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April 10, 2008

Mr. Steven Plunkett
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Subject: **Soil and Groundwater Investigation Workplan**
Investigation Summary and Proposed Tasks
3442 Adeline Street / 3433 Chestnut Street
Oakland, CA 94602
Alameda County Fuel Leak Case No. RO0002936
AEI Project No. 274761

Dear Mr. Plunkett:

Enclosed is an electronic copy of the Soil and Groundwater Investigation Workplan regarding the above referenced property.

We appreciate your time and would be glad to discuss this approach or any other comments relating to this site in detail. Please contact either of the undersigned at (925) 944-2899 or via email at htomsun@aeiconsultants.com or pmcintyre@aeiconsultants.com.

Sincerely,
AEI Consultants

Harmony TomSun
Staff Geologist

April 9, 2008

SOIL AND GROUNDWATER INVESTIGATION WORKPLAN

3442 Adeline Street
Oakland, CA 94608

Project No. 274761

Prepared For

Ms. Steffi Zimmerman
6330 Swainland Road
Oakland, CA 94611

Prepared By

AEI Consultants
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1.0 INTRODUCTION

AEI Consultants (AEI) has prepared this work plan on behalf of Ms. Steffi Zimmerman, the owner of the property located at 3442 Adeline Street in the City of Oakland, Alameda County, California. AEI has been retained by Ms. Zimmerman to provide environmental engineering and consulting services relating to the release of fuel products from a former underground storage tank (UST) on the property. The site is currently under the regulatory oversight of the Alameda County Health Care Services Agency (ACHCSA).

An initial site investigation has identified a significant release of gasoline fuel from the former UST. Based on the severity of the release and discussions with ACHCSA, further investigation and remedial action will be required. The property is currently under consideration for a sale and possible redevelopment which necessitates determining the nature and extent of the release and implementing an effective and timely remedial approach. To that end and following a meeting at the site with the ACHCSA on March 19, 2008, this workplan is prepared to outline additional site investigation to be conducted, interim source area excavation, and preliminary considerations of potential remedial options.

2.0 SITE DESCRIPTION AND HISTORY

The subject site (hereinafter referred to as the "site" or "property") is situated on the northeast corner of 35th Street and Chestnut Street in a mixed commercial, industrial and residential area of Oakland. The front entrance to the property is addressed at 3442 Adeline St.; however, the rear entrance is reported with the City of Oakland with the address of 3433 Chestnut St. The on site building covers approximately 65% of the property and is currently a warehouse being used for storage.

2.1 UST Excavation

On February 22, 2000, Clearwater supervised the excavation and removal of a single-wall 3,750 gallon UST. Soil samples and a groundwater sample was collected from the excavation pit and analyzed for total petroleum hydrocarbons as diesel (TPH-d), TPH as gasoline (TPH-g), methyl tertiary butyl ether (MTBE) and BTEX (benzene, toluene, ethyl benzene, and total xylenes). Soil sample concentrations of TPH-d and TPH-gwere up to 920 milligrams per kilogram (mg/kg) and 850 mg/kg, respectively. TPH-g and TPH-d were detected in the groundwater sample from the excavation pit at concentrations of 7,400 micrograms per liter (µg/L) and 34,000 µg/L, respectively.

Based on the analytical results from the confirmation samples collected following tank removal, in a letter dated May 15, 2006, the City of Oakland Fire Department requested the site to be further characterized with additional soil and groundwater samples. The location of the former UST and sample locations are presented in Figures 3.

2.2 Clearwater Phase II Investigation

In June, 2006 Clearwater performed a Phase II Environmental Site Investigation. Soil and groundwater samples were collected from four (4) soil borings advanced to approximately 16 feet below ground surface (bgs), immediately surrounding the former tank hold. Approximate locations of these borings are presented on Figure 3. The soil and groundwater samples collected were analyzed for TPH-d, TPH-g, BTEX, 1,2-dichloroethane (1,2-DCA) and 1,2-dibromoethane

2.3 AEI Consultants Site Investigation

In October and December 2007, AEI performed additional site investigation to better define the nature and extent of the release. A total of twenty-two soil borings were advanced to an approximate depth of 16 feet bgs and soil, soil vapor, and groundwater samples were obtained. Locations of these borings are presented in Figure 3. The highest soil concentrations in TPH-g/d and BTEX were detected at 1,200 mg/kg, 450 mg/kg, 6.9 mg/kg, 2.5 mg/kg, 24 mg/kg and 110 mg/kg, respectively. The highest concentrations of groundwater analyzed for TPH-g/d and BTEX were 83,000 µg/L, 12,000 µg/L, 10,000 µg/L, 640 µg/L, 2,700 µg/L and 7,900 µg/L, respectively.

Based on the soil and groundwater sample analytical data, the release of primarily gasoline related petroleum contaminants has spread mostly in a northwesterly direction, beneath the warehouse building on the property. Concentrations of petroleum contaminants decrease with distance from the UST to the north and south along Chestnut Street and to the east across the street. The vertical extent of impacted soil has been generally defined to be between approximately 6 and 12 feet bgs and is likely controlled by the movement of shallow groundwater. Based on the distribution of dissolved phase petroleum hydrocarbons, groundwater is expected to flow predominately in a northwesterly direction; however, the extent of the release has not been defined to non-detect in this direction. Soil gas sample analytical data was compared to the RWQCB Environmental Screening Levels (ESLs) as a preliminary evaluation of the potential for vapor intrusion. With the exception of benzene in SV-1, the results were below these screening levels suggesting that vapor intrusion potential may be minimal at the southeastern corner of the building. Detailed information about the soil and groundwater samples collected can be found in Tables 1, 2 and 3.

3.0 GEOLOGY AND HYDROLOGY

Sediments logged during the recent investigation typically consisted of heterogenous, fine grained sediments (a combination of silty/sandy clay) just below the asphalt surface to depths ranging from approximately 4.5 to 10 feet bgs. The silty/sandy clay is underlain by interbedded layers of silty clay, clayey sand and silty gravel with varying amounts of fine to coarse grained sand to depths ranging from approximately 5 feet bgs to 9 feet bgs. This in turn is underlain by gravelly mixtures of sand, silt and clay up to 5 feet in thickness, the top of which ranged from approximately 9 to 16 feet bgs in SB-6. Silty clay sediments were encountered below the gravelly sediments. A detailed description of the sediments and field measurements are included on boring logs in Appendix A.

Groundwater was present in all borings; although, the borings were slow to product water in several boring locations. Groundwater was present after approximately 24 hours in borings SB-3, SB-5, SB-8, and SB-11. SB-6 required four days of recharging in order to produce a minimal amount of groundwater to sample. Groundwater in the remaining borings was present at varying depths of approximately 8 to 14 feet bgs. Fine grained, low transmissivity sediments interbedded with more permeable and transmissive coarse soils are not uncommon in this area of the East Bay.

4.0 PRELIMINARY SITE CONCEPTUAL MODEL (SCM)

Previous investigations have identified a release of petroleum hydrocarbon fuel product from the former fuel UST. Soil and groundwater samples have been collected by AEI from twenty-two (22) soil borings from the vicinity of the former UST along with those from the prior limited investigation. The primary contaminants detected in the soil and groundwater consists of gasoline, diesel, and BTEX. Maximum concentrations of these contaminants are summarized in the following table.

Exhibit 1: Identified Contaminant of Concern

Contaminant	Maximum Concentration (Sample ID)	
	Soil in mg/kg	Groundwater in µg/l
TPH-g	1,200 (SB-1-7.5)	120,000 (S-4)
TPH-d	850 (SW)	34,000 (Pit Water)
Benzene	6.9 (SB-10-11.5)	10,000 (SB-11-W)
Toluene	2.5 (SB-1-7.5)	930 (Pit Water)
Ethylbenzene	24 (SB-1-7.5)	3,500 (S-4)
Total Xylenes	110 (SB-1-7.5)	7,900 (SB-11-W)

Qualitative notes in the laboratory analytical report suggest that although TPH-d was detected that these detections were indicative of significant gasoline range compounds. The presence of high concentrations of benzene, not typically a component of diesel fuel, suggests that the UST was historically utilized for gasoline. The lower concentrations of TPH-d detected onsite are likely the result of range overlap with the analytical method (EPA Method 8015).

Soil impact has been identified above the water table or within the capillary fringe. A significant portion of contaminated soil is located in the vadose and saturated zones with the highest concentrations tested at 7.5 feet and 11.5 feet bgs. Soil and groundwater sample analytical data is presented in Tables 1 and 2.

4.1 Data Gaps

The characterization of the release has begun with the initial investigations of October and December 2007. Additional assessment and research will be needed to complete the SCM for the site. Initially identified data gaps include site specific groundwater flow direction, gradient, and seasonal variations, the full extent of dissolved phase plume, and information on possible nearby receptors. The scope of the additional investigation outlined herein will

begin to gather this data.

5.0 INTERIM SOURCE REMOVAL EXCAVATION

The purpose of this interim remedial action will be to remove the more accessible portion of the petroleum hydrocarbon source material in the soils. This will limit further spread of the dissolved phase plume. However due to the presence of the building as well as the size and distribution of the impact (as it is currently understood) this removal action is not intended to remove all impacted soil.

An outline of proposed excavation limits is presented on Figure 3. The excavation will extend vertically to a depth of approximately 14 feet, the approximate depth to groundwater and to the bottom of the more highly impacted soils. The estimated volume of soil is approximately 724 cubic yards. This area is adjacent to the former UST and where the dispenser was located and contains some of the more impacted soil. As this excavation work inside the building proceeds, possibly excavating soil from around the former UST will be assessed. Complications include structural and stability concerns with the building along with adjacent public street and residences, utilities, and permitting issues. The ACHCSA will be notified of specifications if excavation is to proceed in the sidewalk area.

The owner will prepare the site for the excavation, including engineering assessment of the building foundation, removal of the concrete slab, preparation of the staging areas, and removal of un-impacted soils. AEI will perform the excavation and handling of petroleum impacted soil. The target soils will be profiled into a landfill facility and transported under appropriate manifest for disposal. The excavation will be adequately sloped for stability and clean overburden stockpiled separate from impacted soil for possible reuse. As a contingency, groundwater and light non-aqueous phase liquid (LNAPL), if present, would be pumped from the excavation into a 21,000 gallon holding tank for either transportation to an approved treatment / recycling facility or for onsite treatment and permitted discharge to the sanitary sewer. The excavation progress will be monitored by the Project Geologist and, upon completion, confirmation samples collected at approximately 1 per 20 feet of sidewall. Samples will be analyzed for TPH-g, TPH-d and BTEX.

The resulting excavation cavity will be secured at all times from access while open. Once excavation, sampling, and dewatering are completed the excavation will be backfilled. Depending on the conditions encountered, the excavation may be left open for additional dewatering or in-situ treatment. If overburden from the excavation is to be used for backfilling, it will be stockpiled separate from the impacted soils and sampled at a frequency of 1 sample per 100 cubic yards and analyzed for TPHg/d and BTEX prior to emplacement to ensure that residential land use conditions are met. Data will be provided to ACHCSA for review prior to re-use. Backfill will be emplaced and adequately compacted.

6.0 PROPOSED INVESTIGATION

AEI proposes a two part approach to further characterize the extent of the release's impact. Prior to installation of groundwater monitoring wells, AEI proposes advancing an additional set of soil

borings (Part 1), stepped out from the area of the previous investigations (Figures 2 and 3). The goal of Part 1 is to generally delineate the extent of the plume prior to installing groundwater monitoring wells, including in the north-northwest direction outside of the main warehouse building. Six borings are proposed; however, the assessment is to be flexible, relying on field observations and the professional judgment of AEI staff and the client to complete the investigation in a timely and cost effective manner.

Part 2 will consist of the installation of groundwater monitoring wells. It is expected that the data gathered above will allow for appropriate well location selection for Part 2. Six tentative well locations and construction details are presented below, however it is intended that these specifications will be reviewed upon completion of Part 1 soil borings and review of data.

6.1 Part 1 – Soil Borings

AEI proposes advancing six (6) soil borings (SB-23 through SB-28), stepped out from the area of previous investigations. The proposed soil boring locations are presented on Figure 2 and 3. Additional borings may be drilled if requested by the client and deemed appropriate by project professional in charge.

6.1.1 Drilling and Sample Collection

Prior to mobilization, Underground Service Alert North (USA North) will be notified to identify public underground utilities in the area. Soil borings will be advanced with a truck-mounted Geoprobe™ direct-push drilling rig to a maximum expected depth of approximately 15 to 20 feet bgs. The selected drilling contractor will hold a valid California C57 driller's license.

Soil will be continuously collected in 1¾ inch diameter acrylic liners within the sampling barrel and logged by the onsite geologist. A 6 inch sample will be taken at appropriate depths. Samples will be selected and cut from the liners. The sample will be sealed with Teflon tape and plastic end caps. A photo-ionization device (PID) will be used to screen soil samples in the field, and PID readings for each sample will be included on boring logs. Soil samples will be collected at approximately 3 to 5 foot intervals and at changes in soil types, depths of suspected impact, and within the capillary fringe, if apparent.

Upon encountering saturated sediments, a temporary ¾" diameter factory-slotted poly-vinyl chloride (PVC) casing will be inserted into the borings to facilitate the collection of groundwater samples. The temporary well casings will be set and groundwater samples will be collected with a dedicated, disposable bailer into 40-ml volatile organic analysis (VOA) vials and 1 liter bottles. The groundwater samples will be capped so that there is no head space or visible air bubbles within the vials.

6.1.2 Sample Storage and Analyses

All samples will be labeled with at a minimum, a unique sample identification, sample date and time, and project number. The samples will be sealed in plastic bags and immediate placed in a pre-chilled cooler over water ice. Samples will be entered onto a chain of custody prior to leaving the site. Samples will be delivered on the day of collection to a

California Department of Health Services (DHS) certified analytical laboratory. The proposed analyses for samples selected during this project will be TPH as gasoline and diesel (TPH-g and d) by EPA method 8015C, BTEX and MTBE by EPA method 8021.

6.1.3 Equipment Decontamination

Sampling equipment, including sampling barrels, augers, and other equipment used to sample, will be decontaminated between samples using a triple rinse system containing Alconox ™ or similar detergent.

6.2 Part 2 – Well Installation

AEI proposes to install six groundwater monitoring wells (MW-1 through MW-6). The purpose of groundwater monitoring is to determine flow direction, hydraulic gradient, and monitor stability of dissolved phase contaminant plume. The tentative locations of the wells are presented on Figure 3, based on the existing data. If the findings of Task 1 indicate a need for additional wells, proposed changes to the scope of work will be discussed with the client and ACHCSA. A summary of the proposed wells is presented below, along with completion details and an explanation of the purpose of each.

Exhibit 2: Proposed Wells

Well ID	*Location / Purpose*	*Casing Diameter (inches)*	*Screen interval (ft bgs)*
MW-1	Nearest to abandoned tank area to assess source area.	2	5 – 15
MW-2	Northwest of abandoned tank area to assess source area.	2	5 – 15
MW-3	West of abandoned tank area to assess adjacent property	2	5 – 15
MW-4	Northwest of source area to assess northwest (possibly down-gradient) extent of plume	2	5 – 15
MW-5	West of source area to assess west extent of plume.	2	5 – 15
MW-6	Northwest of source area to assess northwest (possibly down-gradient) extent of plume	2	5 – 15

6.2.1 Well Installation

Well installation work will be performed under ACPW permit by a C57 licensed drilling contractor. The wells will be installed in borings drilled with a limited-access rotary drilling rig, running 8¼ diameter hollow stem augers. The boreholes will be advanced to a tentative target depth of 17 feet bgs. The wells will be constructed with 2" diameter well casing, planned with 10' of factory slotted 0.020 inch well screen set from 5 to 15 feet. If feasible given the access limitation, a drill rig capable of collecting continuous samples will be utilized. Otherwise, samples will be collected with a split spoon sampler every 5 feet to log the boring and for possible chemical analyses.

The well casings will be installed through the augers. The casing will be flush threaded PVC and fitted with a bottom sump. An annular sand pack will be installed through the augers, to approximately 1 foot above the top of slotted casing, in 1-foot lifts. A bentonite

seal will be placed above the sand and the remainder of the boring will be sealed with cement grout. Each well will be finished with an expanding, lockable inner cap and a flush-mounted well box.

The wells will be developed no sooner than 3 days after setting the well seals by surging, bailing, and purging to stabilize the sand pack and remove accumulated fines from the casing and sand pack. Each well will be surveyed relative to each other and mean sea level by a California licensed land surveyor, with accuracy appropriate for Geotracker uploads.

6.2.2 Quarterly Monitoring Activities

Monitoring and sampling of the resulting network of wells will occur on a quarterly basis tentatively for a period of one year under this work plan, with the first episode to occur within approximately one week of well development.

During each monitoring event, water levels will be measured in each well. Wells will be purged of at least 3 well volumes of water prior to sample collection. During purging the following water quality measurements will be collected using a peristaltic pump.

During purging the pump rate will be maintained at less than 0.5 liter per minute with the draw tube at a depth of approximately 18" below the top of standing water in the well. The standard groundwater parameters of pH, temperature, conductivity, dissolved oxygen (DO) and oxidation-reduction potential (ORP) will be measured. Groundwater samples will be collected when the groundwater parameters stabilize. Stabilization will be defined as follows: pH ± 0.1 units, conductivity ± 3% µs/cm, DO ± 0.3 milligrams per liter, and ORP ± 10 millivolts.

Groundwater samples will be collected with new, unused disposable bailers into appropriate laboratory-supplied containers. During the first monitoring event, the groundwater samples will be analyzed for the following:

- TPH-g and TPH-d by EPA Method 8015
- BTEX and MTBE by EPA Method 8021B

Depending on the findings of the initial monitoring event, modifications to the monitoring program or the addition of specific analyses (such as those for natural attenuation assessment or used in evaluating chemical oxidation methods) may be performed or recommended in the assessment report.

6.2.3 Waste Storage

Drill cuttings will be stockpiled with the excavated soil or stored with other Investigation-Derived Waste (IDW) onsite in sealed 55-gallon drums, pending the results of sample analyses. Equipment rinse water and well purge water will be stored in 55-gallon drums. Upon receipt of necessary analytical results, the waste will be profiled for disposal and transported from the site under appropriate manifest to approved disposal or recycling facility(s).

7.0 SITE SAFETY

AEI will prepare a site specific Health and Safety Plan conforming to Part 1910.120 (i) (2) of 29 CFR. Prior to commencement of field activities, a site safety meeting will be held at a designated command post near the working area. The Health and Safety Plan will be reviewed and emergency procedures will be outlined at this meeting, including an explanation of the hazards of the known or suspected chemicals of interest. All site personnel will be in Level D personal protection equipment, which is the anticipated maximum amount of protection needed. A working area will be established with barricades and warning tape to delineate the zone where hard hats, steel-toed shoes and safety glasses must be worn, and where unauthorized personnel will not be allowed. The site Health and Safety Plan will be on site at all times during each phases of the project.

8.0 PRELIMINARY REMEDIAL OPTION EVALUATION

The excavation proposed in Section 5.0 will remove an accessible portion of source contamination, however, excavation as a means to remediate the entire plume area and "smear zone" impact may not be a cost-effective remedial approach. Upon completion of these additional characterization tasks, depending on the results, evaluation of additional treatment options may be considered. A number of factors that will be considered in the selection of remedial options include

- The extent of dissolved phase impact
- The extent and thickness of sorbed phase contaminants
- Possibly complete exposure pathways (drinking water, vapor intrusion, director contact, etc)
- The direction and variations in groundwater flow; hydraulic conductivity and aquifer heterogeneity
- Soil and groundwater geochemistry
- Likelihood and timing of property redevelopment, including conceptual project design and proposed land use

As the full extent of the plume becomes apparent, planning for remedial action pilot testing will begin. Remedial methods for additional interim treatment or for selection as a remedial alternative may include in situ chemical oxidation (ozone sparging, persulfate or peroxide injections, etc), vapor extraction / air sparging and or high-vacuum dual phase extraction, additional excavation and dewatering, and enhanced aerobic bioremediation. Once monitoring wells are installed, an area of the plume can be targeted for field feasibility testing of a remedial alternative. A workplan for such pilot testing will be presented to ACHCSA with opportunity for comment prior to proceeding.

9.0 REPORTING

AEI will prepare and issue a final report following receipt of all necessary data from the investigation and source excavation. The report will include logs of borings, data tables, figures of drilling and sampling locations, copies of laboratory analytical reports, including cumulative information gathered from previous investigations in this area. A written discussion of the history, methods and findings, and recommendations will be included. The information gathered during

this investigation will be utilized to begin preparing a conceptual model of the release. Site data will be uploaded as necessary into the GeoTracker database, as necessary. The project will be overseen and the report(s) signed by an AEI California registered professional geologist or engineer.

10.0 SCHEDULE

The permitting process will begin upon review and concurrence with the scope of work by the ACHCSA. It is planned that the excavation and investigation will begin in May 2008. The well installation will be scheduled to occur within 2 weeks of the Part 1 soil borings with the monitoring to occur shortly thereafter. As a schedule is established ACHCSA will be notified of the field work dates so inspections can be scheduled if needed.

11.0 LIMITATIONS AND SIGNATURES

This plan has been prepared by AEI Consultants on behalf of the Ms. Zimmerman which outlines proposed activities relating to the environmental release at the property located at 3442 Adeline Street, located in the City of Oakland, Alameda County, California. The plan outlined in this report has been based on previous field investigations, laboratory testing of material samples, and evaluations performed by AEI and others. AEI is not responsible for the accuracy or quality of work performed by others, information not available or provided to AEI, and other data or information gaps. This report does not reflect subsurface variations that may exist between sampling points. These variations cannot be anticipated, nor could they be entirely accounted for, in spite of exhaustive additional testing. This document should not be regarded as a guarantee that no further contamination, beyond that which could have been detected within the scope of past investigations is present beneath the property or that all contamination present at the site will be identified, treated, or removed. Undocumented, unauthorized releases of hazardous material(s) and petroleum products, the remains of which are not readily identifiable by visual inspection and/or are of different chemical constituents, are difficult and often impossible to detect within the scope of a chemical specific investigation and may or may not become apparent at a later time. All specified work will be performed in accordance with generally accepted practices in environmental engineering, geology, and hydrogeology and will be performed under the direction of appropriate California registered professional(s).

We look forward to comment and concurrence with the scope of work outlined herein. Should you have any questions or need additional information, please contact us at 925/944-2899.

Sincerely,
AEI Consultants

Harmony TomSun
Staff Geologist

Peter J. McIntyre, PG, REA
Senior Project Manager

REGISTERED GEOLOGIST
PETER J. MCINTYRE
Exp. 5/31/08
No. 7702
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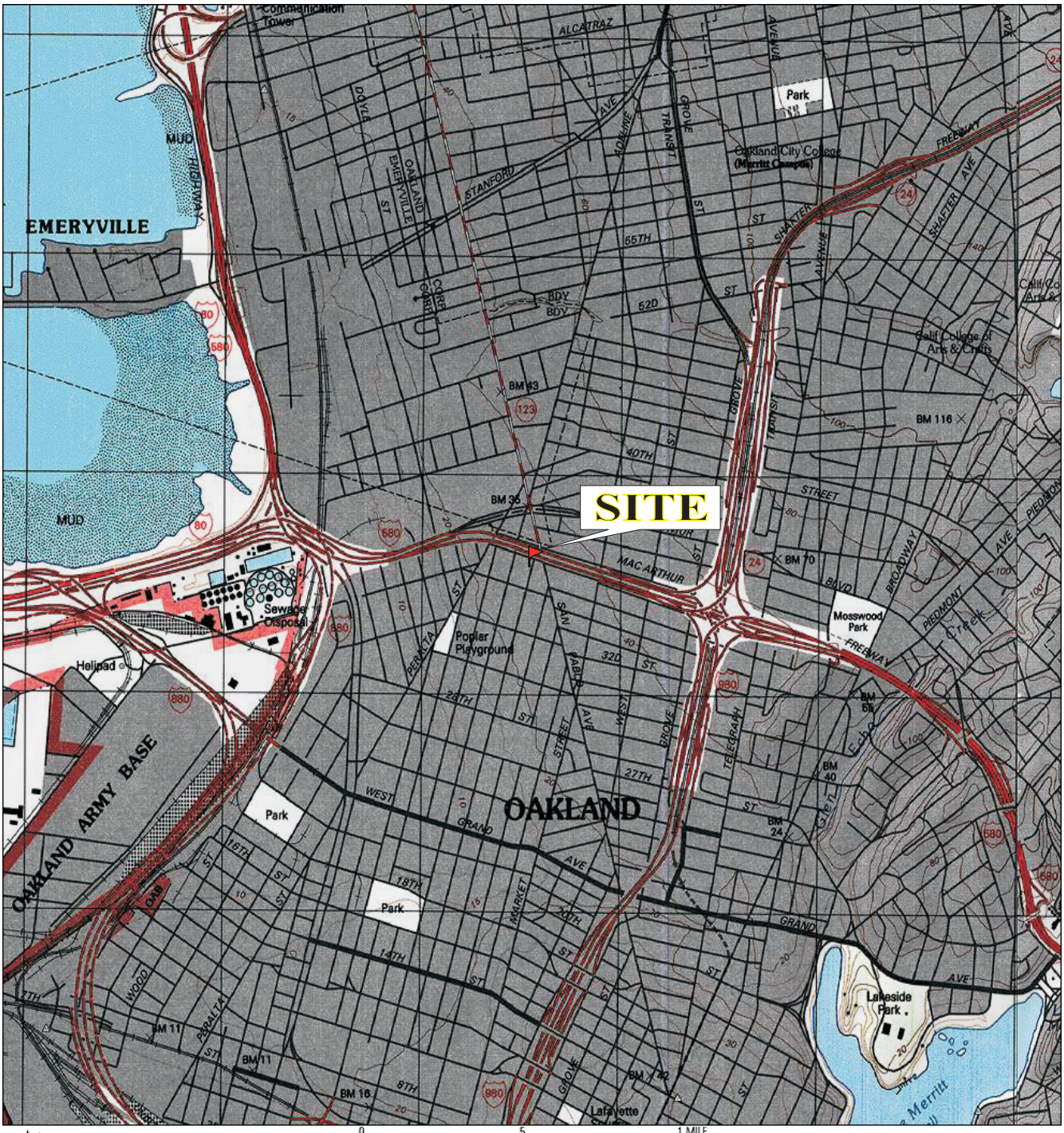
Adrian M. Angel
Project Geologist

Distribution:
Ms. Steffi Zimmerman, 6330 Swainland Road, Oakland, CA 94611
San Francisco Bay RWQCB, 1515 Clay Street, 14th Floor, Oakland, CA 94612

FIGURES



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Site Location

3433 Chestnut Street
Oakland, CA 94608

FIGURE 1
Job No: 274761

Proposed Monitoring Wells

Proposed Soil Borings

Property Boundary

Figure 3 Boundary

Approximate Scale:
1 inch = 55 feet

0’ 55’

N

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Site Plan

3433 Chestnut St.
Oakland, CA 94608

FIGURE 2
Job No: 274761

MW-5

SB-23

Storage Yard

3442 Adeline St.

SB-25

Storage Yard

A

SB-22

SB-27

SB-21

MW-4

MW-3

SB-13

SB-12

SB-14

Interior Wall

SB-20

MW-2

SB-28

3433 Chestnut St.

SB-3

SB-15

MW-1

SB-2/VB-2

SB-5

SB-11

Residential Housing

SB-1/VB-1

SB-4

SB-6

B'

SB-8

S3

SB-7

S4

S1

Sidewalk

VB-3

SB-10

S2

B

SB-19

SB-16

SB-9

Chestnut Street

SB-18

SB-17

A'

Sidewalk

Hotel Parking Lot and Yard

Hotel California

N

0' 10' 20'

Scale:
1 inch = 20 feet

- Proposed Monitoring Wells
- Proposed Soil Borings
- Clearwater Soil Borings (06/23/06)
- AEI Soil Vapor (10/1/07 - 10/3/07)
- AEI Soil Boring (10/1 - 10/3/07 and 12/20-12/21/07)
- Proposed Source Area Excavation
- Former UST Location
- Fuel Dispenser
- Fence Diagram A-A'
- Fence Diagram B-B'

*Additional Proposed Soil Borings and Monitoring Wells Located on Figure 2

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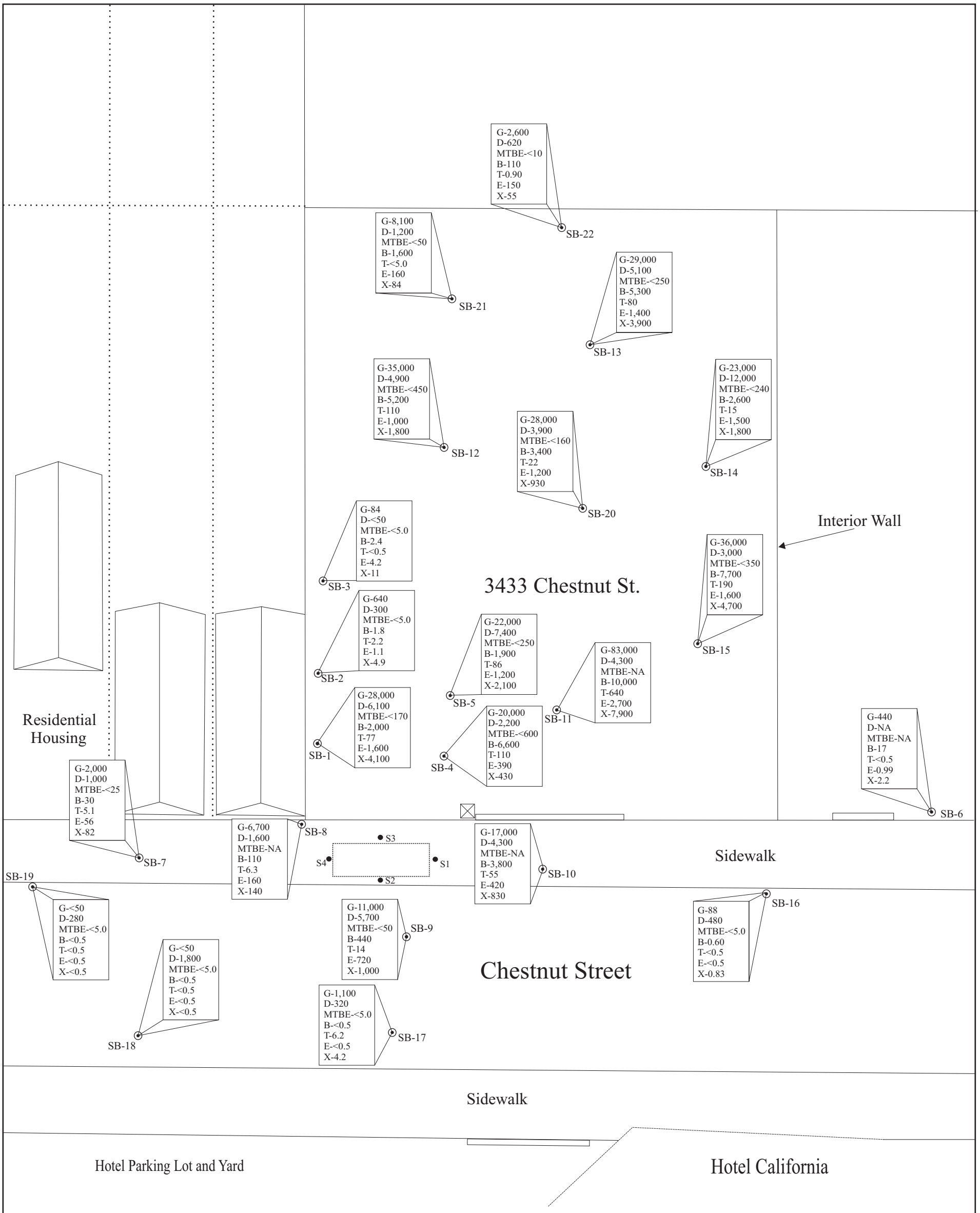
Detailed Site Plan

3433 Chestnut St.
Oakland, CA 94608

FIGURE 3
Job No: 274761



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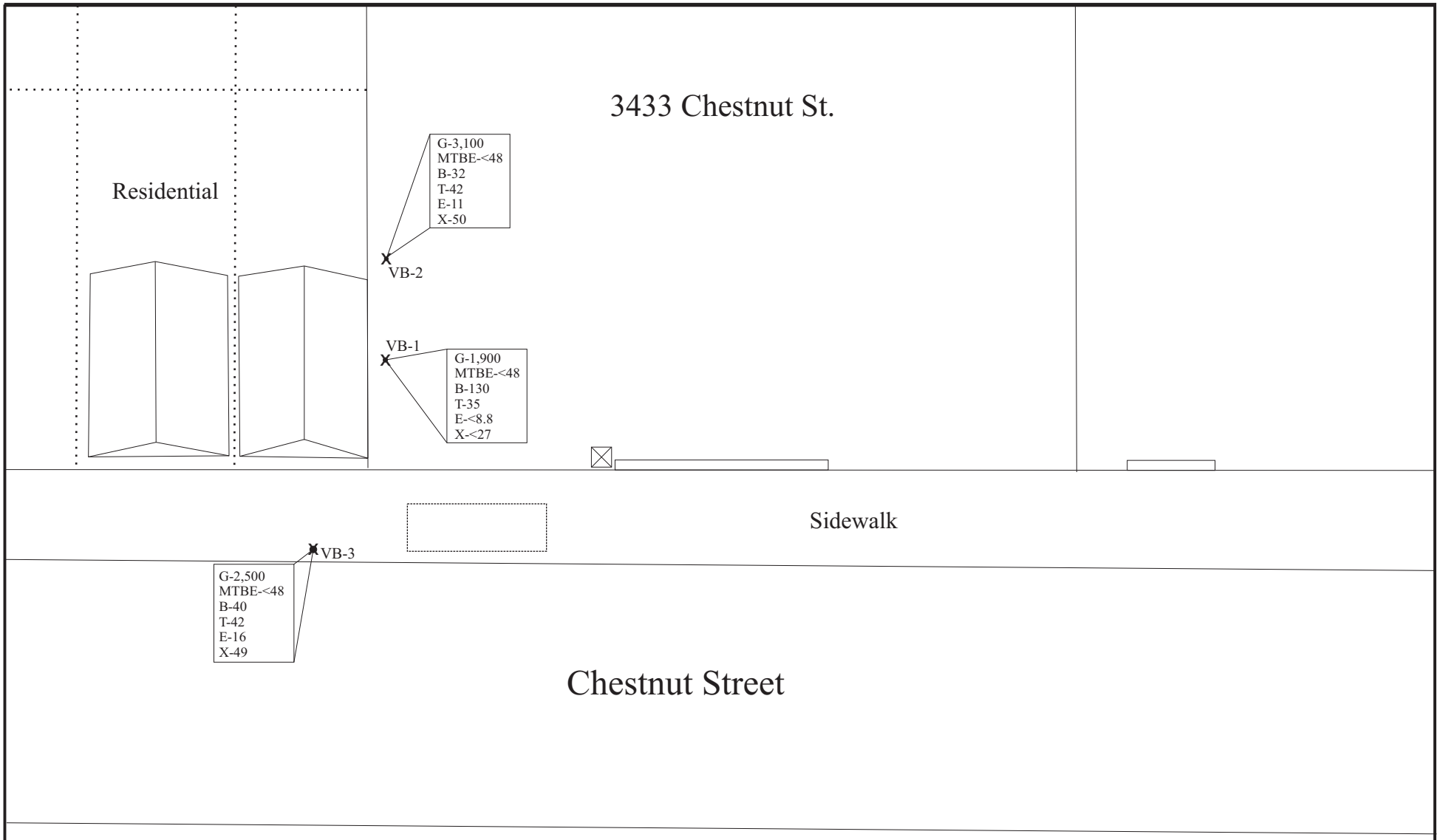
Groundwater Analytical Data

3433 Chestnut St.
Oakland, CA 94608

FIGURE 4
Job No: 274761



Soil Vapor Location

Former UST Location

UST Dispense Location

Roll-Up Door

G-Total Petroleum Hydrocarbons as Gasoline ($\mu g/m^3$)
MTBE-Methyl-t-butyl ether ($\mu g/m^3$)
B-Benzene ($\mu g/m^3$)
T-Toluene ($\mu g/m^3$)
E-Ethyl Benzene ($\mu g/m^3$)
X-Xylenes ($\mu g/m^3$)

Approximate Scale:
1 inch = 20 feet

0’ 10’ 20’

AEI CONSULTANTS
2500 Camino Diablo, Suite 200, Walnut Creek, CA 94597

Soil Vapor Sample Results

3433 Chestnut St.
Oakland, CA 94608

FIGURE 5
Job No: 274761

TABLES

Table 1: Soil Sample Analytical Data
3433 Chestnut St. Oakland, CA 94608
AEI Project #274761

Sample ID	Depth	Date	TPH-d	TPH-g	MTBE	Benzene	Toluene	E-Benzene	Xylenes	TAME	TBA	DIPE	ETBE	MTBE
			Method 8015C			*Method 8021B*				*Method 8260B*				
	ft		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NW	*6.5*	2/22/2000	130	130	---	0.16	0.26	0.73	6.3	---	---	---	---	---
SW	*6.5*	2/22/2000	850	920	---	0.3	0.37	5.3	22	---	---	---	---	---
S-1	*5*	6/23/2006	5.6	<1.0	---	0.011	<0.0050	<0.0050	<0.0050	---	---	---	---	---
	8		26	100	---	1.3	0.22	2.0	7.2	---	---	---	---	---
	12		45	67	---	0.098	<0.025	0.73	0.39	---	---	---	---	---
	14.5		1.2	<1.0	---	<0.0050	<0.0050	<0.0050	0.01	---	---	---	---	---
S-2	*4*	6/23/2006	4.7	<1.0	---	0.016	<0.0050	<0.0050	<0.0050	---	---	---	---	---
	7.5		84	460	---	1.2	0.36	9.4	24	---	---	---	---	---
	12		49	61	---	0.33	0.055	0.84	2.4	---	---	---	---	---
	14		<1.0	<1.0	---	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---	---
S-3	*3.5*	6/23/2006	3.1	<1.0	---	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---	---
	7.5		250	1,200	---	0.47	0.52	18	100	---	---	---	---	---
	10		76	220	---	0.26	<0.040	6.2	7.2	---	---	---	---	---
	14.5		1.3	<1.0	---	<0.0050	<0.0050	0.0056	0.016	---	---	---	---	---
S-4	*3.5*	6/23/2006	3.5	<1.0	---	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---	---
	7.5		240	820	---	<0.20	<0.20	6.7	4.4	---	---	---	---	---
	11.5		120	500	---	0.079	<0.040	3.5	4.8	---	---	---	---	---
	14.5		1.3	<1.0	---	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---	---
SB-1	4	10/1/2007	---	2.9	<0.05	0.016	0.0079	<0.005	0.0094	---	---	---	---	---
	7.5		450	1,200	<5.0	3.1	2.5	24	110	---	---	---	---	---
	11.5		90	640	<2.5	0.40	1.5	9.3	23	<0.33	<3.3	<0.33	<0.33	<0.33
	15.5		---	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---
SB-2	7.5	10/1/2007	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---
	11		6.1	53	<0.05	<0.005	0.24	0.0084	0.19	<0.005	<0.05	<0.005	<0.005	<0.005
SB-3	7.5	10/1/2007	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---
	11.5		<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005
SB-4	3.5	10/1/2007	---	1.2	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---
	7.5		170	430	<1.0	1.2	0.99	3.6	1.2	---	---	---	---	---
	11.5		25	340	<1.0	2.4	0.92	7.1	9.7	<0.005	<0.05	<0.005	<0.005	<0.005
	15.5		---	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---
SB-5	3.5	10/1/2007	---	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---
	7.5		54	420	<1.5	4.0	1.1	9.5	18	---	---	---	---	---
	11.5		22	130	<1.0	0.43	0.10	1.2	0.77	<0.005	<0.05	<0.005	<0.005	<0.005
	15.5		---	<1.0	<0.05	0.017	<0.005	<0.005	<0.005	---	---	---	---	---

Table 1: Soil Sample Analytical Data
3433 Chestnut St. Oakland, CA 94608
AEI Project #274761

Sample ID	Depth	Date	TPH-d	TPH-g	MTBE	Benzene	Toluene	E-Benzene	Xylenes	TAME	TBA	DIPE	ETBE	MTBE
			Method 8015C			*Method 8021B*						*Method 8260B*		
	ft		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SB-6	7.5	10/1/2007	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---
	11.5		<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005
SB-7	7.5	10/3/2007	90	310	<1.0	<0.10	0.48	0.28	0.38	---	---	---	---	---
	11.5		37	120	<0.50	0.21	0.069	0.39	0.22	<0.020	<0.20	<0.020	<0.020	<0.020
SB-8	7.5	10/3/2007	23	53	<0.10	<0.010	0.030	0.034	0.13	---	---	---	---	---
	11.5		13	99	<0.17	0.24	0.070	0.66	0.46	<0.010	<0.10	<0.010	<0.010	<0.010
SB-9	4	10/3/2007	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---
	11.5		<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005
SB-10	7.5	10/3/2007	5.1	35	<0.10	0.72	0.024	0.47	0.079	---	---	---	---	---
	11.5		74	750	<10	6.9	1.6	13	33	<0.10	<1.0	<0.10	<0.10	<0.10
	15.5		---	<1.0	<0.05	0.012	<0.005	<0.005	0.0052	---	---	---	---	---
SB-11	11.5	10/3/2007	13	39	<0.3	0.68	0.086	0.76	2.3	---	---	---	---	---
	15.5		10	41	0.14	1.1	0.071	0.55	1.5	---	---	---	---	---
SB-12	8	12/20/2007	1.8	25	<0.10	0.097	0.024	0.81	1.3	---	---	---	---	---
	12		23	82	<0.50	0.74	0.14	1.5	2.9	---	---	---	---	---
	16		---	20	<0.25	0.51	0.083	0.48	1.8	---	---	---	---	---
SB-13	8	12/20/2007	66	180	<0.50	0.46	0.10	2.5	2.7	---	---	---	---	---
	12		74	170	<0.50	1.1	0.21	2.4	6.7	---	---	---	---	---
	16		<50	5.7	<0.05	0.87	0.017	0.12	0.10	---	---	---	---	---
SB-14	8	12/20/2007	<1.0	<1.0	<0.05	0.0092	<0.005	<0.005	<0.005	---	---	---	---	---
	12		83	910	<2.5	3.3	0.43	10	16	---	---	---	---	---
	16		---	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005					
SB-15	8	12/20/2007	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---
	12		61	390	<2.5	2.7	0.47	6.7	13	---	---	---	---	---
	16		---	40	<0.1	0.26	0.047	0.37	1.3	---	---	---	---	---
SB-16	8	12/20/2007	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---
SB-17	8	12/20/2007	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---
	12		<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---
SB-18	8	12/20/2007	18	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---
SB-19	8	12/20/2007	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---
	12		<1.0	6.7	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---

Table 1: Soil Sample Analytical Data
3433 Chestnut St. Oakland, CA 94608
AEI Project #274761

Sample ID	Depth	Date	TPH-d	TPH-g	MTBE	Benzene	Toluene	E-Benzene	Xylenes	TAME	TBA	DIPE	ETBE	MTBE
			Method 8015C			*Method 8021B*						*Method 8260B*		
	ft		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SB-20	8	12/20/2007	9.7	89	<0.25	0.070	0.14	0.050	0.14	---	---	---	---	---
	12		32	99	<0.17	0.61	0.061	1.6	1.4	---	---	---	---	---
	16		---	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---
SB-21	8	12/21/2007	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---
	12		5.8	26	<0.05	0.28	0.048	0.31	0.30	---	---	---	---	---
SB-22	8	12/21/2007	<1.0	24	<0.05	<0.005	0.070	0.016	0.059	---	---	---	---	---
	12		150	310	<1.7	0.17	<0.17	4.1	3.2	---	---	---	---	---
	16		---	9.2	<0.05	0.021	0.032	0.0052	0.0083	---	---	---	---	---
ESL			83	83	0.023	0.044	2.9	3.3	2.3	---		---	---	---

Notes:

mg/kg = milligrams per kilogram
ESL = Environmental Screening Level
NW = Soil Sample Collected from northwest sidewall during excavation
SW = Soil Sample Collected from southwest sidewall during excavation
TPH-g = total petroleum hydrocarbons as gasoline
TPH-d = total petroleum hydrocarbons as diesel
E-Benzene = ethyl benzene
TAME = tert-amyl methyl ether
ETBE = ethyl tert-butyl ether
TBA = tertiary butyl alcohol
DIPE = Di-isopropyl Ether
MTBE = methyl tert-butyl ether

Table 2: Groundwater Sample Analytical Data
3433 Chestnut St. Oakland, CA 94608
AEI Project #274761

Sample ID	Date	TPH-d *Method 8015C* µg/L	TPH-g µg/L	MTBE µg/L	Benzene *Method 8021B* µg/L	Toluene µg/L	E-Benzene µg/L	Xylenes µg/L	TAME µg/L	ETBE µg/L	TBA *Method 8260B* µg/L	DIPE µg/L	MTBE µg/L
Pit Water	2/22/2000	34,000	7,400	---	3,300	930	400	6,200	---	---	---	---	---
S-1	6/23/06	<10,000	20,000	---	980	70	1,500	1,100	---	---	---	---	---
S-2	6/23/06	<4,000	31,000	---	7,000	260	920	2,800	---	---	---	---	---
S-3	6/23/06	<1,500	23,000	---	490	67	1,200	3,300	---	---	---	---	---
S-4	6/23/06	<40,000	120,000	---	200	<15	3,500	2,900	---	---	---	---	---
SB-1	10/1/2007	6,100	28,000	<170	2,000	77	1,600	4,100	<25	<25	<250	<25	<25
SB-2	10/1/2007	300	640	<5.0	1.8	2.2	1.1	4.9	<0.5	<0.5.	<5.0	<0.5	<0.5
SB-3	10/1/2007	<50	84	<5.0	2.4	<0.5	4.2	11	<0.5	<0.5.	<5.0	<0.5	<0.5
SB-4	10/1/2007	2,200	20,000	<600	6,600	110	390	430	<17	<17	430	<17	<17
SB-5	10/1/2007	7,400	22,000	<250	1,900	86	1,200	2,100	<5.0	<5.0	120	<5.0	<5.0
SB-6	10/1/2007	---	440	---	17	<0.5	0.99	2.2	<0.5	<0.5	18	<0.5	2.0
SB-7	10/3/2007	1,000	2,000	<25	30	5.1	56	82	<0.5	<0.5.	<5.0	<0.5	6.1
SB-8	10/3/2007	1,600	6,700	---	110	6.3	160	140	<0.5	<0.5	12	<0.5	<0.5
SB-9	10/3/2007	5,700	11,000	<50	440	14	720	1,000	<1.7	<1.7	37	<1.7	<1.7
SB-10	10/3/2007	1,700	17,000	<100	3,800	55	420	830	<10	<10	510	11	<10
SB-11	10/3/2007	4,300	83,000	---	10,000	640	2,700	7,900	<25	<25	840	<25	<25
SB-12	12/20/2007	4,900	35,000	<450	5,200	110	1,000	1,800	---	---	---	---	---
SB-13	12/20/2007	5,100	29,000	<250	5,300	80	1,400	3,900	---	---	---	---	---
SB-14	12/20/2007	12,000	23,000	<240	2,600	15	1,500	1,800	---	---	---	---	---
SB-15	12/20/2007	3,000	36,000	<350	7,700	190	1,600	4,700	---	---	---	---	---
SB-16	12/20/2007	480	88	<5.0	0.60	<0.5	<0.5	0.83	---	---	---	---	---

Table 2: Groundwater Sample Analytical Data
3433 Chestnut St. Oakland, CA 94608
AEI Project #274761

Sample ID	Date	TPH-d	TPH-g	MTBE	Benzene	Toluene	E-Benzene	Xylenes	TAME	ETBE	TBA	DIPE	MTBE
		Method 8015C			*Method 8021B*						*Method 8260B*		
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
SB-17	12/20/2007	320	1,100	<5.0	<0.5	6.2	<0.5	4.2	---	---	---	---	---
SB-18	12/20/2007	1,800	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
SB-19	12/20/2007	280	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
SB-20	12/20/2007	3,900	28,000	<160	3,400	22	1,200	930	---	---	---	---	---
SB-21	12/21/2007	1,200	8,100	<50	1,600	<5.0	160	84	---	---	---	---	---
SB-22	12/21/2007	620	2,600	<10	110	0.90	150	55	---	---	---	---	---
ESL	---	100	100	5.0	1.0	40	30	20	---	---	50,000	---	---

Notes:
µg/L = micrograms per liter
ESL = Environmental Screening Level
TPH-g = total petroleum hydrocarbons as gasoline
TPH-d = total petroleum hydrocarbons as diesel
MTBE = methyl tert-butyl ether
E-Benzene = ethyl benzene
TAME = tert-amyl methyl ether
ETBE = ethyl tert-butyl ether
TBA = tertiary butyl alcohol
DIPE = Di-isopropyl Ether

Table 3: Soil Vapor Sample Analytical Data
3433 Chestnut St. Oakland, CA 94608
AEI Project #274761

Boring	Date	Isopropyl Alcohol	TPH-g	MTBE	Benzene	Toluene	Ethyl Benzene	Xylenes
					Method TO15			
		µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
VB-1	10/1/2007	<25	1,900	<48	130	35	<8.8	<27
VB-2	10/1/2007	<25	3,100	<48	32	42	11	50
VB-3	10/1/2007	<25	2,500	<48	40	42	16	49
ESL		---	26,000	9,400	85	63,000	420,000	150,000

µg/m^3 = micrograms per cubic meter

ESL = Environmental Screening Level

TPH-g = total petroleum hydrocarbons as gasoline

MTBE = methyl tert-butyl ether

APPENDIX A

BORING LOGS

Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-1

Sheet 1 of 1

Date(s) Drilled **October 1, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **8 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Other		Concrety/Top Soil - Gravelly Sand		
				CL		Silty Clay, Black, Poorly Graded, Low Plasticity, Roots, 5% Fine Grained Gravel, Stiff		
		X	SB-1-4				5.4	
	5			CL		Stiff Clay, Greenish Gray/Yellowish Brown, Low Plasticity, Poorly Graded		
		X	SB-1-7.5			(ATD) ▽	35.7	
	10			GC		Gravelly Silty Clay, Coarse, Multi-Colored (green, gray, orange, yellowish-brown), Stiff, Low Plasticity		
		X	SB-1-11.5				350.1	
				CL		Silty Sandy Clay, Olive Greenish Gray, Soft, Moist		
				CH		Fat Clay, Light Yellowish Brown with Orange Veins, Poorly Graded, High Plasticity		
	15	X	SB-1-15.5				12.5	
						Bottom of Boring at 16 feet bgs		
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-2

Sheet 1 of 1

Date(s) Drilled **October 1, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **8 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Other		Top Soil/Fill Material		
				CL		Silty Clay, Black, Low Plasticity, Poorly Graded, Roots, 5% Fine Grained Gravel		
		☒	SB-2-3.5				5.5	
	5			CL		Gravelly Silty Clay, Dark Gray, Low Plasticity, Poorly Graded, 10% Fine Grained Gravel		
				CL		Silty Clay, Greenish Gray, Moderate Plasticity, 5% Fine Grained Gravel		
		☒	SB-2-7.5			(ATD) ▽	7.5	
				GC		Gravelly Sandy Clay, Multi-Colored (green, blue, orange, brown), Soft, Fine Grained Gravel		
	10			CL		Lean Silty Clay, Lean, Light Yellowish Brown and Greenish Gray, Moderate Plasticity		
		☒	SB-2-11				235.4	
				CL		Silty Clay, Light Yellowish Brown, 10% Fine Grained Gravel		
	15			CH		Fat Clay, Light Yellowish Brown with Orange Veins, High Plasticity, Moist		
		☒	SB-2-15.5				14.8	
						Bottom of Boring at 16 feet bgs		
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-3

Sheet 1 of 1

Date(s) Drilled **October 1, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **14 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Other		Top Soil/Fill Material		
				CL		Silty Clay, Black, Stiff, Low Plasticity, Poorly Graded, Fine Grained Gravel		
		X	SB-3-3.5				11.1	
	5			CL		Sandy Clay, Coarse Grained, Hard, Dark Reddish/Yellowish Brown, Tight, Dry		
		X	SB-3-7.5	GC		Gravelly Sandy Clay, Soft, Multicolored (yellow, orange, green, brown), Coarse Grained Sand, 15% Gravel	8.1	
	10			CL		Silty Clay, Stiff, Dry, Shells, Dark Brown/Black		
		X	SB-3-11.5				5.8	
				GC		Gravelly Sandy Clay, Soft, Dark Yellowish Brown, Coarse Grained Sand, 15% Gravel		
				CL		Sandy Clay, Coarse Grained Sand, Poorly Graded, Wet, High Plasticity (ATD) ▽		
	15			CH		Fat Clay, High Water Content, High Plasticity, Reddish/Yellowish Brown		
		X	SB-3-15.5				13.4	
						Bottom of Boring at 16 feet bgs		
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-4

Sheet 1 of 1

Date(s) Drilled **October 1, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Other		Fill Material/Top Soil		
				CL		Silty Clay, Black, Stiff, Low Plasticity, Poorly Graded, 5% Fine Grained Gravel		
		☒	SB-4-3.5				12.9	
	5			ML		Silty Clay, Very Fine Grained, Stiff, Greenish Gray/Yellowish Brown, Low Plasticity, 5% Fine Grained Gravel		
		☒	SB-4-7.5				225	
				GC		Gravelly Sandy Clay, Coarse Grained, Multicolored (green, gray, yellow, brown), Soft		
	10			CL		Silty Clay, Stiff, Dry, Greenish Gray, Low Plasticity		
		☒	SB-4-11.5	GC		Gravelly Sandy Clay, Greenish Grayish Brown, Soft, Moist, High Plasticity, Coarse Grained Sand, 10% Fine Grained Gravel	411	
				CH		Fat Clay, Light Yellowish Brown with Orange Veins, High Plasticity, High Water Content		
	15	☒	SB-4-15.5				9.1	
						Bottom of Boring at 16 feet bgs		
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-5

Sheet 1 of 1

Date(s) Drilled **October 1, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **11 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Other		Top Soil/Fill Material		
				CL		Silty Clay, Black, Stiff, Low Plasticity, Poorly Graded, Roots, 5% Fine Grained Gravel		
		☒	SB-5-3.5				12.1	
	5			ML		Silty Clay, Light Yellowish Brown and Bluish Gray, Stiff, Dry, Shells, Low Plasticity		
		☒	SB-5-7.5				339	
				GC		Gravelly Sandy Clay, Dark Olive Green, Soft, Coarse Sand, Fine Grained Gravel		
	10					(ATD) ▽		
		☒	SB-5-11.5				167	
				CL		Silty Clay, Lean, Light Olive Greenish Gray with Orange Veins, Moderate Plasticity		
	15	☒	SB-5-15.5				20.5	
						Bottom of Boring at 16 feet bgs		
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-6

Sheet 1 of 1

Date(s) Drilled **October 1, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Other		Top Soil/Fill Material		
				CL		Silty Clay, Black, Stiff, Dry, <5% Fine Grained Gravel		
		X	SB-6-3.5				7.8	
	5			CL		Gravelly Silty Clay, Light Yellowish Brown and Grayish Blue, Tight, 5% Fine Grained Gravel		
				SW		Coarse Sand, Light Yellow Reddish Brown, Well Graded, Wet, Very Fine Grained Gravel		
				CL		Silty Clay, Light Yellowish Brown, Tight, Lean, Increasing Plasticity with Depth		
		X	SB-6-7.5				13.2	
	10			ML		Silt, Light Grayish White, Dry		
				GC		Gravelly Silty Clay, Dark Brown, Moderate Plasticity, 15% Fine Grained Gravel		
		X	SB-6-11.5				19.1	
				GC		Gravelly Silty Clay, Light Olive Green, Tight, Slight Plasticity, 10% Fine Grained Gravel		
	15	X	SB-6-15				11.3	
						Bottom of Boring at 16 feet bgs		
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-7

Sheet 1 of 1

Date(s) Drilled **October 3, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **8 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Asphalt		Concrete		
				SP		Coarse Sand, Dark Yellowish Brown, Loose, Wet		
				CL		Silty Clay, Black, Moderate Plasticity Decreasing with Depth, Gravel Quantity Increasing with Depth		
		☒	SB-7-3.5				57	
	5			SM		Sandy Silt, Dark Gray, Dry, <5% Fine Grained Gravel		
		☒	SB-7-7.5	CL		Silty Clay, Lean, Dark Greenish Gray, Moist, Moderate Plasticity (ATD) ▽	92	
				SM		Sandy Silt, Olive Green, Strong Hydrocarbon Odor, 5% Fine to Medium Grained Gravel		
	10	☒	SB-7-11.5	CL		Silty Clay, Greenish Gray, Tight, Lean, Moderate Plasticity	390	
				CL		Sandy Clay, High Water Content, Greenish Gray, High Plasticity, Coarse Grained Sand		
	15	☒	SB-7-15.5				52	
						Bottom of Boring at 16 feet bgs		
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-8

Sheet 1 of 1

Date(s) Drilled **October 3, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **14 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Asphalt		Concrete		
				CL		Silty Clay, Black, Low Plasticity, Increasing Gravel Content with Depth, Roots, <5% Fine Grained Gravel		
		X	SB-8-3.5				5.2	
	5			GM		Gravelly Silt, Dark Gray/Black, 20% Fine Grained Gravel		
		X	SB-8-7.5				44.1	
				CL		Silty Clay, Green Bluish Gray, Stiff, Low Plasticity		
	10			GC		Gravelly Silt, Dark Greenish Gray, 10% Coarse Grained Gravel, Strong Hydrocarbon Odor, Moist		
		X	SB-8-11.5				369	
				CH		Silty Clay, Dark Greenish Gray, Fat Clay, High Plasticity Decreasing with Depth		
						(ATD) ▽		
	15	X	SB-8-15.5				1.2	
						Bottom of Boring at 16 feet bgs		
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-9

Sheet 1 of 1

Date(s) Drilled **October 3, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **10.5 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Asphalt		Asphalt		
				CL		Silty Sandy Clay, Light Olive Brown with Orange Veins, Stiff, Moist		
		X	SB-9-4				439	
	5			GM		Gravelly Silty Sand, Dark Greenish Gray, Increasing Silt with Depth, Low Plasticity, Moist		
		X	SB-9-7.5				104	
		X	SB-9-9	GC		Gravelly Silty Clay, Olive, Stiff, Low Plasticity	353	
	10			GC		Gravelly Silty Clay, Dark Greenish Gray, Moderate Plasticity, Moist (ATD) ▽		
		X	SB-9-11.5				373	
				GC		Gravelly Silty Clay, Very Dark Greenish Gray, Soft, Moist, 10% Fine Grained Gravel		
				CL		Silty Clay, Light Olive Green with Orange Veins, High Water Content, Moderate Plasticity		
	15	X	SB-9-15.5				<1	
						Bottom of Boring at 16 feet bgs		
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-10

Sheet 1 of 1

Date(s) Drilled **October 3, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **12 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Asphalt		Concrete		
				CL		Silty Clay, Black, Low Plasticity, Increasing Gravel Content with Depth, Roots, <5% Fine Grained Gravel		
		☒	SB-10-3.5				23	
	5			GM		Gravelly Sandy Silt, Dark Greenish Gray, Coarse Grained Gravel		
				CL		Silty Clay, Olive Green, Stiff, Low Plasticity		
		☒	SB-10-7.5				81	
				SW		Sandy Clay, Dark Reddish Brown, Well Graded, Very Coarse Sand, Moist		
				CL		Silty Clay, Dark Greenish Gray, Tight, Poorly Graded		
	10			GC		Silty Clayey Gravel, Dark Greenish Gray, Stiff, Well Graded, Moist		
		☒	SB-10-11.5			(ATD) ▽	424	
				CL		Silty Clay, Dark Greenish Gray, Moderate Plasticity, Poorly Graded, Stiff, Moist		
				GC		Silty Gravelly Clay, Dark Greenish Gray, Well Graded, Stiff		
	15			CL		Silty Clay, Dark Green/Bluish Gray, Soft, Poorly Graded, Wet		
		☒	SB-10-15.5				35	
						Bottom of Boring at 16 feet bgs		
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-11

Sheet 1 of 1

Date(s) Drilled **October 3, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **16 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Asphalt		Concrete		
				CL		Silty Clay, Black, Low Plasticity, Increasing Gravel Content with Depth, <5% Fine Grained Gravel		
		X	SB-11-3.5				2.5	
	5			GM		Gravelly Sandy Silt, Dark Greenish Gray, 10% Coarse Grained Gravel, Soft		
		X	SB-11-7.5				4.1	
				CL		Silty Clay, Light Yellowish Brown, Tight, Gravel Content Increasing with Depth, Strong Hydrocarbon Odor		
	10	X	SB-11-11.5				24.2	
				GC		Gravelly Sand, Light Yellowish Brown, Soft, Moist		
				CH		Gravelly Clay, High Plasticity, <5% Fine Grained Gravel, Moist		
				CH		Silty Clay, Greenish Gray with Orange Veins, Medium Plasticity, High Water Content		
	15	X	SB-11-15.5			(ATD) ▽	367	
						Bottom of Boring at 16 feet bgs		
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-12

Sheet 1 of 1

Date(s) Drilled **December 20, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **15 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Asphalt		Concrete		
				CL		Silty Clay, Black, Low Plasticity, <5% Fine Grained Gravel		
			SB-12-4	CL		Silty Clay, Light Grayish Green, Slightly Mottled Orange, Very Fine Grained, Slight Plasticity	16.4	
	5			GM		Gravelly Silty Sand, Dark Greenish Gray, Soft, Loose, 10% Fine Grained Gravel, 50% Medium Grained Sand		
			SB-12-8				1079	
				CL		Gravelly Silty Clay, Light Yellowish Brown, Mottled Orange/Light Yellow, Tight/Stiff, 5% Fine Grained Gravel Content Increasing with Depth		
	10		SB-12-12	GC		Gravelly Sand, Light Yellowish Brown, Fine Grained Sand, 5% Fine to Medium Grained Gravel, Moist	849	
				CL		Silty Clay, Light Yellowish Brown, Mottled Orange, Tight, <5% Fine Grained Gravel, Moist (ATD) ▽		
	15		SB-12-16			Bottom of Boring at 16 feet bgs	8.3	
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-13

Sheet 1 of 1

Date(s) Drilled **December 20, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **15 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Asphalt		Concrete		
				CL		Silty Clay, Black, Stiff, Dry, Slight Orange Mottling		
			SB-13-4	SM		Sandy Silt, Light Grayish Green, Stiff, Low Plasticity, Very Fine Grained, Poorly Graded		
	5			GM		Gravelly Silty Sand, Dark Greenish Gray, Soft, Loose, 10% Fine to Medium Grained Gravel		
			SB-13-8				592	
				CL		Gravelly Silty Clay, Light Yellowish Brown, Mottled Orange/Light Yellow, Low Plasticity, 5% Fine Grained Gravel		
	10		SB-13-12	GC		Gravelly Sandy Clay, Dark Greenish Black, Slight Plasticity, Well Graded, Moist	852	
				CL		Lean Silty Clay, Light Yellowish Brown, Mottled Grayish Green, Tight, Slight Plasticity, <5% Fine Grained Gravel, Moist		
	15					(ATD) ▽		
			SB-13-16			Bottom of Boring at 16 feet bgs	486	
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-14

Sheet 1 of 1

Date(s) Drilled **December 20, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **15 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Asphalt		Concrete		
				CL		Silty Clay, Black, Low Plasticity, Slight Orange Mottling, Roots		
		X	SB-14-4	SM		Gravelly Silty Clay, Light Grayish Green, Stiff, Low Plasticity, Very Fine Grained, Poorly Graded	3.0	
	5			GM		Gravelly Silt, Light Greenish Gray, Mottled Orange, Soft, Loose, 5% Fine Grained Gravel		
		X	SB-14-8				1.9	
				CL		Gravelly Silty Clay, Light Olive Brown, Mottled Light Grayish Green, Low Plasticity, 10% Fine Grained Gravel Increasing with Depth, Strong Hydrocarbon Odor		
	10	X	SB-14-12	GC		Gravelly Sand, Light Yellowish Brown, Slight Plasticity, Well Graded, Moist	579	
				CL		Lean Silty Clay, Light Grayish Green, Mottled Red/Orange, Tight, Slight Plasticity, Moist		
	15					(ATD) ▽		
		X	SB-14-16			Bottom of Boring at 16 feet bgs		
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-15

Sheet 1 of 1

Date(s) Drilled **December 20, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **15 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Asphalt		Concrete		
				CL		Silty Clay, Black, Low Plasticity, Slight Orange Mottling, Roots		
		X	SB-15-4	SM		Gravelly Silty Clay, Greenish Gray, Stiff, Low Plasticity, Very Fine Grained, Moderately Graded	1.7	
	5							
		X	SB-15-8	GM		Gravelly Silt, Light Yellowish Brown, Mottled Orange, Soft, 5% Fine to Medium Grained Gravel	1.2	
				CL		Gravelly Silty Clay, Light Olive Brown, Mottled Green Gray, Low Plasticity, 5% Fine Grained Gravel		
	10							
		X	SB-15-12	SM		Sandy Silt, Dark Grayish Green, Soft, Slight Plasticity, Poorly Graded, Medium Grained Sand, Moist	25	
				CL		Gravelly Sandy Silt, Light Brown,Soft, Slight Plasticity, 5% Fine Grained Gravel, Moist		
	15			CL		Lean Clay, Light Brown, Mottled Grayish Green, Tight, Low Plasticity <5% Fine Grained Gravel (ATD) ▽		
		X	SB-15-16			Bottom of Boring at 16 feet bgs	5.3	
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-16

Sheet 1 of 1

Date(s) Drilled **December 20, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **12 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **9 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Asphalt		Concrete		
				CL		Silty Clay, Black, Moderate Plasticity, Dry, <5% Fine Grained Gravel		
		☒	SB-16-4				4.1	
	5			SM		Sandy Silty Clay, Dark Grayish Green, Stiff, Low Plasticity, Very Fine Grained, Poorly Graded		
				CL		Silty Clay, Light Grayish Green, Mottled Light Yellowish Brown, Low Plasticity		
		☒	SB-16-8				16.9	
				GM		(ATD) ▽ Gravelly Silt, Light Greenish Gray, Well Graded, Fine to Medium Grained Gravel, Saturated		
	10			CL		Silty Clay, Light Yellowish Brown, Mottled Grayish Green, Tight, <5% Fine Grained Grave, Very Moist		
		☒	SB-16-12			Bottom of Boring at 12 feet bgs	<1	
	15							
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-17

Sheet 1 of 1

Date(s) Drilled **December 20, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **12 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **8 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Asphalt		Concrete		
				CL		Silty Clay, Black, Low Plasticity, Dry, Moderately Graded, <5% Fine Grained Gravel		
			SB-17-4	GM		Silty Sandy Gravel, Dark Brownish Gray, Mottled Grayish Green, Stiff, 5% Fine Grained Gravel	1.7	
	5			CL		Silty Sandy Clay, Dark Brownish Gray, Mottled Grayish Green, Moderately Loose, 5% Fine Grained Gravel, Moist		
			SB-17-8	CL		Silty Clay, Dark Grayish Green, Stiff, No Gravel, Slightly Moist (ATD) ▽	4.2	
				GC		Gravelly Silty Clay, Light Olive Brown, Fine to Medium Grained Gravel, Low Plasticity, Highly Saturated		
	10							
			SB-17-12			Bottom of Boring at 12 feet bgs	6.7	
	15							
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-18

Sheet 1 of 1

Date(s) Drilled **December 20, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **8 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **6 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Asphalt		Asphalt		
				GM		Gravelly Silty Sand, Black, Low Plasticity, Dry, Well Graded, 10% Fine Grained Gravel, Poor Recovery		
		X	SB-18-4	CL		Silty Clay, Light Grayish Green, Moderate Plasticity, <5% Fine Grained Gravel, Very Moist	6.7	
	5			CL		Saturated (ATD) ▽		
				SM		Silty Sand, Black, Medium Grained, Poorly Graded, Moist, Very Loose, Poor Recovery		
		X	SB-18-8			Bottom of Boring at 8 feet bgs	2.1	
	10							
	15							
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-19

Sheet 1 of 1

Date(s) Drilled **December 20, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **15 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Asphalt		Asphalt		
				CL		Silty Clay, Black, Low Plasticity, Poorly Graded, Dry		
		X	SB-19-4	SM		Sandy Silt, Greenish Gray, Low Plasticity, Moderately Graded, <5% Fine Grained Gravel	17.3	
	5			CL		Silty Clay, Greenish Gray, Mottled Yellowish Orange, Low Plasticity, Dry		
		X	SB-19-8				3.2	
	10			CL		Sandy Silty Clay, Light Yellowish Brown, Low Plasticity, <5% Fine Grained Gravel		
		X	SB-19-12	SM		Sandy Silt, Dark Greenish Brown, Low Plasticity, Moist	1.4	
				CL		Silty Clay, Dark Greenish Brown, Moderate Plasticity, Moist		
	15			CL		Silty Clay, Light Yellowish Brown, Mottled Light Grayish Green, Low Plasticity, Saturated (ATD) ▽		
		X	SB-19-16			Bottom of Boring at 16 feet bgs	8.6	
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-20

Sheet 1 of 1

Date(s) Drilled **December 20, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **15 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Asphalt		Cement		
				CL		Silty Clay, Black, Low Plasticity, Poorly Graded, Dry		
			SB-20-4	GM		Gravelly Sandy Silt, Greenish Gray, Tight, Dry	13.1	
	5							
				CL		Silty Clay, Greenish Gray, Tight, <5% Fine Grained Gravel		
			SB-20-8				549	
	10							
				GM		Gravelly Sandy Silt, Soft, Light Olive Brown, Moderate Plasticity, Fine Grained Gravel		
			SB-20-12				179	
				CL		Silty Clay, Light Yellowish Brown, Tight, Low Plasticity, Moist		
	15					(ATD) ▽		
			SB-20-16			Bottom of Boring at 16 feet bgs	74.9	
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-21

Sheet 1 of 1

Date(s) Drilled **December 20, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **15 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Asphalt		Cement		
				CL		Silty Clay, Black, Mottled Reddish Orange, Moderate Plasticity, Poorly Graded		
		X	SB-21-4	CL		Silty Clay, Light Yellowish Brown, Mottled Greenish Gray, Soft, <5% Fine Grained Gravel	4.8	
	5							
		X	SB-21-8	GM		Gravelly Sandy Silt, Light Greenish Gray, Medium Grained Sand, 5% Fine to Medium Grained Gravel	6.0	
				CL		Silty Clay, Light Yellowish Brown, Mottled Greenish Gray, Tight, <5% Fine Grained Gravel, Dry		
	10	X	SB-21-12				12.7	
				CL		Silty Clay, Light Yellowish Brown, Mottled Light Gray, Moderate Plasticity, 5% Fine Grained Gravel		
	15					(ATD) ▽		
						Bottom of Boring at 16 feet bgs		
	20							

Figure

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Project: Zimmerman
Project Location: 3443 Chestnut St. Oakland, CA 94608
Project Number: 274761

Log of Boring SB-22

Sheet 1 of 1

Date(s) Drilled **December 20, 2007**	Logged By **Harmony TomSun**	Checked By **Peter McIntyre**
Drilling Method **Direct Push**	Drill Bit Size/Type	Total Depth of Borehole **16 feet bgs**
Drill Rig Type **Track Mounted GeoProbe**	Drilling Contractor **Precision**	Approximate Surface Elevation
Groundwater Level and Date Measured **14 feet ATD**	Sampling Method(s) **Tube**	Well Permit.
Borehole Backfill **Cement Slurry**	Location	

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	0			Asphalt		Cement		
				CL		Silty Clay, Black, Stiff, Dry, Roots		
	5		SB-22-4	GM		Gravelly Sandy Silt, Reddish Brown, Mottled Orange, Loose, 5% Fine Grained Gravel, Dry	2.2	
	10		SB-22-8	CL		Silty Clay, Light Olive Brown, Tight, Low Plasticity, <5% Fine Grained Gravel	5.8	
			SB-22-12	CL		Silty Clay, Olive, Mottled Light Orange, Tight, <5% Fine Grained Gravel, Dry	311	
						(ATD) ▽		
	15		SB-22-16			Bottom of Boring at 16 feet bgs	5.9	
	20							

Figure

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