STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

May 3, 2010

Mr. Dennis Bortko
Yarrow Bay Yacht Basin & Marina, LLC
5207 Lake Washington Blvd NE
Kirkland, WA 98003

Re: Further Action at the following Site:

- Name: Yarrow Bay Marina
- Address: 5207 Lake Washington Blvd NE, Kirkland
- Facility/Site No.: 2486
- VCP No.: NW1791

Dear Mr. Bortko:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Yarrow Bay Marina 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

Is further remedial action necessary to clean up contamination at the Site?

YES. Ecology has determined that further remedial action is 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:

- Gasoline range (tph-g) and diesel range (tph-d) petroleum hydrocarbons into the Soil, Ground Water, and Surface Water,
- Suspected Gasoline range (tph-g) and diesel range (tph-d) petroleum hydrocarbons into the Sediment,
- Carcinogenic polyaromatic hydrocarbons (cPAH) into the Soil.

Enclosure A includes a detailed description and diagram of the uplands portion 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. Subsurface Investigation Report, dated August 15th 2006, prepared by Sound Environmental Strategies (SES)
2. Subsurface Investigation Report, dated August 15th 2006, prepared by SES
3. Phase I Environmental Site Assessment, dated September 7th 2006, prepared by
4. Supplemental Subsurface Investigation Report, dated October 20th 2006, prepared by SES
5. Storm Water Pollution Prevention Plan, dated February 2nd 2007, prepared by SES
6. Draft Cleanup Action Plan, dated November 8th 2007, prepared by Farallon Consulting LLC (Farallon)
7. Supplemental Subsurface Investigation Report, dated November 13th 2007, prepared by SES
8. Cleanup Action Plan, dated February 5th 2008, prepared by Farallon
9. Closure Report Yarrow Bay Marine, dated January 8th 2010, prepared by Farallon

Those documents are kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. You can make an appointment by calling the NWRO resource contact at 425.649.4446.

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 **further remedial action** is 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 uplands portion of the Site was sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.**

Characterization of the sediments portion of the Site is scheduled to be performed once remedial activities in the uplands portion of the Site were completed. Characterization of the sediments portion of the Site should now be conducted.

The characterization of the extent of the uplands portion of the petroleum hydrocarbon release as described in the *Supplemental Subsurface Investigation Report*, dated October 20th 2006, was sufficient enough to establish cleanup standards and select an appropriate cleanup action. **However**, the presence of cPAH in soil was not identified during any of the documented remedial investigations performed at the Site. The presence of cPAH was not known until buried timbers likely treated with creosote were discovered in an excavated utility trench.

2. **Establishment of cleanup standards.**

Ecology has determined the cleanup levels and points of compliance you established for the uplands portion of the Site meet the substantive requirements of MTCA. The cleanup levels and points of compliance for sediments and surface water will be determined once the sediments investigation is completed.

The cleanup levels for soil at the Site are the MTCA Method A soil cleanup levels for unrestricted land use

The cleanup levels for groundwater throughout the Site are MTCA Method A cleanup levels for groundwater and MTCA Method B cleanup levels for surface water. The surface water cleanup level for benzene is based on the assumption that the most beneficial use of groundwater is for the protection of surface water quality.

The standard point of compliance for soil is defined as throughout the Site.

The standard point of compliance for groundwater is defined as groundwater throughout the Site.

3. **Selection of cleanup action.**

Ecology had
determined the cleanup action you selected for the uplands portion of the Site *as described* in the "*Cleanup Action Plan*" meet the substantive requirements of MTCA.

Farallon evaluated three cleanup alternative cleanup actions for the Site and selected the most permanent and protective alternative. The cleanup action selected included source control by removal and disposal of soil with concentrations of petroleum hydrocarbon constituents that exceed applicable cleanup levels wherever it may be present at the Site (Cleanup Action Plan, dated February 5th 2008). As discussed during an Ecology Site visit on July 4th 2007, remedial activities would be scheduled to begin ahead of construction activities in order to assure access to all soil impacted by petroleum hydrocarbons.

4. Cleanup.

Ecology has determined the cleanup you performed has not meet met the soil cleanup standards at the Site.

The cleanup action was conducted from March to September 2008 and included the removal of two underground storage tanks (USTs) and the former fuel dispenser: excavation and disposal of contaminated soil in the vicinity of the fuel dispenser; dewatering the excavation and disposal of the extracted water: collection and analysis of soil performance and confirmation soil samples from the excavations; sampling and analysis of soil with suspected contamination that was exposed during redevelopment activities; and completion of four consecutive quarters of groundwater monitoring.

During UST removal activities no evidence of petroleum hydrocarbon (tph-g and tph-d) release from the tanks had occurred. Results of confirmation samples tph-g and tph-d concentrations as non-detect. Grab water samples from the pit did exhibit concentrations of lead and benzene above MTCA Method A.

Approximately 200-tons of soil with concentrations of petroleum hydrocarbon (tph-g and tph-d) concentrations above MTCA Method A cleanup levels for soil were excavated from the area proximate to the fuel dispenser between March 26th and March 31st 2008. Contaminated soils were removed to a depth of 5- to 6-feet bgs along the shoreline bulkhead and to 8- to 9-feet bgs in areas of the excavation located away from the bulkhead.

Analytical results of soil samples from the bottom, southern and eastern limits of the excavation area confirmed that soil concentrations of tph-g and tph-d exceeding Site cleanup levels had been removed in all but one location. One soil sample in the northwest corner of the excavation at the shoreline (inside the bulkhead) at a depth of 6-feet bgs had concentrations of tph-g, tph-d, and xylenes above cleanup levels.

- Due to an accessibility problem, however, a small portion of the impacted soil (TPH concentration exceeding Ecology's Method A level) near the bulkhead remained un-touched. Therefore, a NFA letter cannot be issued at this time.
- This contamination needs to be addressed in order for this Site to qualify for a Site NFA

Unfortunately the cleanup action was conducted in conjunction with the redevelopment of the Site. During the excavation of a utility trench outside of the petroleum hydrocarbon Site, buried timbers likely treated with creosote were discovered. One soil sample from this area contained concentrations of cPAH above MTCA Method A cleanup level. Due to the unforeseen occurrence of cPAH outside the footprint of the petroleum hydrocarbon Site, redevelopment in this area had already commenced which precluded further sampling or excavation in this area.

- This contamination needs to be addressed in order for this Site to qualify for a Site NFA

Following the completion of the UST decommissioning and soil excavation, compliance groundwater monitoring was conducted at the Site. Groundwater monitoring included the installation of monitoring wells MW-8, MW-9, and MW-10; and conducting four consecutive quarters of groundwater monitoring. The well screens were installed to intersect the top of the water-bearing zone at 5-feet below ground surface (bgs). All three wells were screened from 5-feet bgs to 15-feet bgs.

Groundwater monitoring events were conducted in December 2008, March 2009, June 2009, and October 2009. The laboratory analytical results of samples from all monitoring wells for all four quarters did not show concentrations for any chemical of concern above the cleanup level.

A Sediments Sampling plan should be submitted for review and approval at this time.

- This Sampling plan should include sediment samples from Lake Washington near the bulkhead annually for two years.
- Groundwater sampling from the monitoring well near the bulkhead quarterly for two years.
- The sediments portion for the Site will be considered adequate if both the groundwater and sediment laboratory results from two years meet the substantive requirements

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 performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. **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). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. 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 425.649.4446 or e-mail at damy461@ecy.wa.gov.

Sincerely,

Dale R. Myers
Site Manager
NWRO Toxics Cleanup Program

dm/kp

Enclosures (1): A – Description and Diagrams of the Site

cc: Mr. Dan Caputo
Farallon Consulting
975 5th Avenue NW
Issaquah, WA 98027

Enclosure A

Description and Diagrams of the Site

Site Description

Yarrow Bay Marina (Site) is located at 5207 Lake Washington Blvd, approximately 2 miles south of downtown Kirkland, in a mixed-use commercial and residential area.

Kirkland, Washington is located on the Interlake Drift Upland, which was created during the retreat of continental glaciers during the most recent stade of glaciation. The geology in the vicinity consists of glacial debris deposited during the Vashon stade of glaciation, including glacial till, sands and gravels. The glacial till consists of dense, gravelly, sandy silt to silty sand with varied quantities of clay and scattered cobbles and boulders.

Specifically, at the Site, fill material consisting of fine sand and silt with gravel is found from the ground surface to approximately 15-feet bgs. Depth to groundwater at the Site is approximately 3- to 5-feet bgs. Based upon inference from topography and local drainage patterns and groundwater monitoring conducted at the Site, shallow seated groundwater generally flows in a westerly direction into Lake Washington.

The Site comprises King County Tax Parcel No. 172505-9130, which is an irregular-shaped lot that consists of approximately 44,797 square feet of commercial property, a portion of which extends into Lake Washington.

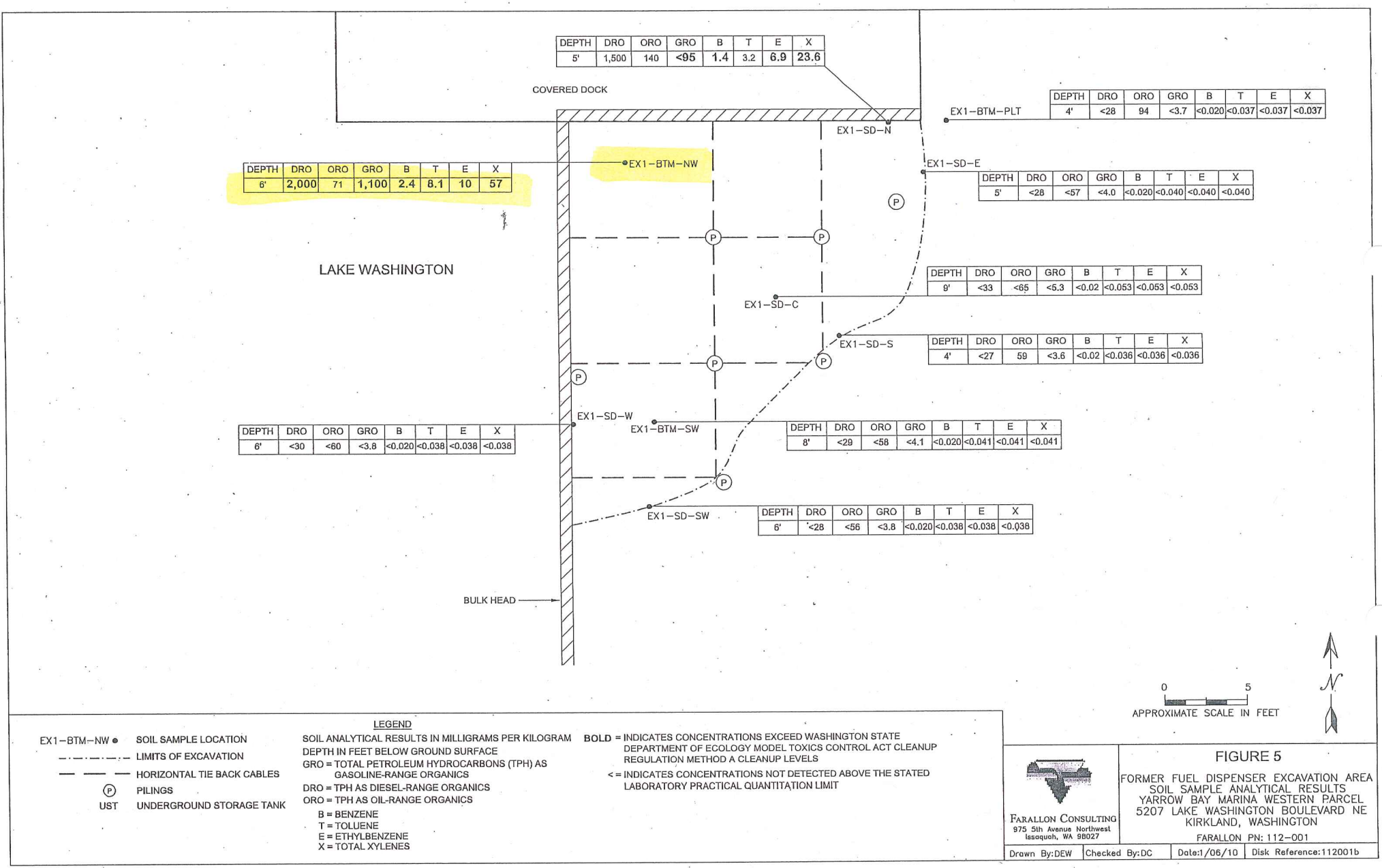
The source of contamination has been determined to be due to a leaking fuel dispenser system located adjacent to the shoreline bulkhead. Gasoline range and diesel range petroleum hydrocarbons (tph-g and tph-d) have been found in soil, groundwater, and surface water. Due to the close proximity to the shoreline bulkhead it is also suspected that sediments have been impacted. Additionally, cPAH's associated with fill material was found during remedial/construction activities outside the footprint of the petroleum hydrocarbon Site.

The Site is immediate adjacent to Lake of Washington, and is characterized with a steep slope at its water front and a shallow groundwater table (3 to 5 feet below the ground surface). Therefore, sediment at the near shore might have also been impacted because of the surface water run-off from the upland and groundwater seeping at the lake bed. Further cleanup action will be necessary if the sampling results indicate contamination exceedances in the sediment. The sediment sampling should be conducted after the completion of the upland remediation.

Draft Cleanup Action Plan (CAP) dated November 8th has been submitted for review. The uplands portion of the site has been characterized, initial characterization of the sediments have satisfied Grant Yang (ECY). Within this document Cleanup Description, objectives and schedule have been described. The Cleanup components (soils removal, ground water monitoring, and performance monitoring and Confirmational monitoring) were also sufficiently addressed.

Characterization of the sediments portion of the Site is scheduled to be performed once remedial activities in the uplands portion of the Site were completed. Characterization of the sediments portion of the Site should now be conducted

Site Diagrams



DEPTH	DRO	ORO	GRO	B	T	E	X
5'	1,500	140	<95	1.4	3.2	6.9	23.6

DEPTH	DRO	ORO	GRO	B	T	E	X
4'	<28	94	<3.7	<0.020	<0.037	<0.037	<0.037

DEPTH	DRO	ORO	GRO	B	T	E	X
6'	2,000	71	1,100	2.4	8.1	10	57

DEPTH	DRO	ORO	GRO	B	T	E	X
5'	<28	<57	<4.0	<0.020	<0.040	<0.040	<0.040

DEPTH	DRO	ORO	GRO	B	T	E	X
9'	<33	<65	<5.3	<0.02	<0.053	<0.053	<0.053

DEPTH	DRO	ORO	GRO	B	T	E	X
4'	<27	59	<3.6	<0.02	<0.036	<0.036	<0.036

DEPTH	DRO	ORO	GRO	B	T	E	X
6'	<30	<60	<3.8	<0.020	<0.038	<0.038	<0.038

DEPTH	DRO	ORO	GRO	B	T	E	X
8'	<29	<58	<4.1	<0.020	<0.041	<0.041	<0.041

DEPTH	DRO	ORO	GRO	B	T	E	X
6'	<28	<56	<3.8	<0.020	<0.038	<0.038	<0.038

LEGEND

EX1-BTM-NW ● SOIL SAMPLE LOCATION

LIMITS OF EXCAVATION

HORIZONTAL TIE BACK CABLES

(P) PILINGS

UST UNDERGROUND STORAGE TANK

SOIL ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM
DEPTH IN FEET BELOW GROUND SURFACE
GRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE-RANGE ORGANICS
DRO = TPH AS DIESEL-RANGE ORGANICS
ORO = TPH AS OIL-RANGE ORGANICS
B = BENZENE
T = TOLUENE
E = ETHYLBENZENE
X = TOTAL XYLENES

BOLD = INDICATES CONCENTRATIONS EXCEED WASHINGTON STATE DEPARTMENT OF ECOLOGY MODEL TOXICS CONTROL ACT CLEANUP REGULATION METHOD A CLEANUP LEVELS

< = INDICATES CONCENTRATIONS NOT DETECTED ABOVE THE STATED LABORATORY PRACTICAL QUANTITATION LIMIT

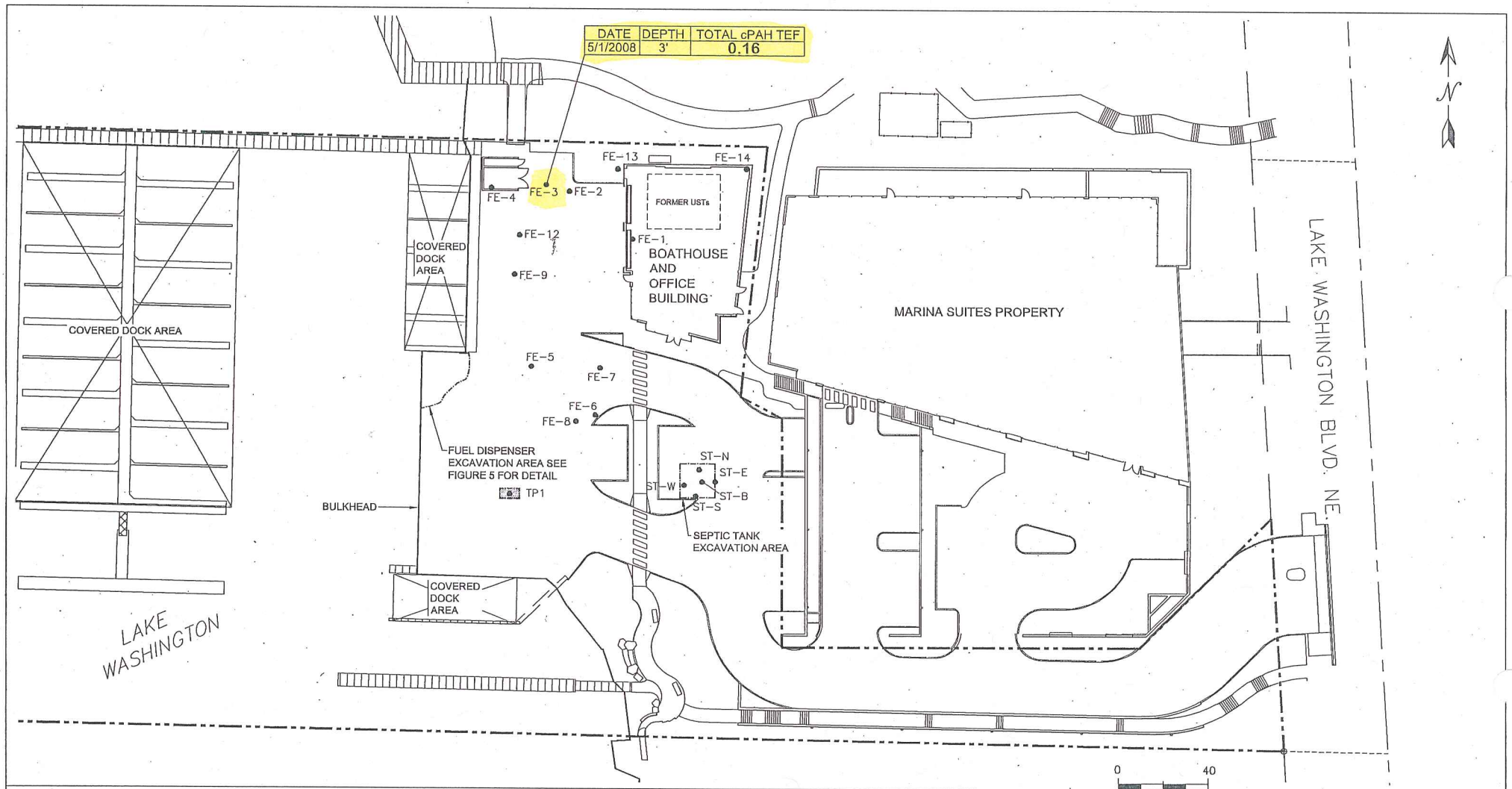
FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

FIGURE 5

FORMER FUEL DISPENSER EXCAVATION AREA
SOIL SAMPLE ANALYTICAL RESULTS
YARROW BAY MARINA WESTERN PARCEL
5207 LAKE WASHINGTON BOULEVARD NE
KIRKLAND, WASHINGTON

FARALLON PN: 112-001

Drawn By: DEW	Checked By: DC	Date: 1/06/10	Disk Reference: 112001b



LEGEND

- SITE BOUNDARY
- FE-7 SOIL SAMPLE LOCATION
- TP1 ENVIRONMENTAL TEST PIT LOCATION
- UST UNDERGROUND STORAGE TANK

SOIL ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM

DRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
ORO = TPH AS OIL-RANGE ORGANICS
GRO = TPH AS GASOLINE-RANGE ORGANICS
cPAH = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS
BOLD = INDICATES CONCENTRATIONS EXCEED WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION METHOD A CLEANUP LEVELS

NOTES:

1. SOIL SAMPLES NOT SHOWING ANALYTICAL RESULTS DO NOT EXCEED WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION METHOD A CLEANUP LEVELS FOR GRO, DRO, AND ORO WITH THE EXCEPTION OF SOIL SAMPLE LOCATIONS FE-2 AND FE-4.
2. SOIL SAMPLE FE-2 THROUGH FE-4 WERE ANALYZED FOR cPAHs ONLY. THE TEQ CONCENTRATION FOR SOIL SAMPLES FE-2 AND FE-4 WAS BELOW THE MTCA METHOD A CLEANUP LEVEL. SOIL SAMPLE FE-3 EXCEEDED THE MTCA METHOD A CLEANUP LEVEL AS SHOWN ON THE FIGURE.
3. ALL LOCATIONS ARE APPROXIMATE

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Issaquah, WA 98027

FIGURE 4

SITE PLAN SHOWING SOIL SAMPLE LOCATIONS
YARROW BAY MARINA WESTERN
5207 LAKE WASHINGTON BOULEVARD NE
KIRKLAND, WASHINGTON

FARALLON PN: 112-001

Drawn By:DEW	Checked By:DC	Date:1/06/10	Disk Reference:112001b