STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

CERTIFIED MAIL
7008 2810 0001 3940 8078

June 11, 2009

Mr. Joe Illing
New Market I Investment Group
3241 Musser Lane Southwest
Olympia, WA 98512

Re: Opinion on Proposed Cleanup of the following Site:

- **Site Name:** Former Lacey Laundromat
- **Site Address:** 5800 Pacific Avenue SE, Lacey
- **Facility/Site No.:** 1416
- **VCP Project No.:** SW0201

Dear Mr. Illing:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your proposed independent cleanup of the former Lacey Laundromat facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Upon completion of the proposed cleanup, will further remedial action likely be necessary to clean up contamination at the Site?

NO. Ecology has determined that, upon completion of your proposed cleanup, no further remedial action will likely be necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Chlorinated hydrocarbons including tetrachloroethylene into the Soil, and Ground Water.

Enclosure A includes a detailed description and diagram of the Site, as currently known to Ecology.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. HORUS Environmental, Inc., **Newmarket I Investment Group, Phase I Environmental Site Assessment, Former Lacey Laundromat Site,** November 17, 2000.

2. HORUS Environmental, Inc., **Newmarket I Investment Group, Soil Remediation, 5806 Pacific Avenue SE, Lacey, Washington,** November 17, 2000.

3. HORUS Environmental, Inc., **Newmarket I Investment Group, Groundwater Sampling, Thurston County Water District #2 Well #1,** January 8, 2001.

4. AMEC Earth & Environmental, Inc., **Letter of Transmittal for City of Lacey Couplet & Documents,** August 23, 2002.

5. Farallon Consulting, L.L.C., **Additional Subsurface Characterization Report and Request for Review, Former Lacey Laundromat, 5800 Pacific Avenue Southeast, Lacey, Washington,** November 8, 2004.
6. Farallon Consulting, L.L.C., **Cleanup Action Plan, Former Lacey Laundromat, 5800 Pacific Avenue Southeast, Lacey, Washington,** October 4, 2005.

7. Farallon Consulting, L.L.C., **Supplemental Subsurface Investigation, Former Lacey Laundromat, 5800 Pacific Avenue Southeast, Lacey, Washington,** October 4, 2005.

8. Pacific Crest Environmental, LLC. **Response to Advisory Opinion Letter, Former Lacey Laundromat, 5800 Pacific Avenue Southeast, Lacey, Washington,** March 23, 2006.

9. Pacific Crest Environmental, LLC. **Cleanup Action Progress Report, Former Lacey Laundromat, 5800 Pacific Avenue Southeast, Lacey, Washington,** June 18, 2008.

10. Pacific Crest Environmental, LLC. **Addendum To Cleanup Action Plan, Former Lacey Laundromat, 5800 Pacific Avenue Southeast, Lacey, Washington,** April 21, 2009.

11. Pacific Crest Environmental, LLC. **2008 Annual Progress Report, Former Lacey Laundromat, 5800 Pacific Avenue Southeast, Lacey, Washington,** May 13, 2009.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. You can make an appointment by calling the SWRO resource contact at (360) 407-6365.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that, upon completion of your proposed cleanup, **no further remedial action** will likely be necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Ecology has determined your characterization of the Site is sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.**

To complete the delineation of the Site boundaries, seven additional ground-water monitoring wells (MW-11 through MW-17) have been installed at the Site since the submittal of the Draft Cleanup Action Plan (CAP). Two of these wells (MW-16 and MW-17) were installed as a result of the last opinion letter, dated August 15, 2008. These wells have been incorporated into the compliance ground-water monitoring program conducted at the Site. Table 1 summarizes the well construction information for the Site monitoring wells. Figure 2 shows the Facility Plan, ground-water monitoring well locations, and extent of ground-water tetrachloroethylene (PCE) plume.

2. Establishment of cleanup standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site meet the substantive requirements of MTCA.

The original Method B cleanup levels for PCE for direct contact and protection of ground water were calculated to be 18.1 milligrams per kilogram (mg/kg) and 0.067 mg/kg, respectively. However, the direct contact cleanup level has since decreased to 1.9 mg/kg, based on new exposure assumptions. The Method B PCE soil cleanup level of 0.067 mg/kg has been established for cleanup of PCE contamination in the soils. This cleanup level is appropriate for addressing PCE in the soils, and is protective of direct contact human health risk, terrestrial environmental risk, and is protective of the leaching to ground water pathway. In addition, the Method A cleanup level of 5 micrograms per liter (ug/l) for PCE in the ground water has been established for this Site. This is appropriate for addressing PCE in the ground water. No other chlorinated hydrocarbon has been determined to be present on Site above regulatory cleanup levels.

The point of compliance is the point or points where the soil cleanup levels established above shall be attained. For soil cleanup levels based on the protection of ground water, the point of compliance shall be established in the soils throughout the Site. The Site is defined by the soil concentrations that exceed the Method B soil cleanup levels identified in the soil samples from the excavations and boreholes constructed in the investigation and remediation activities.

For ground water, the point of compliance is the point or points where the ground-water cleanup levels established above must be attained for a Site to be in compliance with the cleanup standards. Ground-water cleanup levels shall be attained in all ground waters from the point of compliance to the outer boundary of the hazardous substance plume. The standard point of compliance is established throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest most depth that could

potentially be affected by the Site. The extent of contamination has been established vertically to be present within the shallow Recessional Outwash Aquifer and not the deeper Vashon Advance Aquifer. The outer boundary of the hazardous substance plume has been established by the monitoring well system just installed.

3. Selection of cleanup action.

Ecology has determined the cleanup action you proposed for the Site meets the substantive requirements of MTCA.

The cleanup activities that have been implemented as described in the Draft CAP since March 2006, have included source area removal by excavation, soil vapor extraction (SVE), and the introduction of in-situ chemical oxidant (ISCO) into select monitoring wells to remediate soil and ground water at the Site. The SVE system is currently extracting soil vapor containing PCE at flow rates ranging from approximately 130 to 150 standard cubic feet per minute (scfm) under an applied vacuum ranging from approximately 20.5 to 29.0 inches of H2O, which indicates good permeability in the soil matrix. It is estimated that approximately 24 pounds (lbs.) of PCE have been removed by the SVE system between July 2006 and December 2008, with an estimated 5 lbs. of PCE removed during 2008.

Ground-water samples collected from monitoring wells at the Site during 2008 indicate the ground-water contaminant plume is attenuating as the result of the remediation activities in the source area, and the addition of ISCO in down-gradient portions of the plume. The cleanup activities appear to be reducing the areal extent of the Site, and reducing concentrations of volatile organic compounds (VOCs) in ground water throughout the remainder of the Site.

Compliance monitoring following remedial activities will include air monitoring, soil compliance monitoring, and ground-water compliance monitoring. Air quality monitoring includes monitoring ambient air quality during source removal activities, and SVE vapor emissions monitoring. Air quality monitoring data collected during SVE operation is evaluated on a monthly basis during the first quarter of operation and quarterly thereafter. Soil compliance monitoring is conducted during the source removal action, soil trenching for SVE system installation, and upon completion of active remediation of the Site. Confirmation soil sampling is collected following completion of active remediation activities to document that cleanup standards have been attained. A post-remediation soil sampling plan will be prepared following completion of the remediation activities so that data collected during performance of the cleanup action can be used to appropriately determine sampling locations. Ground-water compliance monitoring includes quarterly performance sampling of the existing well network, and the

additional down-gradient monitoring wells described in the CAP. The performance monitoring activities are conducted during the remedial action to provide data regarding

the effectiveness of the cleanup activities, and the rate of ground-water plume attenuation. Upon attainment of ground-water cleanup levels at the points of compliance for two consecutive quarters of system operation, active soil and ground-water remediation activities will be discontinued, and confirmation ground-water sampling will be initiated. Confirmation ground-water sampling will be conducted until four consecutive quarters of data confirm that the Site is in compliance with ground-water cleanup standards.

Limitations of the Opinion

1. Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you proposed will be substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. Opinion is limited to proposed cleanup.

This letter does not provide an opinion on whether further remedial action will actually be necessary at the Site upon completion of your proposed cleanup. To obtain such an opinion, you must submit a report to Ecology upon completion of your cleanup and request an opinion under the VCP.

4. State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). As you conduct your cleanup, please do not hesitate to request additional services. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion, please contact me by phone at (360) 407-6267 or e-mail at chcl461@ecy.wa.gov.

Sincerely,

Charles S. Cline
SWRO Toxics Cleanup Program

CSC/ksc:LaceyLaundromat Proposed Clanup likely NFA 0609

Enclosures (1): A – Description of the Site.
Figure 1 – General location of the former Lacey Laundromat property.
Figure 2 – Site plan.
Figure 3 – Site plan with SVE first quarter 2008 ground-water results,
Figure 4 – Site plan with SVE second quarter 2008 ground-water results.
Figure 5 – Site plan with SVE third quarter 2008 ground-water results.
Figure 6 – Site plan with SVE fourth quarter 2008 ground-water results.

cc: Ms. Lauren Carroll, L.G., L.H.G., Pacific Crest Environmental
Mr. Gerald Tousley, Thurston County Health Dept.
Ms. Julie Rector, Water Quality Analyst, Lacey Public Works
Mr. Scott Rose, Ecology
Ms. Dolores Mitchell, Ecology w/o enclosures

Enclosure A

Description and Diagrams of the Site

Site Description

The Former Lacey Laundromat Dry Cleaners Site is located at 5800 Pacific Avenue SE, Lacey, Thurston County, Washington (Figure 1). It is located at the northeast corner of the intersection of Lacey Street and Pacific Avenue, in an area of mixed commercial and retail use. The Site consists of an approximately 13,500-square feet (ft^2) parcel, currently developed with a 1,100-ft^2, slab-on-grade masonry building, constructed in 1956, which includes three commercial tenant spaces. The tenant space on the westernmost end of the building is currently occupied by a video store, the center tenant space is occupied by a hair salon, and the easternmost tenant space is occupied by Lam N.P. Grocery, an Asian specialty market. A shed is attached to the east end of the Site building and extends approximately 5 feet (ft) east of the parcel boundary onto another parcel also owned by New Market I Investment Group (Figure 2). Historically, the western side of the Site was occupied by a dry cleaning facility between 1961 and 1976. During the operation of the facility, effluent was disposed to a drainage field to the south of the property. In 1980, the Site building was connected to the City of Lacey sanitary sewer system, and wastewater generated at the Site building was discharged through the City of Lacey sanitary sewer system since that time. In 1991, tetrachloroethylene (PCE) was found in Thurston Water District #2 Well #1, located approximately 600 ft to the northwest of the Site. The well was taken out of service and the State of Washington Department of Ecology (Ecology) conducted an investigation at suspect area properties in an effort to determine the source(s) of the PCE contamination. As part of the investigation, three shallow soil samples were collected by Ecology on the south side of the Lacey Laundromat building, including two samples from the abandoned drain field area, and one sample from the southeast side of the building. The three soil samples reportedly contained concentrations of PCE ranging from 0.36 milligram per kilogram (mg/kg) to 0.83 mg/kg, which exceed the current Model Toxics Control Act (MTCA) Method A soil cleanup level for PCE of 0.05 mg/kg. The Lacey Laundromat was designated the potential source and Ecology gave the Site a hazard ranking of 1 (with 1 being the highest potential risk and 5 the least).

GEOLOGY: Unconsolidated sediments in the vicinity of the Site are estimated to be 700 ft thick, with the formations designated, from the youngest to oldest, as the Vashon Recessional Outwash, the Vashon Till, the Vashon Advance Outwash, the Kitsap Formation, the Salmon Springs Drift, and undifferentiated deposits. The Vashon Recessional Outwash consists of sand and gravel, and is estimated to be 50 to 75 ft thick in the vicinity of the Site. The underlying Vashon Till is described as consisting of dense "hardpan", composed of clay, silt, sand, gravel, and boulders, and is estimated to be between 0 and 25 ft thick in the vicinity of the Site. The Vashon Advance Outwash underlies the Vashon Till, and is estimated to be between 50 and 100 ft thick in the vicinity of the Site. The Kitsap Formation, a clay and silt confining layer underlies the Vashon Advance Outwash. The Vashon Advance Outwash is the inferred aquifer tapped by the Thurston County Well District #2 Well #1.

The geology of the Site described by Farallon and others based on Site-specific borings indicates that the subsurface is comprised predominantly of sandy gravel to gravelly sand, interbedded with silt-containing layers that are approximately 2 to 7 ft in thickness, including

silty sand, sand with silt, and silt to the depth explored of approximately 139 ft bgs. Silt-containing layers occur at the ground surface (called the near-surface silt-containing layer), at approximately 12 to 18 ft bgs (shallow silt-containing layer), at 29 to 43 ft bgs (intermediate silt-containing layer) dipping toward the south, and at 64 to 69 ft bgs dipping toward the north (deep silt-containing layer). The four silt-containing layers encountered by Farallon were not interpreted to be of sufficient thickness or competency to be consistent with published descriptions of the Vashon Till to act as a confining layer. Gravel content was observed to increase in soil borings advanced near the northern extent of the investigation area, with approximately 2- to 7-ft thickness of sandy gravel to silty gravel described at depths of greater than approximately 30 ft bgs. The latest borehole constructed to be advanced into the Vashon Advance Outwash (MW-13) by Pacific Crest Environmental (Pacific Crest) was drilled by sonic drilling methods between May 8 and May 10, 2006, to a total depth of 210 ft bgs. Silt was encountered from 151.5 to 153.5 ft bgs and from 208.5 to 210.0 ft bgs. Sand and gravel was encountered throughout the borehole from the maximum depth explored previously (139 ft bgs) to the total depth of 210.0 ft bgs, except for the interbedded silt-bearing layers. The silt-bearing layers in MW-13 are interpreted to be thin representations of the Vashon Till and the top of the Kitsap Formation.

HYDROGEOLOGY: The Vashon Recessional Outwash contains an unconfined water-bearing zone in the lower portion, which is referred to as the Recessional Outwash Aquifer. The ground-water monitoring data for the Site indicates that the unconfined ground-water bearing zone within the Vashon Recessional Outwash occurs at approximately 57 to 64 ft bgs. The potentiometric surface maps indicate that the direction of ground-water flow in the unconfined Recessional Outwash water-bearing zone beneath the Site is generally to the north on the property and to the northwest north of the property on October 23, 2006 and December 10, 2007 (Figures 4 and 5). The underlying Vashon Till serves as a confining layer between the Recessional Outwash Aquifer above and the sand and gravel aquifer within the Vashon Advance Outwash below. The Advance Outwash contains a confined aquifer referred to as the Vashon Advance Aquifer, which is estimated to be between 50 and 100 ft thick in the vicinity of the Site, and which overlies the Kitsap formation, a clay and silt confining layer. Two deeper water-bearing zones underlie the Kitsap formation, which are known as the Salmon Springs/Sea Level Aquifer and an undifferentiated aquifer, respectively. The ground-water elevation data measured at well pair MW-7S and MW-7D on June 29, 2006 indicates that there is an upward vertical gradient between the shallow Recessional Outwash Aquifer and the deeper Vashon Advance Aquifer screened by the well pair, with a head difference of 3.05 ft between the wells. The hydraulic gradient in the Recessional Outwash Aquifer underlying the Site ranges from approximately 0.005 ft per ft (ft/ft) beneath the former Lacey Laundromat property and increases to approximately 0.04 ft/ft north of the property.

The investigation of source areas at the Site has confirmed that concentrations of PCE in soil exceeding either the MTCA Method A soil cleanup level or the Site-specific Method B soil cleanup level are primarily confined to the near-surface silt-bearing layer that is present from 0 to 5 ft bgs. The additional soil investigation conducted beneath the building does not indicate a substantial previously unidentified source of PCE underlying the building. During the supplemental investigation field activities, a structure inferred to be a concrete septic tank was encountered on the south side of the building. The identification of the inferred septic tank, and the elevated concentration of PCE in ground water adjacent to the concrete tank in well MW-9, suggests that this location is a source of PCE contamination at the Site (Figure 3).

The analytical results for the ground-water samples collected on January 31 and February 1, 2005 indicate that concentrations of PCE exceeding the MTCA Method A ground-water cleanup level of 5 ug/l were present in ground-water samples collected from monitoring wells MW-2 (7.4 ug/l), MW-6 (15 ug/l), MW-7S (7.7 ug/l), MW-8 (80 ug/l), MW-9 (55 ug/l), and MW-10 (34 ug/l). Concentrations in the other wells were either below cleanup levels or were not detected either at or above the laboratory Practical Quantitation Limit (PQL). Monitoring well MW-1, which historically has had samples above the MTCA Method A cleanup level, did not contain sufficient volume of ground water to collect a sample.

Shallow ground water beneath the Site occurs at approximately 57 to 63 ft bgs under unconfined conditions. The presence of PCE in the ground water at and below the deep silt-bearing layer suggests that the near surface, shallow and intermediate silt-bearing layers are not of sufficient competency to fully attenuate the vertical migration of PCE in the subsurface soil above the ground-water table. The conceptual Site model indicates that the areal extent of PCE exceeding the MTCA Method A soil cleanup level and/or the Site-specific Method B soil cleanup level includes a substantial portion of the area underlying the Site building and the asphalt parking lot south of the building. The vertical extent of contamination exceeding either the Method A or B soil cleanup levels appears to be confined to the upper 25 ft of soil.

Based on the distribution of concentrations of PCE in ground water at the Site, it is inferred that concentrations of PCE in soil beneath the building or septic system exceeding the soil cleanup level have extended to the ground-water table at some time following the PCE release. Concentrations of PCE exceeding the MTCA Method A cleanup level in the unconfined ground water appear to initiate adjacent to the area underlying the inferred location of the concrete septic tank south of the building, and to extend down-gradient to the north-northeast of the Site. In the previous investigations, the vertical extent of PCE in ground water evaluated using the monitoring well pair MW-7S/MW-7D indicates that the deeper, confined ground water in the Vashon Advance aquifer has not been contaminated by PCE. However, the Ecology opinion letter, dated January 9, 2006, stated that one deep well does not determine a complete characterization for the confined Vashon Advance Aquifer. Especially, since the Thurston County Well District Well District #2 Well #1 was screened in this aquifer.

Site History

In response to Ecology's opinion letter dated January 9, 2006, Pacific Crest conducted site characterization activities between April and August 2006. Four well borings were completed in the shallow Recessional Outwash Aquifer at depths of 68, 64, 69, and 70 ft bgs using a hollow-stem auger drilling rig, and the borings were converted into ground-water monitoring wells MW-11, MW-12, MW-14, and MW-15, respectively. One borehole was completed to the bottom of the Vashon Advance Aquifer at a depth of 210.0 ft bgs and was converted to monitoring well MW-13. In addition, two more wells (MW-16 and MW-17) were constructed in January 2009 in the Recessional Outwash Aquifer, to depths of 75 ft bgs, to define the extent of contamination. Soil sampling and ground-water sampling have been conducted on the boreholes and in the monitoring wells, respectively.

Pacific Crest initiated soil and ground-water cleanup activities at the site in March 2006. The progress report dated June 18, 2008 documents cleanup activities conducted from March 2006 through December 2007. The cleanup included the following:

- Source removal, including excavation and removal of the septic system and adjacent soil with evidence of halogenated volatile organic compound (HVOC) contamination.
- Installation and start-up of a soil vapor extraction (SVE) system.
- Collection and analysis of confirmation soil samples at the final limits of the source removal excavation, and at the base of the trenches excavated for installation of SVE conveyance piping.
- Introduction of chemical oxidants into ground water to reduce concentrations of HVOCs in ground water.

Information obtained by Pacific Crest indicated that the septic system had not been in use since the municipal sewer was connected in 1980. However, during the source removal activities, it became evident that the septic system was still actively servicing the easternmost tenant space. Following this discovery, the property owner was notified of this condition and the tenant space was re-routed to the municipal sewer system. Excavation of the septic system proceeded and all but the north sidewall of the system was excavated and soil removed to the extent of the excavation (17 ft by 14 ft by 8 ft in depth). Confirmation soil samples were collected from the south, east, and west sidewalls and the bottom of the excavation.

The SVE system was installed to remove residual concentrations of HVOCs in soil at the site. The SVE system includes a total of six vertical SVE wells and two horizontal SVE wells. Pacific Crest started the SVE system on July 20, 2006. As required by the Olympic Region

Clean Air Authority (ORCAA), the influent, midpoint, and effluent soil vapor emissions were sampled and monitored. Pacific Crest installed monitoring ports on ground-water monitoring wells MW-3, MW-4, and MW-8, to measure the radius of influence (ROI) of the SVE system in the site subsurface.

In-situ chemical oxidation was selected as the remedial technology to reduce the mass of HVOCs in ground water at the site. The objective is to reduce concentrations of HVOCs in ground water and accelerate attenuation of the HVOC plume in ground water. A mixture of sodium persulfate ($Na_2S_2O_8$) with chelated iron (to lower activation energy for reaction) was selected as the oxidant for use at the site during this period. Each oxidant injection event that has been conducted at the site has been completed shortly after compliance ground-water monitoring events to allow sufficient time for dissolution, reaction, and re-equilibration of aquifer waters prior to conducting the subsequent compliance sampling event. The oxidant mixture has been added to monitoring wells MW-1 through MW-7S, and MW-8 through MW-12 at the site during events conducted between July 2006 and September 2007. During the events conducted between July 26, 2006 and April 17, 2007, chemical oxidant injection was accomplished by installing Chemical Oxidant Release Capsules (CORCs) filled with dry oxidant into the submerged screened interval of the monitoring wells to provide an ongoing source of chemical oxidant to shallow ground water in the vicinity of the well. Beginning on April 25, 2007, the use of the CORCs was discontinued, and oxidant addition to the aquifer was conducted by adding between approximately 8 and 20 pounds of free sodium persulfate/chelated iron mixture to each of the wells. Following addition of the sodium persulfate into the wells, the wells were surged and approximately 200 gallons of potable water was added to each well to promote dissolution and distribution of the treatment material into the aquifer.

Compliance ground-water monitoring conducted to date has included nine performance ground-water level monitoring and sampling events conducted between the fourth quarter of 2006 and the fourth quarter 2008 using the monitoring wells screened in the Recessional Outwash Aquifer at the site. The performance monitoring activities were conducted to provide data regarding the effectiveness of the cleanup activities and the rate of ground-water plume attenuation. Compliance ground-water monitoring was initiated following source removal and the start-up of the SVE system.

Based on the investigations conducted to date, it would appear that the Vashon Advance Aquifer has not been contaminated by the release of PCE at the site. PCE exists in the soil exceeding the MTCA Method B PCE soil cleanup level of 0.067 mg/kg in the near surface soil, 0 to 5 ft bgs, in the area south of the site building. The analytical data also confirms that residual concentrations of PCE at the site are within the ROI of the SVE system and are expected to be mitigated with continued operation of the SVE system.

The ground-water elevation data collected at the site indicate that the ground-water flow direction in the shallow unconfined Recessional Outwash Aquifer is more complex than originally thought. The installation of monitoring wells MW-11, MW-12, MW-14, MW-15, MW-16, and MW-17 has provided information that the apparent flow direction appears to be toward the north in the southern portion of the site, and to the northwest to west in the northern

portion of the site. Pacific Crest will continue to monitor the ground-water monitoring wells at the site.

The detected concentrations of PCE in the ground-water samples at the site indicate that the ground-water contaminant plume is attenuating as a result of the remediation in the source area, and the injection of chemical oxidants in down-gradient portions of the plume.

Table 1
Well Construction Summary
Former Lacey Laundromat
Lacey, Washington
Pacific Crest PN: 101-001

Well Identification	Date Constructed	Screened Interval (ft bgs)	Total Well Depth (ft bgs)	Well Inner Diameter (in)	Top of Casing Elevation (feet) [1]	Consultant [2]
MW-1	3/10/2003	45-60	60	2	181.21	HORUS Environmental Group, Inc
MW-2	3/10/2003	44-69	69	2	181.78	HORUS Environmental Group, Inc
MW-3	3/11/2003	45-70	70	2	182.06	HORUS Environmental Group, Inc
MW-4	3/11/2003	50-70	70	2	182.63	HORUS Environmental Group, Inc
MW-5	2/23/2004	63-68	68	4	182.29	Farallon Consulting, LLC
MW-6	2/26/2004	64-69	69	4	181.20	Farallon Consulting, LLC
MW-7s	2/24/2004	60-65	66	4	181.26	Farallon Consulting, LLC
MW-7d	2/14/2004	121-131	131	4	181.13	Farallon Consulting, LLC
MW-8	2/25/2004	61-66	66	4	180.89	Farallon Consulting, LLC
MW-9	1/10/2005	59.5-69.5	70	4	182.01	Farallon Consulting, LLC
MW-10	1/11/2005	59.5-69.5	70	4	181.52	Farallon Consulting, LLC
MW-11	4/5/2006	58.5-68.5	68.5	4	181.20	Pacific Crest Environmental, LLC
MW-12	4/6/2006	54-64	64	4	181.88	Pacific Crest Environmental, LLC
MW-13	5/11/2006	200-210	210	4	181.02	Pacific Crest Environmental, LLC
MW-14	8/17/2006	55-65	65	4	179.26	Pacific Crest Environmental, LLC
MW-15	8/17/2006	58-68	68	4	180.38	Pacific Crest Environmental, LLC
MW-16	1/8/2009	50-75	75	2	181.26	Pacific Crest Environmental, LLC
MW-17	1/6/2009	50-75	75	2	181.90	Pacific Crest Environmental, LLC

NOTES:

ft bgs = feet below ground surface

in = inches

[1] Elevation based on survey relative to city of Lacey Benchmark #965 at an elevation of 183.662 feet above mean sea level.

[2] Well installed under the direction of the consulting firm listed.

Site Diagrams

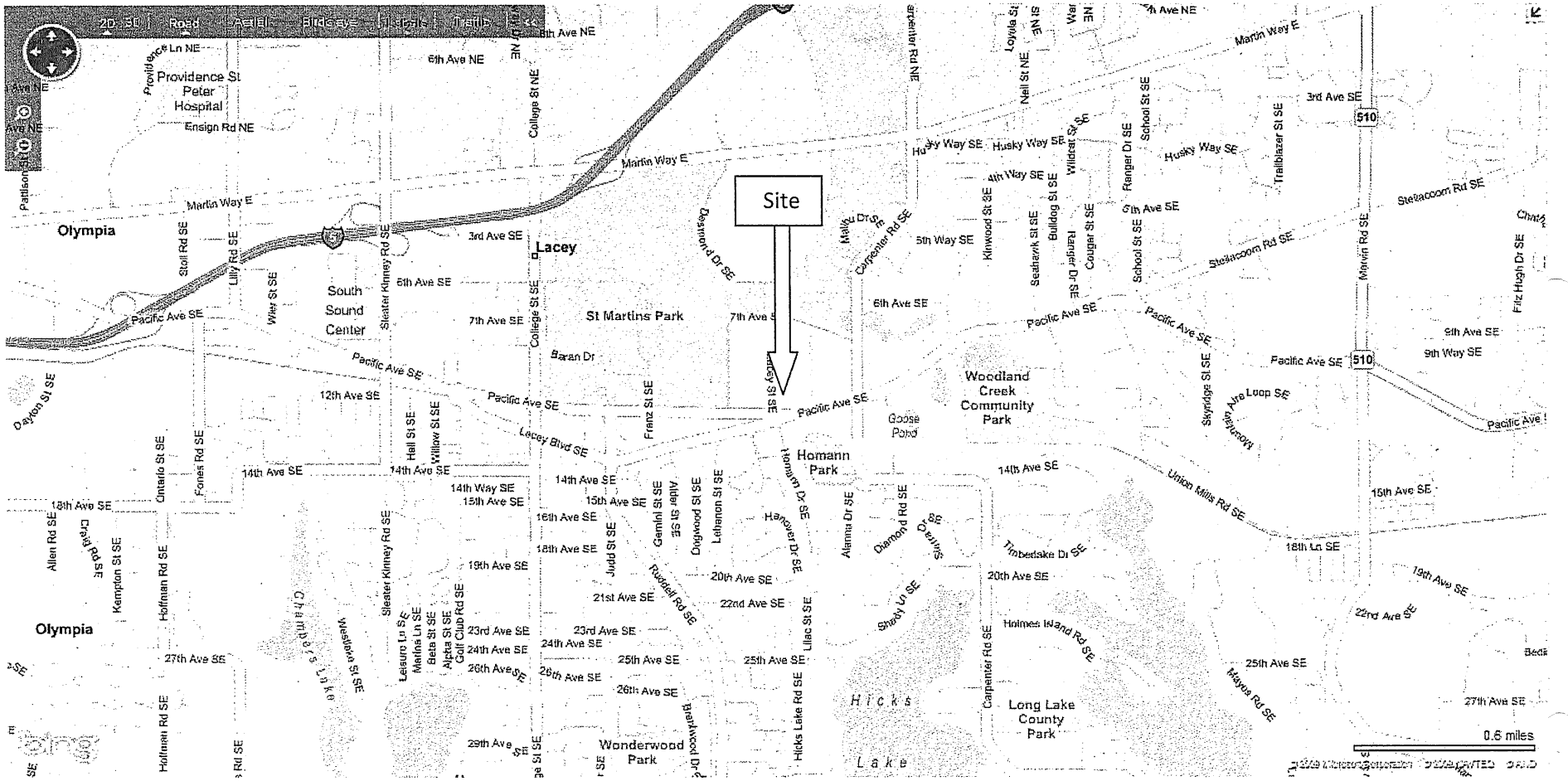


Figure 1 - Former Lacey Laundromat
5800 Pacific Avenue SE, Lacey

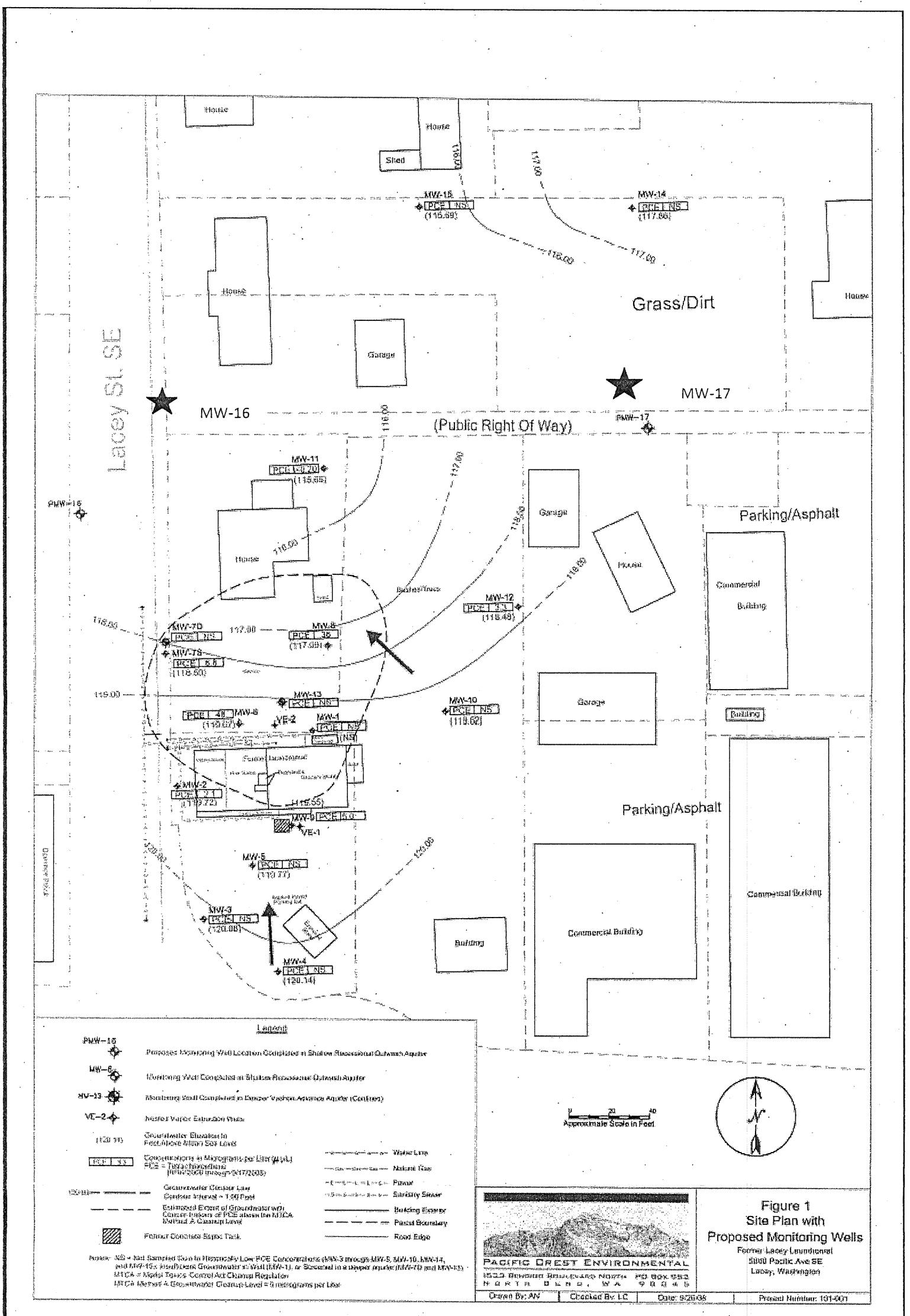
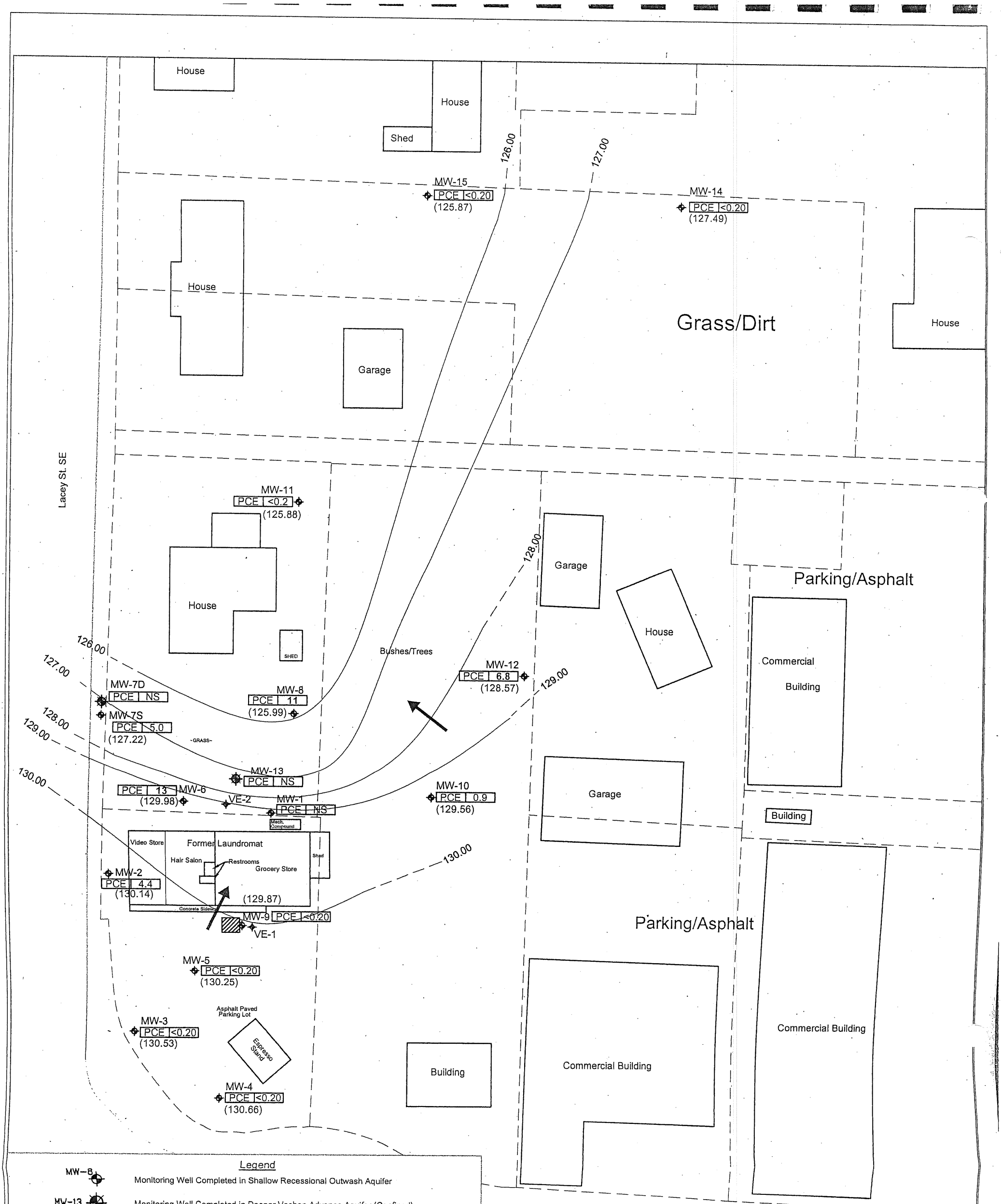


Figure 2 – Site Plan with new well actual locations



Legend

- MW-8 — Monitoring Well Completed in Shallow Recessional Outwash Aquifer
- MW-13 — Monitoring Well Completed in Deeper Vashon Advance Aquifer (Confined)
- VE-2 — Nested Vapor Extraction Wells
- Former Concrete Septic Tank
- Building Exterior
- Parcel Boundary
- Road Edge
- (130.66) — Groundwater Elevation In Feet Above Mean Sea Level (3/18/2008)
- 129.00 — Groundwater Contour Line (Dashed Where Inferred)
- PCE 6.8 — Concentrations in Micrograms per Liter (ug/L) - (3/18/2008 - 3/20/2008)
- Approximate Direction of Groundwater Flow

Notes:

Bold = Concentrations of PCE that exceed MTCA Method A Groundwater Cleanup Level of 5 ug/L
NS = Not Sampled
MTCA = Model Toxics Control Act Cleanup Regulation
PCE = Tetrachloroethene
Contour Interval = 1.00 Feet
< indicates less than the practical quantitation limit

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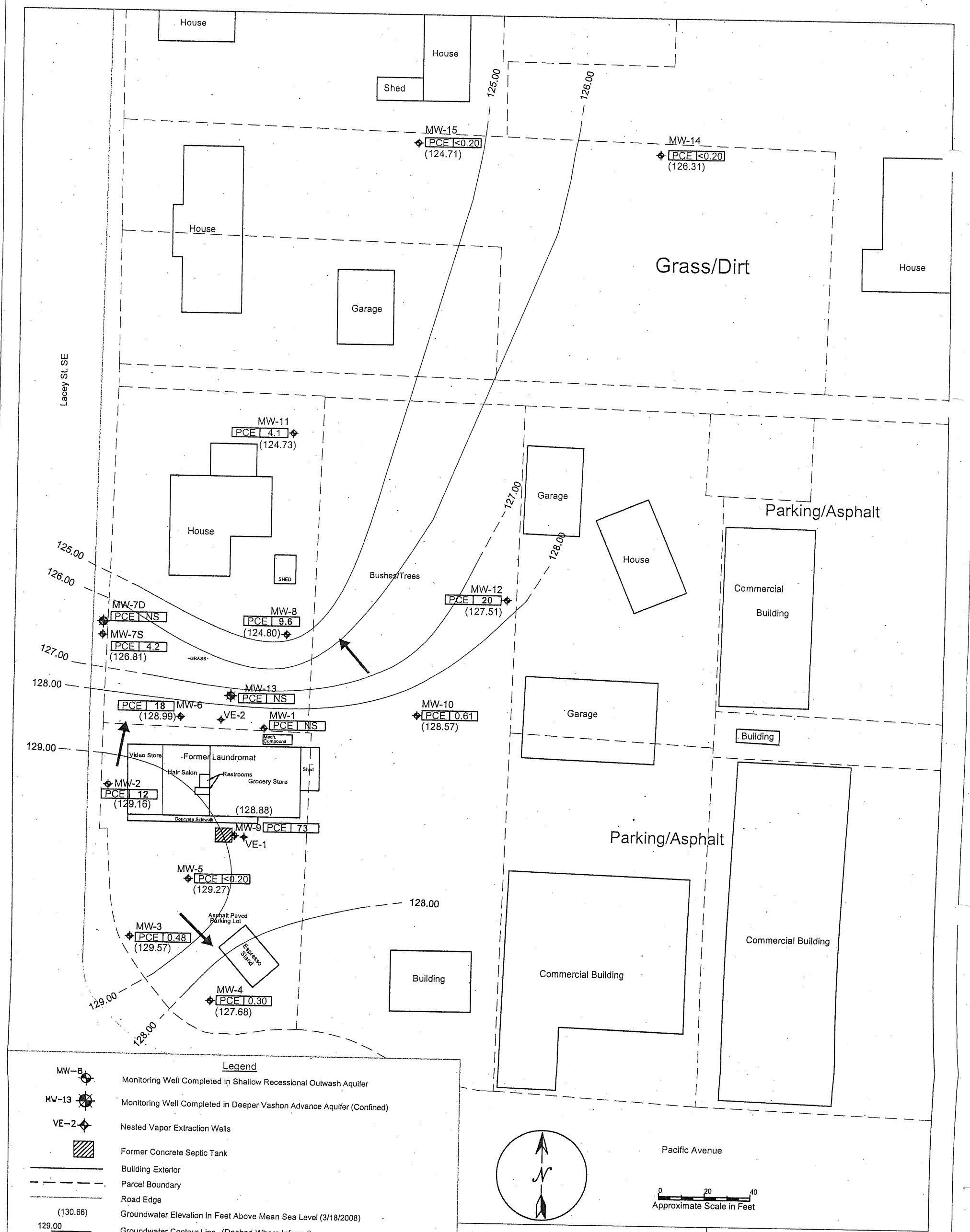
Figure 3
First Quarter 2008 Groundwater Results

Former Lacey Laundromat
5800 Pacific Ave SE
Lacey, Washington

Drawn By: MAP	Checked By: GL	Date: 4-27-09	Project Number: 101-001



Legend

- MW-8 — Monitoring Well Completed in Shallow Recessional Outwash Aquifer
- MW-13 — Monitoring Well Completed in Deeper Vashon Advance Aquifer (Confined)
- VE-2 — Nested Vapor Extraction Wells
- Former Concrete Septic Tank
- Building Exterior
- Parcel Boundary
- Road Edge
- (130.66) — Groundwater Elevation In Feet Above Mean Sea Level (3/18/2008)
- 129.00 — Groundwater Contour Line (Dashed Where Inferred)
- PCE 6.8 — Concentrations in Micrograms per Liter (ug/L) - (3/18/2008 - 3/20/2008)
- Approximate Direction of Groundwater Flow

Notes:

Bold = Concentrations of PCE that exceed MTCA Method A Groundwater Cleanup Level of 5 ug/L
NS = Not Sampled
MTCA = Model Toxics Control Act Cleanup Regulation
PCE = Tetrachloroethene
Contour Interval = 1.00 Feet
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Figure 4
Second Quarter 2008 Groundwater Results

Former Lacey Laundromat
5800 Pacific Ave SE
Lacey, Washington

Drawn By: AN	Checked By: LC	Date: 4-27-09	Project Number: 101-001

House
House
Shed
116.00
117.00
MW-15
PCE NS
(115.69)
MW-14
PCE NS
(117.86)
House
Grass/Dirt
House
Garage
Lacey St. SE
MW-11
PCE <0.20
(115.65)
116.00
House
SHED
Bushes/Trees
118.00
Garage
Parking/Asphalt
117.00
119.00
House
Commercial Building
MW-12
PCE 3.3
(118.48)
MW-7D
PCE NS
MW-7S
PCE 6.8
(118.59)
-GRASS-
MW-8
PCE 36
(117.09)
118.00
119.00
MW-13
PCE NS
PCE 48
MW-6
(119.67)
VE-2
MW-1
PCE NS
Mech. Compound
MW-10
PCE NS
(119.62)
Garage
Building
Video Store
Former Laundromat
Hair Salon
Restrooms
Grocery Store
Shed
MW-2
PCE 2.1
(119.72)
(119.55)
Concrete Sidewalk
MW-9
PCE 5.0
VE-1
Parking/Asphalt
120.00
MW-5
PCE NS
(119.77)
120.00
Asphalt Paved Parking Lot
MW-3
PCE NS
(120.08)
Espresso Stand
Building
Commercial Building
Commercial Building
MW-4
PCE NS
(120.14)
Pacific Avenue
N
0
20
40
Approximate Scale in Feet

Legend

- MW-8 — Monitoring Well Completed in Shallow Recessional Outwash Aquifer
- MW-13 — Monitoring Well Completed in Deeper Vashon Advance Aquifer (Confined)
- VE-2 — Nested Vapor Extraction Wells
- Former Concrete Septic Tank
- Building Exterior
- Parcel Boundary
- Road Edge
- (130.66) — Groundwater Elevation In Feet Above Mean Sea Level (3/18/2008)
- 129.00 — Groundwater Contour Line (Dashed Where Inferred)
- PCE 6.8 — Concentrations in Micrograms per Liter (ug/L) - (3/18/2008 - 3/20/2008)
- Approximate Direction of Groundwater Flow

Notes:

Bold = Concentrations of PCE that exceed MTCA Method A Groundwater Cleanup Level of 5 ug/L
NS = Not Sampled
MTCA = Model Toxics Control Act Cleanup Regulation
PCE = Tetrachloroethene
Contour Interval = 1.00 Feet
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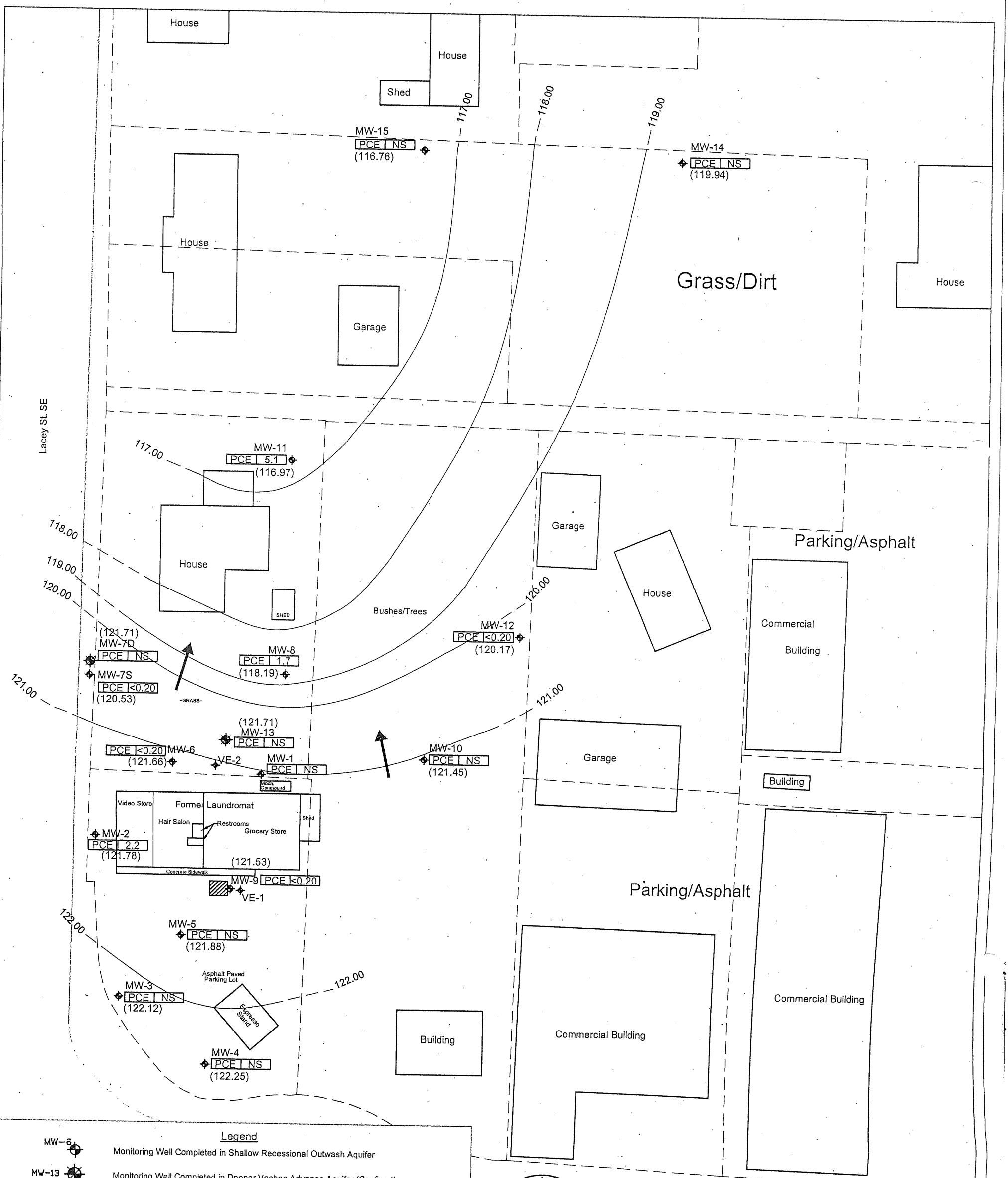
Figure 5
Third Quarter 2008 Groundwater Results

Former Lacey Laundromat
5800 Pacific Ave SE
Lacey, Washington

Drawn By: AN	Checked By: LC	Date: 4-27-09	Project Number: 101-001



Legend

- MW-6 — Monitoring Well Completed in Shallow Recessional Outwash Aquifer
- MW-13 — Monitoring Well Completed in Deeper Vashon Advance Aquifer (Confined)
- VE-2 — Nested Vapor Extraction Wells
- Former Concrete Septic Tank
- Building Exterior
- Parcel Boundary
- Road Edge
- (130.66) — Groundwater Elevation In Feet Above Mean Sea Level (3/18/2008)
- 129.00 — Groundwater Contour Line (Dashed Where Inferred)
- PCE 6.8 — Concentrations in Micrograms per Liter (ug/L) - (3/18/2008 - 3/20/2008)
- Approximate Direction of Groundwater Flow

Notes:

Bold = Concentrations of PCE that exceed MTCA Method A Groundwater Cleanup Level of 5 ug/L
NS = Not Sampled
MTCA = Model Toxics Control Act Cleanup Regulation
PCE = Tetrachloroethene
Contour Interval = 1.00 Feet
< indicates less than the practical quantitation limit

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Figure 6
Fourth Quarter 2008 Groundwater Results

Former Lacey Laundromat
5800 Pacific Ave SE
Lacey, Washington

Drawn By: MAP	Checked By: LC	Date: 4-27-09	Project Number: 101-001