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January 31, 2006

Mr. Jerry Wickham  
Alameda County Healthcare Services Agency  
Environmental Health Services  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

**Subject: Groundwater Monitoring Report  
1st Quarter, 2006**  
1200 East 12<sup>th</sup> Street  
Oakland, California  
AEI Project No. 110583

Dear Mr. Wickham:

Enclosed is one electronic copy of the recently completed 1<sup>st</sup> Quarter, 2006 Groundwater Monitoring Report prepared for the subject facility. Per your request, this report also presents the findings of the well survey and the utility line and trench pathway study. This report along with the associated laboratory analytical data, depth to water measurements and the recently completed monitoring well survey have also been uploaded to the SWRCB's GeoTracker website.

We are recommending that you consider a case for no further action at this time.

If you have questions or comments, please do not hesitate to contact me or Peter McIntyre at (925) 283-6000.

Sincerely,  
**AEI Consultants**

A handwritten signature in blue ink, appearing to read 'Richard Bradford', written over a light blue horizontal line.

Richard Bradford  
Senior Staff Engineer

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*By lopprojectop at 8:51 am, Feb 02, 2006*

January 31, 2005

**GROUNDWATER MONITORING REPORT  
1<sup>st</sup> Quarter, 2006**

1200 East 12th Street  
Oakland, California

AEI Project No. 110583

Prepared For

Mr. Lawrence Y.G. Qiu  
Quality Auto Service  
1200 East 12th Street  
Oakland, CA 94601

Prepared By

**AEI Consultants**  
2500 Camino Diablo Blvd., Suite 200  
Walnut Creek, CA 94597  
(925) 283-6000



January 31, 2006

Mr. Lawrence Y.G. Qiu  
Quality Auto Service  
1200 East 12th Street  
Oakland, CA 94601

**Subject: Quarterly Groundwater Monitoring Report  
1<sup>st</sup> Quarter, 2006**  
1200 East 12th Street  
Oakland, California  
AEI Project No. 110583

Dear Mr. Qiu:

AEI Consultants (AEI) has prepared this report on behalf of Quality Auto Service to document the activities and results of the ongoing groundwater quality investigation at the property located at 1200 East 12<sup>th</sup> Street in the City of Oakland, California (Figure 1: Site Location Map). These services were performed at the client's request to comply with a request by Alameda County Healthcare Services Agency (ACHSA) to further investigate a release of petroleum hydrocarbons that occurred at the property. This report presents the findings of the 1<sup>st</sup> Quarter, 2006 episode of groundwater monitoring conducted on January 18, 2006 and also includes the results of a well survey and utility line and trench pathway study.

### **Site Description and Background**

The subject property (hereafter referred to as the "site" or "property") is located on the northeastern corner of East 12<sup>th</sup> Street and 12<sup>th</sup> Avenue. The property is approximately 7,500 square feet in size and is developed with a 9,000 square foot two-story brick building. The building encompasses the entire area of the property, which is currently occupied by Quality Auto Service, an automotive repair facility. The site was previously occupied by a gasoline service station and automotive parts store from 1927 to the mid 1960s and was used by a tire and automotive supplies company, as well as a truck and forklift maintenance facility, from the mid 1960s to the late 1980s.

In 1996, two 500-gallon gasoline underground storage tanks (USTs) were removed from the sidewalk along 12<sup>th</sup> Avenue. Confirmatory soil samples collected from beneath the USTs indicated elevated levels of total petroleum hydrocarbons as gasoline (TPH-g) at the western end of Tank 2. Further over-excavation was performed in this area and two soil samples were collected for laboratory analysis. TPH-g was detected up to 210 mg/kg.

In September 1999, AEI performed a subsurface investigation at the site in accordance with the requirements of the ACHSA. Soil and groundwater samples were collected from two shallow

soil borings shown on Figures 2 and 3. No significant concentrations of petroleum hydrocarbons were detected in the analyzed soil samples; however, TPH-g and benzene were detected in the groundwater at concentrations up to 6,700 µg/L and 470 µg/L, respectively. Please refer to Table 2 and Table 3 for the soil and groundwater analytical results from this investigation. Based on the groundwater analytical results, Mr. Barney Chan of the ACHSA requested the installation of one groundwater monitoring well to evaluate the groundwater quality and concentrations of BTEX in the dissolved hydrocarbon plume over a period of time. AEI advanced a single soil boring (MW-1) and converted to a monitoring well on May 13, 2004. The results of this investigation are outlined in the *Monitoring Well Installation and Sampling Report*, dated June 9, 2004, prepared by AEI Consultants. Soil sample MW-1 @ 10' collected during the monitoring well installation contained TPH-g, toluene, and total xylenes above laboratory method detection limits at concentrations of 31 mg/kg, 0.024 mg/kg, and 0.021 mg/kg, respectively.

On August 20, 2004, AEI conducted the second quarterly groundwater monitoring event at the subject property. AEI measured water levels and sampled groundwater from monitoring well MW-1. The well location is shown in Figure 2. Groundwater samples were submitted for chemical analyses for TPH-g by EPA Method 8015Cm, and BTEX / MTBE per EPA Method SW8021B. TPH-g was detected in the groundwater samples from MW-1 at a concentration of 540 µg/L. Benzene, toluene, and total xylenes were detected at concentrations of 6.7 µg/L, 1.5 µg/L, and 1.9 µg/L, respectively. Ethyl-benzene was not detected above the laboratory method detection limit of 0.5 µg/L. Historic results of the groundwater analysis are presented in Table 2.

On October 21, 2005, AEI conducted a groundwater monitoring event at the subject property. TPH-g was detected in the groundwater sample from MW-1 at a concentration of 87 µg/L. Benzene was not detected above the laboratory method detection limit of 0.5 µg/L. Low concentrations of ethyl-benzene (1.2 µg/L) and xylenes (1.2 µg/L) were also detected in well MW-1. No MTBE or Toluene was detected above laboratory method detection limits.

The following report summarizes the findings of the 1<sup>st</sup> Quarter, 2006 episode of groundwater monitoring conducted on January 18, 2006.

### **Summary of Activities**

On January 18, 2006, AEI measured water levels and sampled groundwater from monitoring well MW-1. The well location is shown on Figure 2. First, the well cap was removed and the monitoring well was allowed to equilibrate with atmospheric pressure. The depth to groundwater (from the top of the well casing) was measured with an electric water level indicator. The well was then purged using a battery-powered submersible pump. Approximately three well volumes of water were removed. Temperature, pH, specific conductivity, dissolved oxygen (DO), and oxidation-reduction potential (ORP) were measured. Visual estimates of turbidity were noted during the purging of the well.

Once the groundwater parameters stabilized, and following recovery of the water level, groundwater samples were collected from the well. Sample water was collected from a new disposable polyethylene bailer and placed into three (3) 40 milliliter volatile organic analysis (VOAs) vials and one (1) 1-Liter amber bottle. The VOAs were subsequently capped so that neither head space nor air bubbles were visible within the vials. Samples were packed in a pre-chilled cooler of ice. Samples were shipped on ice under proper chain of custody protocol to McCampbell Analytical, Inc. of Pacheco, California (Department of Health Services Certification #1644).

The groundwater samples were submitted for chemical analyses for TPH-g and TPH-d by EPA Method 8015Cm, BTEX & MTBE per EPA Method SW8021B, and five (5) fuel oxygenates plus two (2) lead scavengers, Ethylene dibromide (EDB) and Ethylene dichloride (EDC), by EPA Method 8260B.

### **Field Results**

No sheen or free product was encountered during this monitoring episode, although a slight hydrocarbon odor was noted during well purging and sampling activities. The depth to groundwater at the time of this monitoring event was 10.56 feet below ground surface (bgs), approximately 0.86 feet higher than during the previous monitoring event. Depth to groundwater data is summarized in Table 1. Please refer to Appendix A for the groundwater monitoring well field sampling forms.

### **Groundwater Quality**

TPH-g was detected in the groundwater sample from MW-1 at a concentration of 300 µg/L, which is higher than the 87 µg/L detected in the previous monitoring event, but significantly lower than the historic high of 540 µg/L detected during the August 20, 2004 monitoring episode. TPH-d was detected at a concentration of 200 µg/L with a qualifier that indicates unmodified or weakly modified gasoline range hydrocarbons are significant in the sample. Benzene was detected at a concentration of 2.9 µg/L by EPA Method SW8021B and 3.5 µg/L by EPA Method SW8260B. Toluene, ethylbenzene, and xylenes were not detected above the laboratory method detection limit by EPA Method SW8260B. Low concentrations of toluene (0.67 µg/L), ethylbenzene (0.67 µg/L), and xylenes (0.66 µg/L) were also detected in well MW-1 at concentrations comparable to previous monitoring episodes. No MTBE was detected above laboratory method detection limit by EPA Method SW8021B. Low concentration of MTBE (1.2 µg/L) was detected by EPA Method SW8260B. No tert-Amyl methyl ether (TAME), t-Butyl alcohol (TBA), diisopropyl ether (DIPE), Ethyl tert-butyl ether (ETBE), EDB, or EDC were detected above the laboratory method detection limit.

A summary of groundwater analytical data is presented in Table 2. Field monitoring data and sampling forms are presented in Appendix A. Laboratory analytical results and chain of custody documents are included in Appendix B. Groundwater sample analytical data is also presented on Figure 3.

## Well Survey Results

In a letter dated July 14, 2005, the Alameda County Health Care Services Agency (ACHCSA) requested the location of all wells within a 2,000 foot radius of the subject site, including monitoring and production wells, whether active, inactive, on standby, decommissioned, abandoned, or used for dewatering, drainage, or cathodic protection. AEI obtained well information and completion reports from both the Alameda County Public Works Agency (ACPWA) and the State of California Department of Water Resources (DWR). The following report section details the results of the well survey of wells identified within a 2,000 foot radius of the subject property.

On October 26, 2005 AEI submitted a well completion report release to the ACPWA. AEI received the requested information on November 22, 2005. On December 22, 2005 an AEI representative visited the DWR in Sacramento to obtain the necessary well information, since the DWR no longer provides this service.

A well search listing and legend, a United States Geologic Survey (USGS) map and template, and a township, range, and section information documents were obtained from the ACPWA. According to the ACPWA, the provided information is reliable, but not all of the information is guaranteed to be accurate. Wells installed prior to the establishment of records keeping or wells installed by private entities not reported to the DWR or the ACPWA are not included in this search.

The site was located on the USGS map and a scaled 2,000 foot radius circle was drawn to demark the well search radius. A site vicinity map was also generated using the TOPO program and is included as Figure 5: Well Survey Search Radius.

The well survey area runs approximately from the northeast at East 19<sup>th</sup> Street to the southwest through Brooklyn Basin near McCulloch Drive on Coast Guard Island and from just northwest of 7<sup>th</sup> Avenue to southeast midway between 17<sup>th</sup> and 18<sup>th</sup> Avenues. Although partially outside the 2,000 foot survey radius, the area up to 18<sup>th</sup> Avenue has also been included in the well search radius. The subject property and the majority of the wells identified were located in the 2S township 4W range in sections 1A through 1H.

A total of twenty-four monitoring wells, including the existing onsite well MW-1, were identified within 2,000 feet of the subject property. No water production wells, including domestic, irrigation, municipal, or industrial were identified within the search area. A summary of the identified wells and the well use type is provided in Table 1 below. A review of the California State DWR well survey information identified additional wells that were not provided in the ACPWA well search information. However, these wells were located far outside the 2,000 foot search radius and were probably not included in the ACPWA well search scope. With noted expectations, the majority of the ACPWA well search information was identical to what the California State DWR had on record. The California State DWR search included specific details about the monitoring wells as well as borings logs and useful site location maps.

**Table 1: Summary of Identified Wells & Use Type**

Well Symbol	Well Use Type / Description	Number of Wells
MON	Monitoring Well (including one existing onsite well)	24
TES	Test Well	3
DES	Destroyed Well (through permit)	2

**Table 2: Summary of Wells Locations<sup>1</sup>**

Well Figure Number	Well Number	Township / Range	Section	Address / Location	Total Depth	Diameter	Well Use Type
1	01	2S/4W	1A 1	1201 E. 14 <sup>th</sup> Ave.	17	2	MON
2	---	2S/4W	1A 2	1235 E. 14 <sup>th</sup> St.	35	2	MON
3	---	2S/4W	1A 3	1235 E. 14 <sup>th</sup> St.	37	2	MON
4	---	2S/4W	1A 4	1235 E. 14 <sup>th</sup> St.	27	2	MON
5	MW-1	2S/4W	1B 1	1199 E. 12 <sup>th</sup> St.	25	2	MON
6	MW-2	2S/4W	1B 2	1199 E. 12 <sup>th</sup> St.	25	2	MON
7	MW-3	2S/4W	1B 3	1199 E. 12 <sup>th</sup> St.	25	2	MON
8	MW-1	2S/4W	1B 4	802 E. 12 <sup>th</sup> St.	23	-	MON
9	---	2S/4W	1B 5	1199 E. 12 <sup>th</sup> St.	30	2	MON
10	---	2S/4W	1B 6	1111 E. 12 <sup>th</sup> St.	36	2	MON
11	---	2S/4W	1B 7	1111 E. 12 <sup>th</sup> St.	28	2	MON
12	---	2S/4W	1B 8	1111 E. 12 <sup>th</sup> St.	28	2	MON
13	---	2S/4W	1C 4	630 E. 10 <sup>th</sup> St.	25	2	MON
14	---	2S/4W	1H 1	E. 12 <sup>th</sup> St. & 14 <sup>th</sup> Ave.	2	2	TES
15	---	2S/4W	1H 2	E. 12 <sup>th</sup> St. & 14 <sup>th</sup> Ave.	30	2	TES
16	---	2S/4W	1H 3	E. 12 <sup>th</sup> St. & 14 <sup>th</sup> Ave.	25	2	TES
17	MW-1	2S/4W	1H 4	1401 E. 14 <sup>th</sup> St.	25	2	MON
18	MW-2	2S/4W	1H 5	1401 E. 14 <sup>th</sup> St.	25	2	MON
19	MW-3	2S/4W	1H 6	1401 E. 14 <sup>th</sup> St.	25	2	MON
20	MW-1	2S/4W	1H 7	1400 E. 14 <sup>th</sup> St.	26	2	MON
21	MW-1	2S/4W	1H 8	1518 E. 12 <sup>th</sup> St.	30	2	MON
22	MW-2	2S/4W	1H 9	1518 E. 12 <sup>th</sup> St.	32	2	MON
23	MW-3	2S/4W	1H 10	1518 E. 12 <sup>th</sup> St.	30	2	MON
24	---	2S/4W	1H 11	1201 14 <sup>th</sup> Ave.	17	4	MON
25	---	2S/4W	1H 12	1201 14 <sup>th</sup> Ave.	17	4	MON
26	---	2S/4W	1H 13	1353 E. 14 <sup>th</sup> St.	15	2	MON
<b>27</b>	<b>MW-1</b>	<b>2S/4W</b>	---	<b>1200 E. 12<sup>th</sup> St.</b>	---	---	<b>MON</b>
28	---	2S/4W	---	E. 14 <sup>th</sup> St. & 10 <sup>th</sup> St.	---	---	DES
29	---	2S/4W	---	1266 E. 14 <sup>th</sup> St.	---	---	DES

Existing onsite monitoring well MW-1 in bold print

--- data not available or was not included in the DWR well search

<sup>1</sup> Data obtained from the ACPWA and the California State DWR

## Utility Pathway Study Results

AEI performed a subsurface utilities pathway study between November 2005 and January 2006. The purpose of this study was to identify utility lines and trenches in the vicinity of the subject property and evaluate the potential for these lines and trenches to act as preferential pathways for contaminant migration. AEI requesting utility maps in writing from the following utility companies: Pacific Gas & Electric Company (PG&E), Comcast, Kinder Morgan Energy Partners, East Bay Municipal Utility District (EBMUD), City of Oakland, MCI, AT&T, and SBC Communications. Please refer to Figure 4: Subsurface Utilities Survey for the locations of identified utility lines and trenches.

Kinder Morgan, Comcast, and MCI responded as not having any utilities in the study area. PG&E did not respond to AEI's request for natural gas and electrical utility line maps. Per a conversation with Mr. Lawrence Qui, he recalls that PG&E removed natural gas lines in front of the property along 12<sup>th</sup> Avenue several years ago. During a site walk, AEI observed a yellow (natural gas) USA marking for a construction project along 12<sup>th</sup> Avenue. The yellow marking stated that there were no PG&E utilities located in this area. What appeared to be the location of a narrow trench excavation was observed on either side of the yellow markings. This was probably the former location of the PG&E natural gas lines that Mr. Qui alluded to.

On December 20, 2005, AEI received a response from EBMU that included EBMUD map #1494B474 of the water utilities located in the area. Five (5) different EBMUD water lines were identified at the intersection of East 12<sup>th</sup> Street and 12<sup>th</sup> Avenue. The water lines varied in size from four (4) inches to thirty (30) inches and in age from 50 to 96 years old. The water utility line closest to the subject property is a 20-inch diameter cast iron pipe installed in 1916. This pipe runs down the middle of 12<sup>th</sup> Avenue. EBMUD could not locate an as-built drawing for this old water main. The exact depth of this utility is unknown, but according to EBMUD it is probably buried at 4 feet bgs.

An AT&T communications line runs along East 12<sup>th</sup> Street about sixteen (16) feet from the sidewalk. The City of Oakland underground electrical utility runs underneath the sidewalk along the southern end of the property parallel to East 12<sup>th</sup> Street. An SBC communications line runs along East 12<sup>th</sup> Street and then turns north up 12<sup>th</sup> Avenue offset about ten (10) feet from the sidewalk. The exact depths of these utilities are all unknown.

Based on the proximity to the impacted area, the only subsurface utility lines that have the potential to act as preferential pathways are the City of Oakland electrical utility and the SBC communications lines. Typical installation depths for these utilities range from approximately three (3) to four (4) feet bgs. The depth to groundwater at the subject site typically ranges from 10.50 to 11.50 feet bgs. Based on the typical utility line installation depths and the known depth to groundwater, there exists little chance for the subject utility lines to act as preferential pathways for offsite groundwater contaminant migration.



## Conclusions

Relatively low levels of TPH-g and TPH-d were detected in the groundwater at the site. Low concentrations of BTEX and MTBE were detected in the groundwater at the site. No fuel oxygenates (TAME, TBA, DIPE, ETBE) or lead scavengers (EDB and EDC) were detected in the groundwater at the site. Concentrations of petroleum hydrocarbons do not appear to be increasing and are well below the historic highs during this episode. Concentrations of TPH-g, TPH-d, BTEX, MTBE, TAME, TBA, ETBE, EDB, and EDC detected in the groundwater at the site are well below the Table B Environmental Screening Levels (ESLs) for shallow soils (<3 meter bgs) for groundwater not a potential source of drinking water<sup>2</sup>.

The ACHSA is not requiring the installation of additional groundwater monitoring wells at this time. Based on the most recent groundwater analytical data, the relatively low concentration of residual petroleum hydrocarbons, absence of drinking supply wells within 2,000 feet, the commercial nature of the subject property and surrounding properties, and a limited potential route for human exposure to the subject contaminants, AEI recommends that a case for no further action be considered at this site.

## Previous Reports

1. *Phase II Subsurface Investigation*, October 1, 1999, prepared by AEI Consultants
2. *Monitoring Well Installation and Sampling Report*, June 9, 2004, prepared by AEI Consultants
3. *Groundwater Monitoring Report, 3<sup>rd</sup> Quarter, 2004*, October 8, 2004, prepared by AEI Consultants
4. *Groundwater Monitoring Report, 3<sup>rd</sup> Quarter 2005*, November 8, 2005, prepared by AEI Consultants

## Report Limitations and Signatures

This report presents a summary of work completed by AEI Consultants, including observations and descriptions of site conditions. Where appropriate, it includes analytical results for samples taken during the course of the work. The number and location of samples are chosen to provide required information, but it cannot be assumed that they are entirely representative of all areas not sampled. All conclusions and recommendations are based on these analyses, observations, and the governing regulations. Conclusions beyond those stated and reported herein should not be inferred from this document.


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<sup>2</sup> *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater* (Interim Final – February 2005), San Francisco Bay Regional Water Quality Control Board.

These services were performed in accordance with generally accepted practices in the environmental engineering and construction field that existed at the time and location of the work.

If you have any questions regarding our investigation, please do not hesitate to contact either Peter McIntyre or myself at (925) 283-6000.

Sincerely,  
**AEI Consultants**

  
Richard Bradford  
Senior Staff Engineer

  
Peter McIntyre, P.G.  
Project Manager



**Figures**

- Figure 1 Site Location Map
- Figure 2 Site Plan
- Figure 3 Groundwater Analyticals
- Figure 4 Subsurface Utilities Survey
- Figure 5 Well Survey Search Radius

**Tables**

- Table 1 Groundwater Elevation Data
- Table 2 Groundwater Sample Analytical Data

- Appendix A** Monitoring Well Field Sampling Forms
- Appendix B** Laboratory Analytical and Chain of Custody Documentation
- Appendix C** Site Survey (Morrow Surveying)

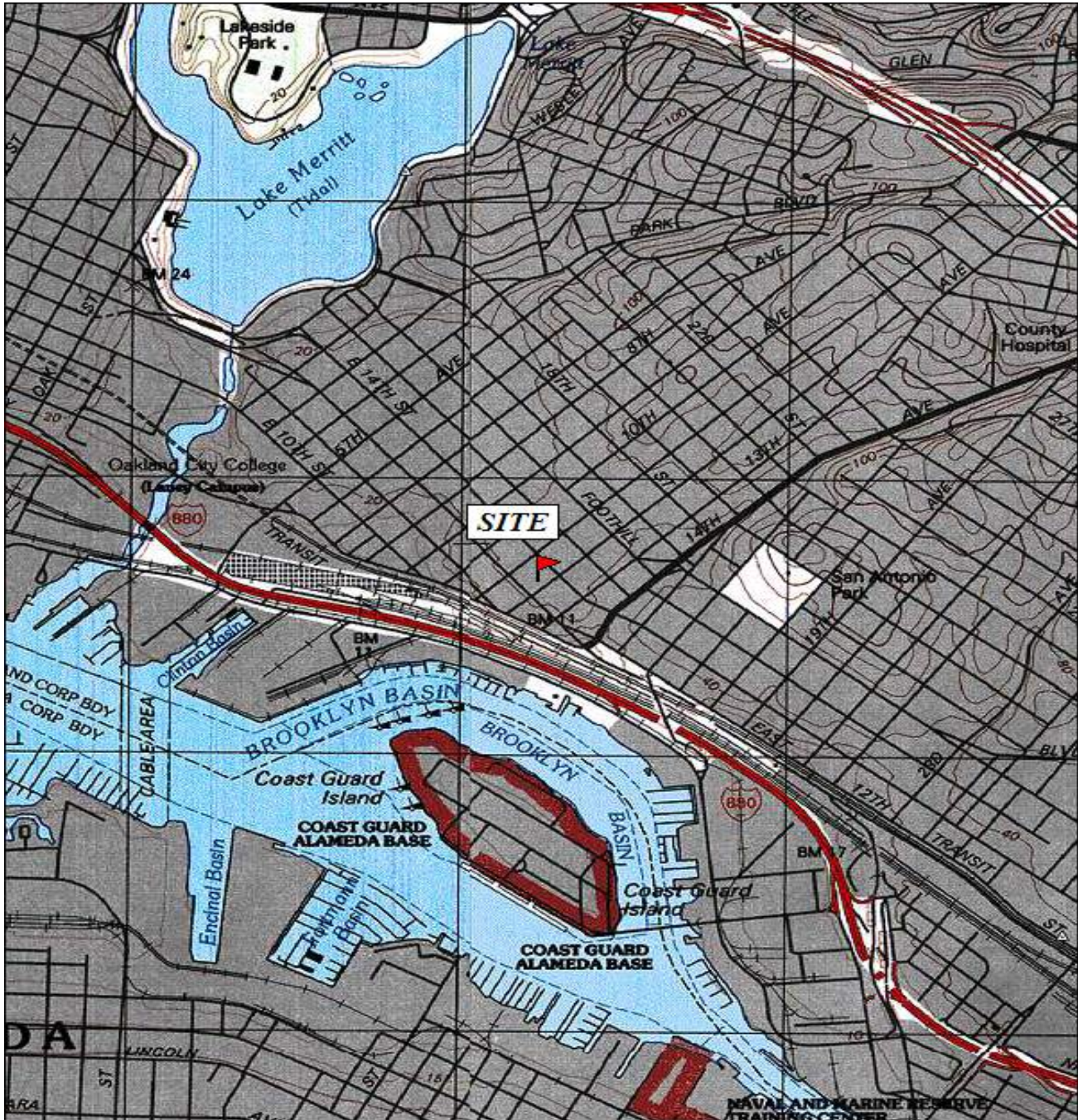
**Distribution:**

Mr. Lawrence Y.G. Qiu  
Quality Auto Service  
1200 East 12<sup>th</sup> Street  
Oakland, CA 94601

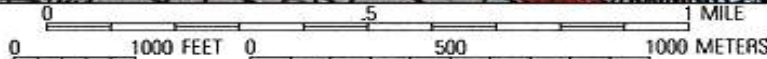
Mr. Jerry Wickham  
Alameda County Healthcare Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

## **FIGURES**





TN  
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15°



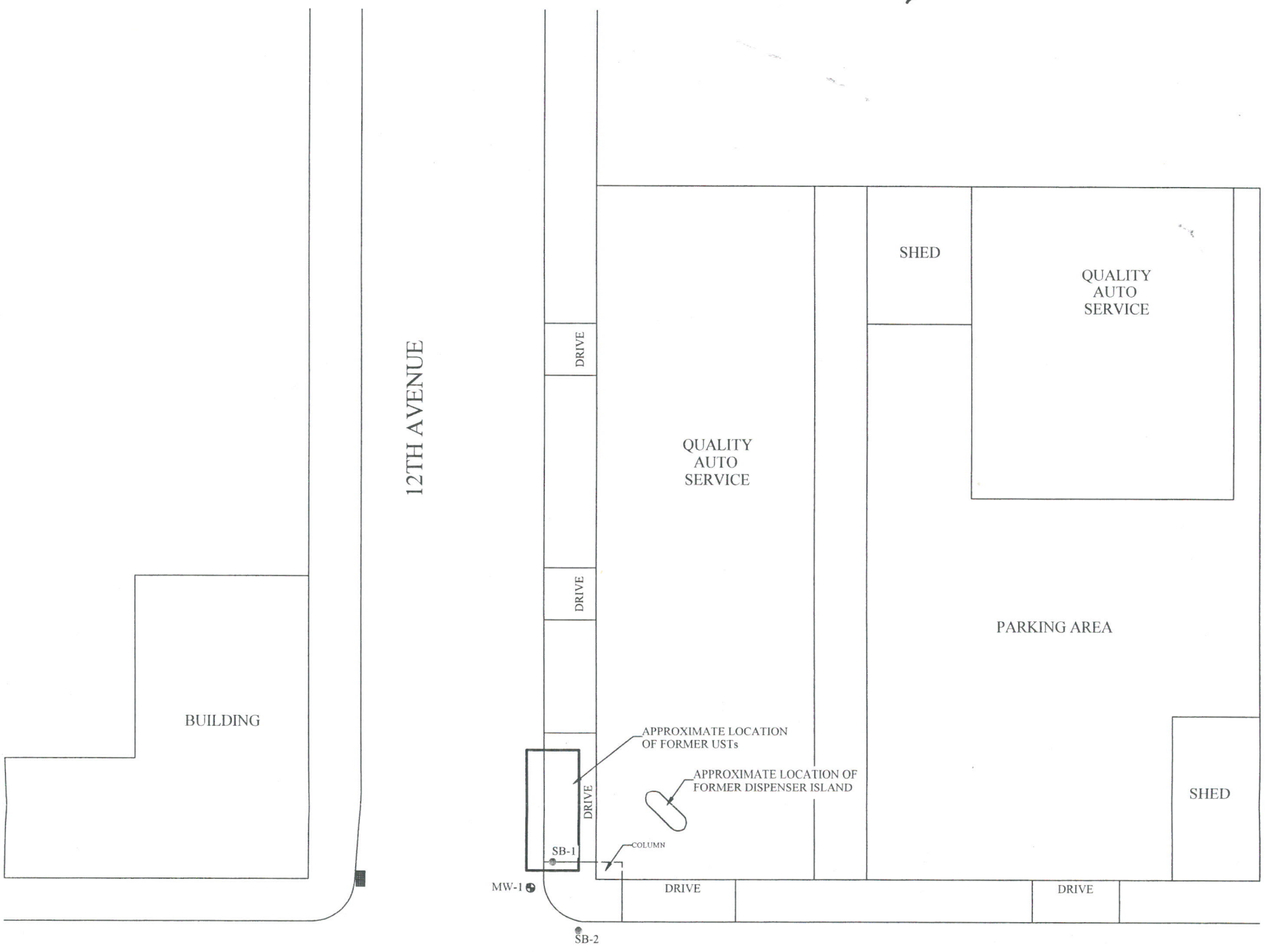
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

<p><b>AEI CONSULTANTS</b> 2500 CAMINO DIABLO, SUITE #200, WALNUT CREEK, CA</p>	
<p><b>SITE LOCATION MAP</b></p>	
<p>1200 EAST 12<sup>TH</sup> STREET OAKLAND, CALIFORNIA</p>	<p><b>FIGURE 1</b> PROJECT NO. 110583</p>



ASSUMED  
GROUNDWATER  
FLOW DIRECTION

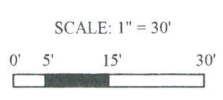
12TH AVENUE



EAST 12TH STREET

**LEGEND**

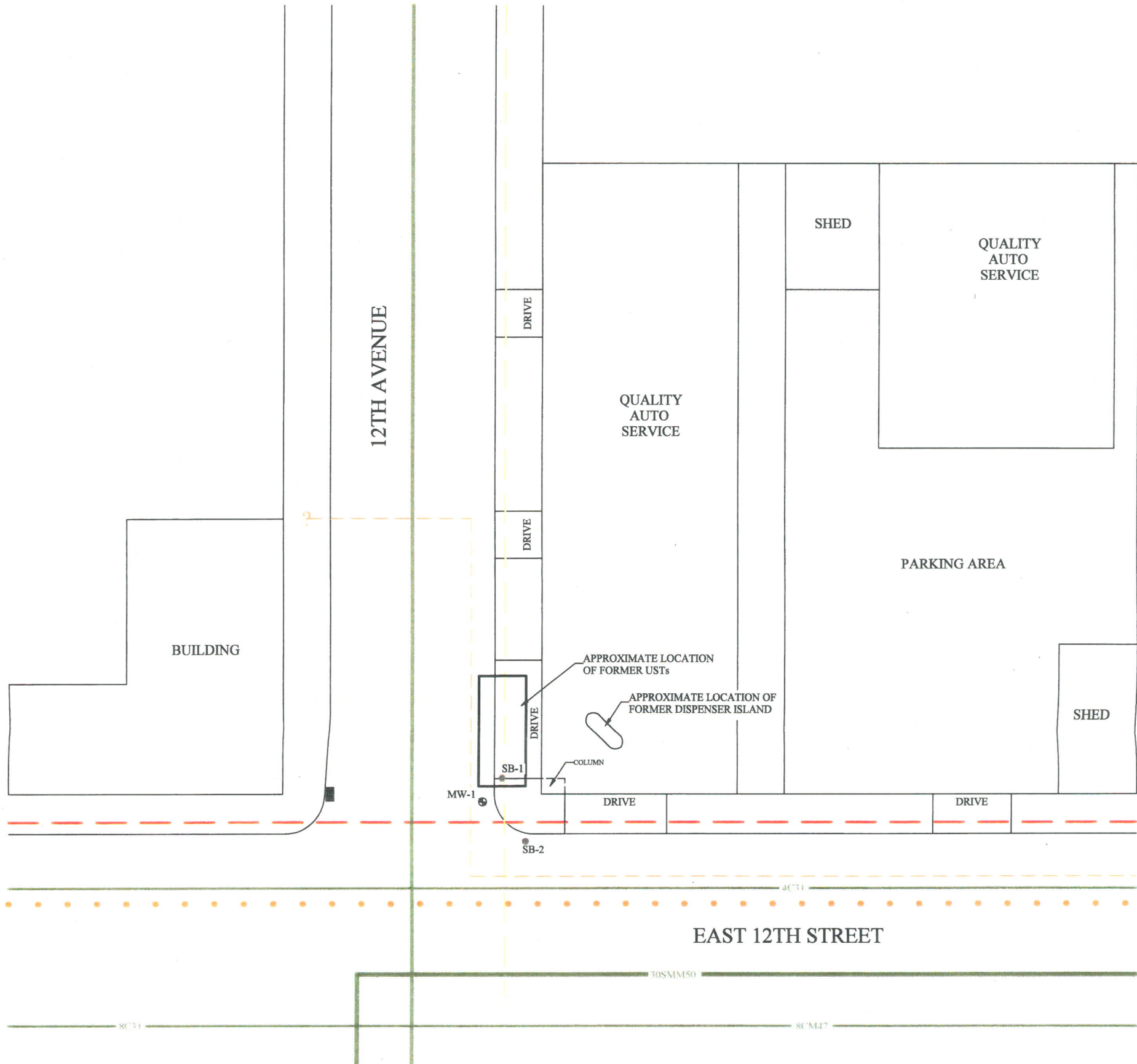
- Existing Monitoring Well Location
- Soil Boring Location(s) (AEI - Sept. 18, 1999)



<b>AEI CONSULTANTS</b> 2500 CAMINO DIABLO, #200, WALNUT CREEK, CA	
<b>SITE PLAN</b>	
1200 EAST 12TH STREET OAKLAND, CALIFORNIA	<b>FIGURE 2</b> AEI PROJECT NO. 110583



ASSUMED  
GROUNDWATER  
FLOW DIRECTION



**LEGEND**

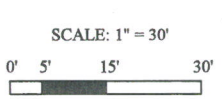
- Existing Monitoring Well Location
- Soil Boring Location(s) (AEI - Sept. 18, 1999)

**UTILITIES LEGEND**

- City of Oakland (Electrical)
- AT&T (Communications)
- - - SBC (Communications)
- - - Fomer PG&E (Natural Gas) Trench
- East Bay MUD (Water Mains)
- 4C31 = 4" Cast Iron Pipe installed 1931
- 8C31 = 4" Cast Iron Pipe installed 1931
- 8CM47 = 8" Cast Iron Pipe Mortar Lined installed 1947
- 30SMM = 30" Steel Pipe Mortar Lined and Coated installed 1950
- 20C16 = 20" Cast Iron Pipe installed 1916

\*All utility locations are approximate based on the information provided by the respective utility companies

\*\*Survey does not included all possible utilities in the vicinity, as some companies did not respond to AEI's written request



**AEI CONSULTANTS**  
2500 CAMINO DIABLO, #200, WALNUT CREEK, CA

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**SUBSRUFACE UTILITIES SURVEY**

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1200 EAST 12TH STREET OAKLAND, CALIFORNIA	<b>FIGURE 4</b> AEI PROJECT NO. 110583
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## **TABLES**



**TABLE 1: GROUNDWATER ELEVATION DATA**

**Quality Auto Service**  
1200 East 12th Street, Oakland, California

<b>Well ID</b>	<b>Screen Interval (ft bgs)</b>	<b>Date</b>	<b>Top of Casing<sup>1</sup> Elevation (ft amsl)</b>	<b>Depth to Water (ft toc)</b>	<b>Groundwater Elevation (ft amsl)</b>	<b>Change from previous episode (ft)</b>
MW-1	10-20	05/21/04	36.28	11.51	24.77	-
		08/20/04	36.28	11.54	24.74	-0.03
		10/21/05	36.28	11.42	24.86	0.12
		<b>01/18/06</b>	<b>36.28</b>	<b>10.56</b>	<b>25.72</b>	<b>0.86</b>

**NOTES:**

1) Top of casing elevation surveyed by Morrow Surveying on January 10, 2006

ft = feet

ft bgs = feet below ground surface

ft toc = feet from the top of the well casing

ft amsl = feet above mean sea level

**TABLE 2: GROUNDWATER SAMPLE ANALYTICAL DATA**

**Quality Auto Service**  
1200 East 12th Street, Oakland, California

Well ID	Date Sampled	EPA Method SW8021B/8015Cm							EPA Method SW8260B										
		TPH-d (ug/L)	TPH-g (µg/L)	MTBE (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzne (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TAME (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	EDB (ug/L)	EDC (ug/L)
SB-1 W	09/18/99	-	6,700	ND	26	6.1	22	130	-	-	-	-	-	-	-	-	-	-	-
SB-2 W	09/18/99	-	3,900	ND	470	9.5	160	57	-	-	-	-	-	-	-	-	-	-	-
MW - 1	05/21/04	-	ND<50	ND<5.0	3.7	1.7	0.9	2.3	-	-	-	-	-	-	-	-	-	-	-
	08/20/04	-	540	ND<5.0	6.7	1.5	ND<0.5	1.9	-	-	-	-	-	-	-	-	-	-	-
	10/21/05	-	87	ND<5.0	ND<0.5	ND<0.5	1.2	1.2	-	-	-	-	-	-	-	-	-	-	-
	<b>01/18/06</b>	<b>200</b>	<b>300</b>	<b>ND&lt;5.0</b>	<b>2.9</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>	<b>1.2</b>	<b>3.5</b>	<b>0.67</b>	<b>0.67</b>	<b>0.66</b>	<b>ND&lt;0.5</b>	<b>ND&lt;5.0</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>
<i>MDL</i>		<i>50</i>	<i>5</i>	<i>0.5</i>	<i>0.5</i>	<i>0.5</i>	<i>0.5</i>	<i>0.5</i>	<i>0.5</i>	<i>0.5</i>	<i>0.5</i>	<i>0.5</i>	<i>0.5</i>	<i>5</i>	<i>0.5</i>	<i>0.5</i>	<i>0.5</i>	<i>0.5</i>	

**NOTES:**

Non-detectable concentrations are indicated with a less than sign (<) followed by the laboratory reporting limit  
 TPH-g = total petroleum hydrocarbons as gasoline µg/L = micrograms per liter or parts per billion (ppb)  
 TPH-d = total petroleum hydrocarbons as diesel - = sample not analyzed  
 MTBE = methyl tertiary-butyl ether MRL = method reporting limit  
 TAME = tert-Amyl methyl ether MDL = method detection limit  
 TBA = t-Butyl alcohol  
 DIPE = Diisopropyl ether  
 ETBE = Ethyl tert-butyl ether  
 EDB = Ethylene dibromide (1,2 Dibromoethane)  
 EDC = Ethylene dichloride (1,2 Dichloroethane)  
 \*Please refer to Appendix B: Laboratory Analytical Data for more detailed lab information, including dilution factors and reporting limits

**APPENDIX A**

**MONITORING WELL FIELD SAMPLING FORMS**

**AEI CONSULTANTS**  
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

**Monitoring Well Number: MW-1**

Project Name:	Quality Auto Service	Date of Sampling:	1/18/2006
Job Number:	8279	Name of Sampler:	Adrian Nieto
Project Address:	1200 East 12th Street		

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	36.28		
Depth of Well	20.00		
Depth to Water (from top of casing)	10.56		
Water Elevation (feet above msl)	25.72		
Well Volumes Purged	3		
Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	4.5		
Actual Volume Purged (gallons)	8.0		
Appearance of Purge Water	Cleared very fast		
Free Product Present?	No	Thickness (ft):	

**GROUNDWATER SAMPLES**

Number of Samples/Container Size				(3) 40-mL VOAs and (1) 1-liter amber bottle			
Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity ( $\mu$ sec/cm)	DO (mg/L)	ORP (meV)	Comments
	2	19.29	6.92	627	0.33	7.7	
	4	19.61	6.91	640	0.17	-6.5	
	6	19.76	6.92	637	0.12	-13.9	
	8	19.81	6.93	669	0.09	-15.8	

**COMMENTS (i.e., sample odor, well recharge time & percent, etc.)**

Slight hydrocarbon odor noted, water initially almost clear

## **APPENDIX B**

### **LABORATORY ANALYTICAL AND CHAIN OF CUSTODY DOCUMENTATION**

**McC Campbell Analytical, Inc.**

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
Telephone : 925-798-1620 Fax : 925-798-1622  
Website: www.mcccampbell.com E-mail: main@mcccampbell.com

AEI Consultants 2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597	Client Project ID: #110583; Quality Auto Service	Date Sampled: 01/18/06
		Date Received: 01/18/06
	Client Contact: Ricky Bradford	Date Reported: 01/24/06
	Client P.O.:	Date Completed: 01/26/06

**WorkOrder: 0601239**

January 26, 2006

Dear Ricky:

Enclosed are:

- 1). the results of **1** analyzed sample from your **#110583; Quality Auto Service project,**
- 2). a QC report for the above sample
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McC Campbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Best regards,

Angela Rydelius, Lab Manager

001201

**McCAMPBELL ANALYTICAL INC.**

110 2<sup>nd</sup> AVENUE SOUTH, #D7  
PACHECO, CA 94553-5560

Telephone: (925) 798-1620

Fax: (925) 798-1622

**CHAIN OF CUSTODY RECORD**

TURN AROUND TIME

RUSH  24 HR  48 HR  72 HR  5 DAY

EDF Required?  Yes  No

Report To: Ricky Bradford      Bill To: same **P.O# 100191**  
 Company: AEI Consultants  
 2500 Camino Diablo, Suite 200  
 Walnut Creek, CA 94597      E-Mail: rbradford@aeiconsultants.com  
 Tele: (925) 283-6000 ext. 148      Fax: (925) 944-2895  
 Project #: **110583**      Project Name: **Quality Auto Service**  
 Project Location: **1200 E. 12<sup>th</sup> Street, Oakland, CA**  
 Sampler Signature: *Adrian Micro*

**Analysis Request**

**Other**

**Comments**

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		CONTAINERS		MATRIX					METHOD PRESERVED				Analysis Request	Other	Comments
		Date	Time	# Containers	Type Containers	Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other			
MW-1		11/19/06	12:30	4	V/L	X									X		

- BTEX & TPH as Gas (602/8020 + 8015)/MTBE
- TPH as Diesel (8015)
- Total Petroleum Oil & Grease (5520 E&F/B&F)
- Total Petroleum Hydrocarbons (418.1)
- EPA 601 / 8010
- BTEX ONLY (EPA 602 / 8020)
- EPA 608 / 8080
- EPA 608 / 8080 PCB's ONLY
- EPA 624 / 8240 / 8260
- EPA 625 / 8270
- PAH's / PNA's by EPA 625 / 8270 / 8310
- CAM-17 Metals
- LUFT 5 Metals
- Lead (7240/7421/239.2/6010)
- RCI
- TPH-g, BTEX, MTBE, EDB, EDC, and Fuel Oxygenates by EPA Method 8260B

ICE/P   
 GOOD CONDITION   
 HEAD SPACE ABSENT   
 DECHLORINATED IN LAB   
 PRESERVED IN LAB   
 VOAS  O&G  METALS  OTHER

Relinquished By: *Adrian Micro*      Date: 11/19/06      Time: 1:30      Received By: *Maol Vall*  
 Relinquished By:      Date:      Time:      Received By: *Kathleen Owen*  
 Relinquished By:      Date:      Time:      Received By:

ICE/P       PRESERVATION   
 GOOD CONDITION       APPROPRIATE CONTAINERS   
 HEAD SPACE ABSENT       PRESERVED IN LAB   
 DECHLORINATED IN LAB       PERSERVED IN LAB   
 VOAS  O&G  METALS  OTHER

**McC Campbell Analytical, Inc.**

**CHAIN-OF-CUSTODY RECORD**



110 Second Avenue South, #D7  
 Pacheco, CA 94553-5560  
 (925) 798-1620

**WorkOrder: 0601239**

**ClientID: AEL**

**EDF: YES**

**Report to:**

Ricky Bradford  
 AEI Consultants  
 2500 Camino Diablo, Ste. #200  
 Walnut Creek, CA 94597

TEL: (925) 283-6000  
 FAX: (925) 283-6121  
 ProjectNo: #110583; Quality Auto Service  
 PO:

**Bill to:**

Joanne Bryant  
 AEI Consultants  
 2500 Camino Diablo, Ste. #200  
 Walnut Creek, CA 94597

**Requested TAT: 5 days**

*Date Received:* **01/18/2006**

*Date Printed:* **01/18/2006**

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)													
					1	2	3	4	5	6	7	8	9	10	11	12		
0601239-001	MW-1	Water	1/18/06 12:20:00	<input type="checkbox"/>	A	B	A											

**Test Legend:**

1	G-MBTX_W	2	MBTEXOXY-8260B_W	3	PREF REPORT	4		5	
6		7		8		9		10	
11		12							

**Prepared by: Kathleen Owen**

**Comments:**

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.







# McC Campbell Analytical, Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
 Telephone : 925-798-1620 Fax : 925-798-1622  
 Website: www.mcccampbell.com E-mail: main@mcccampbell.com

AEI Consultants  2500 Camino Diablo, Ste. #200  Walnut Creek, CA 94597	Client Project ID: #110583; Quality Auto Service	Date Sampled: 01/18/06
	Client Contact: Ricky Bradford	Date Received: 01/18/06
	Client P.O.:	Date Extracted: 01/19/06
		Date Analyzed: 01/19/06

### Oxygenates and BTEX by GC/MS\*

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0601239

Lab ID	0601239-001B			Reporting Limit for DF =1
Client ID	MW-1			
Matrix	W			
DF	1			

Compound	Concentration			ug/kg	µg/L
tert-Amyl methyl ether (TAME)	ND			NA	0.5
Benzene	3.5			NA	0.5
t-Butyl alcohol (TBA)	ND			NA	5.0
1,2-Dibromoethane (EDB)	ND			NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND			NA	0.5
Diisopropyl ether (DIPE)	ND			NA	0.5
Ethylbenzene	0.67			NA	0.5
Ethyl tert-butyl ether (ETBE)	ND			NA	0.5
Methyl-t-butyl ether (MTBE)	1.2			NA	0.5
Toluene	0.67			NA	0.5
Xylenes	0.66			NA	0.5

### Surrogate Recoveries (%)

%SS1:	104			
%SS2:	91			
%SS3:	95			

**Comments**

\* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.





### QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0601239

EPA Method: SW8021B/8015Cm		Extraction: SW5030B			BatchID: 19903			Spiked Sample ID 0601249-007C		
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
TPH(btex) <sup>f</sup>	ND	60	107	103	3.76	109	110	1.75	70 - 130	70 - 130
MTBE	ND	10	91.9	92.2	0.339	94.6	91.3	3.59	70 - 130	70 - 130
Benzene	ND	10	97.6	91.1	6.87	94.7	90.9	4.02	70 - 130	70 - 130
Toluene	ND	10	97	90.7	6.77	94.1	89.9	4.53	70 - 130	70 - 130
Ethylbenzene	ND	10	98.4	92.5	6.25	95.5	91.9	3.82	70 - 130	70 - 130
Xylenes	ND	30	99.3	94.3	5.16	99	94.7	4.48	70 - 130	70 - 130
%SS:	104	10	103	99	4.11	100	99	1.70	70 - 130	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 19903 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0601239-001A	1/18/06 12:20 PM	1/19/06	1/19/06 7:15 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not applicable or not enough sample to perform matrix spike and matrix spike duplicate.



QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0601239

EPA Method: SW8260B		Extraction: SW5030B			BatchID: 19904			Spiked Sample ID 0601240-103B		
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
tert-Amyl methyl ether (TAME)	ND	10	101	115	13.1	106	104	1.24	70 - 130	70 - 130
Benzene	ND	10	115	120	3.99	118	119	0.943	70 - 130	70 - 130
t-Butyl alcohol (TBA)	ND	50	99.7	116	15.2	89.9	96.1	6.57	70 - 130	70 - 130
Diisopropyl ether (DIPE)	ND	10	116	129	10.0	115	114	0.619	70 - 130	70 - 130
Ethyl tert-butyl ether (ETBE)	ND	10	100	116	14.2	94.4	93.5	1.03	70 - 130	70 - 130
Methyl-t-butyl ether (MTBE)	ND	10	94.5	105	10.9	86.9	86.6	0.336	70 - 130	70 - 130
Toluene	ND	10	107	118	9.71	109	107	2.04	70 - 130	70 - 130
%SS1:	103	10	100	102	1.78	100	101	0.440	70 - 130	70 - 130
%SS2:	100	10	95	97	2.94	98	95	2.95	70 - 130	70 - 130
%SS3:	91	10	100	104	4.43	106	106	0	70 - 130	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

BATCH 19904 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0601239-001B	1/18/06 12:20 PM	1/19/06	1/19/06 3:04 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.



**QC SUMMARY REPORT FOR SW8015C**

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0601239

EPA Method: SW8015C		Extraction: SW3510C			BatchID: 19886			Spiked Sample ID N/A		
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
TPH(d)	N/A	1000	N/A	N/A	N/A	114	83.2	31.3	N/A	70 - 130
%SS:	N/A	2500	N/A	N/A	N/A	126	97	26.7	N/A	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

BATCH 19886 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0601239-001A	1/18/06 12:20 PM	1/18/06	1/18/06 3:11 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

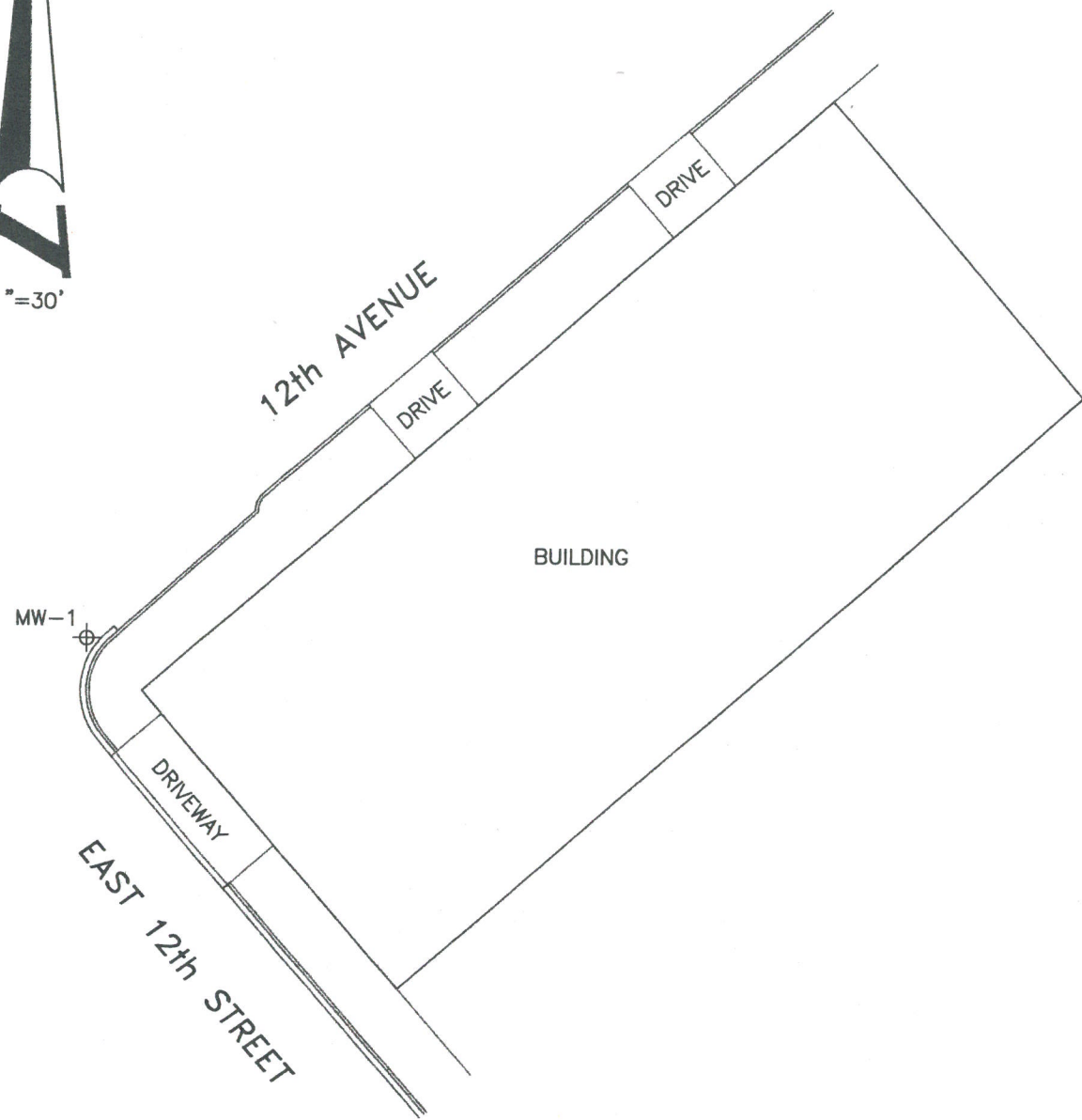
**APPENDIX C**

**SITE SURVEY**

# Monitoring Well Exhibit

Prepared For:

## AEI Consultants



DESCRIPTION	NORTHING	EASTING	LATITUDE	LONGITUDE	ELEV (PVC)	ELEV (BOX)
MW-1	2114828.6	6056344.2	38.9557499	-123.7771640	36.28	35.88

**BASIS OF COORDINATES AND ELEVATIONS:**

COORDINATES ARE CALIFORNIA STATE PLANE ZONE 3 COORDINATES FROM GPS OBSERVATIONS USING UNIVERSITY OF CALIFORNIA BAY AREA DEFORMATION CORS STATION OBSERVATION FILES AND BASED ON THE CALIFORNIA SPATIAL REFERENCE CENTER DATUM, REFERENCE EPOCH 2000.35.

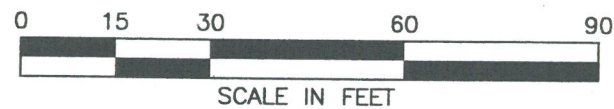
COORDINATE DATUM IS NAD 83(1986).

DATUM ELLIPSOID IS GRS80.

REFERENCE GEOID IS NGS99.

CORS STATIONS USED WERE DIAB AND FARB.

VERTICAL DATUM IS NAVD 88 FROM GPS OBSERVATIONS.



Quality Automotive Site  
1200 East 12th Street  
Oakland  
Alameda County  
California



1450 Harbor Blvd. Ste. D  
West Sacramento  
California 95691  
(916) 372-8124  
curt@morrrowsurveying.com

Date: 1-10-06  
Scale: 1" = 30'  
Sheet 1 of 1  
Revised:  
Field Book: MW-22  
Dwg. No. 0116-023 CT