odor. Soil removed from this location (approximately 250 pounds, stored in a 55-gallon drum) was transported off-Site to a treatment and disposal facility.

8.0 AREAS REQUIRING FUTURE MANAGEMENT

8.1 CONSTITUENTS OF CONCERN

The potential COCs based on current and past use of the Property include the compounds listed in MTCA 173-340-900 Table 830-1 *Required Testing for Petroleum Releases*. Soils at the Site have been sampled for TPHg, TPHd, TPHo, BTEX, methyl tertiary-butyl ether (MTBE), tertiary-amyl methyl ether (TAME), tertiary butyl alcohol (TBA), di-isopropyl ether (DIPE), ethyl-tertiary-butyl ether (ETBE), total lead, and naphthalene. Based on current soil concentrations from laboratory analytical data and from TPH degradation calculations, no COCs above MTCA Method A cleanup levels remain at the Site. Groundwater at the Site has been sampled for TPHg, TPHd, TPHo, BTEX, 1,2-dibromoethane (EDB), 1,2-dichloroethane (EDC), MTBE, TAME, TBA, DIPE, ETBE, total lead, and ethanol. Based on the current Site monitoring results, no COCs above MTCA Method A cleanup levels remain at the Site.

8.2 SOIL - VERTICAL AND LATERAL

Soil impacts have been delineated vertically and laterally to the extents practicable at the Site. Figure 8 presents current soil conditions. The historic soil impacts southeast and northeast of the dispenser islands, represented by soil samples SE-1-0.5 and NE-1-0.5, have been confirmed below MTCA Method A cleanup levels by confirmatory soil samples SB-6 and SB-7. The historic soil impacts underneath the northwest and northeast dispenser, represented by soil samples D-3-4.0 and D-4-4.0, have been confirmed below MTCA Method A cleanup levels by TPH degradation calculations. No petroleum hydrocarbons concentrations exceeding MTCA Method A cleanup levels remain on Site; therefore no future soil management is necessary.

8.3 GROUNDWATER - VERTICAL AND LATERAL

Figure 7 presents the most recent groundwater concentrations and Table 2 summarizes historical groundwater analytical results for Site monitoring wells. Except for well MW-5, concentrations of COCs in groundwater samples from all Site monitoring wells have been either below the MTCA Method A cleanup levels or laboratory reporting limits for four or more quarters. At well MW-5, the anomalous detection of TPHd and TPHo was due to a laboratory error. The two successive sampling events with no COC detection, along with the prior two clean quarters of sampling, adequately demonstrate that there is no groundwater impact at MW-5, as concurred by Ecology during the July 5, 2012 meeting. All COCs have been confirmed to be non-detect since well installation and during the seasonal high and low flows. No future groundwater management is necessary.

9.0 REQUEST FOR NO FURTHER ACTION

The Site has been adequately characterized to show that current soil beneath the Property does not exceed the MTCA Method A cleanup levels indicating no direct contact exposure risks. Current groundwater beneath the Site does not exceed the MTCA Method A cleanup levels, indicating groundwater conditions are protective of potential potable groundwater use with no associated risks. The Site meets the criteria required for exclusion from further TEE, confirming that the Site is protective of the terrestrial environment. It is unlikely that the Site poses a risk to nearby surface waters, human health, or ecological receptors. Based on the information contained in this CA report, CRA requests a No Further Action determination for the Site.

10.0 REFERENCES

GRASP Site Assessment Report, KHM Environmental Management, Inc. April 1, 2003

Station Upgrade - Soil Sampling Report, Delta Consultants, September 4, 2007

Due Diligence Site Assessment, Delta Consultants, August 25, 2008

Remedial Investigation Report, Delta Consultants, January 13, 2010

Subsurface Investigation Report, Conestoga-Rovers & Associates, April 10, 2012

City of Kent 2008 Draft Water System Plan, PACE Engineers, Inc., 2008

City of Kent Zoning Map (2012)

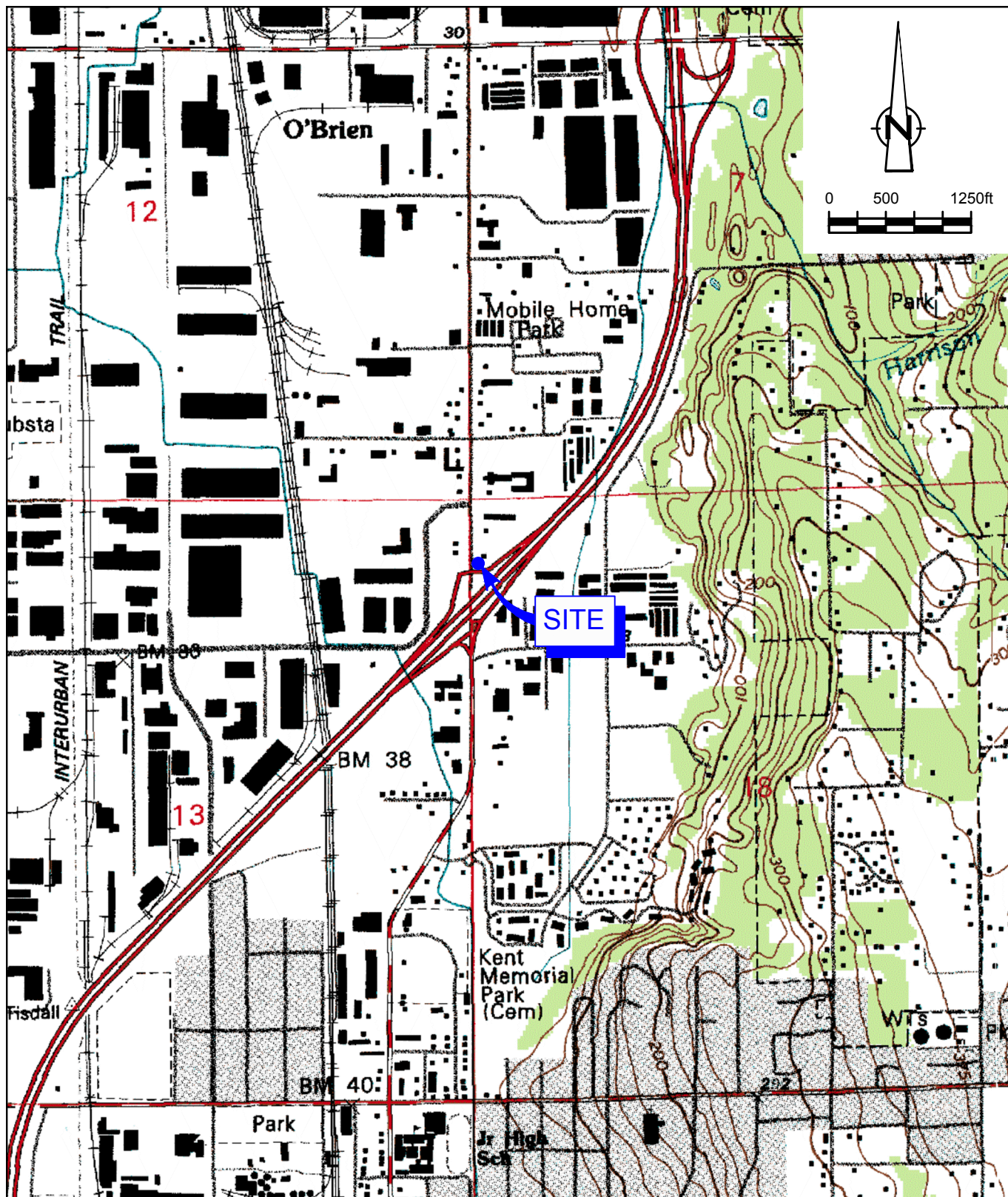
<http://www.ci.kent.wa.us/publicworks/maps.aspx> [Access July 12, 2012]

State of Washington, Department of Ecology, *Model Toxics Control Act*, Publication No. 94-06, Revised November 2007.

State of Washington, Department of Ecology-Integrated Site Information System Database. <http://www.ecy.wa.gov/database.html> [Accessed April 28, 2012]

State of Washington, Department of Ecology-Terrestrial Ecological Evaluation. <http://www.ecy.wa.gov/programs/tcp/policies/terrestrial/TEEHome.htm> [Access May 3, 2012]

FIGURES

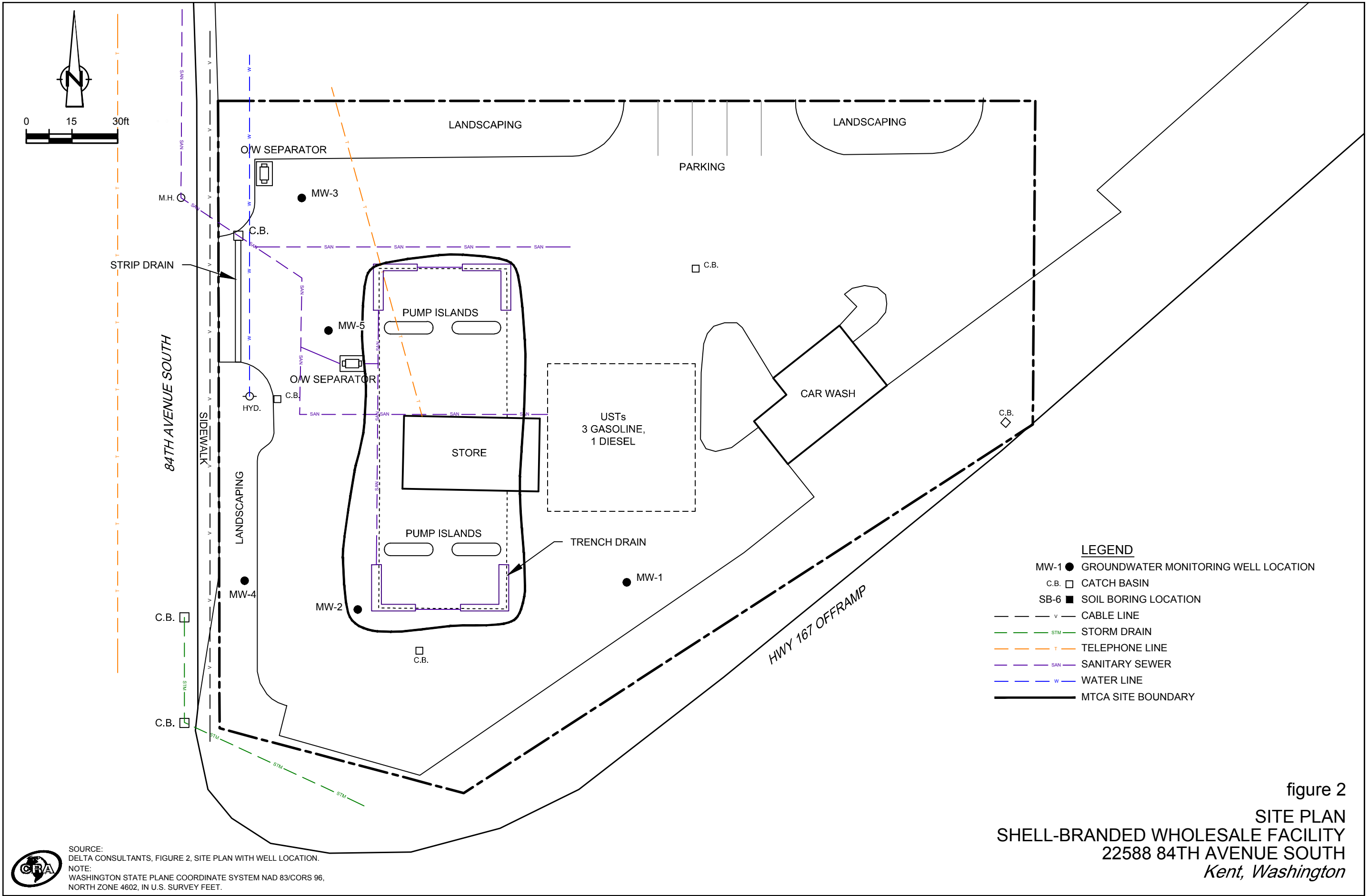


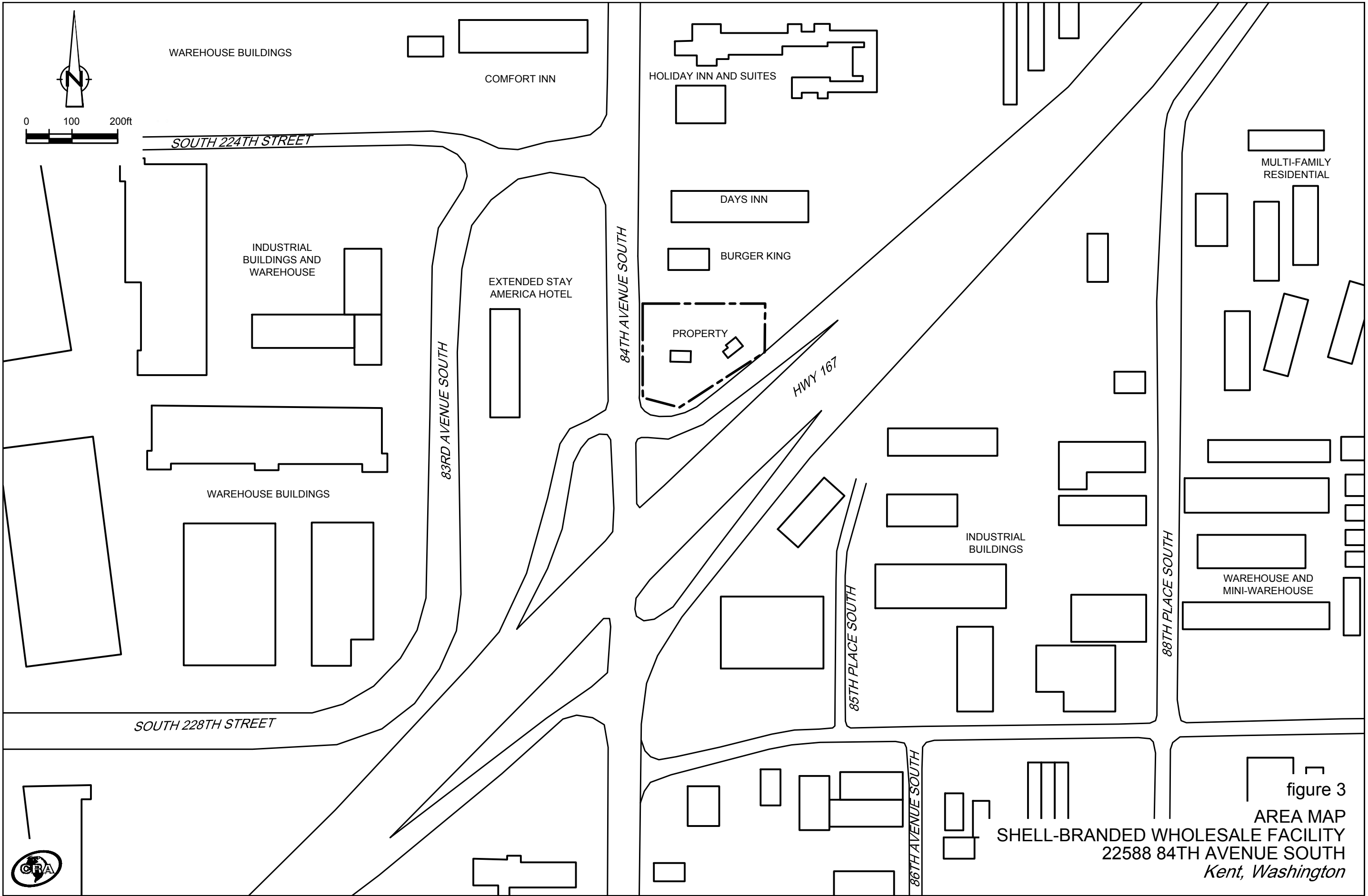
SOURCE: USGS QUADRANGLE MAP: RENTON, WA.

figure 1

VICINITY MAP
SHELL-BRANDED WHOLESALE FACILITY
22588 84TH AVENUE SOUTH
Kent, Washington







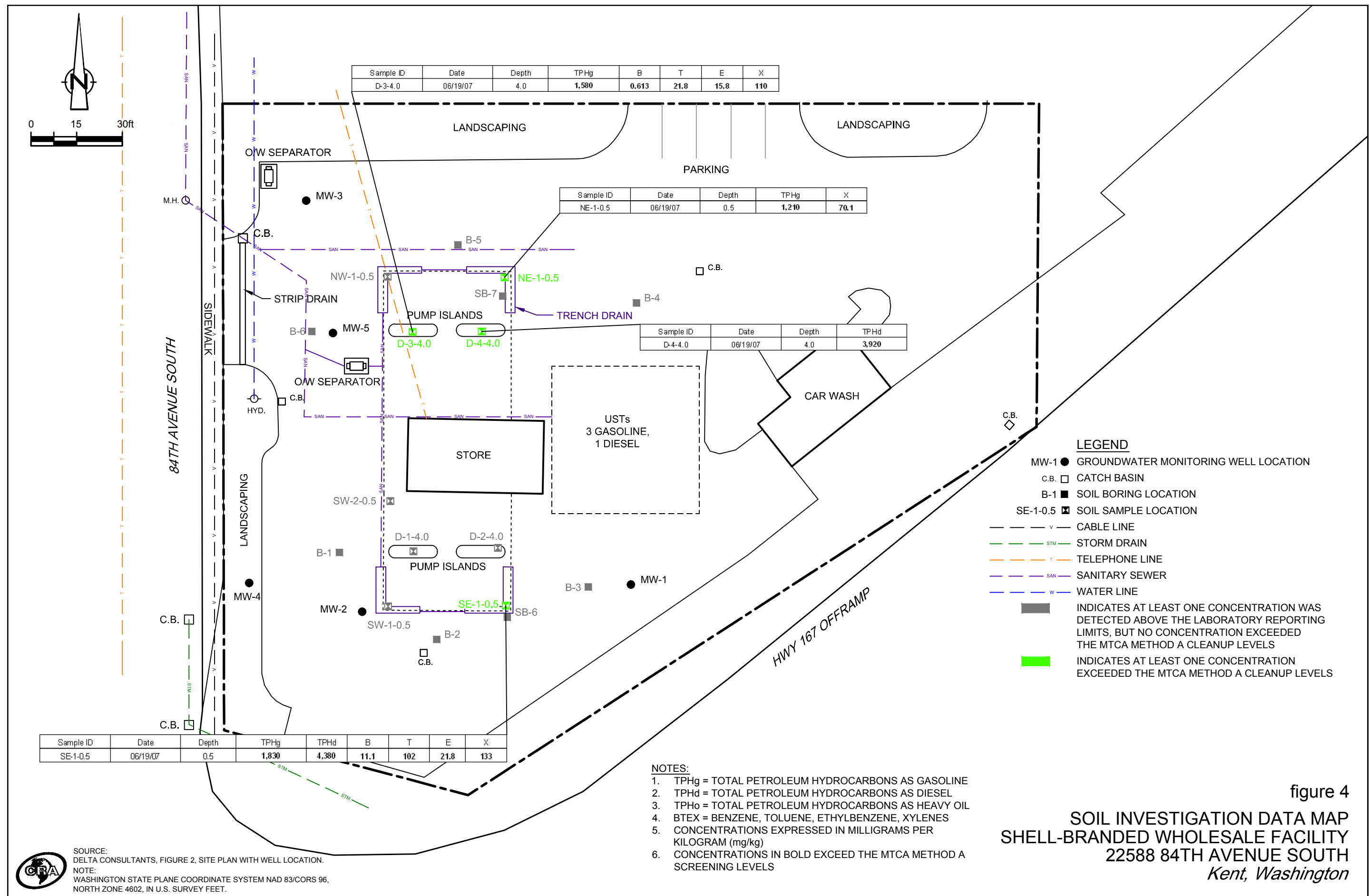
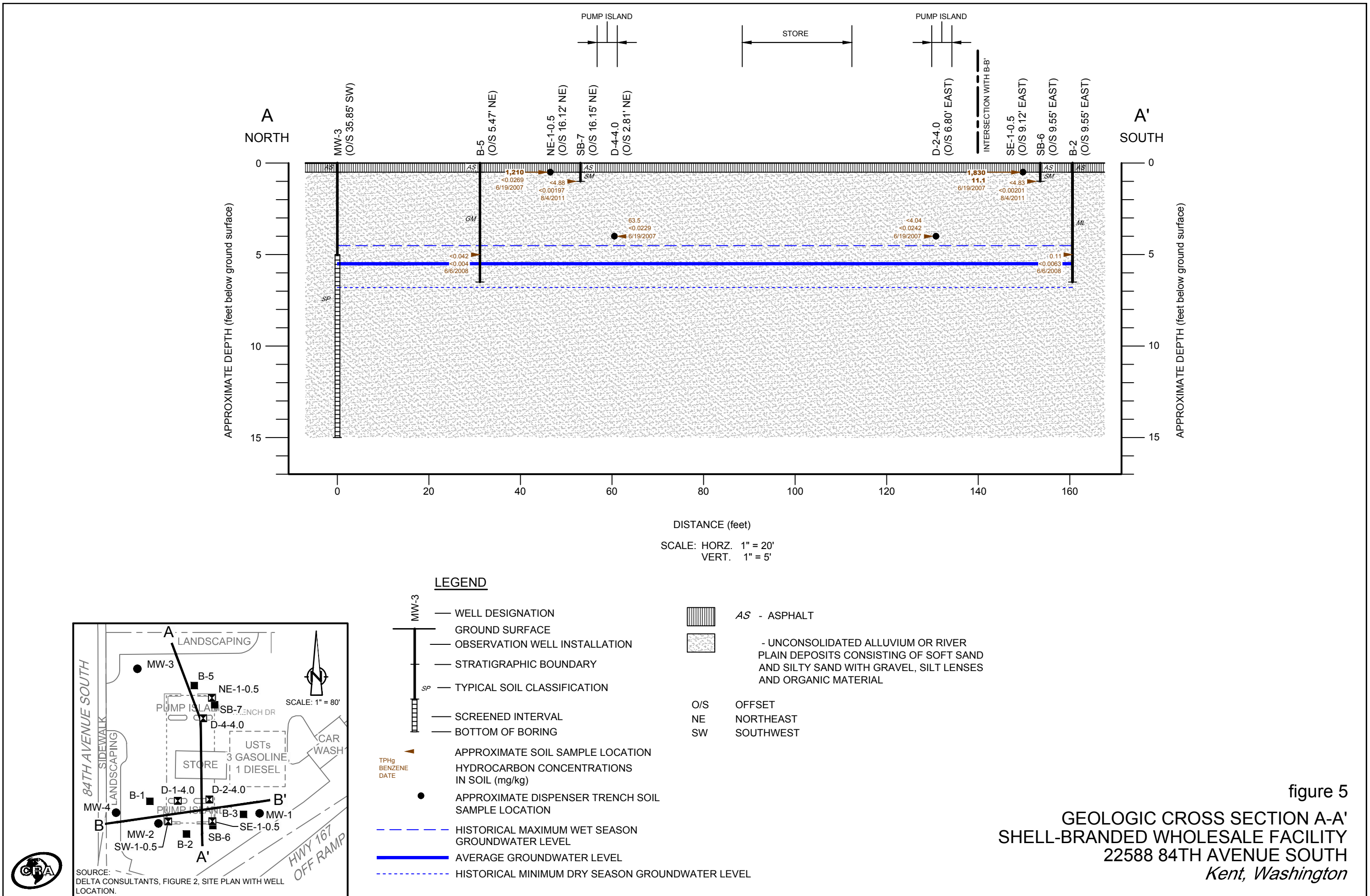
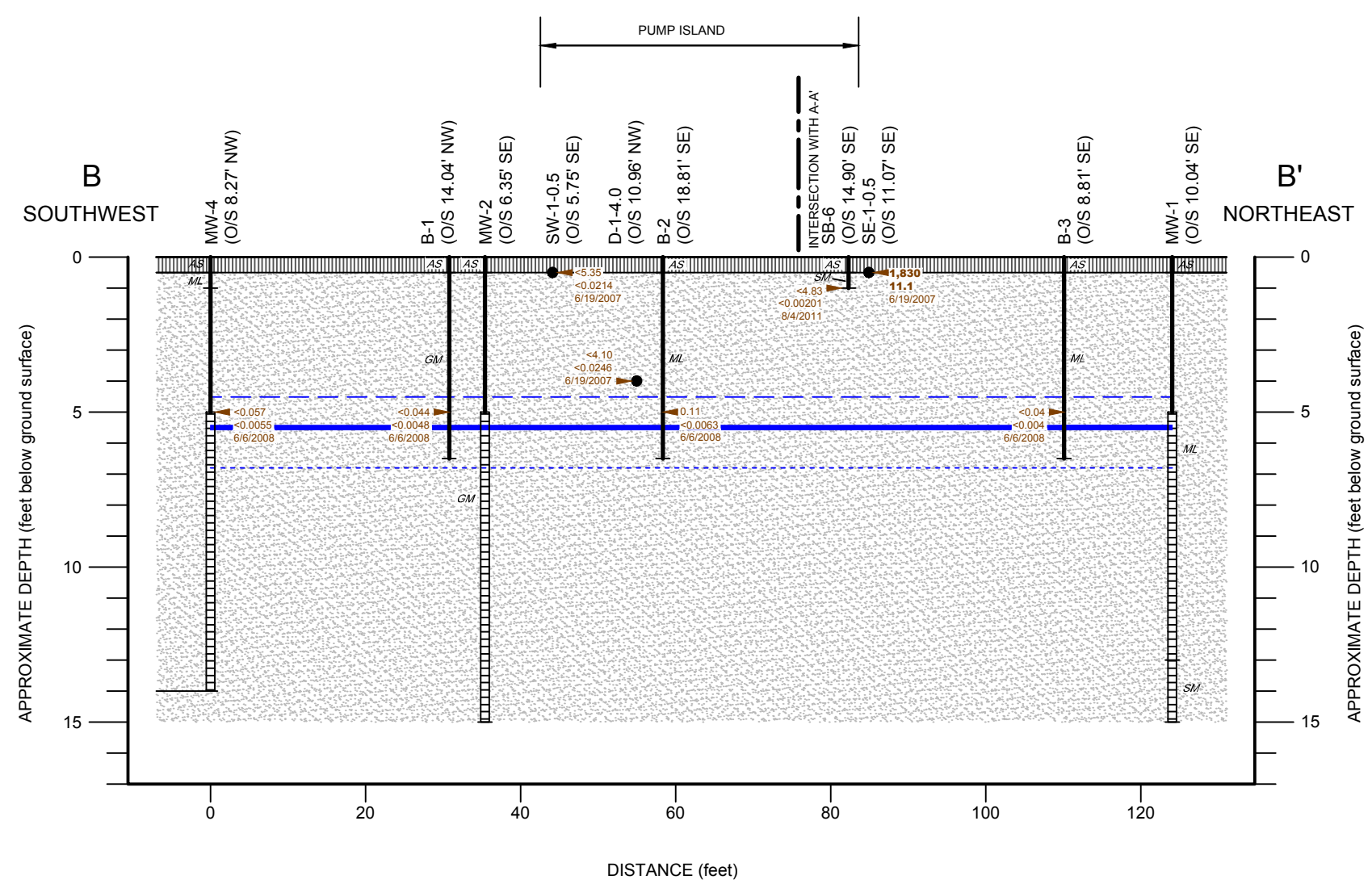


figure 4

SOIL INVESTIGATION DATA MAP
SHELL-BRANDED WHOLESALE FACILITY
22588 84TH AVENUE SOUTH
Kent, Washington





LEGEND

- WELL DESIGNATION
- GROUND SURFACE
- OBSERVATION WELL INSTALLATION
- STRATIGRAPHIC BOUNDARY
- TYPICAL SOIL CLASSIFICATION
- SCREENED INTERVAL
- BOTTOM OF BORING
- ▲ APPROXIMATE SOIL SAMPLE LOCATION
- APPROXIMATE DISPENSER TRENCH SOIL SAMPLE LOCATION
- HISTORICAL MAXIMUM WET SEASON GROUNDWATER LEVEL
- AVERAGE GROUNDWATER LEVEL
- HISTORICAL MINIMUM DRY SEASON GROUNDWATER LEVEL
- AS - ASPHALT
- UNCONSOLIDATED ALLUVIUM OR RIVER PLAIN DEPOSITS CONSISTING OF SOFT SAND AND SILTY SAND WITH GRAVEL, SILT LENSES AND ORGANIC MATERIAL
- O/S OFFSET
- NE NORTHEAST
- SW SOUTHWEST

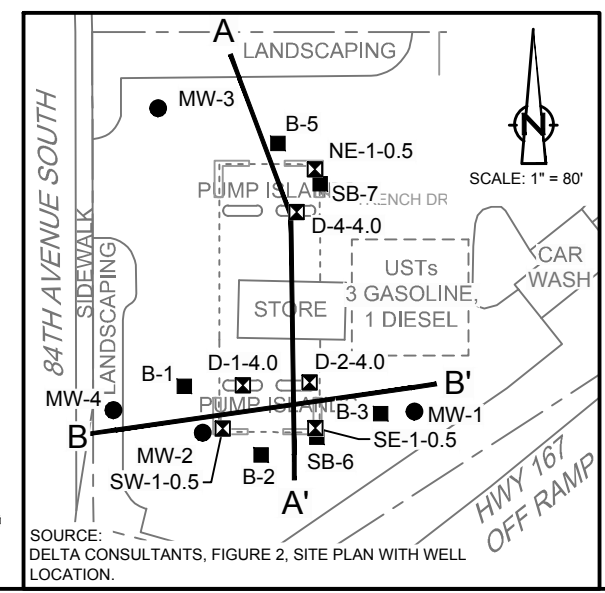
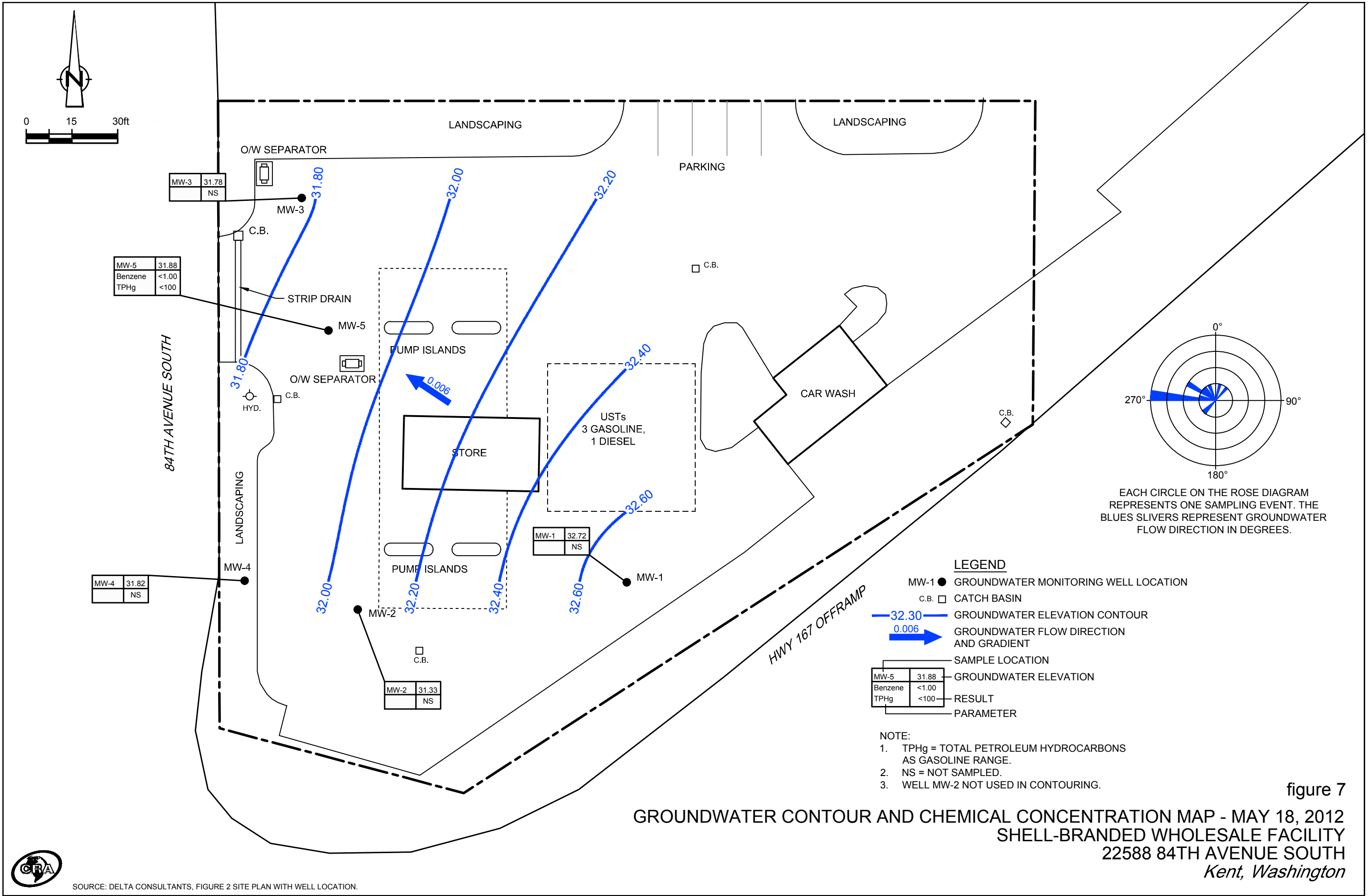


figure 6
GEOLOGIC CROSS SECTION B-B'
SHELL-BRANDED WHOLESALE FACILITY
22588 84TH AVENUE SOUTH
Kent, Washington



SOURCE: DELTA CONSULTANTS, FIGURE 2 SITE PLAN WITH WELL LOCATION.

TABLES

TABLE 1

SUMMARY OF SOIL ANALYTICAL DATA
SHELL-BRANDED WHOLESALE FACILITY
22588 84TH AVENUE SOUTH
KENT, WASHINGTON

Sample ID	Consultant	Sample Date	Sample Depth MTCA Method A Cleanup Level ft	HYDROCARBONS			PRIMARY VOCs				OXYGENATES					LEAD	PAHs
				TPHg	TPHd	TPHo	B	T	E	X	MTBE	TAME	TBA	DIPE	ETBE	Total	Naphthalene
				30/100	2000	2000	0.03	7	6	9	0.1	NE	NE	NE	NE	250	5
				(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
D-1-4.0	Delta 2007	6/19/2007	4.0	<4.10	<11.0	<27.5	<0.0246	<0.0820	<0.0820	<0.246	<0.410	--	--	--	--	2.49	--
D-2-4.0	Delta 2007	6/19/2007	4.0	<4.04	139	<26.3	<0.0242	<0.0808	<0.0808	<0.242	<0.404	--	--	--	--	2.37	--
D-2-2-1.0	Delta 2007	6/19/2007	1.0	4,760	13,100	297	19.9	201	59.1	380	<2.42	--	--	--	--	2.28	--
D-3-4.0	Delta 2007	6/19/2007	4.0	1580 a	86.3	<29.6	0.613 a	21.8 a	15.8 a	110 a	<5.11	--	--	--	--	3.13	--
D-4-4.0	Delta 2007	6/19/2007	4.0	63.5	3920 a	<138	<0.0229	<0.0764	<0.0764	<0.229	<0.382	--	--	--	--	3.53	--
SW-1-0.5	Delta 2007	6/19/2007	0.5	<5.35	<12.4	<31.0	<0.0214	<0.107	<0.107	<0.321	<0.535	--	--	--	--	2.24	--
SW-2-0.5	Delta 2007	6/19/2007	0.5	<5.01	<11.3	<28.2	<0.0201	<0.100	<0.100	<0.301	<0.501	--	--	--	--	2.83	--
SE-1-0.5	Delta 2007	6/19/2007	0.5	1830 b	4380 b	557	11.1 b	102 b	21.8 b	133 b	<0.433	--	--	--	--	5.05	--
NW-1-0.5	Delta 2007	6/19/2007	0.5	<4.82	<11.1	51.1	<0.0289	<0.0964	<0.0964	<0.289	<0.482	--	--	--	--	3.29	--
NE-1-0.5	Delta 2007	6/19/2007	0.5	1210 c	385	224	<0.0269	0.608	4.34	70.1 c	<0.448	--	--	--	--	3.17	--
B1-5	Delta 2008	6/6/2008	5.0	<0.044	<62	280	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.096	<0.0096	<0.0048	18.5	
B2-5	Delta 2008	6/6/2008	5.0	0.11	13	<13	<0.0063	<0.0063	<0.0063	<0.0063	<0.0063	<0.0063	<0.130	<0.013	<0.0063	3.2	--
B3-5	Delta 2008	6/6/2008	5.0	<0.049	6.8	25	<0.0048	<0.0048	<0.0048	<0.00483	<0.0048	<0.0048	<0.097	<0.0097	<0.0048	10.6	--
B4-5	Delta 2008	6/6/2008	5.0	0.13	<23	74	<0.004	<0.004	<0.004	<0.00401	<0.004	<0.004	<0.080	<0.008	<0.004	5.49	--
B5-5	Delta 2008	6/6/2008	5.0	<0.042	20	79	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.080	<0.008	<0.004	4.97	--
B6-5	Delta 2008	6/6/2008	5.0	<0.051	<29	100	<0.0047	<0.0047	<0.0047	<0.00471	<0.0047	<0.0047	<0.094	<0.0094	<0.0047	25	--
B7-5 (MW-4)	Delta 2008	6/6/2008	5.0	<0.057	12	<13	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.110	<0.011	<0.0055	5.36	--
SO-060561-080411-NH-SB-6-1 d	CRA 2011	8/4/2011	1	<4.83	16.4	25.3	<0.00201	0.00326	<0.00201	<0.00502	--	--	--	--	--	--	<0.00502
SO-060561-080411-NH-SB-7-1 d	CRA 2011	8/4/2011	1	<4.88	98.4	34.8	<0.00197	<0.00197	<0.00197	<0.00493	--	--	--	--	--	--	<0.00493

Notes/Abbreviations

TPHg = Total petroleum hydrocarbons as gasoline range organics analyzed by NWTPH-Gx
TPHd = Total petroleum hydrocarbons as diesel range organics analyzed by NWTPH-Dx with Silica Gel Cleanup
TPHo = Total petroleum hydrocarbons as heavy oil range organics analyzed by NWTPH-Dx with Silica Gel Cleanup
BTEX = Benzene, toluene, ethylbenzene, xylenes analyzed by EPA Method 8260B
VOCs = Volatile organic compounds
MTBE = Methyl tertiary-butyl ether analyzed by EPA Method 8260B
TBA = Tertiary-butanol analyzed by EPA Method 8260B
DIPE = Di-isopropyl ether analyzed by EPA Method 8260B
ETBE = Ethyl tertiary-butyl ether analyzed by EPA Method 8260B
TAME = Tertiary-amyl methyl ether analyzed by EPA Method 8260B
Total lead analyzed by EPA Method 6020
mg/kg = milligrams per kilogram
NE = Not established

TABLE 1

SUMMARY OF SOIL ANALYTICAL DATA
SHELL-BRANDED WHOLESALE FACILITY
22588 84TH AVENUE SOUTH
KENT, WASHINGTON

Sample ID	Consultant	Sample Date	Sample Depth	HYDROCARBONS			PRIMARY VOCS				OXYGENATES					LEAD	PAHs
				TPHg	TPHd	TPHo	B	T	E	X	MTBE	TAME	TBA	DIPE	ETBE	Total	Naphthalene
				MTCA Method A Cleanup Level	30/100	2000	2000	0.03	7	6	9	0.1	NE	NE	NE	NE	5
				ft	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)

<x = Not detectable above reporting limit x

-- = Not analyzed

Bolded concentrations indicate the concentration value exceeded the MTCA Method A cleanup level

Shading indicates that sample was over-excavated.

a = Concentration was shown to be below MTCA Method A cleanup level through TPH degradation calculation.

b = Concentration was confirmed by data from SB-6-1 sample to be below MTCA Method A cleanup level.

c = Concentration was confirmed by data from SB-7-1 sample to be below MTCA Method A cleanup level.

d = Sample also analyzed for volatile petroleum hydrocarbons by method NWVPH, extractable petroleum hydrocarbons by method NWEPH, and n-hexane by EPA Method 9071. See the applicable laboratory report for more information.

TABLE 2

SUMMARY OF GROUNDWATER MONITORING DATA
SHELL-BRANDED WHOLESALE FACILITY
22588 84TH AVENUE SOUTH
KENT, WASHINGTON

Sample ID	Date	TOC	DTW	GWE	HYDROCARBONS			PRIMARY VOCs						OXYGENATES					LEAD	
					TPHg	TPHd	TPHo	B	T	E	X	EDB	EDC	MTBE	DIPE	ETBE	TAME	TBA	Total	Ethanol
					800/1000 ug/L	500 ug/L	500 ug/L	5 ug/L	1000 ug/L	700 ug/L	1000 ug/L	0.01 ug/L	5 ug/L	20 ug/L	NE ug/L	NE ug/L	NE ug/L	NE ug/L	15 ug/L	NE ug/L
MW-1	01/16/03	38.00	5.50	32.50	<250	<250	<500	<1	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	--
MW-1	04/22/03	38.00	5.07	32.93	<250	--	--	<1	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	--
MW-1	07/22/03	38.00	7.42	30.58	<250	--	--	<1	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	--
MW-1	10/16/03	38.00	6.20	31.80	<250	--	--	<1	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	<5,000
MW-1	04/28/04	38.00	5.43	32.57	<250	<250	<500	<1	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	<5,000
MW-1	10/19/04	38.00	6.05 a	38.00	<250	<250	<500	<1	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	<5,000
MW-1	04/11/05	38.00	6.14	31.86	<250	<250	<500	<1	<1	<1	<1	--	--	<1	<2	<2	<5	<50	--	<5,000
MW-1	10/26/05	38.00	7.45	30.55	<50	<250	<500	<1	<1	<1	<1	--	--	<1	<2	<2	<5	<50	--	<5,000
MW-1	04/26/06	38.00	5.47	32.53	<50	<245	<490	<0.500	<0.500	<0.500	<3.00	--	--	<5.00	<1.00	<1.00	<1.00	<50.0	--	<150
MW-1	10/26/06	38.00	7.33	30.67	<50	<243	<485	<0.500	<0.500	<0.500	<3.00	--	--	<5.00	<1.00	<1.00	<1.00	<50.0	--	<250
MW-1	05/03/07	38.00	5.23	32.77	<50.0	<236	<472	<0.500	<0.500	<0.500	<3.00	--	--	<5.00	<1.00	<1.00	<1.00	<50.0	--	<250
MW-1	10/29/07	38.00	6.60	31.40	<50.0	<250	<500	<0.500	<0.500	<0.500	<3.00	--	--	<1.00	--	--	--	--	35.3	--
MW-1	05/13/08	38.00	6.02	31.98	51	<250	<500	<1	<1	<1	<1	--	--	<1	--	--	--	--	<5	--
MW-1	08/08/08	38.00	7.23	30.77	<50	<500	<1,000 d	<1	<1	<1	<1	--	--	<1	<1	<1	<1	<10	18.1	<500
MW-1	11/21/08	38.00	8.19	29.81	<50	<250	<500	<1	<1	<1	<1	--	--	<1	--	--	--	--	<5	--
MW-1	02/10/09	38.00	5.25	32.75	<100	310	<100	<0.50	<1.0	<1.0	<1.0	--	--	<1.0	<2.0	<2.0	<2.0	<10	<1.00	<100
MW-1	05/05/09	38.00	4.92	33.08	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	--	--	<1.0	--	--	--	--	251 c	--
MW-1	08/25/09	38.00	7.59	30.41	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	--	--	--	--	--	--	--	1.26	--
MW-1	11/11/09	38.00	5.10	32.90	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	--	--	<1.0	--	--	--	--	<1.00	--
MW-1	01/25/10	38.00	4.52	33.48	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	<0.010	<0.50	<1.0	<2.0	<2.0	<2.0	<10	<1.00	--
MW-1	04/27/10	38.00	4.69	33.31	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	<0.010	<0.50	--	--	--	--	--	<1.00	--
MW-1	08/04/10	38.00	6.60	31.40	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	<0.010	<0.50	<1.0	--	--	--	--	<1.00	--
MW-1	10/19/10	38.00	6.30	31.70	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	<0.010	<0.50	<1.0	--	--	--	--	<1.00	--
MW-1	04/03/12	37.77	4.75	33.02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-1	04/20/12	37.77	5.42	32.35	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-1	05/18/12	37.77	5.05	32.72	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	01/16/03	37.84	6.10	31.74	<250	<250	<500	1.5	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	--
MW-2	04/22/03	37.84	5.65	32.19	<250	--	--	1.9	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	--
MW-2	07/22/03	37.84	7.45	30.39	<250	--	--	<1	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	--
MW-2	10/16/03	37.84	7.53	30.31	<250	--	--	<1	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	<5,000
MW-2	04/28/04	37.84	6.17	31.67	<250	<250	<500	<1	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	<5,000
MW-2	10/19/04	37.84	7.00 a	37.84	<250	<250	<500	<1	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	<5,000
MW-2	04/11/05	37.84	7.12	30.72	<250	<250	<500	<1	<1	<1	<1	--	--	<1	<2	<2	<5	<50	--	<5,000
MW-2	10/26/05	37.84	7.78	30.06	<50	<250	<500	<1	<1	<1	<1	--	--	<1	<2	<2	<5	<50	--	<5,000

TABLE 2

SUMMARY OF GROUNDWATER MONITORING DATA
SHELL-BRANDED WHOLESALE FACILITY
22588 84TH AVENUE SOUTH
KENT, WASHINGTON

Sample ID	Date	TOC	DTW	GWE	HYDROCARBONS			PRIMARY VOCs						OXYGENATES					LEAD	
					TPHg	TPHd	TPHo	B	T	E	X	EDB	EDC	MTBE	DIPE	ETBE	TAME	TBA	Total	Ethanol
					800/1000 ug/L	500 ug/L	500 ug/L	5 ug/L	1000 ug/L	700 ug/L	1000 ug/L	0.01 ug/L	5 ug/L	20 ug/L	NE ug/L	NE ug/L	NE ug/L	NE ug/L	15 ug/L	NE ug/L
MW-2	04/26/06	37.84	5.92	31.92	<50	295	<490	<0.500	<0.500	<0.500	<3.00	--	--	<5.00	<1.00	<1.00	<1.00	<50.0	--	<150
MW-2	10/26/06	37.84	7.72	30.12	<50	<245	<490	<0.500	<0.500	<0.500	<3.00	--	--	<5.00	<1.00	<1.00	<1.00	<50.0	--	<250
MW-2	05/03/07	37.84	5.83	32.01	691	<236	<472	293	6.56	<2.00	<12.0	--	--	<20.0	<4.00	<4.00	<4.00	<200	--	<1000
MW-2	06/16/07 b	37.84	6.60	31.24	127	--	--	50.5	0.97	<0.500	<3.00	--	--	--	--	--	--	--	--	--
MW-2	10/29/07	37.84	7.05	30.79	55.3	<255	<510	24.9	<0.500	<0.500	<3.00	--	--	<1.00	--	--	--	--	2.91	--
MW-2	05/13/08	37.84	6.33	31.51	68	<250	<500	<1	<1	<1	3.1	--	--	<1	--	--	--	--	<5	--
MW-2	08/08/08	37.84	8.28	29.56	<50	<500	<1,000 d	<1	<1	<1	<1	--	--	<1	<1	<1	<1	<10	<5	<500
MW-2	11/21/08	37.84	5.99	31.85	<250	<250	<500	<1	<1	<1	<1	--	--	<1	--	--	--	--	<5	--
MW-2	02/10/09	37.84	5.75	32.09	<100	220	<100	<0.50	<1.0	<1.0	<1.0	--	--	<1.0	<2.0	<2.0	<2.0	<10	<1.00	<100
MW-2	05/05/09	37.84	5.62	32.22	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	--	--	<1.0	--	--	--	--	<1.00	--
MW-2	08/25/09	37.84	7.50	30.34	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	--	--	--	--	--	--	--	<1.00	--
MW-2	11/11/09	37.84	6.14	31.70	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	--	--	<1.0	--	--	--	--	<1.00	--
MW-2	01/25/10	37.84	4.99	32.85	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	<0.010	<0.50	<1.0	<2.0	<2.0	<2.0	<10	<1.00	--
MW-2	04/27/10	37.84	5.46	32.38	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	<0.010	<0.50	--	--	--	--	--	<1.00	--
MW-2	08/04/10	37.84	6.70	31.14	<100	<100	<100	1.6	<1.0	<1.0	<1.0	<0.010	<0.50	<1.0	--	--	--	--	<1.00	--
MW-2	10/19/10	37.84	6.69	31.15	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	<0.010	<0.50	<1.0	--	--	--	--	<1.00	--
MW-2	04/03/12	37.63	4.51	33.12	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	04/20/12	37.63	5.05	32.58	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	05/18/12	37.63	6.30	31.33	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	01/16/03	38.45	7.05	31.40	<250	<250	<500	<1	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	--
MW-3	04/22/03	38.45	6.53	31.92	<250	--	--	<1	1	<1	<1	--	--	<1	<5	<5	<5	<50	--	--
MW-3	07/22/03	38.45	8.17	30.28	<250	--	--	<1	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	--
MW-3	10/16/03	38.45	8.87	29.58	<250	--	--	<1	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	<5,000
MW-3	04/28/04	38.45	7.13	31.32	<250	<250	<500	<1	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	<5,000
MW-3	10/19/04	38.45	7.93 a	38.45	<250	<250	<500	<1	<1	<1	<1	--	--	<1	<5	<5	<5	<50	--	<5,000
MW-3	04/11/05	38.45	7.99	30.46	<250	<250	<500	<1	<1	<1	<1	--	--	<1	<2	<2	<5	<50	--	<5,000
MW-3	10/26/05	38.45	8.63	29.82	<50	<250	<500	<1	<1	<1	<1	--	--	<1	<2	<2	<5	<50	--	<5,000
MW-3	04/26/06	38.45	6.75	31.70	<50	<245	<490	<0.500	<0.500	<0.500	<3.00	--	--	<5.00	<1.00	<1.00	<1.00	<50.0	--	<150
MW-3	10/26/06	38.45	8.60	29.85	<50	<248	<495	<0.500	<0.500	<0.500	<3.00	--	--	<5.00	<1.00	<1.00	<1.00	<50.0	--	<250
MW-3	05/03/07	38.45	6.71	31.74	<50.0	<236	<472	<0.500	<0.500	<0.500	<3.00	--	--	<5.00	<1.00	<1.00	<1.00	<50.0	--	<250
MW-3	10/29/07	38.45	7.95	30.50	<50.0	<255	<510	<0.500	<0.500	<0.500	<3.00	--	--	<1.00	--	--	--	--	3.18	--
MW-3	05/13/08	38.45	7.11	31.34	<50	<250	<500	<1	<1	<1	<1	--	--	<1	--	--	--	--	<5	--
MW-3	08/08/08	38.45	8.03	30.42	<50	<500	<1,000 d	<1	<1	<1	<1	--	--	<1	<1	<1	<1	<10	<5	<500
MW-3	11/21/08	38.45	9.86	28.59	Not Sampled - Bailer in Well															

TABLE 2

SUMMARY OF GROUNDWATER MONITORING DATA
SHELL-BRANDED WHOLESALE FACILITY
22588 84TH AVENUE SOUTH
KENT, WASHINGTON

Sample ID	Date	TOC	DTW	GWE	HYDROCARBONS			PRIMARY VOCs						OXYGENATES					LEAD	
					TPHg	TPHd	TPHo	B	T	E	X	EDB	EDC	MTBE	DIPE	ETBE	TAME	TBA	Total	Ethanol
					MTCA Method A Cleanup Levels 800/1000 ug/L	500 ug/L	500 ug/L	5 ug/L	1000 ug/L	700 ug/L	1000 ug/L	0.01 ug/L	5 ug/L	20 ug/L	NE ug/L	NE ug/L	NE ug/L	NE ug/L	15 ug/L	NE ug/L
MW-3	02/10/09	38.45	--	38.45								Not Sampled - Bailer in Well								
MW-3	05/05/09	38.45	6.54	31.91	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	--	--	<1.0	--	--	--	--	<1.00	--
MW-3	08/25/09	38.45	8.27	30.18	--	<100	<100	<0.50	<1.0	<1.0	<1.0	--	--	--	<2.0	<2.0	<2.0	<10	<1.00	--
MW-3	11/11/09	38.45	--	38.45								Not Sampled - Inaccessible								
MW-3	01/25/10	38.45	6.05	32.40	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	<0.010	<0.50	<1.0	<2.0	<2.0	<2.0	<10	<1.00	--
MW-3	04/27/10	38.45	6.49	31.96	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	<0.010	<0.50	--	--	--	--	--	<1.00	--
MW-3	08/04/10	38.45	7.48	30.97	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	<0.010	<0.50	<1.0	--	--	--	--	<1.00	--
MW-3	10/19/10	38.45	7.56	30.89	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	<0.010	<0.50	<1.0	--	--	--	--	<1.00	--
MW-3	04/03/12	38.23	5.36	32.87	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	04/20/12	38.23	5.98	32.25	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	05/18/12	38.23	6.45	31.78	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	08/08/08	38.64	8.1	30.54	<50	<500	<1,000 d	<1	<1	<1	<1	--	--	<1	<1	<1	<1	<10	21.9	<500
MW-4	11/21/08	38.64	6.86	31.78	<250	<250	<500	<1	<1	<1	<1	--	--	<1	--	--	--	--	<5	--
MW-4	02/10/09	38.64	6.55	32.09	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	--	--	<1.0	<2.0	<2.0	<2.0	<10	1.03	<100
MW-4	05/05/09	38.64	6.57	32.07	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	--	--	<1.0	--	--	--	--	<1.00	--
MW-4	08/25/09	38.64	8.21	30.43	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	--	--	--	--	--	--	--	<1.00	--
MW-4	11/11/09	38.64	7.1	31.54	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	--	--	<1.0	--	--	--	--	<1.00	--
MW-4	01/25/10	38.64	5.93	32.71	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	<0.010	<0.50	<1.0	<2.0	<2.0	<2.0	<10	<1.00	--
MW-4	04/27/10	38.64	6.44	32.20	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	<0.010	<0.50	--	--	--	--	--	<1.00	--
MW-4	08/04/10	38.64	7.44	31.20	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	<0.010	<0.50	<1.0	--	--	--	--	<1.00	--
MW-4	10/19/10	38.64	7.61	31.03	<100	<100	<100	<0.50	<1.0	<1.0	<1.0	<0.010	<0.50	<1.0	--	--	--	--	<1.00	--
MW-4	04/03/12	38.27	5.39	32.88	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	04/20/12	38.27	5.69	32.58	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	05/18/12	38.27	6.45	31.82	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	10/11/11	37.90	7.58	30.32	<100	<95.2	<238	<1.00	<1.00	<1.00	<3.00	---	---	<1.00	<10.0	<1.00	<1.00	<1.00	---	---
MW-5	01/11/12	37.90	6.44	31.46	<100	<98.0	<245	<1.00	<1.00	<1.00	<3.00	---	---	---	---	---	---	---	---	---
MW-5 e	04/03/12	37.90	5.09	32.81	<100	29,700 f	516 f	<1.00	<1.00	<1.00	<3.00	---	---	---	---	---	---	---	---	---
MW-5	04/20/12	37.90	5.67	32.23	<100	<94.3	<94.3	<1.00	<1.00	<1.00	<3.00	---	---	---	---	---	---	---	---	---
MW-5	05/18/12	37.90	6.02	31.88	<100	<94.3	<94.3	<1.00	<1.00	<1.00	<3.00	---	---	---	---	---	---	---	---	---

Notes:

DTW = Depth to Water in feet

TABLE 2

SUMMARY OF GROUNDWATER MONITORING DATA
SHELL-BRANDED WHOLESALE FACILITY
22588 84TH AVENUE SOUTH
KENT, WASHINGTON

Sample ID	Date	TOC	DTW	GWE	HYDROCARBONS			PRIMARY VOCs						OXYGENATES					LEAD	
					TPHg	TPHd	TPHo	B	T	E	X	EDB	EDC	MTBE	DIPE	ETBE	TAME	TBA	Total	Ethanol
		MTCA Method A Cleanup Levels			800/1000	500	500	5	1000	700	1000	0.01	5	20	NE	NE	NE	NE	15	NE
					ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L

GWE = Groundwater Elevation in feet above mean sea level before September 2011, and relative to NAVD88 thereafter.

TOC = Top of Casing in feet above mean sea level before September 2011, and relative to NAVD88 thereafter.

MTCA = Model Toxics Control Act

VOCs = volatile organic compounds

All results in micrograms per liter (µg/L) unless otherwise indicated.

TPHg = Total petroleum hydrocarbons as gasoline analyzed by NWTPH-Gx unless otherwised noted. The higher value is based on the assumption that no benzene is present in the groundwater sample.

TPHd = Total petroleum hydrocarbons as diesel, analyzed by NWTPH-Dx with silica gel cleanup unless otherwise noted by previous reports.

TPHo = Total petroleum hydrocarbons as oil range organics analyzed by NWTPH-Dx with silica gel cleanup unless otherwise noted by previous reports.

Benzene, toluene, ethylbenzene, and xylenes analyzed by EPA Method 8260B; before February 26, 2008, analyzed by EPA Method 8020 unless otherwise noted

EDB = 1,2-Dibromoethane analyzed by EPA Method 8011

EDC = 1,2-Dichloroethane analyzed by EPA Method 8260B

MTBE = Methyl tertiary-butyl ether analyzed by EPA Method 8260B

TBA = Tertiary-butanol analyzed by EPA Method 8260B

DIPE = Di-isopropyl ether analyzed by EPA Method 8260B

ETBE = Ethyl tertiary-butyl ether analyzed by EPA Method 8260B

TAME = Tertiary-amyl methyl ether analyzed by EPA Method 8260B

Total Lead analyzed by EPA Method 6020

<x = Not detected at laboratory reporting limit x

ND = Not detected

--- = Not analyzed

NE = Not established

Concentrations in bold type indicate the analyte was detected above MTCA Method A cleanup levels

a = Depth to water measured on October 13, 2004, due to a shipping error Delta personnel resampled the site on October 19, 2004.

b = Resampled MW-2 on 6/16/2007 due to detectable hydrocarbon concentrations from previous monitoring event on 5/03/2007.

c = Well contained a high concentration of silt at time of sampling.

d = Laboratory reporting limits above the MTCA method A cleanup levels

e = Sample data suggest likely laboratory sample mix-up. Confirmatory sampling was completed on 4/20/2012 and 5/18/2012.

f = The hydrocarbon pattern most closely resembles a diesel product.

APPENDIX A
ENVIRONMENTAL DOCUMENT LIST

Environmental Document List: 22588 84th Avenue South, Kent, Washington

Title	Author	Date	Submitted to Ecology	
			Y/N	Date
GRASP Site Assessment Report	KHM Environmental Management, Inc.	4/1/2003	Y	4/1/2003
GRASP Tier II Summay Report	KHM Environmental Management, Inc.	4/10/2003	Unknown	
Shell GRASP Monitoring Report	Delta Consultants	7/11/2005	Y	7/11/2005
Shell GRASP Monitoring Report	Delta Consultants	7/25/2006	Y	7/25/2006
Shell GRASP Monitoring Report	Delta Consultants	7/31/2007	Y	7/31/2007
Station Upgrade - Soil Sampling Report	Delta Consultants	9/4/2007	Y	9/4/2007
Fourth Quarter 2007 Monitoring	Delta Consultants	2/12/2008	Y	2/12/2008
Second Quarter 2008 Monitoring	Delta Consultants	8/12/2008	Y	8/12/2008
Due Diligence Site Assessment	Delta Consultants	8/25/2008	Y	8/25/2008
Fourth Quarter 2008 Monitoring	Delta Consultants	1/15/2009	Y	1/15/2009
First Quarter 2009 Monitoring	Delta Consultants	4/9/2009	Y	4/9/2009
Second Quarter 2009 Monitoring	Delta Consultants	8/4/2009	Y	8/4/2009
Third & Fourth Quarter 2009 Monitoring	Delta Consultants	1/13/2010	Y	1/4/2010
Remedial Investigation Report	Delta Consultants	1/13/2010	Unknown	
2010 Annual Groundwater Monitoring Report	Conestoga-Rovers & Associates	1/28/2011	Y	1/28/2011
2011 Annual Groundwater Monitoring Report	Conestoga-Rovers & Associates	1/26/2012	Y	1/26/2012
Subsurface Investigation Report	Conestoga-Rovers & Associates	4/10/2012	N	

APPENDIX B

LEGAL DESCRIPTION OF PROPERTY, PRESENT OWNER AND OPERATOR, KNOWN PAST OWNERS AND OPERATORS

Listing of Known Owners and Operators at 22588 84 th Avenue South, Kent, WA		
<i>Owner</i>	<i>Business Operator(s)</i>	<i>Approximate Years of Site Occupation</i>
PACWEST ENERGY LLC	PACWEST ENERGY LLC	2009-present
TMR COMPANY	TMR COMPANY	1999-2009
Equilon Enterprises LLC	Equilon Enterprises LLC	1998-1999
Texaco Refining & Marketing	Texaco Refining & Marketing	1988-1998



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PARCEL DATA

Parcel	182205-9355	Jurisdiction	KENT
Name	PACWEST ENERGY LLC	Levy Code	1525
Site Address	22588 84TH AVE S 98032	Property Type	C
Geo Area	70-65	Plat Block / Building Number	
Spec Area	410-0	Plat Lot / Unit Number	
Property Name	SHELL/JACKSONS/CAR WASH	Quarter-Section-Township-Range	NW-18-22-5

Legal Description

LOT 1 OF CITY OF KENT SHORT PLAT NO SP 86-7 REC NO 8704231175 SD SHORT PLAT DAF - POR OF N 1/2 GL 1 IN NW 1/4 OF STR 18-22-05 DAF - BEG NW COR OF SD SUBD TH N 89-42-32 E ALG N LN OF SD SUBD 42.01 FT TO TPOB TH CONTG N 89-42-32 E 785.85 FT TO NLY MGN OF ST HWY NO 5 TH ALG SD MGN ON A SPIRAL CURVE TO RGT WITH A CHORD WCH BEARS S 46-07-23 W 41.35 FT TH S 46-14-48 W ALG SD MGN 277.87 FT TH S 51-27-07 W ALG SD MGN 627.78 FT TH N 77-59-49 W ALG SD MGN 69.82 FT TO E MGN OF 84TH AVE S TH N 01-09-13 E ALG SD MGN 285.78 FT TH N 88-50-47 W 8 FT TH N 01-09-13 E 307.71 FT TO TPOB

LAND DATA

Highest & Best Use As If Vacant	RETAIL/WHOLESALE	Percentage Unusable	0
Highest & Best Use As Improved	PRESENT USE	Unbuildable	NO
Present Use	Conv Store with Gas	Restrictive Size Shape	YES
Base Land Value SqFt	13	Zoning	GWC
Base Land Value	575,100	Water	WATER DISTRICT
% Base Land Value Impacted	100	Sewer/Septic	PUBLIC
Base Land Valued Date	2/8/2012	Road Access	PUBLIC
Base Land Value Tax Year	2013	Parking	
Land SqFt	44,244	Street Surface	PAVED
Acres	1.02		

Views

Rainier	
Territorial	
Olympics	
Cascades	
Seattle Skyline	
Puget Sound	
Lake Washington	
Lake Sammamish	
Lake/River/Creek	
Other View	

Waterfront

Waterfront Location	
Waterfront Footage	
Lot Depth Factor	
Waterfront Bank	
Tide/Shore	
Waterfront Restricted Access	
Waterfront Access Rights	NO
Poor Quality	
Proximity Influence	NO

Designations

Historic Site	
Current Use	
Nbr Bldg Sites	
Adjacent to Golf Fairway	NO
Adjacent to Greenbelt	NO
Other Designation	NO
Deed Restrictions	NO
Development Rights Purchased	NO
Easements	NO
Native Growth Protection Easement	NO
DNR Lease	NO

Nuisances

Topography	NO
Traffic Noise	
Airport Noise	
Power Lines	NO
Other Nuisances	NO

Problems

Water Problems	NO
Transportation Concurrence	NO
Other Problems	NO

Environmental

Environmental	NO
---------------	----

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BUILDING

Building Number	1
Building Description	MINI-MART
Number Of Buildings Aggregated	1
Predominant Use	MINI-MART CONVENIENCE STORE (531)
Shape	Rect or Slight Irreg
Construction Class	WOOD FRAME
Building Quality	GOOD
Stories	1
Building Gross Sq Ft	1,056
Building Net Sq Ft	1,056
Year Built	1988
Eff. Year	1995
Percentage Complete	100
Heating System	HEAT PUMP
Sprinklers	Yes
Elevators	
<div><div>1</div><div></div></div>	



Click the camera to see more pictures.

Picture of Building 1



Section(s) Of Building Number: 1

Section Number	Section Use	Description	Stories	Height	Floor Number	Gross Sq Ft	Net Sq Ft
1	MINI-MART CONVENIENCE STORE (531)		1	12		1,056	1,056

Accessory

Accessory Type	Picture	Description	Qty	Unit Of Measure	Size	Grade	Eff Yr	%	Value	Date Valued
Miscellaneous		Type I							400000	3/28/2002



TAX ROLL HISTORY

Account	Valued Year	Tax Year	Omit Year	Levy Code	Appraised Land Value	Appraised Imps Value	Appraised Total Value	New Dollars	Taxable Land Value	Taxable Imps Value	Taxable Total Value	Tax Value Reason
182205935501	2012	2013		1525	\$575,100	\$606,100	\$1,181,200	\$0	\$575,100	\$606,100	\$1,181,200	
182205935501	2011	2012		1525	\$575,100	\$547,700	\$1,122,800	\$0	\$575,100	\$547,700	\$1,122,800	
182205935501	2010	2011		1525	\$575,100	\$540,800	\$1,115,900	\$0	\$575,100	\$540,800	\$1,115,900	
182205935501	2009	2010		1525	\$583,900	\$548,900	\$1,132,800	\$0	\$583,900	\$548,900	\$1,132,800	
182205935501	2008	2009		1525	\$530,900	\$499,000	\$1,029,900	\$0	\$530,900	\$499,000	\$1,029,900	
182205935501	2007	2008		1525	\$486,600	\$499,600	\$986,200	\$0	\$486,600	\$499,600	\$986,200	
182205935501	2006	2007		1525	\$486,600	\$493,700	\$980,300	\$0	\$486,600	\$493,700	\$980,300	
182205935501	2005	2006		1525	\$442,400	\$493,600	\$936,000	\$0	\$442,400	\$493,600	\$936,000	
182205935501	2004	2005		1525	\$442,400	\$491,800	\$934,200	\$0	\$442,400	\$491,800	\$934,200	
182205935501	2003	2004		1525	\$398,100	\$492,400	\$890,500	\$0	\$398,100	\$492,400	\$890,500	
182205935501	2002	2003		1525	\$398,100	\$490,700	\$888,800	\$0	\$398,100	\$490,700	\$888,800	
182205935501	2001	2002		1525	\$398,200	\$261,600	\$659,800	\$0	\$398,200	\$261,600	\$659,800	
182205935501	2000	2001		1525	\$398,200	\$261,600	\$659,800	\$0	\$398,200	\$261,600	\$659,800	
182205935501	1999	2000		1525	\$398,200	\$261,600	\$659,800	\$0	\$398,200	\$261,600	\$659,800	
182205935501	1998	1999		1525	\$398,200	\$181,000	\$579,200	\$0	\$398,200	\$181,000	\$579,200	
182205935501	1997	1998		1525	\$0	\$0	\$0	\$0	\$398,200	\$181,000	\$579,200	
182205935501	1996	1997		1525	\$0	\$0	\$0	\$0	\$309,700	\$269,500	\$579,200	
182205935501	1994	1995		1525	\$0	\$0	\$0	\$0	\$309,700	\$269,500	\$579,200	
182205935501	1992	1993		1525	\$0	\$0	\$0	\$0	\$287,600	\$248,400	\$536,000	
182205935501	1990	1991		1525	\$0	\$0	\$0	\$0	\$276,500	\$252,300	\$528,800	
182205935501	1989	1990		1525	\$0	\$0	\$0	\$0	\$154,900	\$252,300	\$407,200	
182205935501	1988	1989		1525	\$0	\$0	\$0	\$0	\$154,900	\$123,000	\$277,900	
182205935501	1987	1988		1525	\$0	\$0	\$0	\$0	\$129,900	\$0	\$129,900	
182205935501	1986	1987		1525	\$0	\$0	\$0	\$0	\$129,900	\$0	\$129,900	

SALES HISTORY

Excise Number	Recording Number	Document Date	Sale Price	Seller Name	Buyer Name	Instrument	Sale Reason
2422390	20091221000508	12/8/2009	\$431,826.00	EQUILON ENTERPRISES LLC	JACKSONS FOOD STORES INC	Bargain and Sales Deed	None
2422393	20091221000508	12/8/2009	\$0.00	JACKSONS FOOD STORES INC	PACWEST ENERGY LLC	Bargain and Sales Deed	Other

2422386	20091221000509	11/10/2009	\$0.00	TMR COMPANY	EQUILON ENTERPRISES LLC	Special Warranty Deed	Other
1677765	199904082357	1/15/1999	\$0.00	EQUILON ENTERPRISES L L C	TEXACO REFINING & MARKETING	Other - See Affidavit	Other
1627204	199807231673	6/26/1998	\$0.00	TEXACO REFINING AND MARKETING INC	EQUILON ENTERPRISES LLC	Special Warranty Deed	None

REVIEW HISTORY

PERMIT HISTORY

Permit Number	Permit Description	Type	Issue Date	Permit Value	Permit Status	Issuing Jurisdiction	Reviewed Date
CNST-2022196		Remodel	4/7/2003	\$40,000	Complete	KENT	9/30/2003

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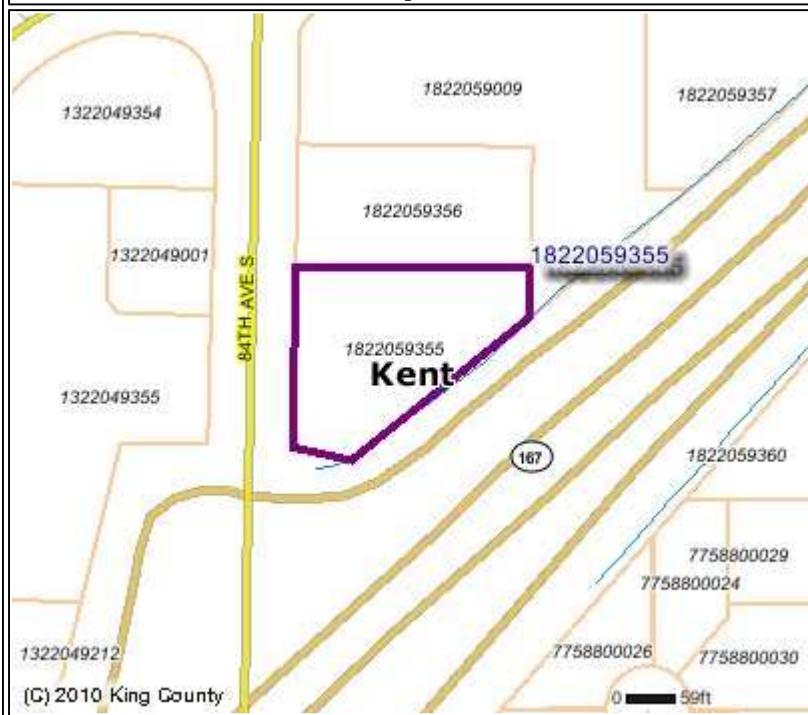
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Parcel Map and Data



Parcel Number	1822059355
Site Address	22588 84TH AVE S
Zip code	98032
Taxpayer	PACWEST ENERGY LLC

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APPENDIX C
TERRESTRIAL ECOLOGICAL EVALUATION



Voluntary Cleanup Program

Washington State Department of Ecology Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION EXCLUSION FORM

Under the Model Toxics Control Act (MTCA), a Terrestrial Ecological Evaluation (TEE) is not required if the Site meets the criteria in WAC 173-340-7491 for an exclusion. If you determine that your Site does not require a TEE, please complete this form and submit it to the Department of Ecology (Ecology) at the appropriate time, either with your VCP Application or with a subsequent request for a written opinion. Please note that exclusion from the TEE does not exclude the Site from an evaluation of aquatic or sediment ecological receptors.

If your Site does not meet the criteria for exclusion under WAC 173-340-7491, then you may have to conduct a simplified TEE in accordance with WAC 173-340-7492 or a site-specific TEE in accordance with WAC 173-340-7493. If you have questions about conducting a simplified or site-specific TEE, please contact the Ecology site manager assigned to your Site or the appropriate Ecology regional office.

Step 1: IDENTIFY HAZARDOUS WASTE SITE AND EVALUATOR

Please identify below the hazardous waste site for which you are documenting an exclusion from conducting a TEE and the name of the person who conducted the evaluation.

Facility/Site Name: Shell-Branded Service Station

Facility/Site Address: 22588 84th Avenue South, Kent, WA

Facility/Site No: 55129499

VCP Project No.: NW2043

Name of Evaluator: Michael Lam

Step 2: DOCUMENT BASIS FOR EXCLUSION

The bases for excluding a site from a terrestrial ecological evaluation are set forth in WAC 173-340-7491(1). Please identify below the basis for excluding your Site from further evaluation. Please check all that apply.

POINT OF COMPLIANCE – WAC 173-340-7491(1)(A)

- | | |
|-----------------------------|---|
| 1- <input type="checkbox"/> | No contamination present at site. |
| 2- <input type="checkbox"/> | All contamination is 15 feet below ground level prior to remedial activities. |
| 3- <input type="checkbox"/> | All contamination is six feet below ground level and an institutional control has been implemented as required by WAC 173-340-440. |
| 4- <input type="checkbox"/> | All contamination is below a site-specific point of compliance established in compliance with WAC 173-340-7490(4)(b) with an institutional control implemented as required by WAC 173-340-440. <i>Please provide documentation that describes the rationale for setting a site-specific point of compliance.</i> |

BARRIERS TO EXPOSURE – WAC 173-340-7491(1)(b)

- | | |
|-----------------------------|---|
| 5- <input type="checkbox"/> | All contaminated soil, is or will be, covered by physical barriers (such as buildings or paved roads) that prevent exposure to plants and wildlife and an institutional control has been implemented as required by WAC 173-340-440. <i>An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology.</i> |
|-----------------------------|---|

Step 2: DOCUMENT BASIS FOR EXCLUSION continued

UNDEVELOPED LAND – WAC 173-340-7491(1)(c)

“Undeveloped land” is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil.

“Contiguous” undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife.

- | | |
|--|--|
| 6- <input type="checkbox"/> | There is less than one-quarter acre of contiguous undeveloped land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene. |
| 7- <input checked="" type="checkbox"/> | For sites not containing any of the chemicals mentioned above, there is less than one-and-a-half acres of contiguous undeveloped land on or within 500 feet of any area of the Site. |

BACKGROUND CONCENTRATIONS – WAC 173-340-7491(1)(d)

- | | |
|-----------------------------|---|
| 8- <input type="checkbox"/> | Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709. |
|-----------------------------|---|

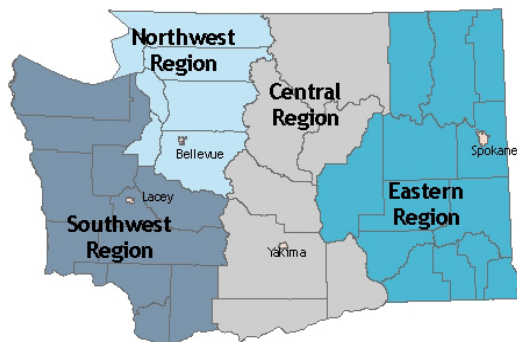
Step 3: PROVIDE EXPLANATION FOR EXCLUSION (IF NECESSARY)

None of the chemicals listed in point 6 (above) are present at the Site.

Attach additional pages if necessary.

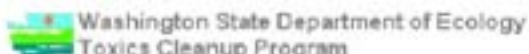
Step 4: SUBMITTAL

Please mail your completed form to Ecology at the appropriate time, either with your VCP Application or with a subsequent request for a written opinion. If you complete the form after you enter the VCP, please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.



Northwest Region: Attn: Sara Maser 3190 160 th Ave. SE Bellevue, WA 98008-5452	Central Region: Attn: Mark Dunbar 15 W. Yakima Ave., Suite 200 Yakima, WA 98902
Southwest Region: Attn: Scott Rose P.O. Box 47775 Olympia, WA 98504-7775	Eastern Region: Patti Carter N. 4601 Monroe Spokane WA 99205-1295

060561(7) – Appendix C Terrestrial Ecological Evaluation Exclusion Form



Terrestrial Ecological Evaluation Process - Primary Exclusions

Documentation Form

Exclusion #	Exclusion Detail	Yes or No?	Are Institutional Controls Required If The Exclusion Applies?
1	Will soil contamination be located at least 6 feet beneath the ground surface and less than 15 feet?	Yes / No	Yes
	Will soil contamination located at least 15 feet beneath the ground surface?	Yes / No	No
	Will soil contamination located below the conditional point of compliance?	Yes / No	Yes
2	Will soil contamination be covered by buildings, paved roads, pavement, or other physical barriers that will prevent plants or wildlife from being exposed?	Yes / No	Yes
3	Is there less than 1.5 acres of <u>continuous undeveloped land</u> on the site, or within 500 feet of any area of the site affected by hazardous substances <u>other than</u> those listed in the table of <u>Hazardous Substances of Concern</u> ?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Other factors determine
	And Is there less than 0.25 acres of <u>continuous undeveloped land</u> on or within 500 feet of any area of the site affected by hazardous substances listed in the table of <u>Hazardous Substances of Concern</u> ?	Yes / No	
4	Are concentrations of hazardous substances in the soil less than or equal to natural background concentrations of those substances at the point of compliance	Yes / No	No

[\[Exclusions Main\]](#)
[\[TEE Definitions\]](#)
[\[Simplified or Site-Specific?\]](#)
[\[Simplified Ecological Evaluation\]](#)
[\[Site-Specific Ecological Evaluation\]](#)
[\[WAC 173-340-7493\]](#)

[\[TEE Home\]](#)



S 224th St

22588 84th Ave S, Kent, WA
500 Feet

83rd Ave S

84th Ave S

85th Pl

APPENDIX D

SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIVITIES

SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIVITIES

2002 GRASP Site Assessment: In October 2002, KHM Environmental Management, Inc. (KHM) installed three onsite monitoring wells (MW-1 through MW-3) to a depth of 15 feet bgs. KHM did not identify any impacts based on field screening and did not submit any samples for laboratory analysis. Concentrations of total petroleum hydrocarbons (TPH) as gasoline (TPHg), TPH as diesel, and benzene, toluene, ethylbenzene, and total xylenes (BTEX), and 5-oxygenates in groundwater sampled by KHM in January 2003 were below the Washington State Department of Ecology's Model Toxics Control Act (MTCA) Method A screening levels. In 2003, KHM identified a drinking water supply well located approximately 1,110 feet southwest of the Property. Additional information is available in KHM's *GRASP Site Assessment Report*, dated April 1, 2003.

2007 Station Upgrade-Soil Sampling Report: In June 2007, Delta Consultants (Delta) sampled soil under the dispenser islands during upgrades to the fueling system, in order to characterize shallow subsurface soil conditions. Concentrations of TPHg, TPHd, and BTEX were detected above the MTCA Method A screening levels in soil sampled in association with the northern and southeastern dispenser islands. Additional information is available in Delta's *Station Upgrade-Soil Sampling Report*, dated September 4, 2007.

2008 Due Diligence Site Assessment: In June 2008, Delta drilled soil borings B1 through B7 at the Site, in order to delineate the lateral and vertical distribution of petroleum hydrocarbons in subsurface soil and groundwater at the Property. Borings B1 through B6 were advanced to a total depth of approximately 6.5 feet below ground surface (bgs). Boring B-7 was advanced to 14 feet bgs and subsequently converted to groundwater monitoring well MW-4 with screen interval from 4 to 14 feet bgs. Soil sampled was predominantly at 5 feet bgs. Grab groundwater samples were collected from borings B4 and B6, and sampled for the balances of Table 830-1, WAC 173-340-900, except for polychlorinated biphenyls (PCBs). No analytical concentrations in soil or groundwater sampled were above the MTCA Method A screening levels. Additional information is available in Delta's *Due Diligence Site Assessment* report dated August 25, 2008.

2011 Subsurface Investigation: In August 2011, Conestoga-Rovers & Associates (CRA) advanced three soil borings, with one converted to monitoring well MW-5, and two backfilled as soil borings SB-6 and SB-7. Monitoring well MW-5 was installed using a hollow-stem auger drill rig to a depth of 14.5 feet bgs with screen interval from 4 to 14 feet bgs. Soil boring SB-6 and SB-7 were advanced using a hand auger to a maximum depth of 1 foot bgs. Soil samples were collected from MW-5 at approximately 5-foot

intervals. Soil samples were collected from borings SB-6 and SB-7 from 0.5 to 1 foot bgs. All analyte concentrations are below MTCA Method A screening levels. Additional information is available in CRA's *Subsurface Investigation Report*, dated April 10, 2012.

APPENDIX E

AVAILABLE HISTORICAL SOIL BORING LOGS

KHM

ENVIRONMENTAL
MANAGEMENT
INCORPORATED

PROJECT NO: A81-22588 84th CLIENT: Shell
LOGGED BY: J. North/ O. Popova LOCATION: 22588 84th Avenue, Kent
DRILLER: Cascade Drilling Inc. DATE DRILLED: 10/31/2002
DRILLING METHOD: HSA HOLE DIAMETER: 9"
SAMPLING METHOD: SS HOLE DEPTH: 15'
CASING TYPE: PVC WELL DIAMETER: 2"
SLOT SIZE: 0.010" WELL DEPTH: 15'
GRAVEL PACK: 2-12 CASING STICKUP: 0

BORING/WELL NO: MW-1
PAGE 1 OF 1

LOCATION MAP

ELEVATION

NORTHING

EASTING

Well Completion

Static
Water
Level

Moisture
Content

PID Reading
(ppm)

Penetration
(blows/6")

Depth (feet)

Sample
Recovery
Interval

Soil Type

LITHOLOGY / DESCRIPTION

Backfill
Casing

Bentonite
Chips

Sand

▽

13:05

11/1/02

wet

0

3

3

4

wet

0

4

4

4

wet

0

1

1

wet

0

1

1

15

16

17

18

19

20

21

22

ML

ML

SM

ML

Airknifed to 7' through silt/sand/gravel, cobbles ~13"

Sandy SILT; grey, 10% very fine sand, 10% clay, low to moderate plasticity, medium stiff to soft, trace organic material, wet
(As above)

Silty SAND; grey to dark grey, very fine to fine grained sand, trace medium, scattered red color sand grains, loose to medium dense, wet

Clayey SILT; grey, 5% clay, wood fragments, moderate plasticity, stiff, wet





BOTTOM OF BORING @15ft

KHM

ENVIRONMENTAL
MANAGEMENT
INCORPORATED

PROJECT NO:	A81-22588 84th	CLIENT:	Shell	BORING/WELL NO:	MW-2
LOGGED BY:	J. North/ O. Popova	LOCATION:	22588 84th Avenue, Kent	PAGE 1 OF 1	
DRILLER:	Cascade Drilling Inc.	DATE DRILLED:	10/31/2002	LOCATION MAP	
DRILLING METHOD:	HSA	HOLE DIAMETER:	9"		
SAMPLING METHOD:	SS	HOLE DEPTH:	15'		
CASING TYPE:	PVC	WELL DIAMETER:	2"		
SLOT SIZE:	0.010"	WELL DEPTH:	15'		
GRAVEL PACK:	2-12	CASING STICKUP:	0		

ELEVATION	NORTHING	EASTING
-----------	----------	---------

Well Completion		Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Backfill	Casing								
 		 13:40 11/1/02	wet	0	4 3 2	1			Airknifed to 7' through silt/sand/gravel
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
			wet	0	4 3 2	11		SM	Silty SAND; grey to dark grey, very fine to fine, trace organic material, scattered red color sand grains, 10-15% silt, trace clay, loose, wet
						12			
						13			
						14			
						15		ML	
						16			
						17			
						18			
						19			
						20			
						21			
						22			
									BOTTOM OF BORING @ 15ft

KHM

ENVIRONMENTAL
MANAGEMENT
INCORPORATED

PROJECT NO: A81-22588 84th CLIENT: Shell
LOGGED BY: J. North/ O. Popova LOCATION: 22588 84th Avenue, Kent
DRILLER: Cascade Drilling Inc. DATE DRILLED: 10/31/2002
DRILLING METHOD: HSA HOLE DIAMETER: 9"
SAMPLING METHOD: SS HOLE DEPTH: 15'
CASING TYPE: PVC WELL DIAMETER: 2"
SLOT SIZE: 0.010" WELL DEPTH: 15'
GRAVEL PACK: 2-12 CASING STICKUP: 0

BORING/WELL NO: MW-3

PAGE 1 OF 1

LOCATION MAP

ELEVATION

NORTHING

EASTING

Well Completion

Static
Water
Level

Moisture
Content

PID Reading
(ppm)

Penetration
(blows/6")

Depth (feet)

Sample
Recovery
Interval

Soil Type

LITHOLOGY / DESCRIPTION



11/1/02
12:30

wet

0

1

2

2

10

11

12

13

14

15

16

17

18

19

20

21

22

SP

SP

Air knifed to 7' through silt/sand/gravel

Poorly Graded SAND with Silt; brown grey; very fine to fine, trace medium grained sand, 5% silt, low density, wood fragments, moist to wet

(As above; coarsening with depth to dominantly fine grained sand, trace medium sand, wet)

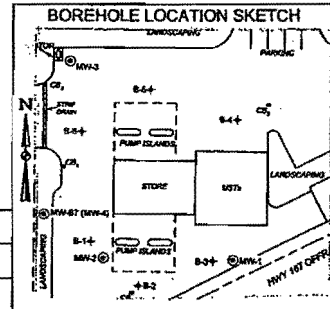
BOTTOM OF BORING @ 15ft

[illegible]

PROJECT NO./NAME SWA22-588-1		LOCATION Kent, WA													
APPROVED BY Matt Miller		LOGGED BY Delta/Matt Lindenmeyer													
DRILLING CONTRACTOR/DRILLER Cascade/Steve		SIZE/ TYPE OF BIT 4.25" ID/SSA													
DRILLING EQUIPMENT/METHOD CME-75# Hollow Stem Auger		SAMPLING METHOD Split Spoon		START DATE 6/6/08		FINISH DATE 6/6/08									
CASTING MAT/DIA. NA		SCREEN: TYPE NA		MAT. NA		LENGTH NA		DIA. NA		SLOT SIZE NA					
ELEVATION OF: GROUND SURFACE				TOP OF WELL CASING				TOP & BOTTOM SCREEN				GW SURFACE		DATE	
Depth	Well Completion Details	Graphic	Visual Description	Penetration Rate	Sample Recovery	Sample Number	PID Values (ppm)								
			Asphalt												
			Borehole clearance by airknife to five feet below grade.												
			Sandy gravel (GM) Brown, moist to wet, with silt, poorly sorted, no odor.	6-6-7	10'	1	0								
			TD = 6.5 feet below grade												

Page: 1 of 1

SOIL BORING AND WELL CONSTRUCTION LOG



BOREHOLE NO. B-2

PROJECT NO./NAME SWA22-588-1

LOCATION Kent, WA

APPROVED BY Matt Miller

LOGGED BY Delta/Matt Lindenmeyer

DRILLING CONTRACTOR/DRILLER Cascade/Steve

SIZE/ TYPE OF BIT 4.25" ID/SSA

DRILLING EQUIPMENT/METHOD CME-75/Hollow Stem Auger

SAMPLING METHOD Split Spoon

START DATE 6/5/08

FINISH DATE 6/6/08

CASTING MAT/DIA. NA

SCREEN: TYPE NA

MAT. NA

LENGTH NA

DIA. NA

SLOT SIZE NA

ELEVATION OF: GROUND SURFACE

TOP OF WELL CASING

TOP & BOTTOM SCREEN

GW SURFACE

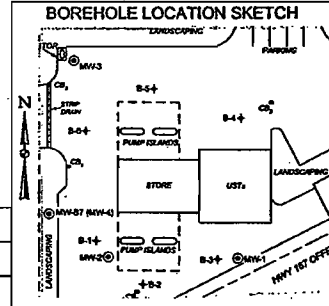
DATE

Depth	Well Completion Details	Graphic	Visual Description	Penetration Rate	Sample Recovery	Sample Number	PID Values (ppm)
			Asphalt				
			Borehole clearance by airknife to five feet below grade.				
5			Silt (ML) Brown, moist to wet, loose, no odor.	4-3-4	6"	1	0
			TD =6.5 feet below grade				
10							

Page: 1 of 1

BOREHOLE NO. B-3

SOIL BORING AND WELL CONSTRUCTION LOG



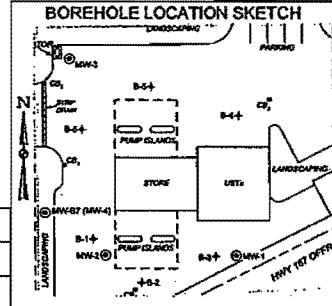
PROJECT NO./NAME SWA22-588-1	LOCATION Kent, WA
APPROVED BY Matt Miller	LOGGED BY Delta/Matt Lindenmeyer
DRILLING CONTRACTOR/DRILLER Cascade/Sieve	SIZE/ TYPE OF BIT 4.25" ID/SSA
DRILLING EQUIPMENT/METHOD CME-75/Hollow Stem Auger	SAMPLING METHOD Split Spoon
START DATE 6/6/08	FINISH DATE 6/6/08

CASTING MAT/DIA. NA	SCREEN: TYPE NA	MAT. NA	LENGTH NA	DIA. NA	SLOT SIZE NA
ELEVATION OF: GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN	GW SURFACE	DATE	

Depth	Well Completion Details	Graphic	Visual Description	Penetration Rate	Sample Recovery	Sample Number	PID Values (ppm)
			Asphalt				
			Borehole clearance by airknife to five feet below grade.				
5			SIL (ML) Brown, moist to wet, loose, no odor.	444	18"	1	0
			TD = 6.5 feet below grade				
10							

Page: 1 of 1

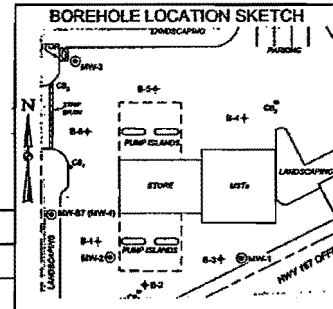
SOIL BORING AND WELL CONSTRUCTION LOG



WELL CONSTRUCTION LOG

BOREHOLE NO. B-4		PROJECT NO./NAME SWA22-588-1		LOCATION Kent, WA			
APPROVED BY Matt Miller		LOGGED BY Delta/Matt Lindenmeyer					
DRILLING CONTRACTOR/DRILLER Cascade/Steve		SIZE/ TYPE OF BIT 4.25" ID/SSA					
DRILLING EQUIPMENT/METHOD CME-75/Hollow Stem Auger		SAMPLING METHOD Split Spoon		START DATE 6/5/08	FINISH DATE 6/6/08		
CASTING MAT/DIA. NA	SCREEN: TYPE NA	MAT. NA	LENGTH NA	DIA. NA	SLOT SIZE NA		
ELEVATION OF: GROUND SURFACE		TOP OF WELL CASING		TOP & BOTTOM SCREEN			
		GW SURFACE		DATE			
Depth	Well Completion Details	Graphic	Visual Description	Penetration Rate	Sample Recovery	Sample Number	PID Values (ppm)
			Asphalt				
			Borehole clearance by airknife to five feet below grade.				
5			Sandy Gravel (GM) Brown, moist to wet, with silt, loose, no odor. Silt lens present at 6 feet below grade, wet, dark brown and no odor.	4-5-5	18"	1	0
			TD =6.5 feet below grade				
10							

SOIL BORING AND WELL CONSTRUCTION LOG



BOREHOLE NO. B-5

PROJECT NO./NAME SWA22-588-1

LOCATION Kent, WA

APPROVED BY Matt Miller

LOGGED BY Delta/Matt Lindenmeyer

DRILLING CONTRACTOR/DRILLER Cascade/Sieve

SIZE/ TYPE OF BIT 4.25" ID/SSA

DRILLING EQUIPMENT/METHOD CME-75Hollow Stem Auger

SAMPLING METHOD Split Spoon

START DATE 6/6/08

FINISH DATE 6/6/08

CASTING MAT/DIA. NA

SCREEN: TYPE NA

MAT. NA

LENGTH NA

DIA. NA

SLOT SIZE NA

ELEVATION OF: GROUND SURFACE

TOP OF WELL CASING

TOP & BOTTOM SCREEN

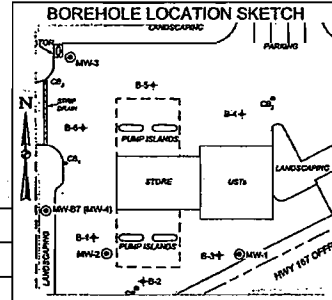
GW SURFACE

DATE

Depth	Well Completion Details	Graphic	Visual Description	Penetration Rate	Sample Recovery	Sample Number	PID Values (ppm)
			Asphalt				
			Borehole clearance by airknife to five feet below grade.				
5			Sandy Gravel (GM) Brown, moist to wet, loose, no odor. Silt lens present at 6 feet below grade, wet, dark brown and no odor.	6-6-6	18"	1	0
			TD of Auger=6.5 feet below grade				
10							

Page: 1 of 1

SOIL BORING AND WELL CONSTRUCTION LOG



BOREHOLE NO. B-6

PROJECT NO./NAME SWA22-588-1

LOCATION Kent, WA

APPROVED BY Matt Miller

LOGGED BY Delta/Matt Lindenmeyer

DRILLING CONTRACTOR/DRILLER Cascade/Steve

SIZE/ TYPE OF BIT 4.25" ID/SSA

DRILLING EQUIPMENT/METHOD CME-75/Hollow Stem Auger

SAMPLING METHOD Split Spoon

START DATE 6/6/08

FINISH DATE 6/6/08

CASTING MAT/DIA. NA

SCREEN: TYPE NA

MAT. NA

LENGTH NA

DIA. NA

SLOT SIZE NA

ELEVATION OF: GROUND SURFACE

TOP OF WELL CASING

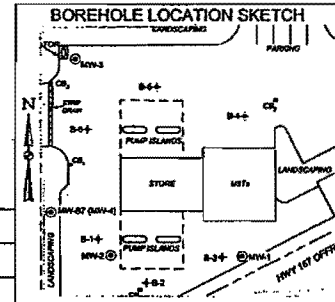
TOP & BOTTOM SCREEN

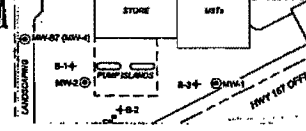
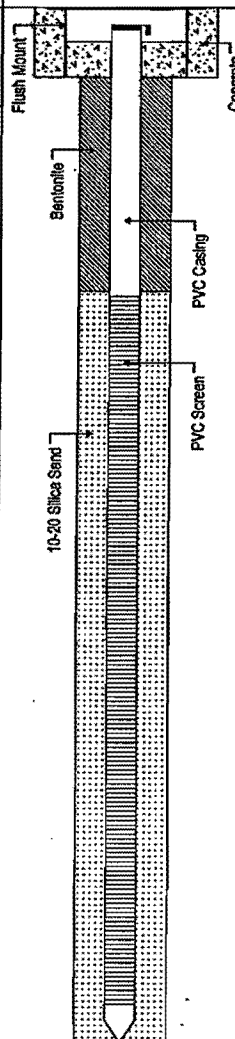

GW SURFACE

DATE

Depth	Well Completion Details	Graphic	Visual Description	Penetration Rate	Sample Recovery	Sample Number	PID Values (ppm)
			Asphalt				
			Borehole clearance by airknife to five feet below grade.				
5			Sandy Gravel (GM) Brown, moist to wet, with silt, loose, no odor. Silt lens present at 6 feet below grade, wet, brown and no odor.	3-3-6	18"	1	0
			TD = 6.5 feet below grade				
10							

SOIL BORING AND WELL CONSTRUCTION LOG



BOREHOLE NO. MW-7		WELL CONSTRUCTION LOG							
PROJECT NO./NAME SWA22-588-1		LOCATION Kent, Washington							
APPROVED BY Matt Miller		LOGGED BY Delta/Matt Lindenmeyer							
DRILLING CONTRACTOR/DRILLER Cascade, Steve		SIZE/ TYPE OF BIT 4.25" ID/SSA							
DRILLING EQUIPMENT/METHOD CME-75/Hollow Stem Auger		SAMPLING METHOD Split Spoon		START DATE 6/6/08		FINISH DATE 6/6/08			
CASTING MAT/DIA. PVC/2"		SCREEN: TYPE Slotted MAT. PVC		LENGTH 10'		DIA. 2"		SLOT SIZE 0.010"	
ELEVATION OF: GROUND SURFACE		TOP OF WELL CASING		TOP & BOTTOM SCREEN		GW SURFACE		DATE	
Depth	Well Completion Details	Graphic	Visual Description			Penetration Rate	Sample Recovery	Sample Number	PID Values (ppm)
			Bare Ground Borehole clearance by airknife to 5 feet below grade.						
5			Clayey Silt (ML) Brown, moist, loose, no odor.			4-7-9	16"	1	0
10									
15			TD=14 feet below grade						



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: 22588 KENT
PROJECT NUMBER: 060561
CLIENT: SHELL OIL PRODUCTS US
LOCATION: 22588 84TH AVE S, KENT, WA

HOLE DESIGNATION: MW-5
DATE COMPLETED: August 5, 2011
DRILLING METHOD: AIR KNIFE / HSA
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	BLOW COUNTS	PID (ppm)
0.42	ASPHALT							
2	SM-SAND, with silt, little gravel, medium grained, poorly graded, brown, moist			1HA		100	N/A	30.2
4				2HSA		33	7 8 8	0.0
5.00	SM-SILTY SAND, trace gravel, medium grained, poorly graded, brown, moist			3HSA		100	1 2 2	0.0
10.00	ML-SILT, with sand, low to medium plasticity, dark brown, moist to wet			4HSA			2 6 5	0.0
14.00	SM-SAND, with silt, medium grained, poorly graded, brown, moist							
15.50	END OF BOREHOLE @ 14.5ft BGS							
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 060561WIN.GPJ CRA CORP.GDT 3/14/12



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: 22588 KENT

HOLE DESIGNATION: SB-6

PROJECT NUMBER: 060561

DATE COMPLETED: August 4, 2011

CLIENT: SHELL OIL PRODUCTS US

DRILLING METHOD: HAND AUGER

LOCATION: 22588 84TH AVE S, KENT, WA

FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (%)	BLOW COUNTS	PID (ppm)
	CONCRETE SLAB	0.50		1HA SB-6-1		100	N/ A	0.0
	SM-SAND, with silt, some cobble, trace medium gravel, medium to coarse grained, poorly graded, brown, moist	1.00						
2								
4								
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS



OVERBURDEN LOG 060561WIN.GPJ CRA CORP.GDT 3/14/12



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: 22588 KENT

HOLE DESIGNATION: SB-7

PROJECT NUMBER: 060561

DATE COMPLETED: August 4, 2011

CLIENT: SHELL OIL PRODUCTS US

DRILLING METHOD: AIR KNIFE

LOCATION: 22588 84TH AVE S, KENT, WA

FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (%)	BLOW COUNTS	PID (ppm)
	CONCRETE SLAB	0.50		1HA				
	SM-SAND, with silt, some gravel, trace cobble, medium to coarse grained, poorly graded, brown, moist	1.00		SB-7-1				11.1
	END OF BOREHOLE @ 1.0ft BGS			2HA				
2								
4								
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32								
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS



OVERBURDEN LOG 060561WIN.GPJ CRA CORP.GDT 3/14/12

APPENDIX F

TPH DEGRADATION CALCULATION

060561 (7) - Appendix F TPH Degradation Calculation

STEP 1 - TPH Degradation Constant Calculation: $k = \ln(N/N_0) \cdot (1/t)$

TPHg Degradation Constant

Sample (collected 8/4/11)	Sample (collected 6/19/07)	Final Concentration, N (mg/kg)	Initial Concentration, N_0 (mg/kg)	Time Elapsed, t (years)	Degradation Constant, k
SB-7-1	NE-1-0.5	<4.88	1,210	4.125	-1.50
SB-6-1	SE-1-0.5	<4.83	1,830	4.125	-1.61

TPHd Degradation Constant

Sample (collected 8/4/11)	Sample (collected 6/19/07)	Final Concentration, N (mg/kg)	Initial Concentration, N_0 (mg/kg)	Time Elapsed, t (years)	Degradation Constant, k
SB-7-1	NE-1-0.5	98.4	385	4.125	-0.33
SB-6-1	SE-1-0.5	16.4	4,380	4.125	-1.35

Benzene Degradation Constant

Sample (collected 8/4/11)	Sample (collected 6/19/07)	Final Concentration, N (mg/kg)	Initial Concentration, N_0 (mg/kg)	Time Elapsed, t (years)	Degradation Constant, k
SB-6-1	SE-1-0.5	<0.00201	11.1	4.125	-2.26

Toluene Degradation Constant

Sample (collected 8/4/11)	Sample (collected 6/19/07)	Final Concentration, N (mg/kg)	Initial Concentration, N_0 (mg/kg)	Time Elapsed, t (years)	Degradation Constant, k
SB-7-1	NE-1-0.5	<0.00197	0.608	4.125	-1.56
SB-6-1	SE-1-0.5	0.00326	102	4.125	-2.51

Ethylbenzene Degradation Constant

Sample (collected 8/4/11)	Sample (collected 6/19/07)	Final Concentration, N (mg/kg)	Initial Concentration, N_0 (mg/kg)	Time Elapsed, t (years)	Degradation Constant, k
SB-7-1	NE-1-0.5	<0.00197	4.34	4.125	-2.03
SB-6-1	SE-1-0.5	<0.00201	21.8	4.125	-2.42

Total Xylene Degradation Constant

Sample (collected 8/4/11)	Sample (collected 6/19/07)	Final Concentration, N (mg/kg)	Initial Concentration, N_0 (mg/kg)	Time Elapsed, t (years)	Degradation Constant, k
SB-7-1	NE-1-0.5	<0.00493	70.1	4.125	-2.49
SB-6-1	SE-1-0.5	<0.00502	133	4.125	-2.64

STEP 2 - Calculation of Estimated Current Concentration at Historical Impacted Location: $N=N_0 \cdot e^{k \cdot t}$

North Pump Island, Under West Dispenser

Estimated TPHg Concentration (based on the more conservative constant $k = -1.50$)

	Estimated Current Concentration, N (mg/kg)	Historical Measured Concentration, N_0 (mg/kg)	Time Elapsed, t (years)	Degradation Constant, k
D-3-4.0 (collected 6/19/07)	3.19	1,580	4.125	-1.50

Estimated Benzene Concentration (based on constant $k = -2.26$)

	Estimated Current Concentration, N (mg/kg)	Historical Measured Concentration, N_0 (mg/kg)	Time Elapsed, t (years)	Degradation Constant Used, k
D-3-4.0 (collected 6/19/07)	0.000056	0.613	4.125	-2.26

Estimated Toluene Concentration (based on the more conservative constant $k = -1.56$)

	Estimated Current Concentration, N (mg/kg)	Historical Measured Concentration, N_0 (mg/kg)	Time Elapsed, t (years)	Degradation Constant Used, k
D-3-4.0 (collected 6/19/07)	0.035	21.8	4.125	-1.56

Estimated Ethylbenzene Concentration (based on the more conservative constant $k = -2.03$)

	Estimated Current Concentration, N (mg/kg)	Historical Measured Concentration, N_0 (mg/kg)	Time Elapsed, t (years)	Degradation Constant Used, k
D-3-4.0 (collected 6/19/07)	0.0036	15.8	4.125	-2.03

Estimated Total Xylenes Concentration (based on the more conservative constant $k = -2.49$)

	Estimated Current Concentration, N (mg/kg)	Historical Measured Concentration, N_0 (mg/kg)	Time Elapsed, t (years)	Degradation Constant Used, k
D-3-4.0 (collected 6/19/07)	0.0039	110	4.125	-2.49

North Pump Island, Under East Dispenser

Estimated TPHd Concentration (based on the more conservative constant $k = -0.33$)

	Estimated Current Concentration, N (mg/kg)	Historical Measured Concentration, N_0 (mg/kg)	Time Elapsed, t (years)	Degradation Constant Used, k
D-4-4.0 (collected 6/19/07)	1001.87	3,920	4.125	-0.33

Note:

mg/kg = milligram per kilogram

TPHg = Total petroleum hydrocarbons as gasoline range organics analyzed by NWTPH-Gx

TPHd = Total petroleum hydrocarbons as diesel range organics analyzed by NWTPH-Dx with Silica Gel Cleanup