



ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

November 7, 2011

Eugene and Shirley Macedo Trust
c/o Matt Macedo (Sent via E-mail to: Lvg.Livermore@gmail.com)
Los Vaqueros Grill
1000 North Vasco Road
Livermore, CA 94550

Subject: Case Closure for Fuel Leak Case No. RO0003073 and GeoTracker Global ID T10000002919,
Geno Country Store, 1000 North Vasco Road, Livermore, CA 94551

Dear Mr. Macedo:

This letter transmits the enclosed underground storage tank (UST) case closure letter in accordance with Chapter 6.75 (Article 4, Section 25299.37[h]). The State Water Resources Control Board adopted this letter on February 20, 1997. As of March 1, 1997, the Alameda County Environmental Health (ACEH) is required to use this case closure letter for all UST leak sites. We are also transmitting to you the enclosed case closure summary. These documents confirm the completion of the investigation and cleanup of the reported release at the subject site. The subject fuel leak case is closed. This case closure letter and the case closure summary can also be viewed on the State Water Resources Control Board's Geotracker website (<http://geotracker.swrcb.ca.gov>) and the Alameda County Environmental Health website (<http://www.acgov.org/aceh/index.htm>).

SITE INVESTIGATION AND CLEANUP SUMMARY

Please be advised that the following conditions exist at the site:

- Total Petroleum Hydrocarbons as diesel remain in soil at concentrations up to 710 ppm along the northeast property boundary adjacent to the flood control channel.
- Total Petroleum Hydrocarbons as diesel remain in groundwater at concentrations up to 890 ppb.

If you have any questions, please call Jerry Wickham at (510) 567-6791. Thank you.

Sincerely,

Donna L. Drogos, P.E.
Division Chief

Enclosures:

1. Remedial Action Completion Certification
2. Case Closure Summary

cc:

Colleen Winey, QIC 80201 (w/enc)
Zone 7 Water Agency
100 North Canyons Parkway
Livermore, CA 94551
(Sent via E-mail to: cwiney@zone7water.com)

Closure Unit (submitted to GeoTracker)
State Water Resources Control Board
UST Cleanup Fund
P.O. Box 944212
Sacramento, CA 94244-2120

Danielle Stefani (w/enc)
Livermore-Pleasanton Fire Department
3560 Nevada Street,
Pleasanton, CA 94566
(Sent via E-mail to: dstefani@lpfire.org)

City of Livermore Planning Department (w/enc),
1052 South Livermore Avenue,
Livermore, CA 94550

Scott Menard (w/enc)
Arbor Development Group, LLC
3650 Mount Diablo Blvd., Suite 200
Lafayette, CA 94549 (Sent via E-mail
to: smenard@arbordevelopmentgroup.com)

Jeff Adams (w/enc)
Engeo, Incorporated,
2010 Crow Canyon Place, Suite 250
San Ramon, CA 94583 (Sent via E-mail to:
jadams@engeo.com)

Donna Drogos, ACEH (Sent via E-mail to: donna.drogos@acgov.org)
Jerry Wickham, ACEH (w/enc)

GeoTracker (w/enc)
eFile (w/orig enc)



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REMEDIAL ACTION COMPLETION CERTIFICATION

November 7, 2011

Eugene and Shirley Macedo Trust
c/o Matt Macedo (Sent via E-mail to: Lvg.Livermore@gmail.com)
Los Vaqueros Grill
1000 North Vasco Road
Livermore, CA 94550

Subject: Case Closure for Fuel Leak Case No. RO0003073 and GeoTracker Global ID T10000002919,
Geno Country Store, 1000 North Vasco Road, Livermore, CA 94551

Dear Mr. Macedo:

This letter confirms the completion of a site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tank(s) are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank(s) site is in compliance with the requirements of subdivisions (a) and (b) of Section 25296.10 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.3 of the Health and Safety Code and that no further action related to the petroleum release(s) at the site is required.

This notice is issued pursuant to subdivision (h) of Section 25296.10 of the Health and Safety Code. Please contact our office if you have any questions regarding this matter.

Sincerely,

Ariu Levi
Director
Alameda County Environmental Health

**CASE CLOSURE SUMMARY
LEAKING UNDERGROUND FUEL STORAGE TANK - LOCAL OVERSIGHT PROGRAM**

I. AGENCY INFORMATION

Date: October 6, 2011

Agency Name: Alameda County Environmental Health	Address: 1131 Harbor Bay Parkway
City/State/Zip: Alameda, CA 94502-6577	Phone: (510) 567-6791
Responsible Staff Person: Jerry Wickham	Title: Senior Hazardous Materials Specialist

II. CASE INFORMATION

Site Facility Name: Geno Country Store		
Site Facility Address: 1000 North Vasco Road, Livermore, CA 94551		
RB Case No.: ---	STID No.: ---	LOP Case No.: RO0003073
URF Filing Dates: 03/10/2011	Geotracker ID: T10000002919	APN: 99B-5075-6-8
Responsible Parties	Addresses	Phone Numbers
Eugene and Shirley Macedo Trust, c/o Matt Macedo	Los Vaqueros Grill, 1000 North Vasco Road, Livermore, CA 94550 (Sent via E-mail to: Lvg.Livermore@gmail.com)	No phone number
---	---	---

Tank I.D. No	Size in Gallons	Contents	Closed In Place/Removed?	Date
1 and 2	15,000	Gasoline	Removed	01/21/2011
3	12,000	Diesel	Removed	01/21/2011
---	---	---	---	---
---	---	---	---	---
Piping			Removed	01/21/2011

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and Type of Release: Unknown. During removal, no evidence of holes, cracks, or other signs of tank or piping leakage were observed. Gross contamination was not observed.		
Site characterization complete? Yes	Date Approved By Oversight Agency? ---	
Monitoring wells installed? Yes	Number: 3	Proper screened interval? ---
Highest GW Depth Below Ground Surface: 7.4 feet bgs	Lowest Depth: 9.3 feet bgs	Flow Direction: Northwest
Most Sensitive Current Use: Drinking water source.		

<p>Summary of Production Wells in Vicinity: Two irrigation wells (2S/SE 35L2) are located at 1151 Central Avenue less than 50 feet northwest (downgradient) of the northwestern corner of the site. The shallower well is reportedly screened from 35 to 43 feet bgs and the deeper well is reportedly screened from 61 to 81 feet bgs. Both wells have reportedly been used in the past for irrigation purposes. Due to the proximity to the site, the wells were sampled on July 13, 2011. The shallower well contained MTBE at a concentration of 3.6 ppb. No other analytes were detected at concentrations above reporting limits in groundwater from the shallower or deeper well. MTBE has not been detected in groundwater samples collected on site. Based on the sampling results from the off-site wells and the limited extent of groundwater contamination on site, the off-site wells are not expected to be receptors for the site. No other water supply wells are located within 2,000 feet of the site.</p>	
Are drinking water wells affected? No	Aquifer Name: Mocho II Subbasin of Livermore-Amador Basin
Is surface water affected? No	Nearest SW Name: An unlined flood control channel is immediately north of the site.
Off-Site Beneficial Use Impacts (Addresses/Locations): None	
Reports on file? Yes	Where are reports filed? Alameda County Environmental Health and Livermore-Pleasanton Fire Department.

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL			
Material	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date
Tank	2 – 15,000 gallon tanks 1 -21,000 gallon tank	The USTs were removed from the site and disposed at Ecology Control Industries in Richmond, CA.	01/21/2011
Piping	3,860 pounds	The product piping and vent lines were removed from the site and disposed at Vasco Road Landfill in Livermore, CA.	01/31/2011
Free Product	----	----	----
Soil	600 cubic yards	Soil from the 1994 tank removals were spread on-site in the western portion of the site for aeration/passive bioremediation. After several rounds of confirmation sampling, the soils were used for backfill in the remedial excavations conducted in August and September 2011.	09/30/211
	1,258 tons	Soil from the August removal action was transported to the Vasco Road Landfill in Livermore, CA for disposal.	8/13/2011
	370 cubic yards	Aggregate fill material that was used as backfill during the January 2011 tank removal was excavated and returned to the point of origin at Vulcan Materials in Pleasanton, CA.	09/27/2011
Groundwater	---	---	---

MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS BEFORE AND AFTER CLEANUP
 (Please see Attachments 1-6 for additional information on contaminant locations and concentrations)

Contaminant	Soil (ppm)		Water (ppb)	
	Before	After	Before	After
TPH (Gas)	310	8.6	240(1)	55(1)
TPH (Diesel)	3,200	710	540,000(2)	890(2)
TPH (Motor Oil)	2,500	6.8	<100	<100
Benzene	<0.005	<0.005	<0.5	<0.5
Toluene	0.54	<0.005	<0.5	<0.5
Ethylbenzene	<0.005	<0.005	<0.5	<0.5
Xylenes	<0.005	<0.005	<0.5	<0.5
Heavy Metals (Cd, Cr, Pb, Ni, Zn)	22(3)	22(3)	Not analyzed	Not analyzed
MTBE	<0.05(4)	<0.05(4)	2.2(5)	2.2(5)
VOCs(8260)	Not detected(6)	Not detected(6)	2.3(7)	2.3(7)
SVOCs(8270)	0.6(8)	Not detected(9)	Not analyzed	Not analyzed

Footnotes:

- (1) The maximum concentration of TPHg before cleanup was 240 ppb in grab groundwater sample TP-1-Gas-W collected from the gasoline UST tank pit in January 2011. A sheen was observed in the tank pit which was not de-watered and allowed to recharge before sampling; therefore, the quality of the sample is questionable. The maximum concentration of TPHg after cleanup was 55 ppb in a grab groundwater sample collected from GP-1 collected on 04/19/2011.
- (2) The maximum concentration of TPHd before cleanup was 540,000 ppb in grab groundwater sample TP-2-Diesel-W collected from the diesel UST tank pit in January 2011. A sheen was observed in the tank pit which was not de-watered and allowed to recharge before sampling; therefore, the quality of the sample is questionable. The maximum concentration of TPHd after cleanup was 890 ppb in a grab groundwater sample collected from GP-1 collected on 04/19/2011.
- (3) Lead = 22 ppm; cadmium <0.46 ppm; chromium = 48 ppm; nickel = 46 ppm; and zinc = 100 ppm.
- (4) MTBE <0.05 ppm; no other fuel oxygenates detected in soil at various reporting limits.
- (5) MTBE = 2.2 ppb; TBA, DIPE, ETBE, TAME, 1,2-DCA, and EDC not detected at various reporting limits.
- (6) VOCs not detected in soil at various reporting limits.
- (7) TCE = 2.3 ppb; no other VOCs detected at various reporting limits.
- (8) Benzo(a)pyrene = 0.6 ppm; benzo(a)anthracene = 0.44 ppm; benzo(b)fluoranthene = 0.91 ppm; naphthalene = 0.04 ppm.
- (9) SVOCs not detected in soil at various reporting limits.

Site History and Description of Corrective Actions:

The site is a 5.8-acre property that currently consists of a restaurant, two commercial businesses, a former car wash, and 1.87 acres of open land abutting Central Avenue. Future plans for the site include demolition of the existing structures and construction of residential homes and a park. Surrounding land use is mixed commercial and residential. A flood control channel borders the site to the northeast. This case closure (RO3073) addresses a fuel leak case that was opened on March 17, 2011 in response to tank removals conducted in January 2011. A previous fuel leak case (RO0410) which was opened following a tank removal in 1994, was closed on May 22, 2000.

Previous Fuel Leak Case RO0410

Three 10,000-gallon gasoline USTs and one 10,000-gallon diesel UST along with associated piping and dispensers were removed from the site on October 6, 1994. The three gasoline USTs were removed from the eastern portion of the site and the single diesel UST was removed from the northeastern portion of the site adjacent to the flood control channel. Overexcavation of both tank pits was conducted based on visual observations of stained soil and odor. Laboratory analyses of soil samples from the tank pit sidewalls and beneath the dispensers indicated elevated concentrations of total petroleum hydrocarbons as gasoline (TPHg) and diesel (TPHd). Three groundwater monitoring wells (MW-1 through MW-3) were installed at the site in May 1995 and were sampled during four quarterly monitoring events between July 1995 and May 1996. TPHd was detected in groundwater from MW-1 during two of the four sampling events at concentrations of 228 and 910 ppb, respectively. BTEX was not detected at concentrations above the reporting limit during the quarterly groundwater monitoring events. Approximately 600 cubic yards of stockpiled soils from the tank removal were spread on the vacant land in the western portion of the site and land farmed. During confirmation soil sampling of the stockpiled soil in July 1996, TPHg and BTEX were not detected at concentrations above reporting limits. TPHd was detected in 9 of the 12 confirmation soil samples collected from the stockpiled soil at concentrations up to 410 ppm. New tanks and product lines were installed and put into service around October 1994. Based on the overexcavation of soil in the tank pit and groundwater monitoring results, the fuel leak case was closed by ACEH on May 22, 2000.

Current Fuel Leak Case RO3073

In conjunction with a 2006 Phase I Environmental Site Assessment, soil and groundwater samples were collected from 12 soil borings near the former USTs and dispensers and from stockpiled soil from the 1994 tank removal. TPHg and TPHd were detected in 5 of the 12 soil samples collected from the soil borings at concentrations up to 310 ppm and 2,200 ppm, respectively. Five 4-point composite soil samples were collected from the 600 cubic yard soil stockpile from the 1994 tank removal. Two of the composite soil samples contained TPHd at concentrations up to 24 ppm. TPHg and TPHmo were reported in one of the five composite soil samples at 2.8 ppm and 17 ppm, respectively. Metals concentrations were within ambient levels. TPHg, TPHd, TPHmo, BTEX, and MTBE were not detected at concentrations above the reporting limits in groundwater samples collected from monitoring wells MW-1 and MW-3.

Soil gas samples were collected from three locations (G-1 through G-3) in October 2006. Benzene was detected at a concentration of 68,000 micrograms per cubic meter in sample G-1, which was collected in the area of the gasoline USTs and fuel dispensers.

On September 2, 2008, 17 soil borings were advanced at locations across the site. TPHg, BTEX, and MTBE were not detected at concentrations above reporting limits in the 22 soil samples collected. TPHd was detected in 3 of the 22 soil samples collected at a maximum concentration of 11 ppm. A groundwater sample collected from MW-3 on September 2, 2009 did not contain TPHg, TPHd, or BTEX at concentrations above reporting limits but contained MTBE at a concentration of 2.2 ppb. Metals were detected at concentrations generally consistent with naturally-occurring ambient levels.

In July 2008, fueling operations were stopped at the facility and the three USTs and piping were reportedly drained. In January 2011, two 15,000-gallon gasoline USTs in the northeast corner of the site, one 12,000-gallon diesel UST in the north-central area of the site, and product lines located in three separate trenches were removed. Elevated concentrations of TPHd were detected in three adjacent soil samples collected from pipeline trench PL3. A minor sheen was observed on the water surface in both tank pits. The tank pits were not de-watered and allowed to recharge before groundwater sampling. Therefore, grab groundwater samples from the tank pit are not of good quality and may not be representative of groundwater in the formation outside the tank pit. The grab groundwater sample collected from the gasoline tank pit contained 240 ppb TPHg and the groundwater sample collected from the diesel tank pit contained 540,000 ppb TPHd, 190 ppb ethylbenzene, 800 ppb toluene, and 1,500 ppb xylenes.

Site History and Description of Corrective Actions (Continued)

On April 19 and 20, 2011, 14 soil borings were advanced in various areas of the site. In general, petroleum hydrocarbons were detected in soil samples from several borings located in the vicinity of the former gasoline and diesel USTs, diesel dispensers, and former diesel tanks removed in 1994. A total of nine grab groundwater samples were also collected from first encountered groundwater at 8 to 9 feet bgs on April 19 and 20, 2011. TPHg was detected in two grab groundwater samples at concentrations up to 110 ppb. TPHd was detected in one grab groundwater sample at a concentration of 890 ppb. BTEX was not detected at concentrations above reporting limits and MTBE was detected in one groundwater sample at a concentration of 2.2 ppb. Trichloroethene (TCE) was detected in three groundwater samples in separate areas of the site at concentrations less than 3 ppb. The source of the TCE is unknown but appears to be from an off-site source. PCE and TCE were also detected in groundwater at a former service station located approximately 350 feet southeast of the site.

On April 20, 2011, a total of eight surface soil samples were collected from the approximately 600 cubic yards of stockpiled soil that was located in the western portion of the site. TPHg, BTEX, and fuel oxygenates were not detected at concentrations above reporting limits in eight discrete soil samples. Metals were detected at concentrations generally consistent with naturally-occurring ambient levels.

Soil vapor samples were collected from 12 locations throughout the site on May 13, 2011. TPHg was detected in all of the soil vapor samples at concentrations ranging from 2,800 to 31,000 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). The distribution of TPHg in soil vapor was not consistent with the detections of TPHg in soil or the locations of the former USTs, piping, or dispensers. Benzene was detected in 10 of the 12 soil vapor samples at concentrations ranging from 2.6 to 68 $\mu\text{g}/\text{m}^3$. Tetrachloroethene (PCE) was detected in each of the 12 soil vapor samples at concentrations ranging from 9.3 to 450 $\mu\text{g}/\text{m}^3$. TCE was detected in 11 of the 12 soil vapor samples at concentrations ranging from 2.2 to 29 $\mu\text{g}/\text{m}^3$. Subsequent soil vapor sampling at the same 12 locations was conducted in July 2011. During the July 2011 sampling event, TPHg was detected in 2 of the 12 samples collected at concentrations of 21,000 and 170,000 $\mu\text{g}/\text{m}^3$, respectively. Both locations with TPHg detections (SG-1 and SG-6) were within the former tank pits. TPHg was not detected at concentrations above reporting limits in soil vapor samples collected outside the area of the former USTs. Benzene was detected in 3 of the 12 soil vapor samples collected during the July 2011 sampling at concentrations ranging from 18 to 53 $\mu\text{g}/\text{m}^3$. PCE was detected in 2 of the 12 soil vapor samples at concentrations up to 18 $\mu\text{g}/\text{m}^3$. TCE was detected in 6 of the 12 soil vapor samples at concentrations up to 130 $\mu\text{g}/\text{m}^3$. The source of the PCE and TCE is unknown but is suspected to be an off-site source. PCE and TCE were also detected in groundwater at a former service station located approximately 350 feet southeast of the site.

In August 2011, soil excavation was undertaken in five areas of the former USTs, piping, and dispensers to remove residual soil contamination. Approximately 1,258 tons of contaminated soil from the five areas was disposed off-site at the Republic Services Vasco Road Landfill in Livermore, CA. Excavation Area 1 (Diesel Fuel Dispensers Removed in 2011) and Area 3 (Former Diesel USTs Removed in 1994) expanded to become one larger excavation. Confirmation soil samples indicated that soil removal achieved the cleanup goals for both areas with the exception of the north sidewall of Area 3. TPHd was detected in the north sidewall sample for Area 3 at a concentration of 710 ppm, which exceeded the cleanup goal. However, further excavation to the northeast did not appear to be feasible given the proximity to the property boundary and flood control channel. Based on the apparent limited extent of the residual impacted soil and the infeasibility of continued excavation to the northeast, further excavation was not conducted.

During excavation in Areas 2 and 5, recycled aggregate base material that contained TPHd and TPHmo at concentrations exceeding cleanup goals was encountered. The recycled Class II aggregate material was used as backfill material in the former UST diesel and gasoline tank pits following the January 2011 tank removals. Confirmation soil samples from sidewalls in the native soil were below cleanup goals. However, confirmation soil samples from sidewalls consisting of the aggregate fill contained TPHd and TPHmo at concentrations up to 470 and 2,500 ppm, respectively. The aggregate fill was co-located with soil vapor sampling locations SG-1 and SG-6 where elevated concentrations of TPHg were detected in soil vapor.

Between September 22 and 27, 2011, the aggregate fill material in the former tank pits including the areas around soil vapor sampling locations SG-1 and SG-6 were excavated. Approximately 215 cubic yards of aggregate fill material was removed from Area 2 and 155 cubic yards of aggregate fill material was removed from Area 5. The aggregate fill material was returned to its point of origin at Vulcan Materials in Pleasanton, California. Confirmation soil samples collected from the excavations following removal of the aggregate fill material indicated that the soil removal action achieved the cleanup goals.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? Yes		
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? Yes		
Does corrective action protect public health for current land use? Alameda County Environmental Health staff does not make specific determinations concerning public health risk. However, based upon the information available in our files to date, it does not appear that the release would present a risk to human health based upon current land use and conditions.		
Site Management Requirements: None		
Should corrective action be reviewed if land use changes? No		
Was a deed restriction or deed notification filed? No		Date Recorded: --
Monitoring Wells Decommissioned: No	Number Decommissioned: 0	Number Retained: 3
List Enforcement Actions Taken: None		
List Enforcement Actions Rescinded: --		

V. ADDITIONAL COMMENTS, DATA, ETC.

Considerations and/or Variances:

Residual soil contamination remains within a small area along the northern border of the site adjacent to the flood control channel. A soil removal action was conducted in this area but further excavation to the northeast did not appear to be feasible given the proximity to the property boundary and flood control channel. Confirmation soil samples indicated that soil removal achieved the cleanup goals for all areas of the excavation with the exception of the north sidewall of Area 3 where TPHd was detected at a concentration of 710 ppm. Based on the apparent limited extent of the residual impacted soil and the infeasibility of continued excavation to the northeast, further excavation was not conducted.

Total petroleum hydrocarbons as gasoline were detected at concentrations that exceeded the Environmental Screening Level for residential land use in soil vapor samples collected on May 13, 2011. The detections were spread across the site and did not correlate with results from soil and groundwater sampling which indicated that residual contamination was present in the areas of the former USTs, piping, and dispensers. Although TPHg was detected in soil vapor, BTEX compounds were not detected at elevated concentrations. The analytical laboratory indicated that the TPHg in soil vapor did not follow a typical pattern and contained heavier hydrocarbon chains. A second round of soil vapor sampling on July 13, 2011 detected TPHg and TPHd at concentrations above reporting limits in only 2 of the 12 sample locations. Both locations were within the former tank pits and the soil surrounding the two locations were excavated and removed in September 2011. Based on the facts that the two locations with elevated concentrations of TPHg in soil vapor during the July 2011 sampling event were removed by excavation, the widespread detections of TPHg during the May 2011 sampling event probably represent heavier hydrocarbon chains that are not likely to pose a significant risk for vapor intrusion, and the minimal concentrations of BTEX compounds in soil, soil vapor, and groundwater, the site does not appear to pose a risk for vapor intrusion to indoor air.

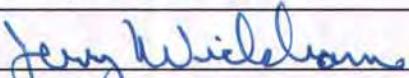
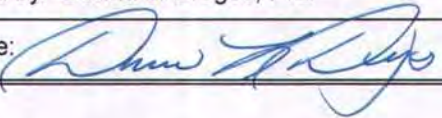
During the May 2011 soil vapor sampling event, tetrachloroethene (PCE) was detected in each of the 12 soil vapor samples at concentrations ranging from 9.3 to 450 $\mu\text{g}/\text{m}^3$. Trichloroethene (TCE) was detected in 11 of the 12 soil vapor samples at concentrations ranging from 2.2 to 29 $\mu\text{g}/\text{m}^3$. During the July 2011 soil vapor sampling event, PCE was detected in 2 of the 12 soil vapor samples at concentrations up to 18 $\mu\text{g}/\text{m}^3$. TCE was detected in 6 of the 12 soil vapor samples at concentrations up to 130 $\mu\text{g}/\text{m}^3$. The source of the PCE and TCE is unknown but is suspected to be an off-site source. PCE and TCE were also detected in groundwater at a former service station located approximately 350 feet southeast of the site.

Because soil vapor samples were analyzed using the EPA TO-15 method, naphthalene was not an analyte for soil vapor samples collected at the site. However, naphthalene was either not detected or detected infrequently at concentrations well below screening levels in soil samples collected at the site. Naphthalene was also not detected in groundwater samples collected at the site. Based on the soil and groundwater analytical data, naphthalene does not appear to be a chemical of concern for the site.

Conclusion:

Alameda County Environmental Health staff believe that the levels of residual contamination do not pose a significant threat to water resources, public health and safety, and the environment based upon the information available in our files to date. No further investigation or cleanup for the fuel leak case is necessary. ACEH staff recommend closure for this fuel leak site.

VI. LOCAL AGENCY REPRESENTATIVE DATA

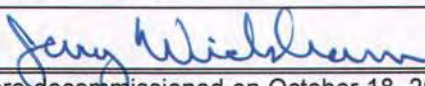
Prepared by: Jerry Wickham	Title: Senior Hazardous Materials Specialist
Signature: 	Date: 10/12/11
Approved by: Donna L. Drogos, P.E.	Title: Chief
Signature: 	Date: 10/12/11

This closure approval is based upon the available information and with the provision that the information provided to this agency was accurate and representative of site conditions.

VII. REGIONAL BOARD NOTIFICATION

Regional Board Staff Name: Cherie McCaulou	Title: Engineering Geologist
Notification Date: 10/14/11	

VIII. MONITORING WELL DECOMMISSIONING

Date Requested by ACEH: 10/13/2011	Date of Well Decommissioning Report: 10/28/2011	
All Monitoring Wells Decommissioned: Yes**	Number Decommissioned: 2	Number Retained: 0**
Reason Wells Retained: No wells retained**		
Additional requirements for submittal of groundwater data from retained wells: None		
ACEH Concurrence - Signature: 	Date: 11/03/11	

** Wells MW-1 and MW-3 were decommissioned on October 18, 2011. Well MW-2 has not been located during multiple search attempts at the site. The surface completion and possibly upper section of well MW-2 appears to have been destroyed. Well MW-2 extended to a depth of 15 feet bgs. If remaining sections of well MW-2 are encountered during future site excavation activities, well MW-2 is to be decommissioned in accordance with the requirements of the Zone 7 Water Agency.

Attachments:

- 1. Site Vicinity Maps (2 pp)
- 2. Site Plans and Soil Sample Locations (3 pp)
- 3. Analytical Results Maps (12 pp)
- 4. Soil Analytical Data (15 pp)
- 5. Soil Vapor Analytical Data (4 pp)
- 6. Groundwater Analytical Data (4 pp)
- 7. Boring Logs (27 pp)

This document and the related CASE CLOSURE LETTER & REMEDIAL ACTION COMPLETION CERTIFICATE shall be retained by the lead agency as part of the official site file.

Wickham, Jerry, Env. Health

From: Cherie McCaulou [CMccaulou@waterboards.ca.gov]
Sent: Friday, October 14, 2011 10:25 AM
To: Wickham, Jerry, Env. Health
Subject: Re: Pending closure for 1000 North Vasco Road, Livermore

Hello Jerry - Thank you for the case closure notification for 1000 North Vasco Road, Livermore. We have no objection to ACEH's findings and recommended closure. Have a nice day.

Sincerely,

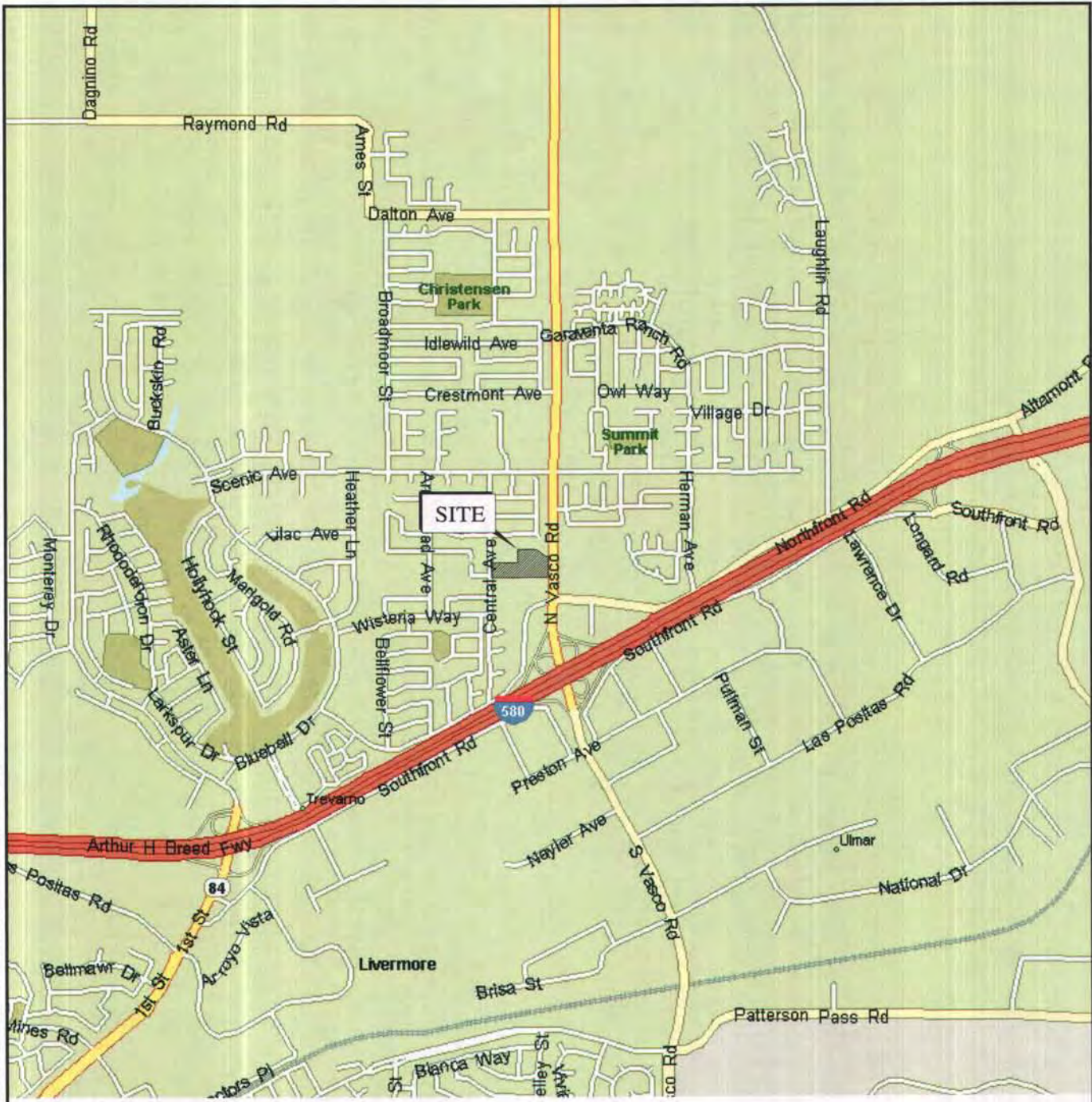
Cherie McCaulou
Engineering Geologist
San Francisco Bay Regional Water Quality Control Board
cmccaulou@waterboards.ca.gov
510-622-2342

>>> "Wickham, Jerry, Env. Health" <jerry.wickham@acgov.org> 10/12/2011 6:31 PM >>>
Hi Cherie,

This email provides notification of pending closure for case RO3073, 1000 North Vasco Road, Livermore.

Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577
phone: 510-567-6791
jerry.wickham@acgov.org

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BASE MAP SOURCE: MS STREETS AND TRIPS



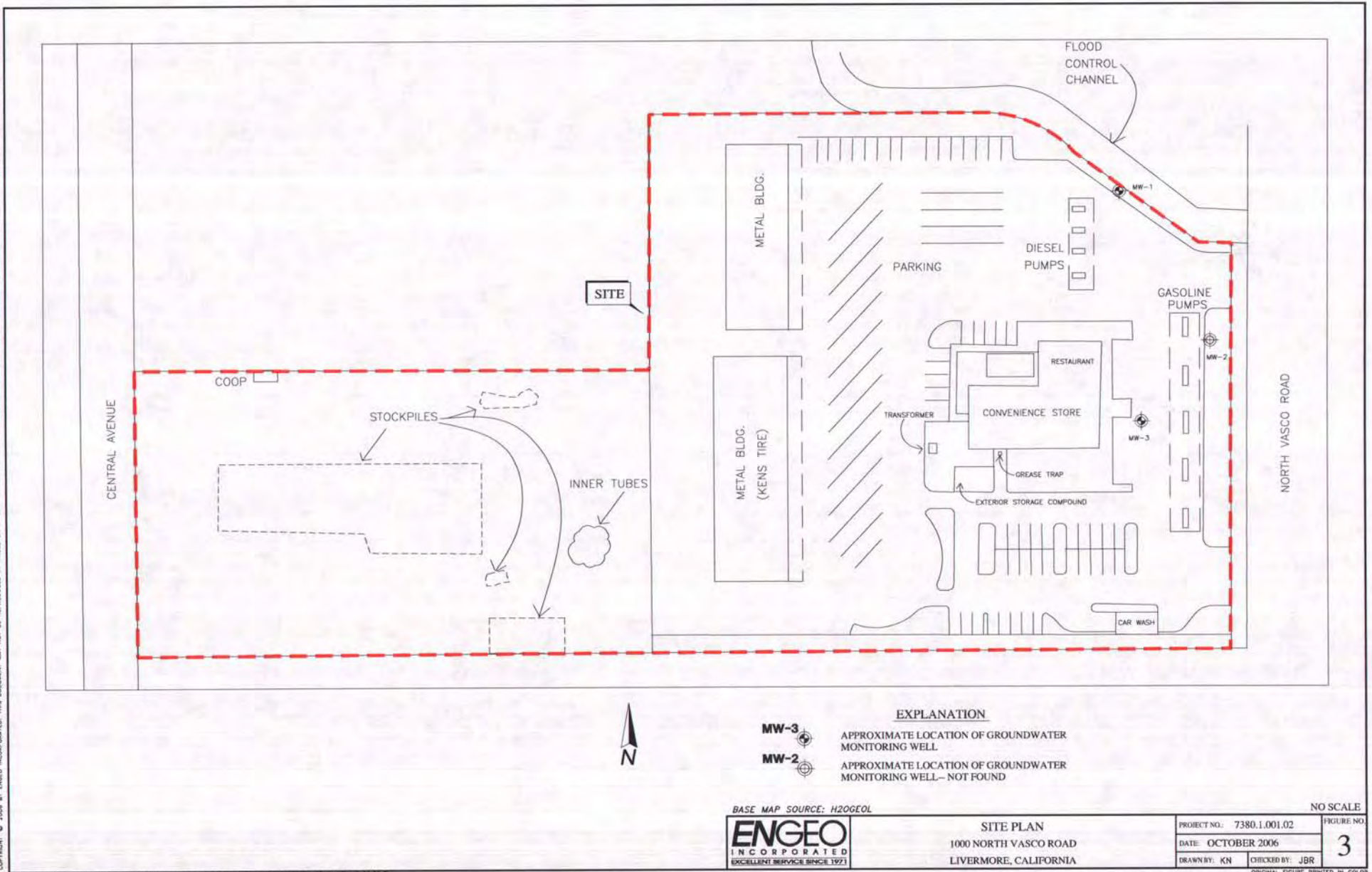
VICINITY MAP
 1000 NORTH VASCO ROAD
 LIVERMORE, CALIFORNIA

PROJECT NO.: 7380.1.001.02	1
DATE: OCTOBER 2006	
DRAWN BY: JMG CHECKED BY: KN	

FIGURE NO.
1

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EXPLANATION
 MW-3 APPROXIMATE LOCATION OF GROUNDWATER MONITORING WELL
 MW-2 APPROXIMATE LOCATION OF GROUNDWATER MONITORING WELL - NOT FOUND

BASE MAP SOURCE: H2GEOLOG



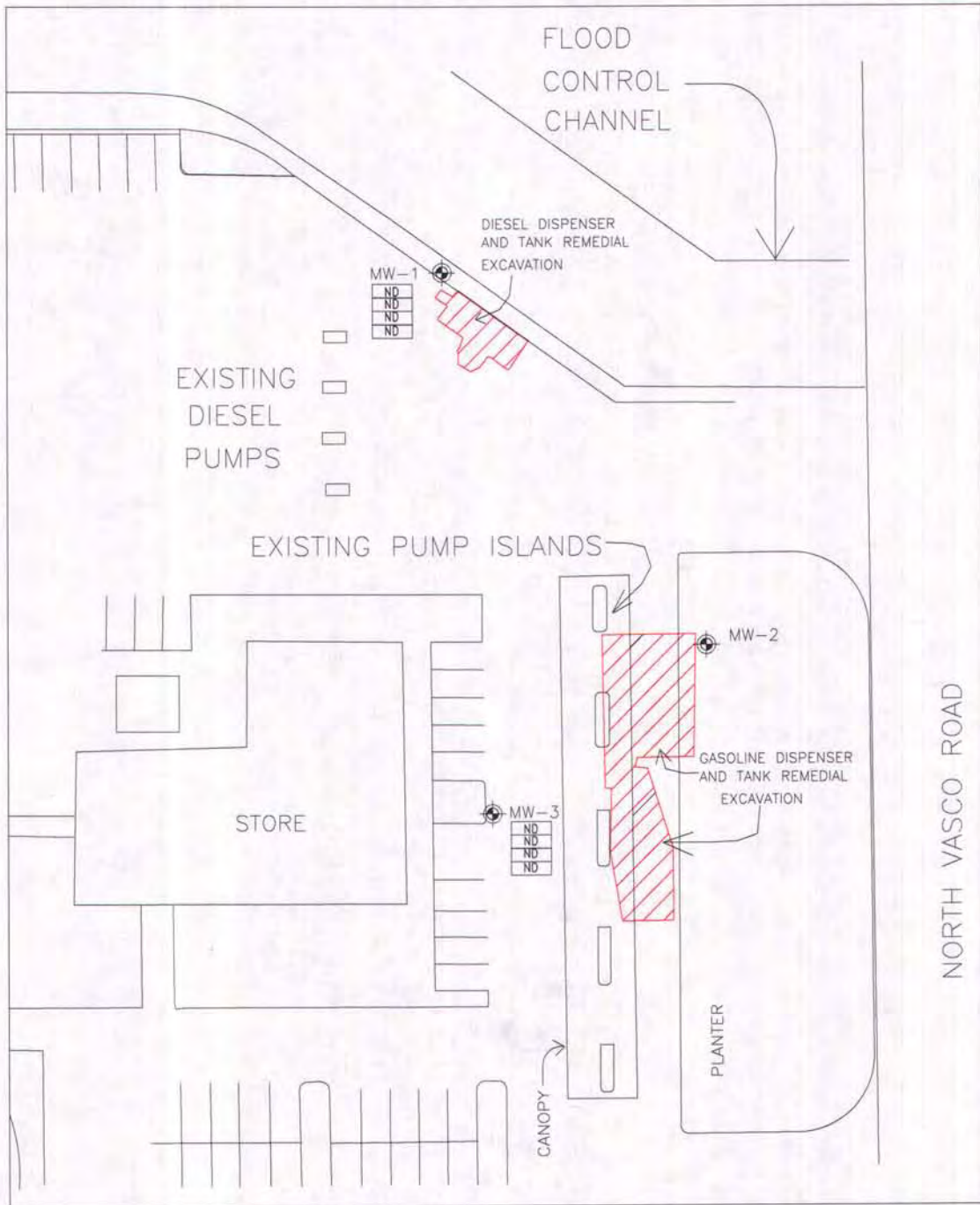
SITE PLAN
 1000 NORTH VASCO ROAD
 LIVERMORE, CALIFORNIA

PROJECT NO.: 7380.1.001.02	FIGURE NO.
DATE: OCTOBER 2006	3
DRAWN BY: KN	CHECKED BY: JBR

NO SCALE

ORIGINAL FIGURE PRINTED IN COLOR

P:\2006\1000 North Vasco Road\GIS\MapDocs\SitePlan\SitePlan.dwg 10/13/06 10:13:33 AM



EXPLANATION



APPROXIMATE 1994 REMEDIAL EXCAVATION BOUNDARY

ND	TPH- GASOLINE
ND	TPH- DIESEL
ND	TPH- MOTOR OIL
ND	BENZENE
ND	MTBE



APPROXIMATE GEOPROBE LOCATION-2006

APPROXIMATE MONITORING WELL LOCATION-1995 INSTALLATION

GROUNDWATER CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER

ND NON DETECT



ATTACHMENT 2

BASE MAP SOURCE: H20GEOL

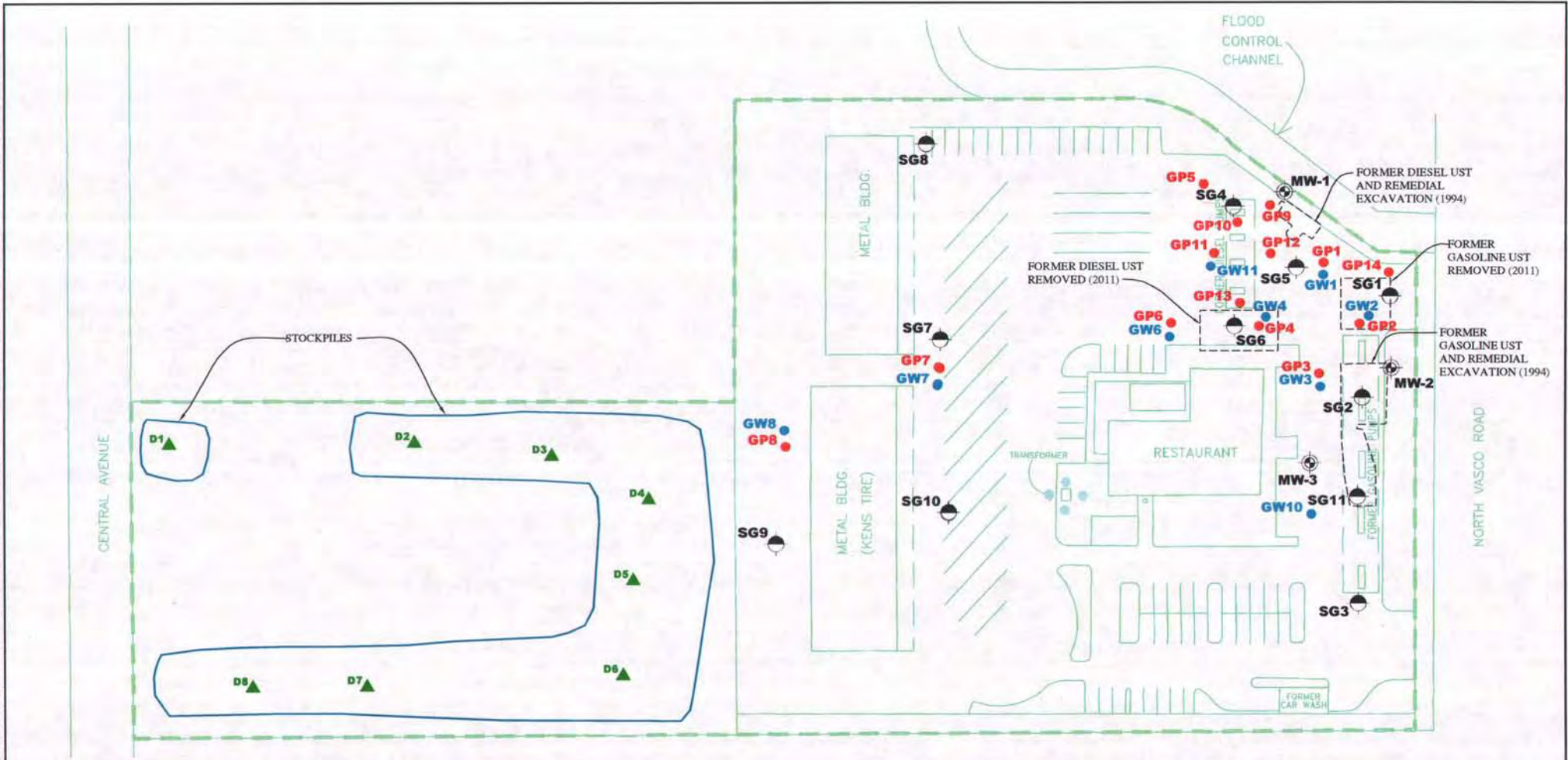


SITE PLAN SHOWING GW MONITORING WELLS
 1000 NORTH VASCO ROAD
 LIVERMORE, CALIFORNIA

PROJECT NO: 7380.1.001.02	FIGURE NO:
DATE: OCTOBER 2006	8
DRAWN BY: KN	CHECKED BY: SW

ORIGINAL FIGURE PRINTED IN COLOR

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EXPLANATION

- MW-3** APPROXIMATE LOCATION OF GROUNDWATER MONITORING WELL
- D8** APPROXIMATE LOCATION OF STOCKPILE SAMPLE
- SG11** APPROXIMATE LOCATION OF SOIL VAPOR WELL
- GP14** APPROXIMATE LOCATION OF GRAB SOIL SAMPLE
- GW11** APPROXIMATE LOCATION OF GRAB GROUNDWATER SAMPLE
- APPROXIMATE LOCATION OF NEAR SURFACE SOIL SAMPLE
- APPROXIMATE REMEDIAL EXCAVATION BOUNDARY 1994



BASE MAP SOURCE: H2OGEOL AND MACKAY & SOMPS



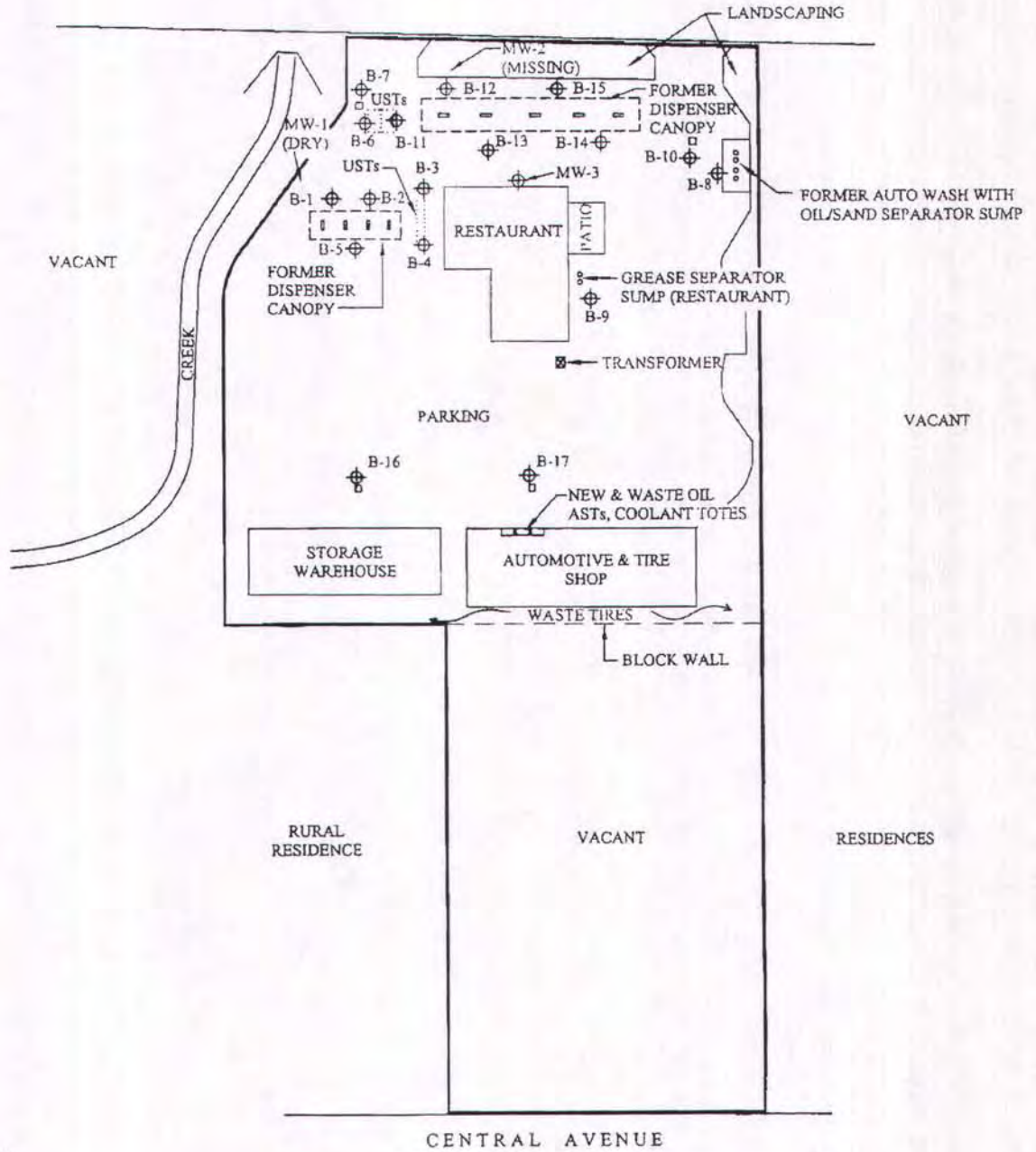
SITE PLAN - 2011 SITE CHARACTERIZATION
 1000 NORTH VASCO ROAD
 LIVERMORE, CALIFORNIA

PROJECT NO.: 7380.000.003	FIGURE NO. 2
SCALE: AS SHOWN	
DRAWN BY: SRP	CHECKED BY: SPM

CHEVRON
1025 NORTH VASCO ROAD

QUICK STOP
951 NORTH VASCO ROAD

NORTH VASCO ROAD



EXPLANATION

- SUBJECT SITE BOUNDARY
- UST UNDERGROUND STORAGE TANK
- MW-1 MONITORING WELL
- FUEL ISLAND/NO DISPENSERS
- STORMWATER DRAIN WITH DRY WELL
- ⊕ BORING/SAMPLE LOCATION

*ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE

SITE MAP

BOTW No. 09-0510-02
GENO'S COUNTRY STORE, INC.
1000 NORTH VASCO ROAD
LIVERMORE, CALIFORNIA 94551

Scale	Date
N. T. S.	9/09
Drawn by:	Approved by:
S. A.	A. C.
Project No.	Figure No.
014-09073	2

Krazan
SITE DEVELOPMENT ENGINEERS
Conducting Assessments Nationwide

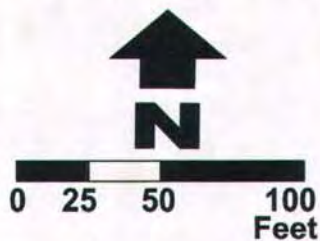
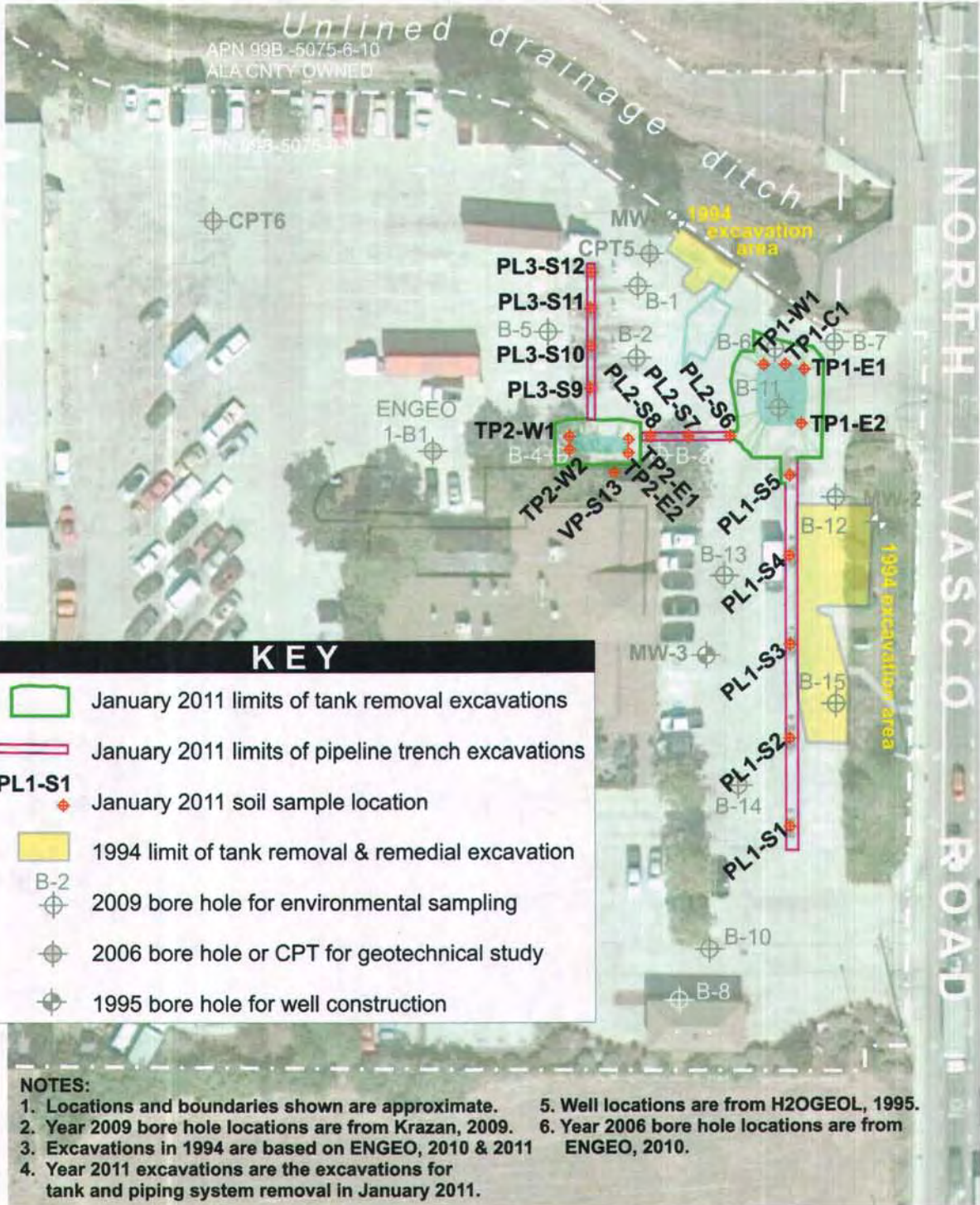



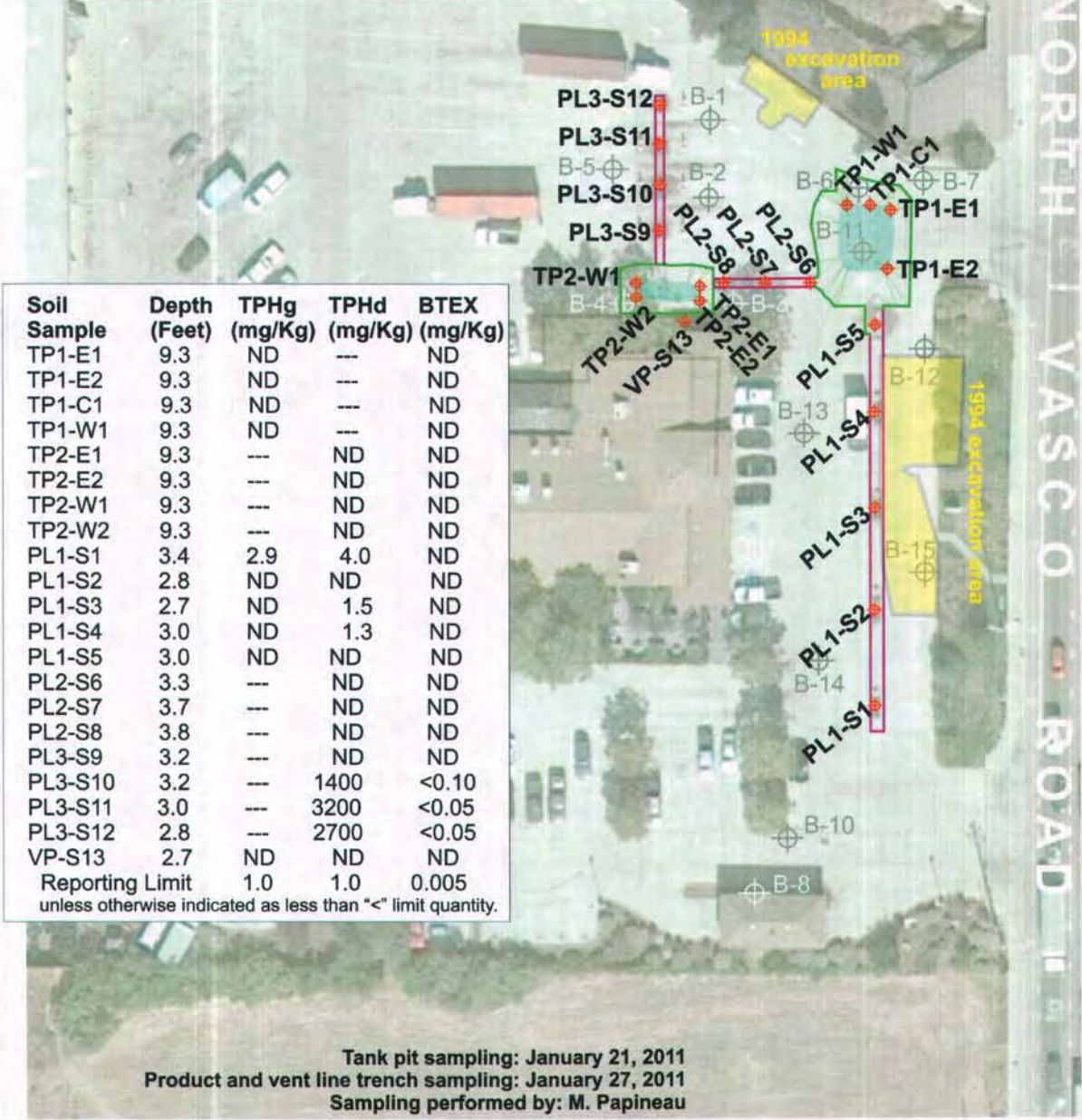


FIGURE 3
Current and Previous Work
at 1000 N. Vasco Road
Livermore, California

KEY

-  January 2011 limits of tank removal excavations
-  January 2011 limits of pipeline trench excavations
- PL1-S1**  January 2011 soil sample location



Tank pit sampling: January 21, 2011
 Product and vent line trench sampling: January 27, 2011
 Sampling performed by: M. Papineau

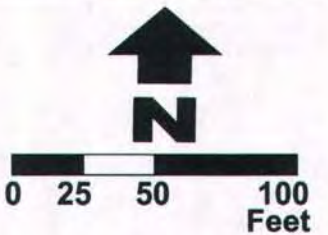
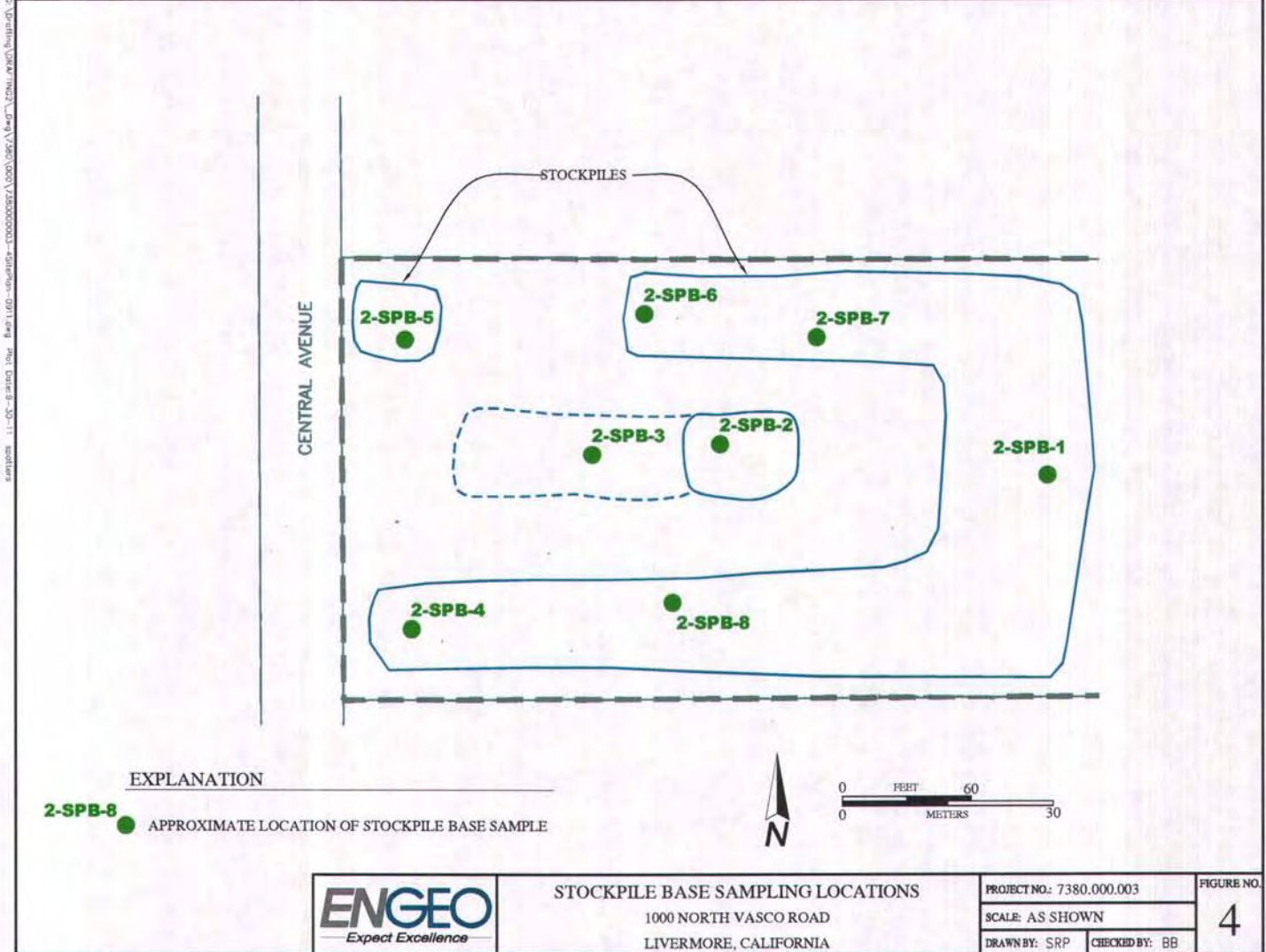


FIGURE 4
 2011 Tank and Line Removal
 1000 N. Vasco Road
 Livermore, California



EXPLANATION

2-SPB-8 ● APPROXIMATE LOCATION OF STOCKPILE BASE SAMPLE

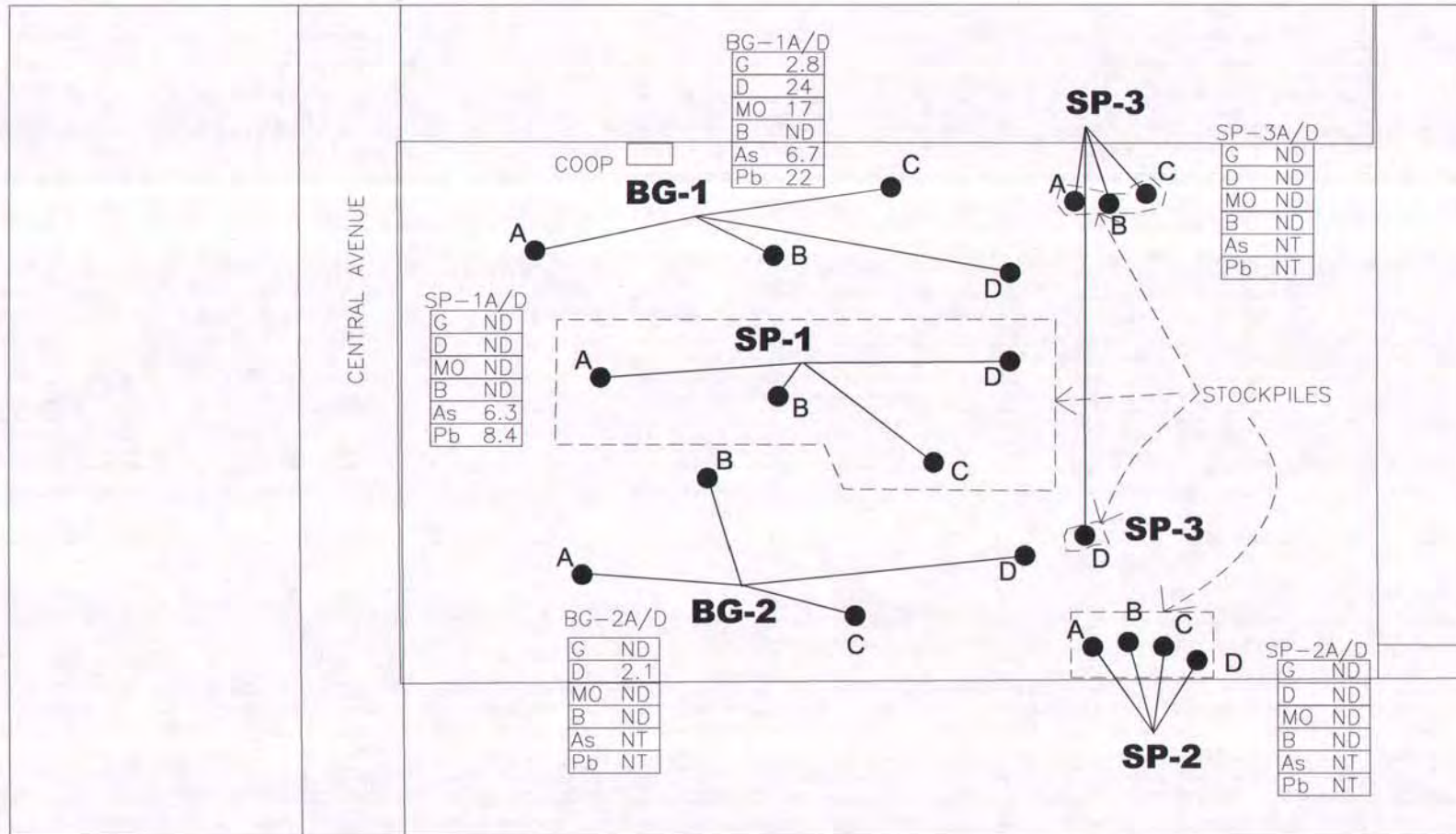


STOCKPILE BASE SAMPLING LOCATIONS
 1000 NORTH VASCO ROAD
 LIVERMORE, CALIFORNIA

PROJECT NO: 7380.000.003
 SCALE: AS SHOWN
 DRAWN BY: SRP CHECKED BY: BB

FIGURE NO.
4

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EXPLANATION

- SP-3D APPROXIMATE LOCATION OF SAMPLE POINT
- G GASOLINE RANGE PETROLEUM HYDROCARBONS
- D DIESEL RANGE PETROLEUM HYDROCARBONS
- MO MOTOR OIL RANGE PETROLEUM HYDROCARBONS
- B BENZENE
- As ARSENIC
- Pb Pb
- ND NON DETECT
- NT NOT TESTED



BASE MAP SOURCE: UNKNOWN

CONCENTRATIONS REPORTED IN MILLIGRAMS PER KILOGRAM

NO SCALE



STOCKPILE SAMPLING LOCATIONS
 1000 NORTH VASCO ROAD
 LIVERMORE, CALIFORNIA

PROJECT NO.: 7380.1.001.02

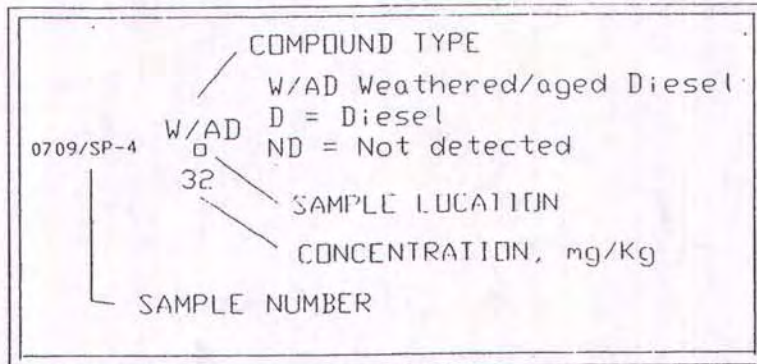
DATE: OCTOBER 2006

DRAWN BY: KN

CHECKED BY: SM

FIGURE NO.

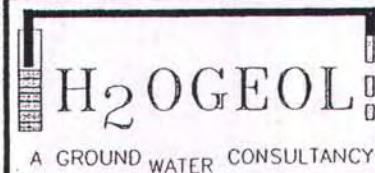
9



0709/SP-1	W/AD □ 41	ND □ < 1.0	0709/SP-9
0709/SP-2	W/AD □ 280	D □ 28	0709/SP-10
0709/SP-3	W/AD □ 72	W/AD □ 35	0709/SP-11
0709/SP-4	W/AD □ 32	D □ 150	0709/SP-12
0709/SP-5	ND □ < 1.0	RAMP UP	
0709/SP-6	ND □ < 1.0		
0709/SP-7	W/AD □ 73		
0709/SP-8	W/AD □ 410		

← STYLIZED SOIL PILE OUTLINE

CENTRAL AVENUE

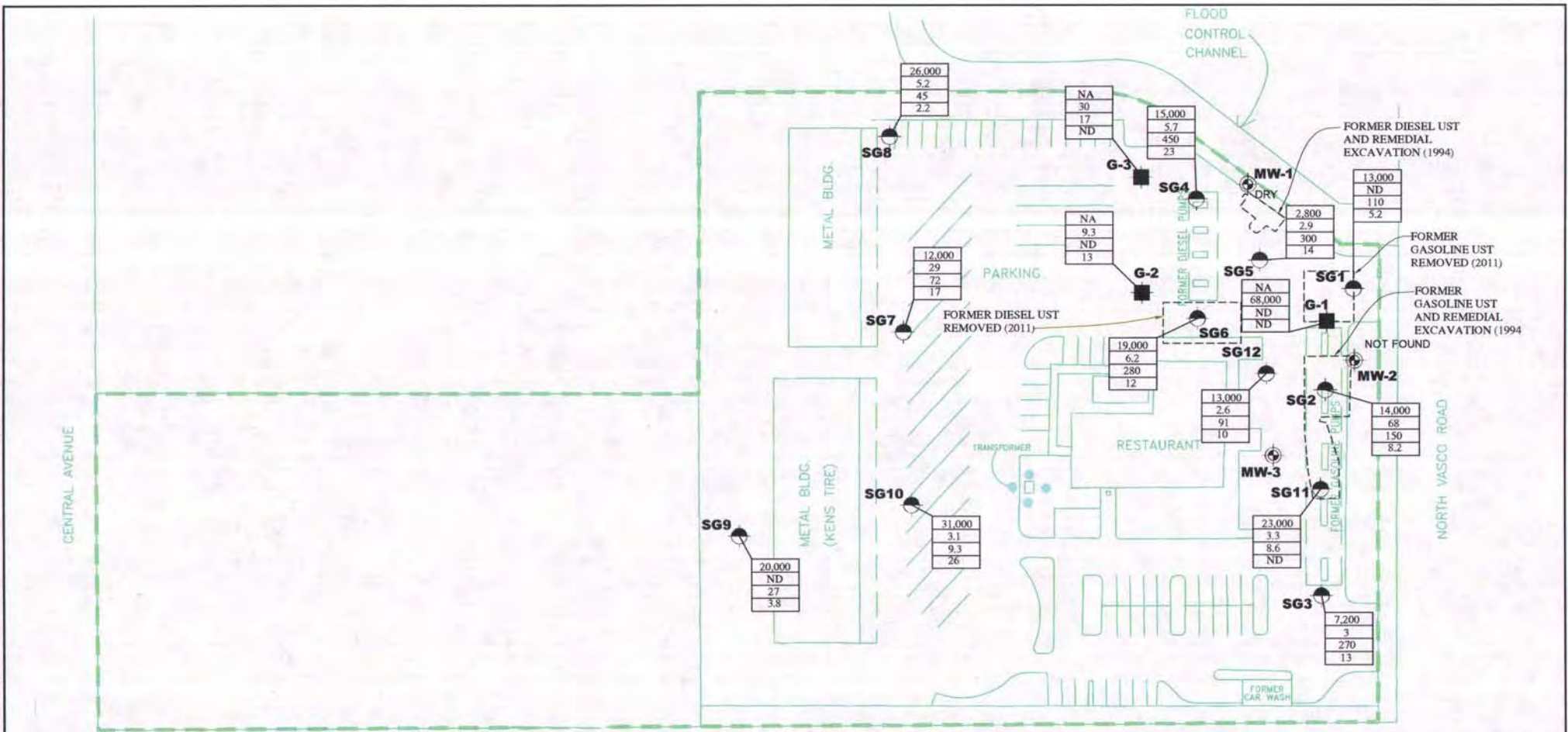


TPH-DIESEL (EPA 3510/8015M) ANALYTICAL RESULTS
 SOIL SAMPLES COLLECTED JULY 09, 1996
 AERATION/PASSIVE BIOREMEDIATION SOIL PILES
 FROM GENO'S COUNTRY STORE
 1000 VASCO ROAD, LIVERMORE, CALIFORNIA

FIGURE

5

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EXPLANATION

- MW-3** APPROXIMATE LOCATION OF GROUNDWATER MONITORING WELL
- SG12** APPROXIMATE LOCATION OF SOIL VAPOR (ENGEO, 2011)
- G-3** APPROXIMATE LOCATION OF GRAB SOIL VAPOR SAMPLE (ENGEO, 2007)
- APPROXIMATE REMEDIAL EXCAVATION BOUNDARY 1994
- ND NOT DETECTED
- NA NOT ANALYZED

23,000	TPHg - TOTAL PETROLEUM HYDROCARBONS AS GASOLINE ($\mu\text{g}/\text{m}^3$)
3.3	BENZENE ($\mu\text{g}/\text{m}^3$)
8.6	PCE - TETRACHLOROETHENE ($\mu\text{g}/\text{m}^3$)
ND	TCE - TRICHLOROETHENE ($\mu\text{g}/\text{m}^3$)



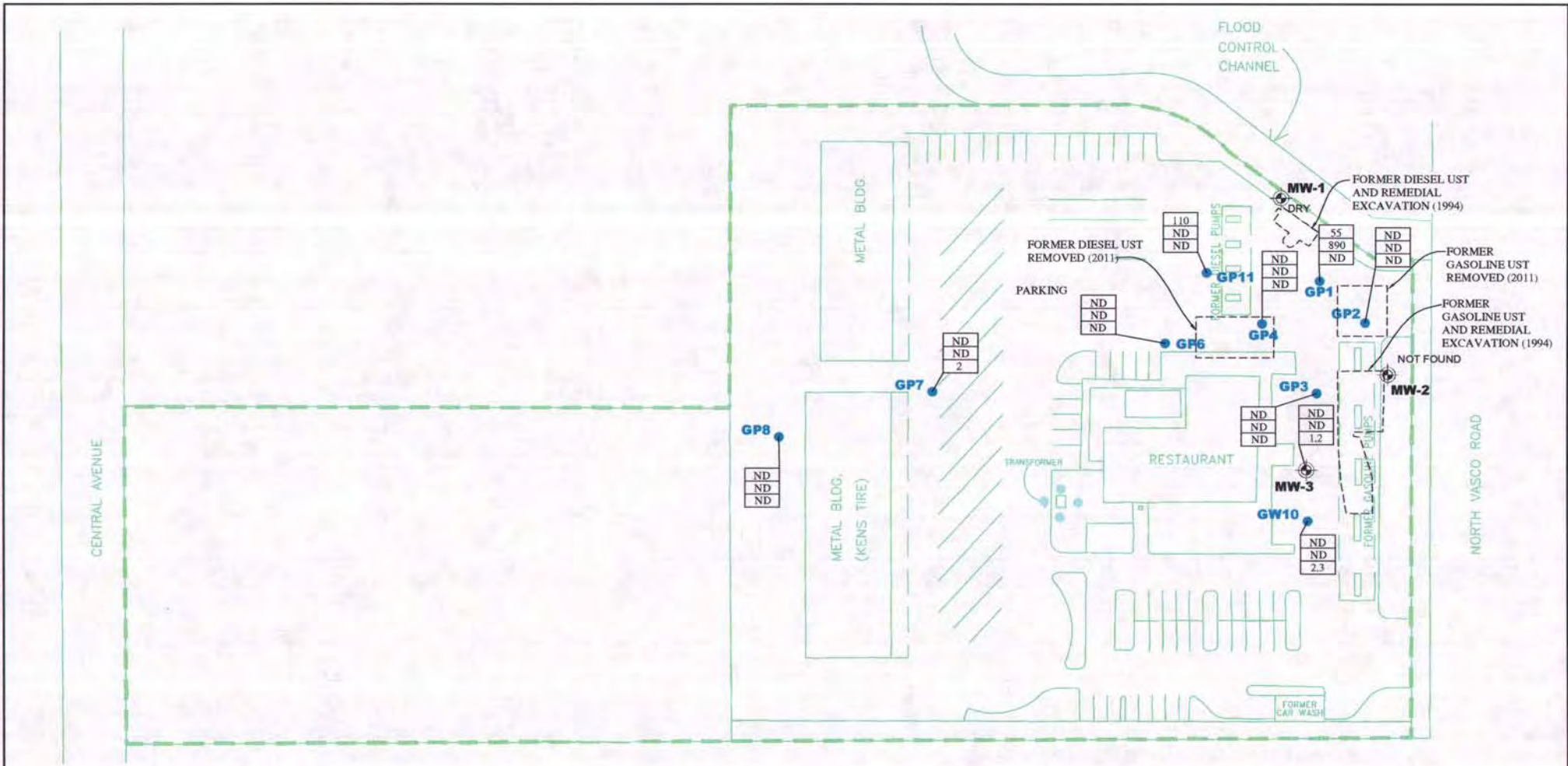
BASE MAP SOURCE: H2GEOLOG AND MACKAY & SOMPS



SOIL VAPOR DATA - 2011 SITE CHARACTERIZATION AND PREVIOUS INVESTIGATION
 1000 NORTH VASCO ROAD
 LIVERMORE, CALIFORNIA

PROJECT NO: 7380.000.003	FIGURE NO
SCALE: AS SHOWN	5
DRAWN BY: SRP	CHECKED BY: SPM

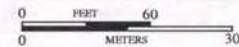
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EXPLANATION

- MW-3** APPROXIMATE LOCATION OF GROUNDWATER MONITORING WELL
- GP11** APPROXIMATE LOCATION OF GRAB GROUNDWATER SAMPLE
- ND NOT DETECTED
- NA NOT ANALYZED

ND	TPHg - TOTAL PETROLEUM HYDROCARBONS AS GASOLINE ($\mu\text{g/L}$)
ND	TPHd - TOTAL PETROLEUM HYDROCARBONS AS DIESEL ($\mu\text{g/L}$)
2	TCE - TRICHLOROETHENE ($\mu\text{g/L}$)



BASE MAP SOURCE: H2GEOLOG AND MACKAY & SOMPS

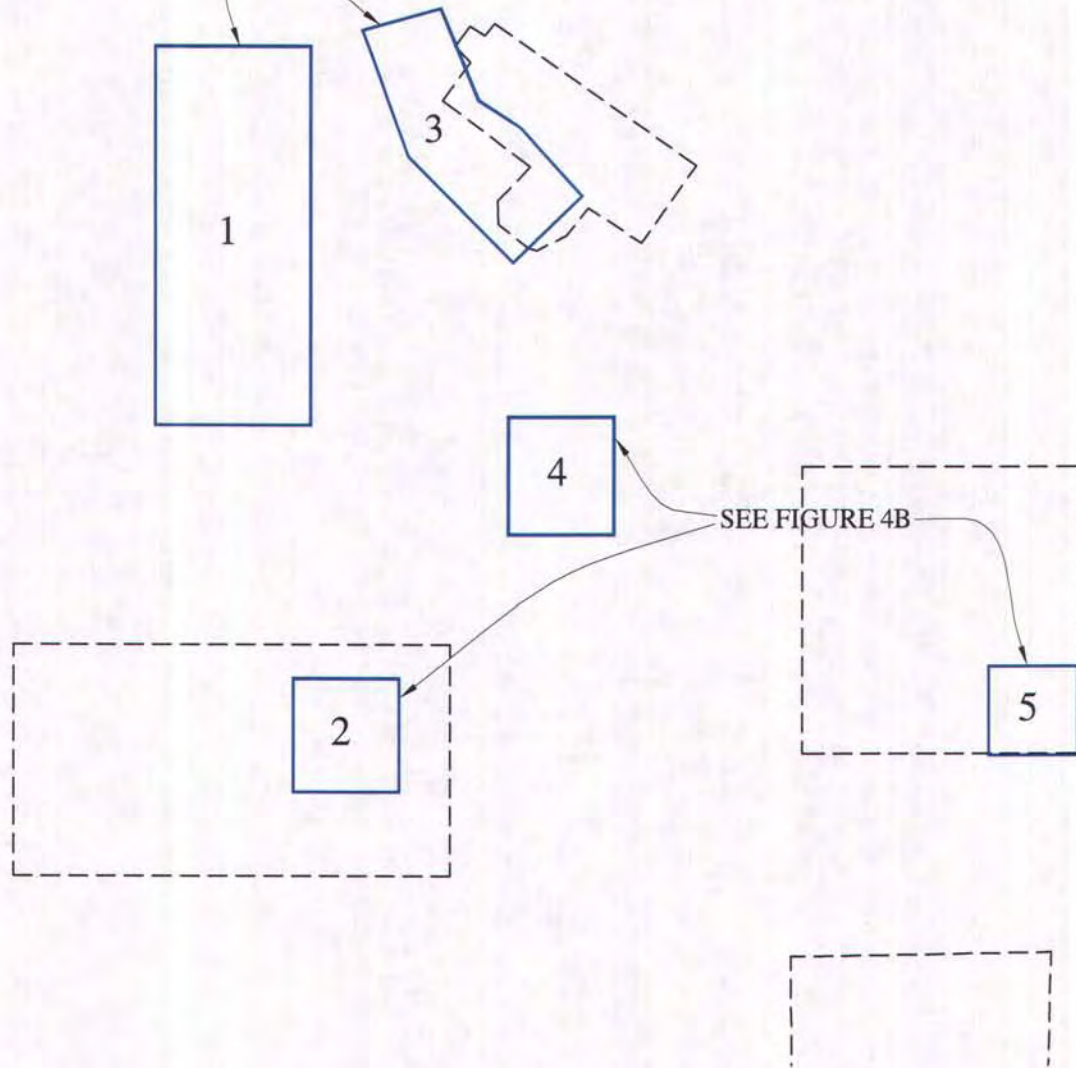


GROUNDWATER DATA - 2011 SITE CHARACTERIZATION
 1000 NORTH VASCO ROAD
 LIVERMORE, CALIFORNIA

PROJECT NO: 7380.000.003	FIGURE NO. 3
SCALE: AS SHOWN	
DRAWN BY: DLB	CHECKED BY: SPM

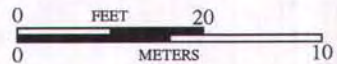
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SEE FIGURE 4A



EXPLANATION

5	APPROXIMATE LOCATION OF EXCAVATION AREA
----------	---



SITE PLAN
 1000 NORTH VASCO ROAD
 LIVERMORE, CALIFORNIA

PROJECT NO.: 7380.000.003

SCALE: AS SHOWN

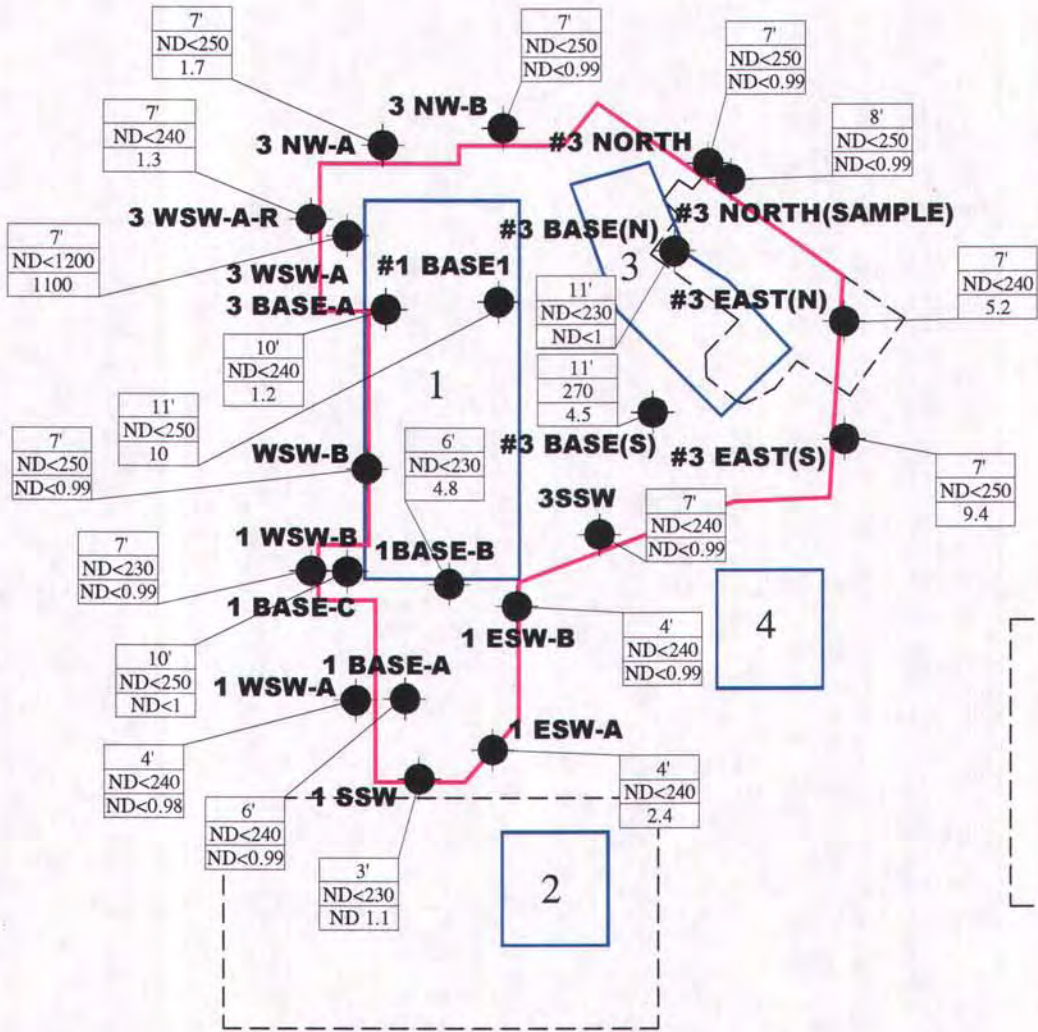
DRAWN BY: SRP

CHECKED BY:

FIGURE NO.

3

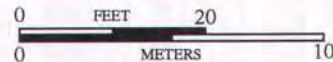
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EXPLANATION

3 NW-A ● APPROXIMATE LOCATION OF SAMPLE

6'	SAMPLE DEPTH
ND<240	TPHg - TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
ND<0.98	TPHd - TOTAL PETROLEUM HYDROCARBONS AS DIESEL



BASE MAP SOURCE: UNKNOWN



EXCAVATION AREAS 1 AND 3
 1000 NORTH VASCO ROAD
 LIVERMORE, CALIFORNIA

PROJECT NO.: 7380.000.003

SCALE: AS SHOWN

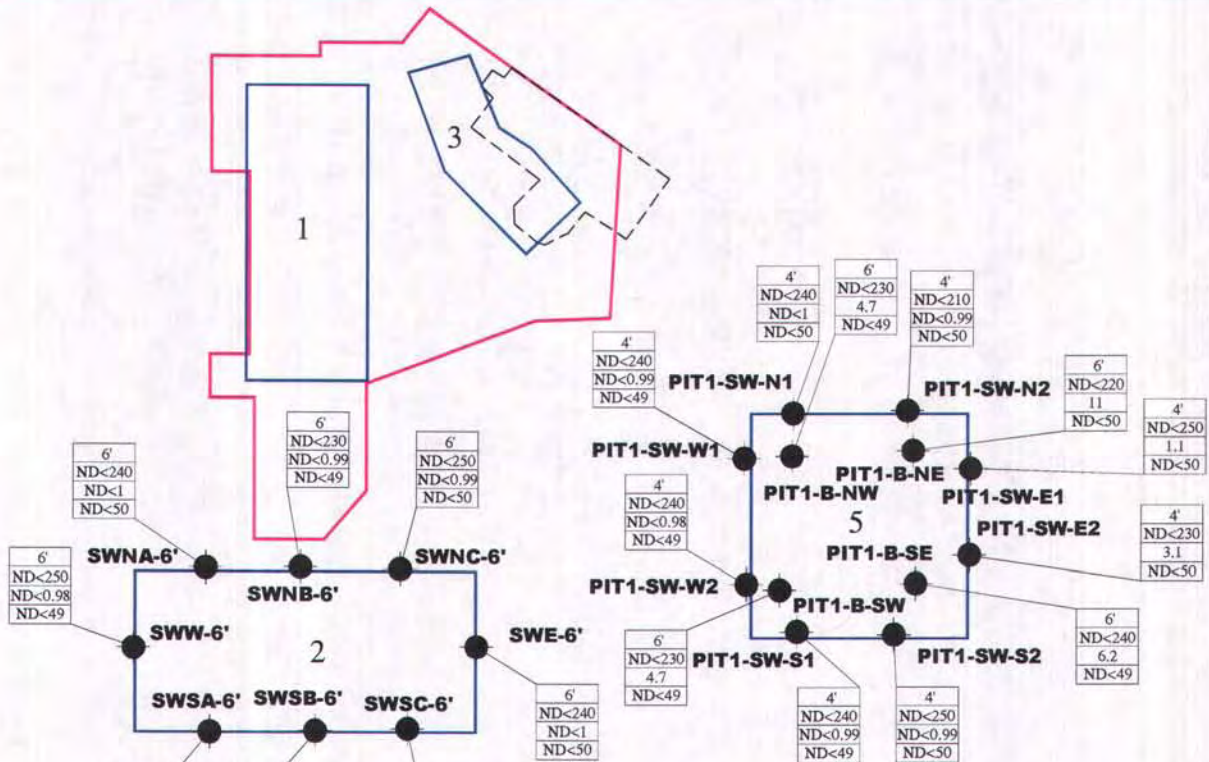
DRAWN BY: SRP

CHECKED BY: SPM

FIGURE NO.

4A

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EXPLANATION

- PIT1-B-SW** ● APPROXIMATE LOCATION OF SAMPLE
- 6' SAMPLE DEPTH
- ND<230 TPH_g - TOTAL PETROLEUM HYDROCARBONS AS GASOLINE (µg/L)
- 4.7 TPH_d - TOTAL PETROLEUM HYDROCARBONS AS DIESEL (mg/L)
- ND<49 TPH_{mo} - TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL (mg/L)



EXCAVATION AREAS 2 AND 5
 1000 NORTH VASCO ROAD
 LIVERMORE, CALIFORNIA

PROJECT NO.: 7380.000.003
 SCALE: AS SHOWN
 DRAWN BY: SRP CHECKED BY: BB

FIGURE NO.
3

FIGURE PRINTED IN COLOR

TABLE 1

**Laboratory Results for Soil and Water Samples
1000 North Vasco Road in Livermore, CA**

Soil Sample ID	Sample Depth (Feet)	Gasoline GRO (mg/Kg)	Diesel DRO (mg/Kg)	Volatile Organic Aromatics (mg/Kg)			
				Benzene	Toluene	Ethylbenzene	Xylenes
Tank Pit Sidewall and Pipeline Trench Bottom Soil Samples							
TP1-E1	9.3	ND	---	ND	ND	ND	ND
TP1-E2	9.3	ND	---	ND	ND	ND	ND
TP1-C1	9.3	ND	---	ND	ND	ND	ND
TP1-W1	9.3	ND	---	ND	ND	ND	ND
TP2-E1	9.3	---	ND	ND	ND	ND	ND
TP2-E2	9.3	---	ND	ND	ND	ND	ND
TP2-W1	9.3	---	ND	ND	ND	ND	ND
TP2-W2	9.3	---	ND	ND	ND	ND	ND
PL1-S1	3.4	2.9	4.0	ND	ND	ND	ND
PL1-S2	2.8	ND	ND	ND	ND	ND	ND
PL1-S3	2.7	ND	1.5	ND	ND	ND	ND
PL1-S4	3.0	ND	1.3	ND	ND	ND	ND
PL1-S5	3.0	ND	ND	ND	ND	ND	ND
PL2-S6	3.3	---	ND	ND	ND	ND	ND
PL2-S7	3.7	---	ND	ND	ND	ND	ND
PL2-S8	3.8	---	ND	ND	ND	ND	ND
PL3-S9	3.2	---	ND	ND	ND	ND	ND
PL3-S10	3.2	---	1,400	<0.10	<0.10	<0.10	<0.10
PL3-S11	3.0	---	3,200	<0.05	<0.05	<0.05	<0.05
PL3-S12	2.8	---	2,700	<0.05	<0.05	<0.05	<0.05
VP-S13	2.7	ND	ND	ND	ND	ND	ND
Reporting Limit		1.0	1.0	0.005	0.005	0.005	0.005
Stockpile Samples							
Sample ID		Gasoline GRO (µg/L)	Diesel DRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)
STK-PL2		---	1.2	ND	ND	ND	ND
STK-PL3		---	380	ND	ND	ND	ND
Reporting Limit		---	1.0	0.005	0.005	0.005	0.005
Tank Pit Water Samples^a							
Sample ID		Gasoline GRO (µg/L)	Diesel DRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)
TP1-Gas-W		240	---	ND	7.6 ^b	4.6 ^b	41 ^b
TP2-Diesel-W		---	540,000	<12	800	190	1,500
Reporting Limit		50	<10,000	0.5	0.5	0.5	0.5
NOTES:							
1. Reporting limits are as listed unless otherwise indicated for a particular sample as less than, "<," limit quantity.							
2. Water sample TP1-Gas-W also had concentrations of TBA at 5.0 µg/L and MtBE at 0.98 µg/L.							
3. The tank pits were not de-watered and allowed to recharge. Fire Department Inspector noted sheen on water surface in both tank pits. See Appendix I.							
4. Analytical results with superscript "b" for water sample TP1-Gas-W are results by U.S. EPA Method 8260B. Similar results were reported for U.S. EPA Method 8021B/8015Bm.							
SOURCE: McCampbell Analytical, 2011. See Appendices K and L for signed lab reports and chromatograms.							

Laboratory Analysis Reports are provided in Appendix J. The results of the Geoprobe soil analysis are summarized on Figure 7 and are presented in the following table:

TABLE VII
Gas Station Facility
Soil Sample Analysis
(Analyte concentrations reported in milligram per kilogram- mg/kg)

Sample ID	Depth- Ft bgs	TPHg	TPHd / mo	Benzene/ Toluene	Ethyl benzene	Xylenes	MTBE
3-P1-9	9	310¹	2,200² / 730	<0.1 / <0.1	<0.1	<0.1	<1.0
3-P2-9	9	<1.0	5.8² / 6.8	<0.005 / <0.005	<0.005	<0.005	<0.05
3-P3-7½	7½	<1.0	<1.0 / <5.0	<0.005 / <0.005	<0.005	<0.005	<0.05
3-P4-10	10	<1.0	2.0³ / <5.0	<0.005 / <0.005	<0.005	<0.005	<0.05
3-P5-10½	10½	<1.0	<1.0 / <5.0	<0.005 / <0.005	<0.005	<0.005	<0.05
3-P6-7½	7½	<1.0	<1.0 / <5.0	<0.005 / <0.005	<0.005	<0.005	<0.05
3-P7-7½	7½	<1.0	<1.0 / <5.0	<0.005 / <0.005	<0.005	<0.005	<0.05
3-P8-9	9	<1.0	<1.0 / <5.0	<0.005 / <0.005	<0.005	<0.005	<0.05
4-P1-7	7	120¹	650^{2,4} / 240	<0.050 / 0.54	<0.050	<0.050	<0.50
4-P2-7	7	<1.0	<1.0 / <5.0	<0.005 / <0.005	<0.005	<0.005	<0.05
4-P3-7	7	<1.0	1.3³ / <5.0	<0.005 / <0.005	<0.005	<0.005	<0.05
4-P4-7.1	7.1	<1.0	<1.0 / <5.0	<0.005 / <0.005	<0.005	<0.005	<0.05

1. Strongly aged gasoline or diesel range hydrocarbons are significant; no recognizable pattern.
2. Unmodified or weakly modified diesel is significant.
3. Diesel ranged hydrocarbons are significant; no recognizable pattern.
4. Aged diesel? is significant.

TABLE I
Soil Sample Analytical Results
Phase II ESA
Petroleum Hydrocarbon Constituents and VOCs
Geno's Country Store, Inc.
Livermore, California
September 2, 2009 Sampling

(Concentrations are expressed as milligrams per kilogram [mg/kg])

Soil Boring No.	Sample ID	Depth (ft. bgs)	TPH-g	MTBE	B	T	E	X	TPH-d
B-1	B1@10	10	ND	ND	ND	ND	ND	ND	11
	B1@15	15	ND	ND	ND	ND	ND	ND	6.3
B-2	B2@10	10	ND	ND	ND	ND	ND	ND	ND
	B2@15	15	ND	ND	ND	ND	ND	ND	ND
B-3	B3@15	15	ND	ND	ND	ND	ND	ND	ND
	B3@20	20	ND	ND	ND	ND	ND	ND	ND
B-4	B4@15	15	ND	ND	ND	ND	ND	ND	ND
	B4@20	20	ND	ND	ND	ND	ND	ND	ND
B-5	B5@10	10	ND	ND	ND	ND	ND	ND	ND
	B5@15	15	ND	ND	ND	ND	ND	ND	ND
B-6	B6@15	15	ND	ND	ND	ND	ND	ND	ND
	B6@20	20	ND	ND	ND	ND	ND	ND	ND
B-11	B11@15	15	ND	ND	ND	ND	ND	ND	ND
	B11@20	20	ND	ND	ND	ND	ND	ND	ND
B-12	B12@10	10	ND	ND	ND	ND	ND	ND	ND
	B12@15	15	ND	ND	ND	ND	ND	ND	ND
B-13	B13@10	10	ND	ND	ND	ND	ND	ND	ND
	B13@15	15	ND	ND	ND	ND	ND	ND	ND
B-14	B14@10	10	ND	ND	ND	ND	ND	ND	ND
	B14@15	15	ND	ND	ND	ND	ND	ND	ND
B-15	B15@10	10	ND	ND	ND	ND	ND	ND	9.0
	B15@15	15	ND	ND	ND	ND	ND	ND	ND
		RSL	--	190	5.6	46,000	29	2600	--
		ESL	83	0.023	0.044	2.9	3.3	2.3	83

ft. bgs = Feet below ground surface.

TPH-g = Total petroleum hydrocarbons as gasoline by EPA Method 8015B.

TPH-d = Total petroleum hydrocarbons as diesel by EPA Method 8015B.

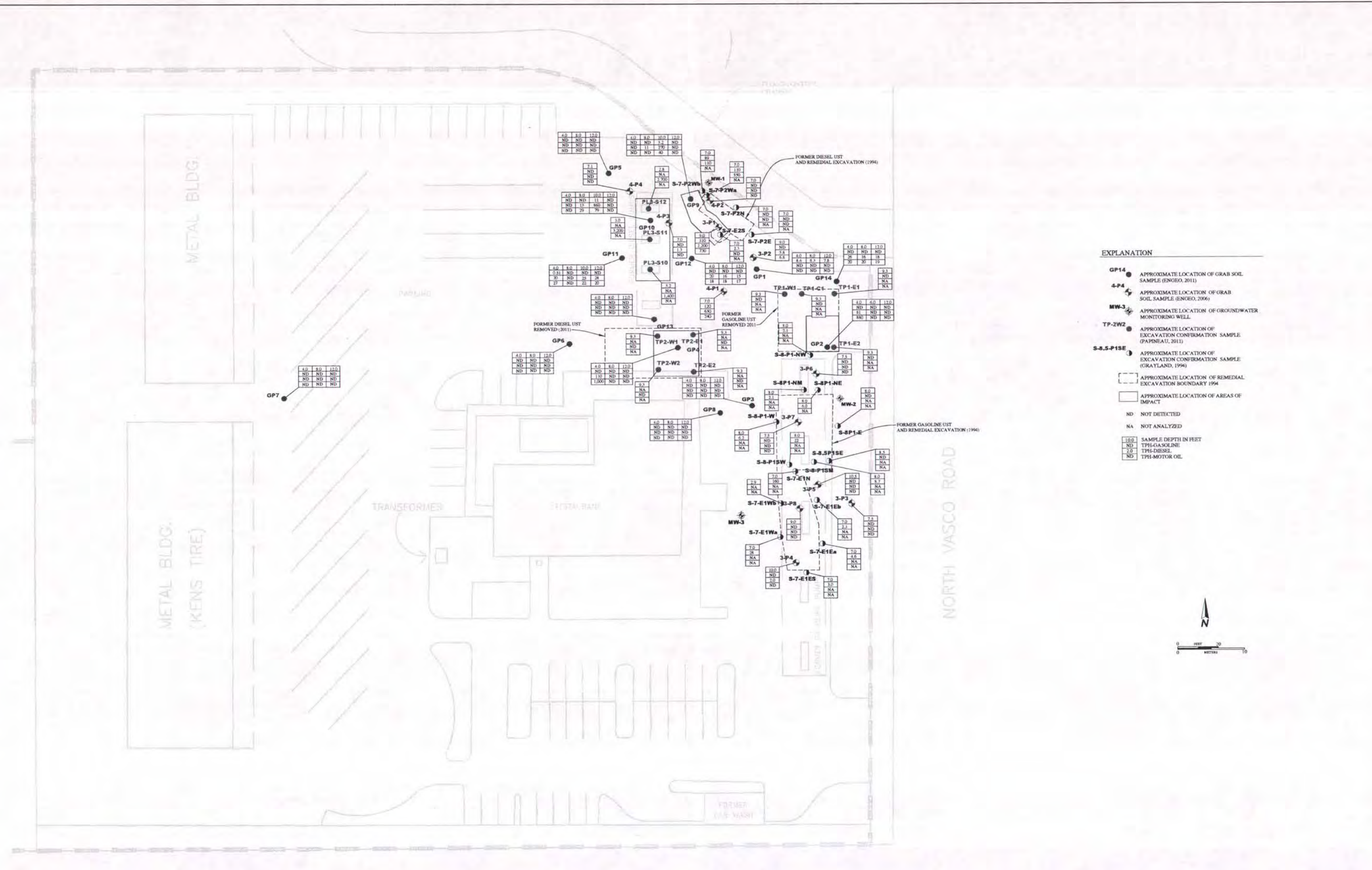
MTBE = Methyl tertiary butyl ether by EPA Method 8021B.

BTEX = Benzene, toluene, ethyl benzene, xylenes by EPA Method 8021B.

ND = Not detected at or above practical quantitation limits noted on laboratory reports.

--- = Not analyzed.

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- EXPLANATION**
- GP14 ● APPROXIMATE LOCATION OF GRAB SOIL SAMPLE (ENGEQ, 2011)
 - 4-P4 ● APPROXIMATE LOCATION OF GRAB SOIL SAMPLE (ENGEQ, 2006)
 - MW-3 ● APPROXIMATE LOCATION OF GROUNDWATER MONITORING WELL
 - TP-2W2 ● APPROXIMATE LOCATION OF EXCAVATION CONFIRMATION SAMPLE (PAPINEAU, 2011)
 - S-8.5-P1SE ● APPROXIMATE LOCATION OF EXCAVATION CONFIRMATION SAMPLE (GRAYLAND, 1994)
 - APPROXIMATE LOCATION OF REMEDIAL EXCAVATION BOUNDARY 1994
 - APPROXIMATE LOCATION OF AREAS OF IMPACT
 - ND NOT DETECTED
 - NA NOT ANALYZED
 - 100 SAMPLE DEPTH IN FEET
 - ND TPH-GASOLINE
 - 200 TPH-DIESEL
 - ND TPH-MOTOR OIL



TABLE 2
SURFACE SOIL SAMPLING

SOIL SAMPLING - SURFACE SAMPLES																												
SAMPLE	LOCATION	DATE SAMPLED	TPH-GASOLINE µg/kg	TPH-DIESEL mg/kg	TPH-MO mg/kg	PCBs µg/kg	BENZENE µg/kg	TOLUENE µg/kg	ETHYLBENZENE µg/kg	XYLENE(S) µg/kg	FUEL OXYGENATES µg/kg	ANTIMONY mg/kg	SILVER mg/kg	ARSENIC mg/kg	BARIUM mg/kg	BERYLLIUM mg/kg	CADMIUM mg/kg	CHROMIUM mg/kg	COBALT mg/kg	COPPER mg/kg	LEAD mg/kg	MOLYBDENUM mg/kg	NICKEL mg/kg	SELENIUM mg/kg	THALLIUM mg/kg	VANADIUM mg/kg	ZINC mg/kg	MERCURY mg/kg
D1	STOCKPILE	4/20/2011	ND<500	N/A	N/A	N/A	ND<5	ND<5	ND<5	ND<5	ND	ND<3	ND<2	ND<5	270	ND<1	ND<2	33	11	20	ND<3	ND<1	33	ND<5	ND<2	57	47	ND<0.1
D2	STOCKPILE	4/20/2011	ND<500	N/A	N/A	N/A	ND<5	ND<5	ND<5	ND<5	ND	ND<3	ND<2	ND<5	290	ND<1	ND<2	35	13	21	4.3	ND<1	35	ND<5	ND<2	60	50	ND<0.1
D3	STOCKPILE	4/20/2011	ND<500	N/A	N/A	N/A	ND<5	ND<5	ND<5	ND<5	ND	ND<3	ND<2	ND<5	210	ND<1	ND<2	34	11	18	ND<3	ND<1	36	ND<5	ND<2	50	44	ND<0.1
D4	STOCKPILE	4/20/2011	ND<500	N/A	N/A	N/A	ND<5	ND<5	ND<5	ND<5	ND	ND<3	ND<2	ND<5	250	ND<1	ND<2	35	12	20	ND<3	ND<1	36	ND<5	ND<2	59	49	ND<0.1
D5	STOCKPILE	4/20/2011	ND<500	N/A	N/A	N/A	ND<5	ND<5	ND<5	ND<5	ND	ND<3	ND<2	ND<5	250	ND<1	ND<2	32	11	17	ND<3	ND<1	30	ND<5	ND<2	53	43	ND<0.1
D6	STOCKPILE	4/20/2011	ND<500	N/A	N/A	N/A	ND<5	ND<5	ND<5	ND<5	ND	ND<3	ND<2	ND<5	290	ND<1	ND<2	32	12	20	ND<3	ND<1	35	ND<5	ND<2	56	48	ND<0.1
D7	STOCKPILE	4/20/2011	ND<500	N/A	N/A	N/A	ND<5	ND<5	ND<5	ND<5	ND	ND<3	ND<2	ND<5	270	ND<1	ND<2	33	12	19	6	ND<1	34	ND<5	ND<2	59	48	ND<0.1
D8	STOCKPILE	4/20/2011	ND<500	N/A	N/A	N/A	ND<5	ND<5	ND<5	ND<5	ND	ND<3	ND<2	ND<5	370	ND<1	ND<2	31	12	21	4.1	ND<1	36	ND<5	ND<2	63	47	ND<0.1
SP1-A/B/C/D	STOCKPILE	8/7/2006	ND<1,000	ND<1	ND<5	N/A	ND<5	ND<5	ND<5	ND<5	ND<50 (MTBE)	ND<0.5	ND<0.5	8.3	250	0.52	ND<0.25	35	11	63	8.4	0.84	43	ND<0.5	ND<0.5	48	72	0.083
SP2-A/B/C/D	STOCKPILE	8/7/2006	ND<1,000	ND<1	ND<5	N/A	ND<5	ND<5	ND<5	ND<5	ND<50 (MTBE)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SP3-A/B/C/D	STOCKPILE	8/7/2006	ND<1,000	ND<1	ND<5	N/A	ND<5	ND<5	ND<5	ND<5	ND<50 (MTBE)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
COMPOSITE	PAD-MOUNTED TRANSFORMER	4/20/2011	ND<500	34	39	ND<10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TABLE A
SOIL CONFIRMATION SAMPLING SUMMARY

SOIL SAMPLING - CONFIRMATION AND STOCKPILE SAMPLES

Table with columns: SAMPLE, LOCATION, TYPE, DATE, DEPTH, TPH-SOLUBLE, TPH-PEAKS, TPH-SEMI-VOLATILE, TPH-VOLATILE OILS, CADMIUM, CHROMIUM, LEAD, NICKEL, ZINC, BENZENE, BENZOPHANTHRENE, BENZOFLUORANTHRENE, BENZOSULFONYLFLUORENE, BENZOPYRENE, BENZOPHANTHRENE, DIBENZOPHANTHRENE, FLUORANTHRENE, INDENYL 1,2,3-BENZOPYRENE, PHENANTHRENE, PYRENE, OTHER PAHs, ACETONE, TOLUENE, 1,4-DIBENZYL BENZENE, o-DIBENZYL BENZENE, p-DIBENZYL BENZENE, OTHER VOCs.

TABLE 4
SOIL VAPOR SAMPLING

SOIL VAPOR SAMPLING														ESL (µg/m³)
SAMPLE	SG1	SG2	SG3	SG4	SG5	SG6	SG7	SG8	SG9	SG10	SG11	SG12		
DATE	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	
ANALYTE	UNIT													
TPH-GASOLINE	(µg/m³)	13,000	14,000	7,200	15,000	2,800	19,000	12,000	26,000	20,000	31,000	23,000	13,000	10,000
ACETONE	(µg/m³)	380	170	330	69	120	400	ND<0.25	570	880	630	520	620	860,000
CARBON DISULFIDE	(µg/m³)	2.6	38	3.2	ND<0.16	ND<0.16	15	120	4.2	57	3.1	1.3	190	N/A
ISOPROPYL ALCOHOL	(µg/m³)	5	3.3	ND<0.21	1.8	1.7	2.6	ND<0.21	2.2	3.3	0.96	1	4.7	N/A
CHLOROETHANE	(µg/m³)	ND<0.29	1.2	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	21,000
CHLOROFORM	(µg/m³)	ND<0.36	4.4	ND<0.36	ND<0.36	ND<0.36	ND<0.36	ND<0.36	ND<0.36	ND<0.36	ND<0.36	ND<0.36	ND<0.36	460
CYCLOHEXANE	(µg/m³)	ND<0.17	74	ND<0.17	2.3	ND<0.17	62	1,100	25	320	4.2	5.2	25	N/A
HEPTANE	(µg/m³)	ND<0.21	33	ND<0.21	ND<0.21	ND<0.21	ND<0.21	12	5.4	ND<0.21	5.7	ND<0.21	ND<0.21	N/A
HEXANE	(µg/m³)	ND<1	75	ND<1	ND<1	ND<1	8.8	42	11	4.8	1.5	ND<1	ND<1	N/A
DICHLORODIFLUOROMETHANE	(µg/m³)	ND<0.23	5.3	2.4	3	3.1	ND<0.23	ND<0.23	2.7	5.7	2.5	2.6	ND<0.23	N/A
CIS-1,2-DICHLOROETHENE	(µg/m³)	3.7	4.2	8.5	15	9.8	7.7	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	7,300
TRANS-1,2-DICHLOROETHENE	(µg/m³)	ND<0.25	ND<0.25	ND<0.25	1.8	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	18,000
STYRENE	(µg/m³)	ND<0.12	4.1	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	190,000
TETRACHLOROETHENE	(µg/m³)	110	270	490	300	380	72	45	27	9.3	8.8	91	410	
1,1,1-TRICHLOROETHANE	(µg/m³)	ND<0.54	4.4	ND<0.54	ND<0.54	ND<0.54	ND<0.54	ND<0.54	ND<0.54	ND<0.54	ND<0.54	ND<0.54	ND<0.54	46,000
TRICHLOROETHENE	(µg/m³)	5.2	8.2	13	23	14	12	17	2.2	3.8	25	ND<0.14	10	1,200
TRICHLOROFUOROMETHANE	(µg/m³)	ND<0.48	120	2.2	ND<0.48	ND<0.48	4	ND<0.48	ND<0.48	4.4	2	ND<0.48	2.5	N/A
1,3,5-TRIMETHYLBENZENE	(µg/m³)	5.4	17	3	2.2	2.7	9	18	7	4.8	2.4	2.3	2.5	N/A
1,2,4-TRIMETHYLBENZENE	(µg/m³)	19	25	4.4	4.5	3.9	8.8	25	13	4	3.5	4.4	4.4	N/A
2-BUTANONE	(µg/m³)	4.7	2.9	3.3	1.2	2.9	4.4	ND<0.52	7	10	3.8	5.7	8.8	1,000,000
BENZENE	(µg/m³)	ND<0.14	68	3	5.7	2.9	6.2	29	5.2	ND<0.14	3.1	3.3	2.6	84
TOLUENE	(µg/m³)	8.7	120	7	7.9	5.7	8	72	23	13	35	6.8	5.5	62,000
ETHYLBENZENE	(µg/m³)	ND<0.14	70	3.5	3.4	3.2	7.5	36	9.3	7	3.8	3.4	3	980
XYLENE(S)	(µg/m³)	19.6	270	12.7	11.8	10.3	26.2	108	30.9	22	13.6	11.4	8.6	21,000
1,1-DFA (LEAK COMPOUND)	(µg/m³)	2,600	2,800	4,900	7,800	5,000	ND<27	ND<27	ND<27	ND<27	ND<27	ND<27	ND<27	N/A (10,000 ALLOWABLE)
OTHER VOCs	(µg/m³)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A

SAMPLE	SG1	SG2	SG3	SG4	SG5	SG6	SG7	SG8	SG9	SG10	SG11	SG12	ESL (µg/m³)	
DATE	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	5/13/2011	
ANALYTE	UNIT													
TPH-GASOLINE (TD-17)	(µg/m³)	21,000	ND<5,000	ND<5,000	ND<5,000	ND<5,000	170,000	ND<5,000	ND<5,000	ND<5,000	ND<5,000	ND<5,000	ND<5,000	10,000
TPH-DIESEL (TD-17)	(µg/m³)	5,400	ND<5,000	ND<5,000	ND<5,000	ND<5,000	26,000	ND<5,000	ND<5,000	ND<5,000	ND<5,000	ND<5,000	ND<5,000	10,000
ETHANOL	(µg/m³)	ND<9.8	ND<9.7	ND<21	ND<30	ND<36	ND<37	ND<9.3	30	ND<6.3	120	ND<18	15	N/A
BROMOMETHANE	(µg/m³)	ND<5	8.4	ND<11	ND<16	ND<19	ND<16	ND<4.8	ND<5.2	ND<4.3	35	ND<9.2	ND<5	1,000
FREON 11	(µg/m³)	100	ND<7.2	ND<15	ND<23	ND<27	ND<28	ND<6.9	ND<7.5	ND<6.2	ND<41	ND<13	ND<7.2	N/A
ACETONE	(µg/m³)	29	16	30	ND<38	ND<46	ND<47	ND<12	15	ND<10	ND<69	ND<22	ND<12	880,000
CARBON DISULFIDE	(µg/m³)	ND<16	320	1300	1200	140	ND<82	19	160	28	600	550	ND<16	N/A
CHLOROFORM	(µg/m³)	ND<6.3	ND<13	ND<13	ND<20	ND<24	ND<24	14	ND<6.5	ND<5.4	ND<35	ND<12	ND<8.2	460
CYCLOHEXANE	(µg/m³)	38	360	190	4200	3800	31	140	200	30	6400	2000	11	N/A
HEPTANE	(µg/m³)	8.6	ND<5.3	ND<11	27	ND<20	ND<20	ND<5	ND<5.4	ND<4.5	ND<30	ND<9.7	ND<5.2	N/A
HEXANE	(µg/m³)	25	ND<4.5	ND<9.7	70	78	ND<17	ND<4.3	ND<4.7	ND<3.9	ND<26	ND<8.4	ND<4.5	N/A
TETRACHLOROETHENE	(µg/m³)	ND<8.8	ND<8.7	ND<19	ND<27	ND<33	ND<34	12	ND<9	18	ND<49	ND<18	ND<8.6	410
TRICHLOROETHENE	(µg/m³)	ND<7	22	100	ND<22	ND<26	ND<27	130	17	ND<5.9	ND<39	24	25	1,200
1,3,5-TRIMETHYLBENZENE	(µg/m³)	26	ND<6.3	ND<14	ND<20	ND<24	ND<24	ND<6	ND<6.5	ND<5.4	ND<36	ND<12	ND<6.3	N/A
1,2,4-TRIMETHYLBENZENE	(µg/m³)	27	ND<6.3	ND<14	ND<20	ND<24	ND<24	ND<6	ND<6.5	ND<5.4	ND<36	ND<12	ND<6.3	N/A
2,2,4-TRIMETHYLPENTANE	(µg/m³)	ND<6	81	ND<13	ND<19	14000	120	ND<5.7	ND<6.2	ND<5.1	ND<34	ND<11	7.4	N/A
MTBE	(µg/m³)	ND<4.7	65	220	330	20	ND<16	4.8	16	ND<4	440	11	92	9,600
BENZENE	(µg/m³)	53	ND<4.1	ND<8.8	22	18	ND<16	ND<3.9	ND<4.2	ND<3.5	ND<23	ND<7.6	ND<4.1	84
TOLUENE	(µg/m³)	45	ND<4.8	ND<10	18	ND<18	ND<19	ND<4.8	5.5	ND<4.1	ND<27	9.8	ND<4.8	63,000
ETHYLBENZENE	(µg/m³)	40	ND<5.6	ND<12	ND<18	ND<21	ND<22	ND<5.3	ND<5.8	ND<4.8	ND<31	ND<10	ND<5.5	980
XYLENE(S)	(µg/m³)	154	ND<5.6	ND<12	ND<12	ND<21	ND<22	ND<5.3	ND<5.8	ND<4.8	ND<31	ND<10	ND<5.5	21,000
PROPYLENE	(µg/m³)	8.8	ND<6.3	ND<14	ND<20	ND<24	ND<24	ND<6	ND<6.5	ND<5.4	ND<36	ND<12	ND<6.3	N/A
4-ETHYLTOLUENE	(µg/m³)	26	ND<8.3	ND<14	ND<20	ND<24	ND<24	ND<6	ND<6.5	ND<5.4	ND<36	ND<12	ND<6.3	N/A
1,1-DFA (LEAK COMPOUND)	(µg/m³)	ND<14	ND<14	ND<30	ND<44	ND<52	ND<54	ND<13	1,500	ND<12	350	ND<26	790	N/A (10,000 ALLOWABLE)
OTHER VOCs	(µg/m³)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A

7/13/11

7/13/11

TABLE 3

GROUNDWATER SAMPLING											
SAMPLE	SAMPLE DATE	TPH-GASOLINE µg/L	TPH-DIESEL µg/L	TPH-MO mg/L	BENZENE µg/L	TOLUENE µg/L	ETHYLBENZENE µg/L	XYLENE(S) µg/L	MTBE µg/L	TRICHLOROETHYLENE µg/L	OTHER VOCs µg/L
	ESL (Table F-1A)	100	100	100	1	40	30	20	5	5	N/A
GP1-GW	4/19/2011	55	890	ND<100	ND<0.5	ND<0.5	ND<0.5	2.6	ND<1	ND<1	ND
GP2-GW	4/19/2011	ND<50	ND<50	ND<100	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<1	ND<1	ND
GP3-GW	4/20/2011	ND<50	ND<50	ND<100	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<1	ND<1	ND
GP4-GW	4/19/2011	ND<50	ND<50	ND<100	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<1	ND<1	ND
GP6-GW	4/19/2011	ND<50	ND<50	ND<100	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<1	ND<1	ND
GP7-GW	4/19/2011	ND<50	ND<50	ND<100	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<1	2	ND
GP8-GW	4/19/2011	ND<50	ND<50	ND<100	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<1	ND<1	ND
GP11-GW	4/19/2011	110	ND<50	ND<100	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<1	ND<1	ND
MW-3	4/20/2011	ND<50	ND<50	ND<100	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<1	1.2	ND
GW-10	4/20/2011	ND<50	ND<50	ND<100	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<1	2.3	ND
MW-3	9/2/2009	ND	ND	N/A	ND	ND	ND	ND	2.2	ND	ND
MW-1	8/22/2006	ND<50	ND<50	ND<250	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	N/A	N/A
MW-3	8/22/2006	ND<50	ND<50	ND<250	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	N/A	N/A

Groundwater samples for TPH-D were collected directly from the end of the pump discharge tubing at the final purging rate of about two liters per minute into a one liter amber glass bottle. Groundwater samples for TPH-G plus BTEX were collected using a pump discharge rate of less than one liter per minute in 40-mL glass vials with Teflon™ septum lids, in duplicate.

Groundwater sample bottles were labeled and placed in an ice chest with 2 Liter plastic bottles containing ice. Chain-of-Custody forms were filled out and were delivered with the ice chest to Chromalab, Inc. of Pleasanton, California, a state certified laboratory.

Groundwater samples from all three monitoring wells were found not to contain detectable concentrations of petroleum hydrocarbons. MW-1 was found to contain 220 µg/L of hydrocarbons in the diesel range that do not match the pattern of their Diesel standard. These could be organic acids or other biodegradation products or naturally occurring hydrocarbons from the soil and vegetation. The laboratory report and Chain-of-Custody documentation is contained in Attachment B. The historic groundwater sample analytical results are summarized below.

Table 4

All concentrations are expressed in micrograms per liter (µg/L).

Well	TPH-D	TPH-G	Benzene	Toluene	Ethyl- benzene	Total Xylenes
MW-1						
07/24/95	910	<50	<0.5	<0.5	<0.5	<0.5
11/06/95	<50	<50	<0.5	<0.5	<0.5	<0.5
02/05/96	<50	<50	<0.5	<0.5	<0.5	<0.5
05/08/96	228 ^{NOTE}	<50	<0.5	<0.5	<0.5	<0.5
<small>(Note: Does not match the pattern of Chromalab's Diesel standard).</small>						
MW-2						
07/24/95	<50	<50	<0.5	<0.5	<0.5	<0.5
11/06/95	<50	<50	<0.5	<0.5	<0.5	<0.5
02/05/96	<50	<50	<0.5	<0.5	<0.5	<0.5
05/08/96	<50	<50	<0.5	<0.5	<0.5	<0.5
MW-3						
07/24/95	<50	60	<0.5	<0.5	<0.5	<0.5
11/06/95	<50	<50	<0.5	<0.5	<0.5	<0.5
02/05/96	<50	<50	<0.5	<0.5	<0.5	<0.5
05/08/96	<50	<50	<0.5	<0.5	<0.5	<0.5

TABLE III
Groundwater ~~Soil Sample~~ Analytical Results
 Phase II ESA
 Petroleum Hydrocarbon Constituents and VOCs
 Geno's Country Store, Inc.
 Livermore, California
 September 2, 2009 Sampling

(Concentrations are expressed as micrograms per liter [µg/L])

Soil Boring No.	Sample ID	Depth (ft. bgs)	TPH-g	MTBE	B	T	E	X	TPH-d
MW-3	MW-3	10	ND	2.2	ND	ND	ND	ND	ND
		RSL	--	190	5.6	46,000	29	2600	--
		ESL	83	0.023	0.044	2.9	3.3	2.3	83

ft. bgs = Feet below ground surface.

TPH-g = Total petroleum hydrocarbons as gasoline by EPA Method 8015B.

TPH-d = Total petroleum hydrocarbons as diesel by EPA Method 8015B.

MTBE = Methyl tertiary butyl ether by EPA Method 8021B.

BTEX = Benzene, toluene, ethyl benzene, xylenes by EPA Method 8021B.

ND = Not detected at or above practical quantitation limits noted on laboratory reports.

ESL = Environmental Screening Level, San Francisco RWQCB, November 2007, commercial/industrial land use for shallow soil screening levels (≤3m bgs) where water is a current or potential source of drinking water

RSL = Regional Screening Level, Region 9 U.S. EPA, September 2008, Industrial Soil, Direct Contact Exposure Pathways.

Note: Please refer to laboratory analytical report for full suite of analytes and more detailed information.

TABLE II
Soil Sample Analytical Results
Phase II ESA
Detected CAM-17 Metals
Geno's Country Store, Inc.
Livermore, California
September 2, 2009 Sampling

(Concentrations are expressed as milligrams per kilogram [mg/kg])

Boring No.	Sample ID	Ar	Ba	Be	Cr	Co	Cu	Pb	Mo	Ni	V	Zn
B-7	B7@5	4.1	140	ND	30	8.1	10	5.2	0.55	32	42	36
B-8	B8@5	4.5	110	ND	33	9.3	14	5.4	ND	31	42	38
B-9	B9@5	5.3	290	0.56	48	11	21	7.4	ND	46	57	55
B-10	B10@5	5.9	340	0.53	42	16	26	7.8	ND	44	61	62
B-16	B16@5	4.1	160	ND	38	8.7	15	5.9	ND	33	49	45
B-17	B17@5	4.9	210	ND	37	9.1	17	6.2	ND	40	46	44
	RSL	1.6	190,000	2000	1400	300	41,000	800	5100	--	7200	310,000
	ESL	1.6	1500	8.0	2500	2500	2500	2500	2500	2500	2500	2500
	CHHSL	0.24	63,000	1700	100,037	3200	38,000	3500	4800	16,000	6700	100,000

Ar, Ba, Be, Cr, Co, Cu, Pb, Mo, Ni, V, Zn = arsenic, barium, beryllium, chromium, cobalt, copper, lead, molybdenum, nickel, vanadium, zinc

CHHSL = California Human Health Screening Level, Cal/EPA, January 2005, Commercial Land Use, Organic Neutral and Inorganic Chemicals.

ESL = Environmental Screening Level, San Francisco RWQCB, November 2007, commercial/industrial land use for shallow soil screening levels (≤ 3 m bgs) where water is a current or potential source of drinking water.

RSL = Regional Screening Level, Region 9 U.S. EPA, September 2008, Industrial Soil, Direct Contact Exposure Pathways.

Note: Please refer to laboratory analytical report for full suite of analytes and more detailed information.

TABLE IX
Title 22 (CAM 17) Metals Analysis
(Analyte concentrations reported in milligrams per kilogram- mg/kg)

↓ Analytes / Sample ID →	SP-1A/B/C/D	BG-1A/B/C/D	Background [] ¹	CSHHL [] ²
Antimony	<0.5	0.53	5.5	30
Arsenic	6.3	6.7	19.1	0.070
Barium	250	220	NA ³ / 509 ⁴	5,200
Beryllium	0.52	<0.5	1.0	150
Cadmium	<0.25	<0.25	2.7	1.7
Chromium	35	41	99.6	100,000
Cobalt	11	14	NA / 14.9	660
Copper	63	39	69.4	3,000
Lead	8.4	22	16.1	150
Mercury	0.083	0.092	0.4	18
Molybdenum	0.64	0.61	NA / 1.3	380
Nickel	43	42	119.8	1,600
Selenium	<0.5	<0.5	5.6	380
Silver	<0.5	<0.5	1.8	380
Thallium	<0.5	<0.5	27.1	5.0
Vanadium	48	53	NA / 112	530
Zinc	72	72	106.1	23,000

1. Background []: Background Metal Concentration. Source Data from Lawrence Berkeley National Laboratory, 1995, Environmental Restoration Program, Background Metal Concentrations in Soils. Concentrations listed are Upper 95% Confidence Limits of data from 500 samples recovered from 71 monitoring well borings.
2. CHSSL: California Human Health Screening Levels – Residential Land Use, Cal EPA, January 2005.
3. NA: Data Not Available.
4. Source Data from Bradford, G. R., Chang, A. C., Page, A. L., Bakhtar, D., Frampton, J. A., and Wright, H.: March, 1996; Background Concentrations of Trace and Major Elements in California Soils; Kearney Foundation of Soil Science, Division of Agriculture and Natural Resources, University of California.

sealed with Teflon, end caps and tape. The sealed samples were labeled and placed in an ice-cooled chest until delivery under documented chain-of-custody to McCampbell Analytical, Inc. A copy of the McCampbell Laboratory Analysis Report is provided in Appendix J. Two of the five composite samples were reported to contain concentrations of fuel related compounds above the laboratory reporting limit. Composite sample BG-1 was reported to contain concentrations of TPHg, TPHd, TPHmo at 2.8.mg/kg, 24 mg/kg, and 17 mg/kg, respectively, and toluene and xylenes concentrations at 0.0076 mg/kg and 0.0066 mg/kg, respectively. Composite sample BG-2 was reported to contain a TPHd concentration of 2.1 mg/kg. The results of the stockpile soil analyses are summarized on Figure 7 and in the following table:

TABLE VIII
Stockpiles
Soil Sample Analysis
(Analyte concentrations reported in milligram per kilogram- mg/kg)

Sample ID	TPHg	TPHd / mo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
SP1-A/B/C/D	<1.0	<1.0 / <5.0	<0.005	<0.005	<0.005	<0.005	<0.05
SP2-A/B/C/D	<1.0	<1.0 / <5.0	<0.005	<0.005	<0.005	<0.005	<0.05
SP3-A/B/C/D	<1.0	<1.0 / <5.0	<0.005	<0.005	<0.005	<0.005	<0.05
BG-1A/B/C/D	2.8¹	24^{2,3} / 17	<0.005	0.0076	<0.005	<0.005	<0.05
BG-2A/B/C/D	<1.0	2.1² / <5.0	<0.005	<0.005	<0.005	<0.005	<0.05

1. Heavier gasoline range compounds are significant (aged gasoline?); no recognizable pattern.
2. Diesel range hydrocarbons are significant; no recognizable pattern.
3. Oil range hydrocarbons are significant.

In addition, two of the five composite samples were analyzed for the 17 Title 22 (CAM 17) metals. The results of the stockpile soil metals analyses are presented in the following table:

sidewalls nor the base materials exhibited evidence of impact, the PID screening of base materials indicated the potential presence of elevated COCs. Three samples of the base material were collected and submitted for laboratory analysis. As presented in Table 2, these samples exhibited TPH concentrations in excess of respective cleanup goals. These base materials were subsequently excavated and stockpiled for transport and disposal at an appropriate waste facility.

TABLE 2
 Area #2 – Preliminary Base Soil Samples

Sample	Type	TPH-g µg/kg	TPH-d mg/kg	TPH-mo mg/kg	MBTEX and Other VOCs µg/kg
BA-4.5'	Base	670	200	ND<99	ND
BB-4.5'	Base	ND<240	290	1000	ND
BC-6'	Base	ND<250	180	220	ND

These impacted base materials were excavated, resulting in a new approximate excavation depth of 9 feet below the ground surface. This depth corresponded to the confirmation sampling depth (9.3 feet) performed in January 2011 at the time of UST removal. Following the additional excavation, the excavation sidewalls and base were observed for staining and odors. Neither the sidewalls nor the base materials exhibited evidence of impact. PID screening of sidewall and base materials did not identify the potential presence of COCs. A total of eight sidewall samples (one sample each from the west and east sidewalls, and three samples each from the north and south sidewalls, respectively) were collected from the locations shown on Figure 3. The sidewall samples were collected from a depth of 6 feet below the ground surface, corresponding to a depth of two-thirds of the corresponding sidewall height. Because the confirmation samples collected from the base of the excavation in January 2011 did not exhibit detectable concentrations of target analytes, additional base sampling was not performed.

A summary of the laboratory analysis of the confirmation samples is presented in Table 3 below. As presented in the table, none of the samples exhibited detectable concentrations of target analytes. The laboratory report is presented in its entirety in Appendix A.

TABLE 3
 Area #2 – Confirmation Soil Samples

Sample	Type	TPH-g µg/kg	TPH-d mg/kg	TPH-mo mg/kg	MBTEX and Other VOCs µg/kg
SWW-6'	Sidewall	ND<250	ND<0.98	ND<49	ND
SWSA-6'	Sidewall	ND<240	ND<1	ND<50	ND
SWSB-6'	Sidewall	ND<240	ND<0.99	ND<49	ND
SWSC-6'	Sidewall	ND<250	ND<0.99	ND<49	ND
SWE-6'	Sidewall	ND<240	ND<1	ND<50	ND
SWNA-6'	Sidewall	ND<240	ND<1	ND<50	ND
SWNB-6'	Sidewall	ND<230	ND<0.99	ND<49	ND
SWNC-6'	Sidewall	ND<250	ND<0.99	ND<50	ND

Area #5 – Gasoline USTs removed in 2011. Excavation activities were performed in this area between September 26 and 27, 2011. As with Area #2, the original Area #5 excavation area (which had been excavated in July and August 2011) was extended in all directions. The final excavation extended across a length of 30 feet and a width of 30 feet. Approximately 155 cubic yards (in addition to the 45 cubic yards removed during initial excavation activities) were excavated. During excavation, soil vapor well SG-1 as well as adjacent native and backfill soils were removed.

The excavation extended to an approximate depth of 6 feet below the ground surface, which resulted in the removal of the recycled aggregate base material. Upon removal, the excavation sidewalls and base were observed for staining and odors. Neither the sidewalls nor the base materials exhibited evidence of impact. PID screening of sidewall and base materials did not identify the potential presence of COCs.

Sidewall confirmation samples were collected from the excavation. Because the excavation did not extend to the depth of base confirmation sampling (9.3 feet) completed at the time of tank removal, base confirmation samples were also collected from the excavation. A total of eight sidewall samples (two from each sidewall) and four base samples were collected from the locations shown on Figure 3. The sidewall samples were collected from a depth of 4 feet below the ground surface, corresponding to a depth of two-thirds of the corresponding sidewall height.

A summary of the laboratory analysis of the confirmation samples is presented in Table 4 below. As presented in the table, several samples exhibited detectable TPH-d concentrations below the respective cleanup goal. None of the other target analytes were detected within the confirmation samples. The laboratory report is presented in its entirety in Appendix A.

TABLE 4
 Area #5 – Confirmation Soil Samples

Sample	Type	TPH-g	TPH-d	TPH-mo	MBTEX and Other VOCs
		µg/kg	mg/kg	mg/kg	µg/kg
PIT 1-B-SW	Base	ND<230	4.6	ND<49	ND
PIT 1-B-NW	Base	ND<230	4.7	ND<49	ND
PIT 1-B-NE	Base	ND<220	11	ND<50	ND
PIT 1-B-SE	Base	ND<240	6.2	ND<49	ND
PIT 1-SW-E1	Sidewall	ND<250	1.1	ND<50	ND
PIT 1-SW-E2	Sidewall	ND<230	3.1	ND<50	ND
PIT 1-SW-N1	Sidewall	ND<240	ND<1	ND<50	ND
PIT 1-SW-N2	Sidewall	ND<210	ND<0.99	ND<50	ND
PIT 1-SW-S1	Sidewall	ND<240	ND<0.99	ND<49	ND
PIT 1-SW-S2	Sidewall	ND<250	ND<0.99	ND<49	ND
PIT 1-SW-W1	Sidewall	ND<240	ND<0.99	ND<49	ND
PIT 1-SW-W2	Sidewall	ND<240	ND<0.98	ND<49	ND

STOCKPILE SOILS AND BASE MATERIALS

Approximately 600 cubic yards of stockpiled soil are located at the western portion of the Site. Although not required by ACEH, additional soil samples were collected and analyzed for the presence of COCs at the request of the project developer. Six soil samples were recovered from the stockpile footprints using glass jars from randomly selected locations of the stockpile as shown in Figure 4. Because of the jar size, two samples were collected from each location but were analyzed as one composite sample. The sample jars were sealed with a tight-fitting lid. Upon collection of samples, a sample label was placed on the sample and included a unique sample number, sample location, time/date collected, lab analysis and the sampler's identification. The soil samples were placed in an ice-cooled chest and submitted under documented chain-of-custody to TestAmerica Laboratories, Inc. in Pleasanton, California. The submitted soil samples were analyzed for the following target analytes:

- Total petroleum hydrocarbons as gasoline (TPH-g), benzene, toluene, methylbenzene, and xylene(s) (BTEX) (EPA 8260B).
- Total petroleum hydrocarbons as diesel and motor oil using silica gel cleanup (EPA 8015B).

TABLE 5
On-Site Stockpile Analysis Summary

Sample	TPH-g µg/kg	TPH-d mg/kg	TPH-mo mg/kg	BTEX µg/kg
2-SP1-A,B COMPOSITE	ND<250	1.3	ND<50	ND
2-SP2-A,B COMPOSITE	ND<240	1.6	ND<50	ND
2-SP3-A,B COMPOSITE	ND<240	ND<0.99	ND<49	ND
2-SP4-A,B COMPOSITE	ND<240	9.3	ND<49	ND
2-SP5-A,B COMPOSITE	ND<250	3.2	ND<49	ND
2-SP6-A,B COMPOSITE	ND<240	ND<0.99	ND<50	ND

As presented in Table 5, four of the six samples exhibited detectable TPH-d concentrations, but these were below the respective cleanup goal. None of the other target analytes were detected within the confirmation samples. The laboratory report is presented in its entirety in Appendix A.

Prior to the removal of the stockpiled soils, the underlying base soils were sampled to determine if these underlying soils had been impacted during the residence of the soil stockpiles. A shovel was used to remove overlying stockpiled soils and expose the underlying base soil in each sample location. Samples were collected in clean stainless steel sample sleeves. The sample sleeves were sealed using Teflon® sheets secured by tight-fitting plastic end caps. Upon collection of samples, a sample label was placed on the sample and included a unique sample number, sample location, time/date collected, lab analysis and the sampler's identification. The soil samples were placed in an ice-cooled chest and submitted under documented chain-of-custody to TestAmerica Laboratories, Inc. in Pleasanton, California. The submitted soil samples were analyzed for the following target analytes:

- Total petroleum hydrocarbons as gasoline (TPH-g), methyl-tert butyl ether (MTBE), benzene, toluene, ethylbenzene, and xylene(s) (BTEX) and fuel oxygenates (EPA 8260B).
- Total petroleum hydrocarbons as diesel and motor oil using silica gel cleanup (EPA 8015B).
- CAM-17 metals (EPA Methods 6010B and 7471).

A summary of the laboratory analysis of the base soil samples is presented in Tables 6A and 6B below. As presented in the table, seven of the eight samples exhibited detectable TPH-d concentrations below the respective cleanup goal. None of the samples exhibited detectable concentrations TPH-g, TPH-d, TPH-mo, BTEX, or fuel oxygenates. Detected metallic analytes were within typical background concentrations. Sample 2-SPB-6 exhibited a TPH-d concentration of 85 mg/kg, in excess of the cleanup goal of 83 mg/kg. As a result, approximately two cubic yards were excavated from the area of base soil from which Sample 2-SPB-6 had been collected. Following this soil removal, an additional sample, SP2-BASE-6, was collected from the base of the removal area. This sample exhibited a TPH-d concentration of 4 mg/kg, below the respective cleanup goal. Not other VOC or petroleum-related analytes were detected, indicating that the remaining base soils did not exhibit environmental impact. Detected metallic analytes were within typical background concentrations. The laboratory report is presented in its entirety in Appendix A.

TABLE 6A
 Stockpile Base Soil Analysis Summary

Sample	TPH-g µg/kg	TPH-d mg/kg	TPH-mo mg/kg	BTEX and Oxygenates µg/kg
2-SPB-1	ND<250	1.7	ND<49	ND
2-SPB-2	ND<230	3.8	ND<50	ND
2-SPB-3	ND<250	3.9	ND<49	ND
2-SPB-4	ND<240	1.0	ND<49	ND
2-SPB-5	ND<250	3.8	ND<49	ND
2-SPB-6	ND<250	85	200	ND
2-SPB-7	ND<240	3.9	ND<50	ND
2-SPB-8	ND<240	2.8	ND<50	ND
SP2-BASE-6	ND<240	4.0	ND<50	ND

TABLE 6B
 Stockpile Base Soil Analysis Summary

Analyte	2-SPB-1	2-SPB-2	2-SPB-3	2-SPB-4	2-SPB-5	2-SPB-6	2-SPB-7	2-SPB-8	SP2-BASE-6
Antimony	ND<1.9	ND<1.7	ND<1.7	ND<2.0	ND<1.7	ND<1.9	ND<1.9	ND<2.0	ND<1.8
Arsenic	5.1	4.4	4.0	4.4	4.0	5.3	5.5	5.1	4.4
Barium	250	210	180	210	180	280	250	240	160
Beryllium	ND<0.39	ND<0.33	ND<0.34	ND<0.33	ND<0.34	ND<0.40	0.43	ND<0.40	ND<0.37
Cadmium	ND<0.49	ND<0.42	ND<0.42	ND<0.42	ND<0.42	ND<0.48	ND<0.47	ND<0.50	ND<0.46
Chromium	29	26	25	26	25	28	32	34	25
Cobalt	9.9	8.7	9.0	8.7	9.0	10	15	13	11

Analyte	2-SPB-1	2-SPB-2	2-SPB-3	2-SPB-4	2-SPB-5	2-SPB-6	2-SPB-7	2-SPB-8	SP2-BASE-6
Copper	21	19	22	19	22	36	29	30	14
Lead	5.9	6.1	6.2	6.1	6.2	25	12	21	10
Mercury	0.029	0.026	0.043	0.042	0.040	0.11	0.038	0.064	0.067
Molybdenum	ND<1.9	ND<1.7	ND<1.7	ND<1.7	ND<1.7	ND<1.9	ND<1.9	ND<2.0	ND<1.8
Nickel	33	29	32	29	32	28	36	39	30
Selenium	ND<3.9	ND<3.3	ND<3.4	ND<3.3	ND<3.4	ND<3.8	ND<3.7	ND<4.0	ND<3.7
Silver	ND<0.97	ND<0.83	ND<0.85	ND<0.83	ND<0.85	ND<0.95	ND<0.93	ND<0.99	ND<0.92
Thallium	ND<1.9	ND<1.7	ND<1.7	ND<1.7	ND<1.7	ND<1.9	ND<1.9	ND<2.0	ND<1.8
Vanadium	43	39	37	39	37	48	48	45	ND<33
Zinc	40	36	39	36	39	65	100	60	ND<41

BACKFILL OPERATIONS

Backfill operations commenced on September 20, 2011. Backfill material was derived from two sources – imported drain rock and on-site stockpiled soil material.

Because groundwater had been exposed within excavation Areas #1 and #3, imported, clean drain rock was placed within these excavations. This material was placed in a lift measuring approximately 3 feet in thickness. A description of the drain rock material is presented in Appendix B.

Fabric material was placed over the drain rock material within Areas #1 and #3. It was also placed over exposed base material within Areas #2, #4 and #5. On-site stockpiled soil that had been previously tested and determined to exhibit non-detectable COC concentrations or concentrations below cleanup goals was also used as fill material. As stockpiled soil was transported and placed, ENGEO environmental personnel provided full-time screening using a PID as well as observation for evidence of impact, such as discoloration, staining or odor. None of the soil material exhibited evidence of impact. The soil was placed on top of the fabric and brought to the ground surface. Photographs of backfill operations are presented in Figure 2.

DISCUSSION

Suspected and/or confirmed soil impacts within Areas #2 and #5 have been remediated through the described excavation activities. Confirmation sampling has confirmed that remaining soils exhibit non-detectable COC concentrations or concentrations below the cleanup goals. The resulting excavations have been backfilled with on-site fill material exhibiting non-detectable COC concentrations or COC concentrations below respective cleanup goals. Backfill operations utilizing these on-site materials were observed on a full-time basis by ENGEO environmental personnel. No evidence of COC impact was observed within these materials during backfill activities. Additionally, clean drain rock materials were placed as backfill at the exposed groundwater table within Areas #1 and #3.

Table 1
 TO-15 Soil Gas Laboratory Analysis Summary
 (Concentrations reported in micrograms per cubic meter- $\mu\text{g}/\text{m}^3$)

↓ Analyte \ Sample ID→	G-1	G-2	G-3	ESL ¹	CHSSL ²
1,3-Butadiene	<910	16	<2.1	NE ⁴	NE
Ethanol	<3,100 ³	<5.1	8.8	1.9E+07	NE
Acetone	<3,900 ³	150	160	6.6E+05	NE
2-Propanol (Isopropyl Alcohol)	<4,000 ³	7.4	10	NE	NE
Carbon Disulfide	<1,300 ³	28	12	NE	NE
Methylene Chloride	<1,400 ³	<2.4	4.2	2.4E+03	NE
Methyl tertiary-butyl ether	<1,500 ³	<2.4	530	9.4E+03	4.00E+03
Hexane	990,000 ⁵	15	35	NE	NE
2-Butanone (Methyl Ethyl Ketone)	<1,200 ³	28	30	2.1E+05	NE
Tetrahydrofuran	10,000 ³	<2.0	<2.8	NE	NE
Chloroform	<2,000 ³	12	<4.7	4.5E+02	NE
Cyclohexane	880,000 ⁵	14	63	NE	NE
2,2,4-Trimethylpentane	6,600,000 ⁵	3.8	<4.5	NE	NE
Benzene	68,000 ³	9.3	30	8.5E+01	3.62E+01
Heptane	<1,700 ³	9.6	19	NE	NE
Trichloroethene	<220 ³	13	<5.1	1.2E+03	5.28E+02
4-Methyl-2-pentanone (Methyl Isobutyl Ketone)	<1,700 ³	7.9	<3.9	1.7E+04	NE
Toluene	<1,500 ³	55	100	6.3E+04	1.35E+05
Tetrachloroethene	<280 ³	<4.6	17	4.1E+02	1.80E+02
Ethyl Benzene	<1,800 ³	13	69	4.2E+05	NE
m,p-Xylene	4,700 ³	56	230	1.5E+05	3.17E+05
o-Xylene	3,400 ³	18	78	1.5E+05	3.15E+05
Cumene	<2,000 ³	<3.3	6.5	NE	NE

↓ Analyte \ Sample ID→	G-1	G-2	G-3	ESL ¹	CHSSL ²
Propylbenzene	<2,000 ³	4.0	27	NE	NE
4-Ethyltoluene	<2,000 ³	22	130	NE	NE
1,3,5-Trimethylbenzene	2,400 ³	8.5	54	NE	NE
1,2,4-Trimethylbenzene	2,200 ³	33	160	NE	NE

1. ESL: Table E, Environmental Screening Level, RWQCB Region 2, February 2005.
2. CHSSL: California Human Health Screening Level established by the OEHHA, 2004.
3. Analyte concentration reported subsequent to masking analyses.
4. NE: Not Established.
5. Concentration of analyte masked during subsequent analyses.

The high concentrations of several compounds were reported for soil gas sample G-1 during its' initial analysis. The elevated compounds, Hexane, Cyclohexane, and 2, 2, 4-Trimethylpentane, were identified by Ms. Heidi Hayes as compounds associate with petroleum-based hydrocarbon fuel. Ms. Hayes is the Technical Director at Air Toxics, Inc, a State certified analytical laboratory specializing in soil gas analysis. Ms. Hayes supervised the laboratory effort to mask these compounds to produce lower reporting limits (RLs) for the balance of the target analytes. A total of three laboratory runs were performed for the G-1 sample analyses and were successful for reducing the RL to a level the regulatory threshold level (RTL) for all but two compounds, Tetrachloroethene and Chloroform. The RL for Tetrachloroethene was lowered to 280 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), above the 180 $\mu\text{g}/\text{m}^3$ CHHSL RTL and below the 410 $\mu\text{g}/\text{m}^3$ ESL. The RL for Chloroform was lowered to 2,000 $\mu\text{g}/\text{m}^3$, exceeding the 450 $\mu\text{g}/\text{m}^3$ ESL RTL. A CHHSL for Chloroform has not been established.

CONCLUSIONS AND RECOMMENDATIONS

Three soil samples were recovered and analyzed using the TO-15 analyses method. One sample, G-1, was the only sample documented to contain concentrations of compounds at levels above established RTL for residential developments. Sample G-1 was reported to contain two target analyte compounds, Benzene and Tetrachloroethene, at levels exceeding the RTL. The Benzene concentration was documented at 68,000 $\mu\text{g}/\text{m}^3$, well above the 85 $\mu\text{g}/\text{m}^3$ ESL and the 36.2 $\mu\text{g}/\text{m}^3$ CHHSL values. High concentrations of the compounds Hexane, Tetrahydrofuran, Cyclohexane, and 2, 2, 4-Trimethylpentane were reported. However RTLs have not been established for these compounds. Based on the presence of Hexane, Tetrahydrofuran, Cyclohexane, 2, 2, 4-Trimethylpentane and Benzene identified by this supplementary assessment, we conclude that a release of petroleum hydrocarbon-based fuel has occurred in the vicinity of the G-1 location. The nature of the release was not determined but the most probable sources include spillage from the adjacent fueling dispenser and/or releases from product piping or the existing USTs. The presence of low levels of isopropyl alcohol reported in two of the three samples suggests that leakage of ambient air, if it occurred, was minimal.

Detection Summary

Client: Engeo, Inc.
Project/Site: Macedo Remediation

TestAmerica Job ID: 720-36241-1

Client Sample ID: DEEP

Lab Sample ID: 720-36241-1

No Detections.

Client Sample ID: SHALLOW

Lab Sample ID: 720-36241-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	3.6		0.50		ug/L	1		8260B/CA_LUFTM	Total/NA





BOREHOLE LITHOLOGIC LOG

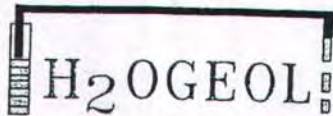
BOREHOLE No. MW-1 Sheet 1 of 1

Project No.: _____	Date: <u>07/17-18/95</u>	Drilling Co. <u>ASE Drilling</u>	Drill Model <u>Iwan Auger</u>
Client: <u>Geno's Country Store</u>		Drilling Method - <u>Hand Operation</u>	Borehole Diameter <u>6.25-in</u>
Location: <u>1000 North Vasco Road</u>		Ground Surface Elevation <u>526.3</u>	Datum: <u>ground surface</u>
<u>Livermore, California</u>		Borehole MW-1 was completed as a monitoring well MW-1	
Logged by: <u>GDL</u>	Driller: <u>RCV/GDL</u>		

Water Level	<u>8.68</u>		
Time	<u>8:45</u>		
Date	<u>7/24/95</u>		

Sampling Blowcounts	PID/FID H ₂ N/O ₂ A reading	Depth test	Sample Sol Sample Number	Graphic Sol Symbol	USCS Sol Symbol	Field Soil Description
		1			CL	Landscape fill. dark brown 7.5YR 3/4 very sandy silty clay.
		2			CL/CH	Olive 5Y 4/3 gravelly sandy silty clay, pebbles to 2 cm
		3				
		4				Dark yellowish brown 10YR 3/4 silty stiff clay. Faint diesel odor. Neat Cement Grout
		5			CH	Bentonite Seal
		6				Trace gravels
		7				
		8	7-7.5 Ft.			Greenish gray 5G 5/1 mottled yellowish brown 10YR 5/6 gravelly very clayey very fine to medium sand. Faint diesel odor.
		9				Decreasing clay with depth First Encountered Water at 8.8 Feet. ▽
		10			SC	No odor from 10 foot to total depth.
		11				
		12				Yellowish brown 10YR 5/6 clayey very fine to medium sand. LONESTAR No. 3 Sand
		13			SW	Yellowish brown 10YR 5/6 very fine to medium sand.
		14			CH	Yellowish brown 10YR 5/6 stiff clay.
		15			SC	Yellowish brown 10YR 5/6 very clayey very fine to medium sand.
		16				Total Well Depth = 15.68 Feet. (below reference mark)
		17				Well completed with 6-inch stove pipe type cover.
		18				
		19				
		20				
		21				
		22				
		23				
		24				
		25				

2-inch PVC casing and screen. screen openings = 0.020 inch



A GROUND WATER CONSULTANCY

BOREHOLE LITHOLOGIC LOG

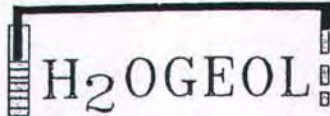
BOREHOLE No. MW-2 Sheet 1 of 1

Project No.:	Date: 07/17-18/95	Drilling Co. ASE Drilling	Drill Model Iwan Auger
Client: Geno's Country Store		Drilling Method - Hand Operation	Borehole Diameter 6.25-in
Location: 1000 North Vasco Road		Ground Surface Elevation 526.6	Datum: ground surface
Livermore, California		Borehole MW-2 was completed as a monitoring well MW-2	
Logged by: GDL	Driller: RCV/GDL		

Water Level	8.17		
Time	8:43		
Date	7/24/95		

Sampling Blowcounts	PID/FID HNU/OVA reading	Depth test	Sample	Soil Sample Number	Graphic Soil Symbol	USCS Soil Symbol	Field Soil Description
		1				CL	Landscape fill. dark brown 7.5YR 3/4 very sandy silty clay.
		2				CH	Dark yellowish brown 10YR 3/4 silty stiff clay.
		3					
		4					Neal Cement Grout
		5					Trace gravels
		6					Bentonite Seal
		7				SC	
		8	7-7.6 Ft.				Dark yellowish brown 10YR 3/4, gravelly very clayey very fine to medium sand.
		9					First Encountered Water at 8.36 Feet. ▽
		10					
		11					LONESTAR No. 3 Sand
		12				CL	
		13					Dark yellowish brown 10YR 4/4 sandy clay.
		14					
		15					
		16					Total Depth 15.1 (below grade)
		17					Total Well Depth = 15.26 Feet (below reference mark)
		18					Well completed with 6-inch stove pipe type cover.
		19					
		20					
		21					
		22					
		23					
		24					
		25					

2-inch PVC casing and screen. screen openings = 0.020 inch



A GROUND WATER CONSULTANCY

BOREHOLE LITHOLOGIC LOG

BOREHOLE No. MW-3 Sheet 1 of 1

Project No.:	Date:	07/18-19/95	Drilling Co.:	ASE Drilling	Drill Model:	Iwan Auger
Client:	Geno's Country Store		Drilling Method:	Hand Operation	Borehole Diameter:	6.25-in
Location:	1000 North Vasco Road Livermore, California		Ground Surface Elevation:	526.3	Datum:	ground surface
Logged by: GDL Driller: RCV/GDL			Borehole MW-3 was completed as a monitoring well MW-3			

Water Level	7.60		
Time	8:40		
Date	7/24/95		

Sampling Blowcounts	PID/FID HNU/OVA reading	Depth test	Sample Soil Sample Number	Graphic Soil Symbol	USCS Soil Symbol	Field Soil Description	Well Construction
		1				Concrete 0.5 feet, baserock 0.3 feet	2-inch PVC casing and screen. screen openings = 0.020 inch
		2			CH	Dark yellowish brown 10YR 3/4 stiff clay.	
		3			CH	Yellowish brown 10YR 5/6 sandy stiff clay. Nest Cement Grout	
		4				Increasing sand content with depth.	
		5			SC	Yellowish brown 10YR 5/6 clayey sand. Bentonite Seal	
		6				Yellowish brown 10YR 5/4 clayey sand. Decreasing clay with depth.	
		7	7-7.5 Ft.				
		8			SC/ SW	First Encountered Water at 7.85 Feet. ∇ Yellowish brown 10YR 5/4 very clayey pebbly fine to coarse sand. Pebbles to 1 cm.	
		9					
		10			SW	Yellowish brown 10YR 5/4 pebbly fine to coarse sand. Pebbles to 2X7 cm.	
		11				LONESTAR No. 3 Sand	
		12			CH	Yellowish brown 10YR 5/4 stiff sandy clay.	
		13					
		14					
		15					
		16				Total Depth 15.5 (below grade) Total Well Depth = 15.05 Feet (below reference mark)	
		17				Well completed with 8-inch flush box.	
		18					
		19					
		20					
		21					
		22					
		23					
		24					
		25					



LOG OF BORING GP-1

Site Characterization
 Macedo Property
 Livermore, California
 7380.000.003

DATE DRILLED : April 19, 2011
 HOLE DEPTH (FT) : 12
 SUFR ELEV (FT-MSL) : 529
 LATITUDE (NAD83) : 37.713335
 LONGITUDE (NAD83) : -121.724700

LOGGED/REVIEWED BY : R. Gandolfo/JA
 DRILLING CONTRACTOR: EnProb
 DRILLING METHOD : Direct Push
 HAMMER TYPE : Automatic
 HOLE DIAMETER (IN) : 3

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Graphic	Water Level	PID (PPM)
0	0		Asphalt/ Aggregate Base			
			LEAN CLAY (CL), light brown to light grayish brown, moist to wet, 10-20% fine-grained sand			
1						
5						
2					▽	
10	3		SANDY LEAN CLAY (CL), dark grayish brown, wet, <30% fine- to medium-grained sand			
			Bottom of boring at 12 feet. Groundwater encountered at approximately 8 feet.			
4						





LOG OF BORING GP-2

Site Characterization
 Macedo Property
 Livermore, California
 7380.000.003

DATE DRILLED : April 19, 2011
 HOLE DEPTH (FT) : 12
 SUFR ELEV (FT-MSL) : 529
 LATITUDE (NAD83) : 37.713236
 LONGITUDE (NAD83) : -121.724635

LOGGED/REVIEWED BY : R. Gandolfo/JA
 DRILLING CONTRACTOR: EnProb
 DRILLING METHOD : Direct Push
 HAMMER TYPE : Automatic
 HOLE DIAMETER (IN) : 3

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Graphic	Water Level	PID (PPM)
0	0		Asphalt WELL GRADED GRAVEL [Fill]			
1						
5						
10						
12			Bottom of boring at 12 feet. Groundwater encountered at approximately 8 feet during drilling.			



LOG OF BORING GP-3

Site Characterization
 Macedo Property
 Livermore, California
 7380.000.003

DATE DRILLED : April 20, 2011
 HOLE DEPTH (FT) : 12
 SUFR ELEV (FT-MSL) : 529
 LATITUDE (NAD83) : 37.713151
 LONGITUDE (NAD83) : -121.724713

LOGGED/REVIEWED BY : R. Gandolfo/JA
 DRILLING CONTRACTOR: EnProb
 DRILLING METHOD : Direct Push
 HAMMER TYPE : Automatic
 HOLE DIAMETER (IN) : 3

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Graphic	Water Level	PID (PPM)
0	0		Asphalt Concrete / Aggregate Base			
			LEAN CLAY (CL), medium brown to dark grayish brown, moist to wet, <5% fine-grained sand			0.0
			10-20% fine-grained sand		▽	0.0
			SANDY LEAN CLAY (CL), dark grayish brown, wet, <30% fine- to medium-grained sand			0.0
			Bottom of boring at 12 feet. Groundwater encountered at approximately 8 feet during drilling.			0.0

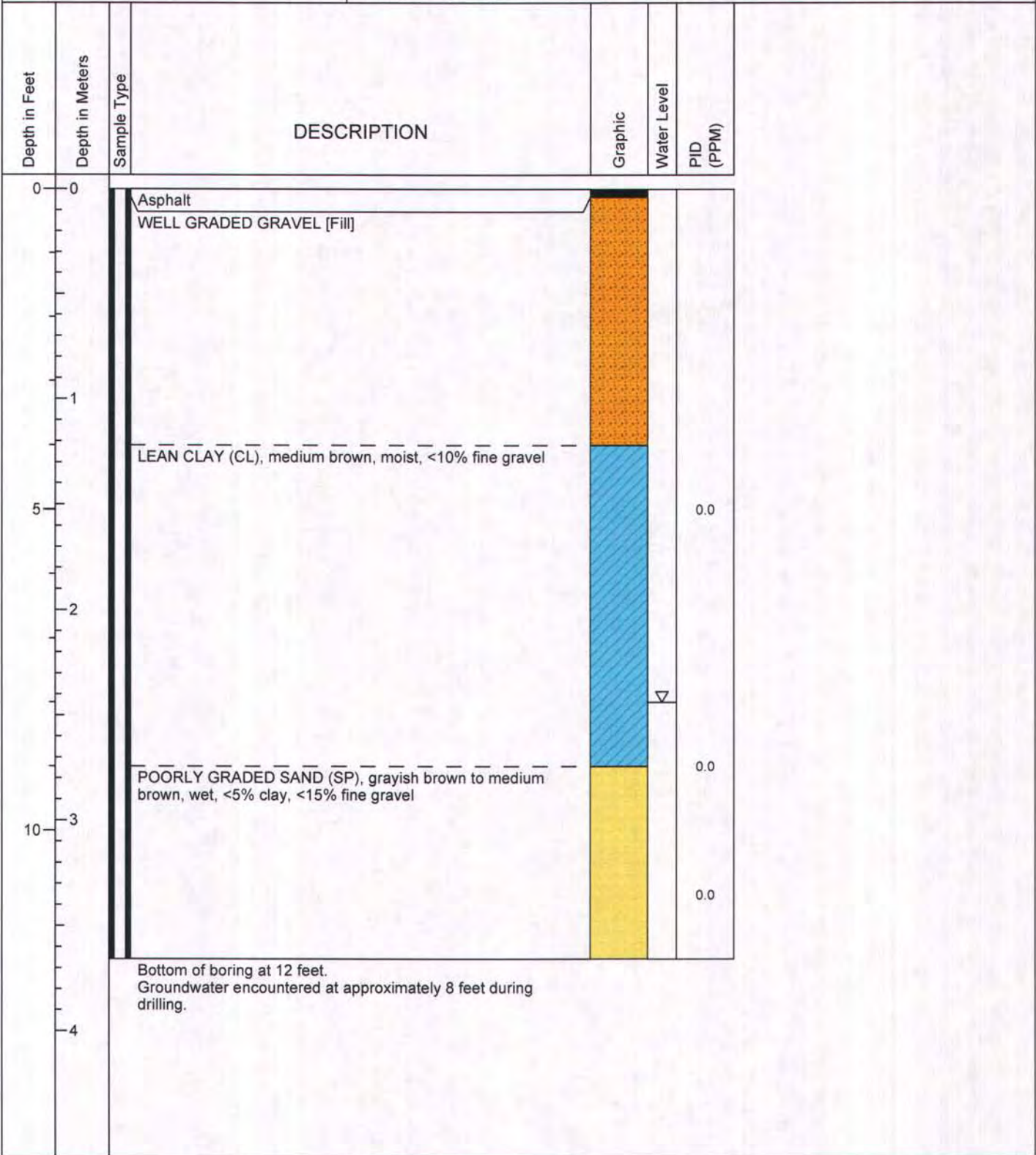


LOG OF BORING GP-4

Site Characterization
 Macedo Property
 Livermore, California
 7380.000.003

DATE DRILLED : April 19, 2011
 HOLE DEPTH (FT) : 12
 SUFR ELEV (FT-MSL) : 529
 LATITUDE (NAD83) : 37.713262
 LONGITUDE (NAD83) : -121.724807

LOGGED/REVIEWED BY : R. Gandolfo/JA
 DRILLING CONTRACTOR: EnProb
 DRILLING METHOD : Direct Push
 HAMMER TYPE : Automatic
 HOLE DIAMETER (IN) : 3







LOG OF BORING GP-5

Site Characterization
 Macedo Property
 Livermore, California
 7380.000.003

DATE DRILLED : April 19, 2011
 HOLE DEPTH (FT) : 12
 SUFR ELEV (FT-MSL) : 528
 LATITUDE (NAD83) : 37.7132439
 LONGITUDE (NAD83) : -121.724969

LOGGED/REVIEWED BY : R. Gandolfo/JA
 DRILLING CONTRACTOR: EnProb
 DRILLING METHOD : Direct Push
 HAMMER TYPE : Automatic
 HOLE DIAMETER (IN) : 3

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Graphic	Water Level	PID (PPM)
0	0		Asphalt/ Aggregate Base			
			SILTY LEAN CLAY (CL), dark grayish brown, moist, <5% fine-grained sand			0.0
			POORLY GRADED SAND WITH CLAY (SP-SC), light yellowish brown, moist, <10% fines			0.0
			Bottom of boring at 12 feet. Groundwater not encountered during drilling.			0.1

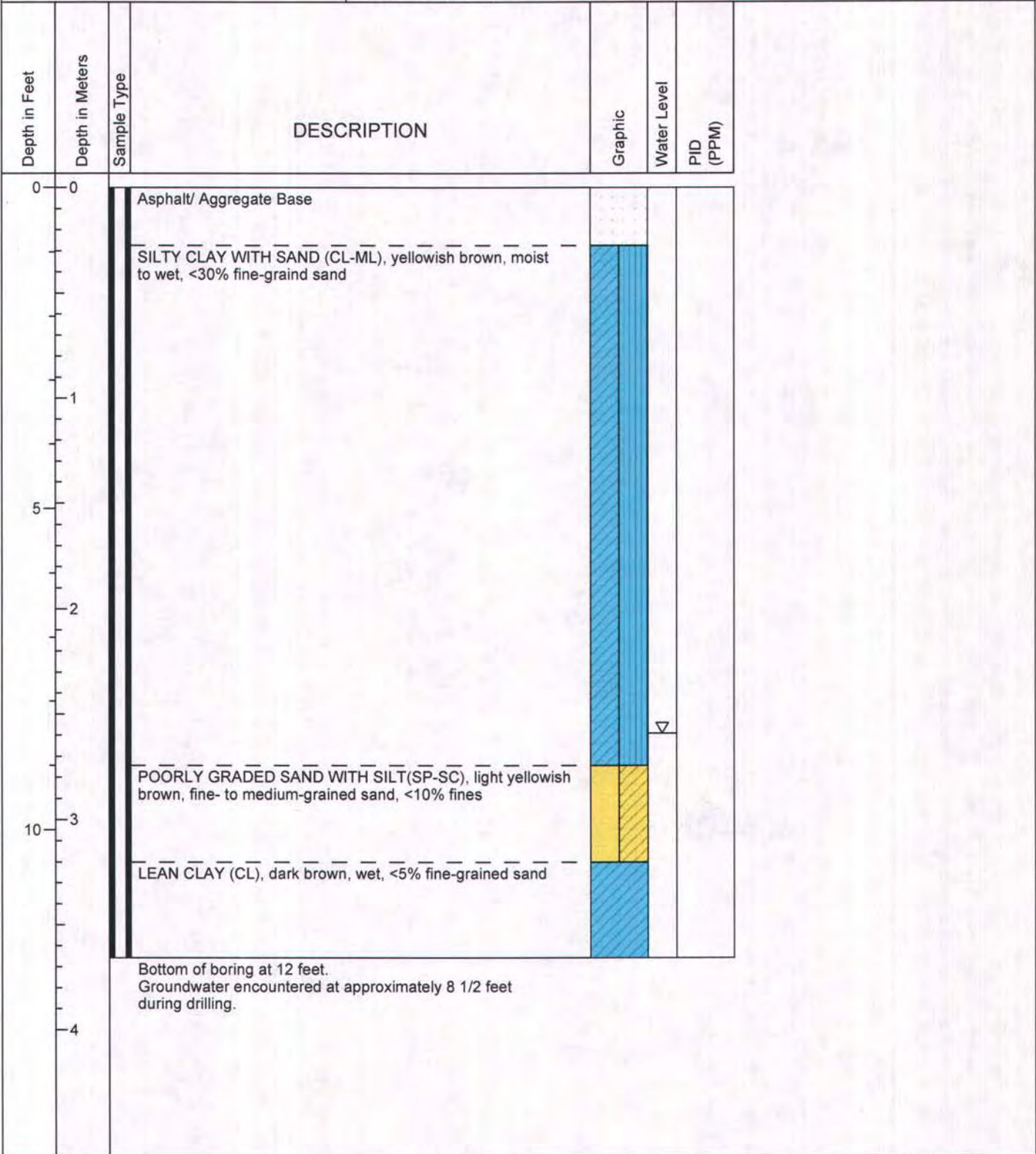


LOG OF BORING GP-6

Site Characterization
 Macedo Property
 Livermore, California
 7380.000.003

DATE DRILLED : April 19, 2011
 HOLE DEPTH (FT) : 12
 SUFR ELEV (FT-MSL) : 528
 LATITUDE (NAD83) : 37.713235
 LONGITUDE (NAD83) : -121.725017

LOGGED/REVIEWED BY : R. Gandolfo/JA
 DRILLING CONTRACTOR: EnProb
 DRILLING METHOD : Direct Push
 HAMMER TYPE : Automatic
 HOLE DIAMETER (IN) : 3



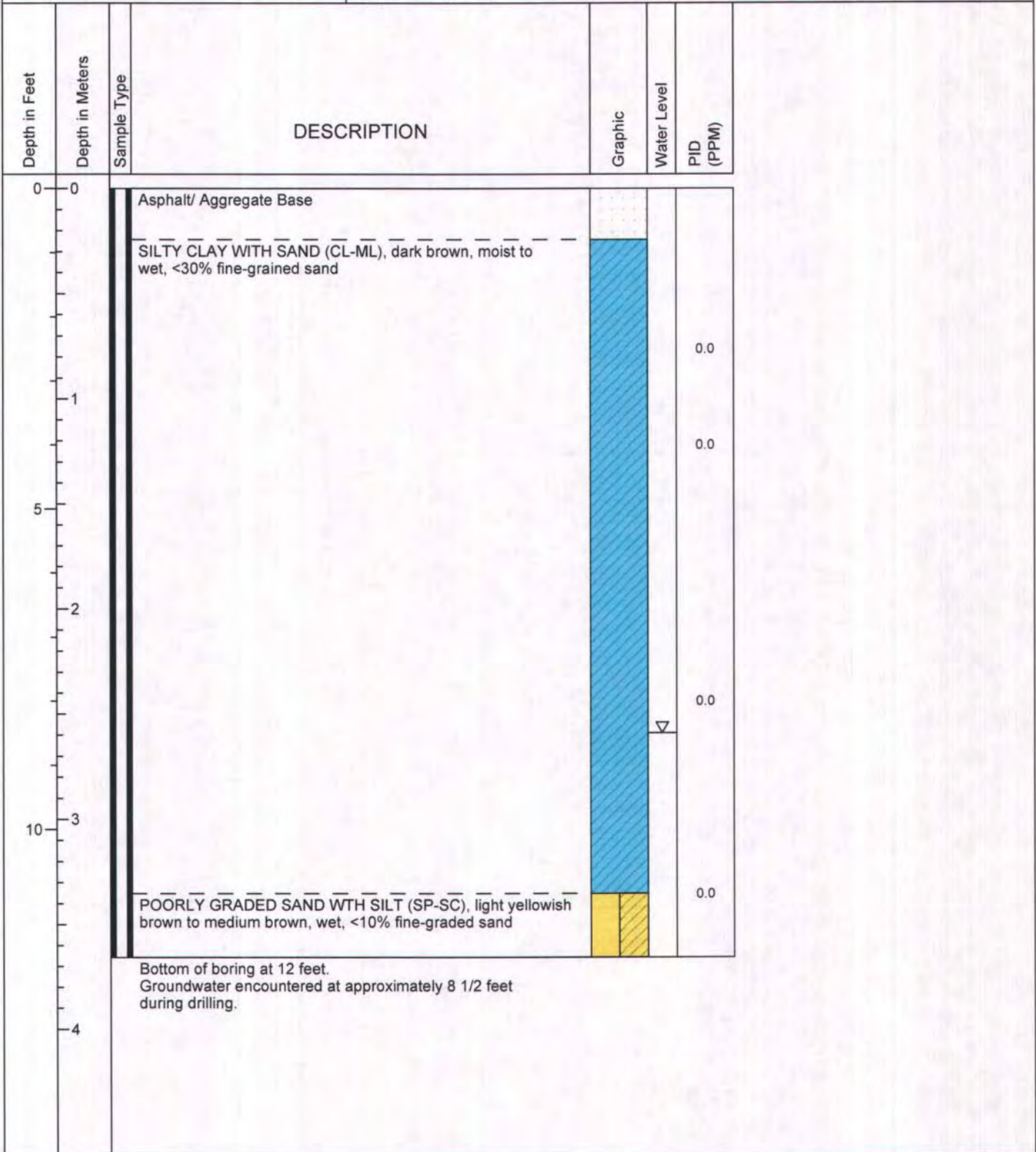


LOG OF BORING GP-7

Site Characterization
Macedo Property
Livermore, California
7380.000.003

DATE DRILLED : April 20, 2011
HOLE DEPTH (FT) : 12
SUFR ELEV (FT-MSL) : 528
LATITUDE (NAD83) : 37.713153
LONGITUDE (NAD83) : -121.725597

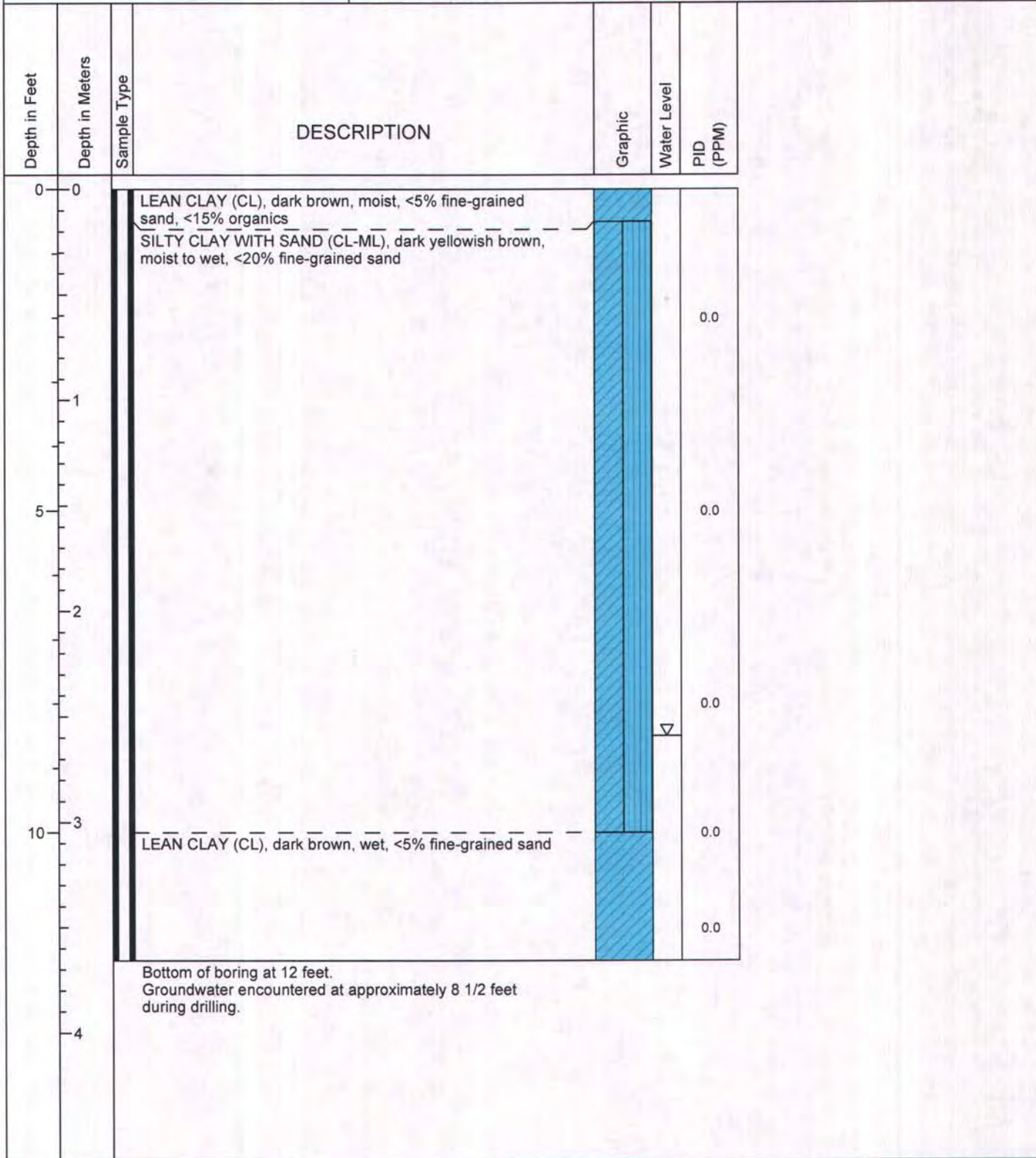
LOGGED/REVIEWED BY : R. Gandolfo/JA
DRILLING CONTRACTOR: EnProb
DRILLING METHOD : Direct Push
HAMMER TYPE : Automatic
HOLE DIAMETER (IN) : 3





LOG OF BORING GP-8

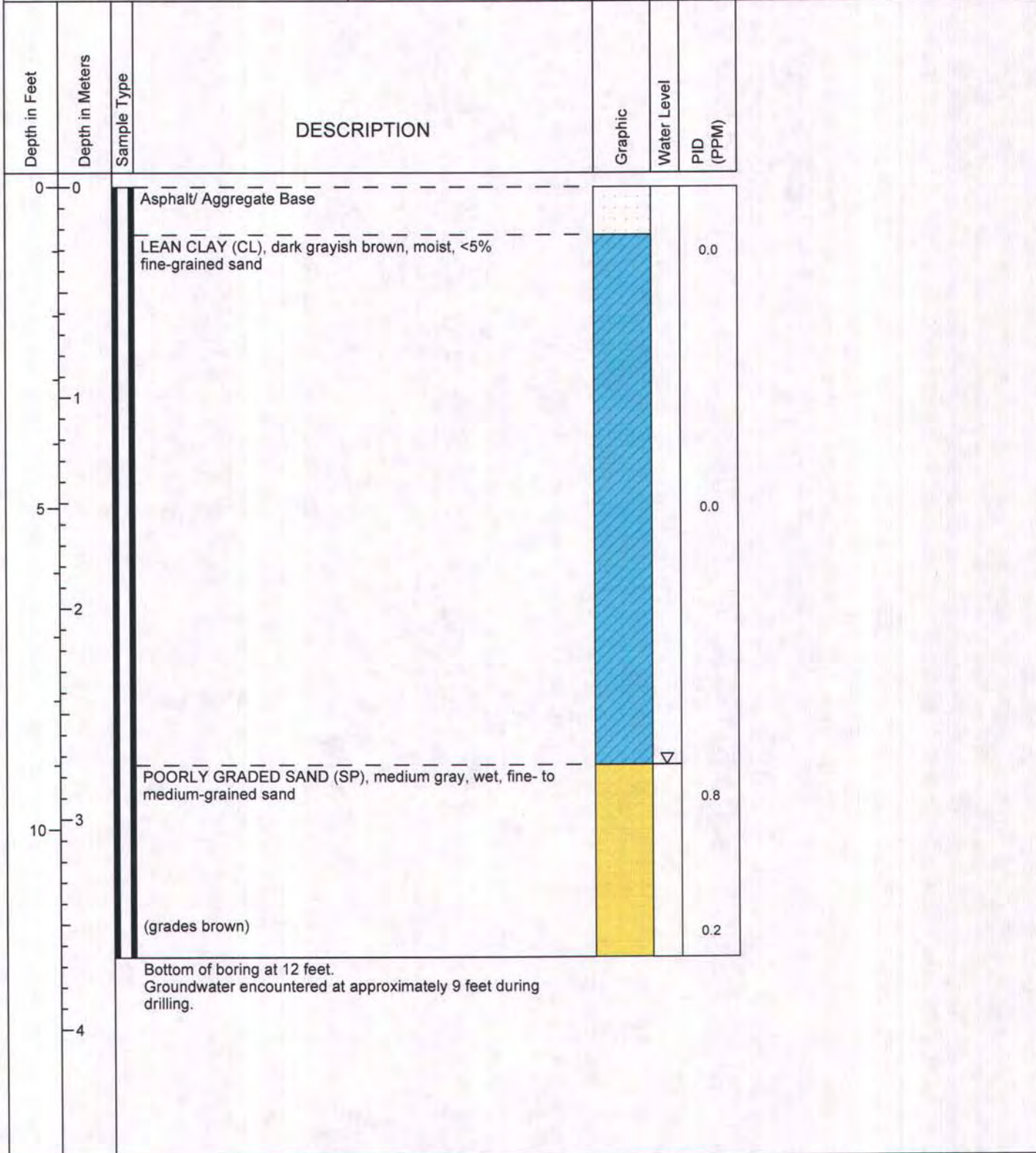
Site Characterization Macedo Property Livermore, California 7380.000.003	DATE DRILLED	: April 20, 2011	LOGGED/REVIEWED BY	: R. Gandolfo/JA
	HOLE DEPTH (FT)	: 12	DRILLING CONTRACTOR	: EnProb
	SUFR ELEV (FT-MSL)	: 528	DRILLING METHOD	: Direct Push
	LATITUDE (NAD83)	: 37.712833	HAMMER TYPE	: Automatic
	LONGITUDE (NAD83)	: -121.725964	HOLE DIAMETER (IN)	: 3





LOG OF BORING GP-9

Site Characterization Macedo Property Livermore, California 7380.000.003	DATE DRILLED : April 19, 2011 HOLE DEPTH (FT) : 12 SUFR ELEV (FT-MSL) : 529 LATITUDE (NAD83) : 37.713426 LONGITUDE (NAD83) : -121.724796	LOGGED/REVIEWED BY : R. Gandolfo/JA DRILLING CONTRACTOR: EnProb DRILLING METHOD : Direct Push HAMMER TYPE : Automatic HOLE DIAMETER (IN) : 3
---	--	--



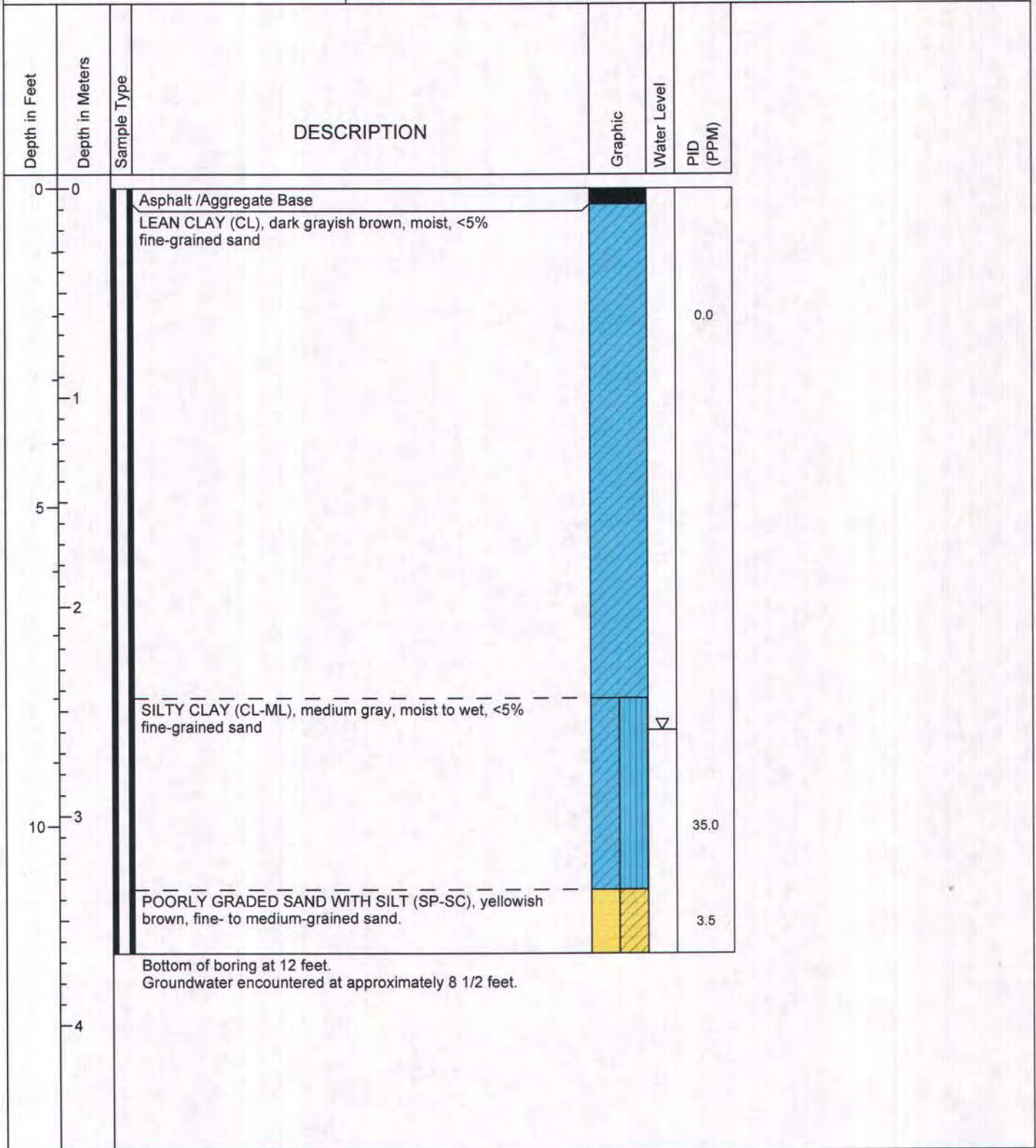


LOG OF BORING GP-10

Site Characterization
 Macedo Property
 Livermore, California
 7380.000.003

DATE DRILLED : April 19, 2011
 HOLE DEPTH (FT) : 12
 SUFR ELEV (FT-MSL) : 529
 LATITUDE (NAD83) : 37.713393
 LONGITUDE (NAD83) : -121.724913





LOGGED/REVIEWED BY : R. Gandolfo/JA
 DRILLING CONTRACTOR: EnProb
 DRILLING METHOD : Direct Push
 HAMMER TYPE : Automatic
 HOLE DIAMETER (IN) : 3





LOG OF BORING GP-11

Site Characterization Macedo Property Livermore, California 7380.000.003	DATE DRILLED	: April 19, 2011	LOGGED/REVIEWED BY	: R. Gandolfo/JA
	HOLE DEPTH (FT)	: 12	DRILLING CONTRACTOR	: EnProb
	SUFR ELEV (FT-MSL)	: 529	DRILLING METHOD	: Direct Push
	LATITUDE (NAD83)	: 37.713358	HAMMER TYPE	: Automatic
	LONGITUDE (NAD83)	: -121.724959	HOLE DIAMETER (IN)	: 3

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Graphic	Water Level	PID (PPM)
0	0		Asphalt/ Aggregate Base			
			LEAN CLAY (CL), dark gray, moist, <5% fine-grained sand			
			POORLY GRADED SAND (SP), yellowish brown, moist, fine-grained sand			
			SILTY LEAN CLAY (CL), yellowish brown, moist to wet, <10% fine-grained sand			
			Bottom of boring at 12 feet. Groundwater encountered at approximately 8 feet during drilling.			
15						



LOG OF BORING GP-12

Site Characterization
 Macedo Property
 Livermore, California
 7380.000.003

DATE DRILLED : April 19, 2011
 HOLE DEPTH (FT) : 12
 SUFR ELEV (FT-MSL) : 529
 LATITUDE (NAD83) : 37.713354
 LONGITUDE (NAD83) : -121.724825

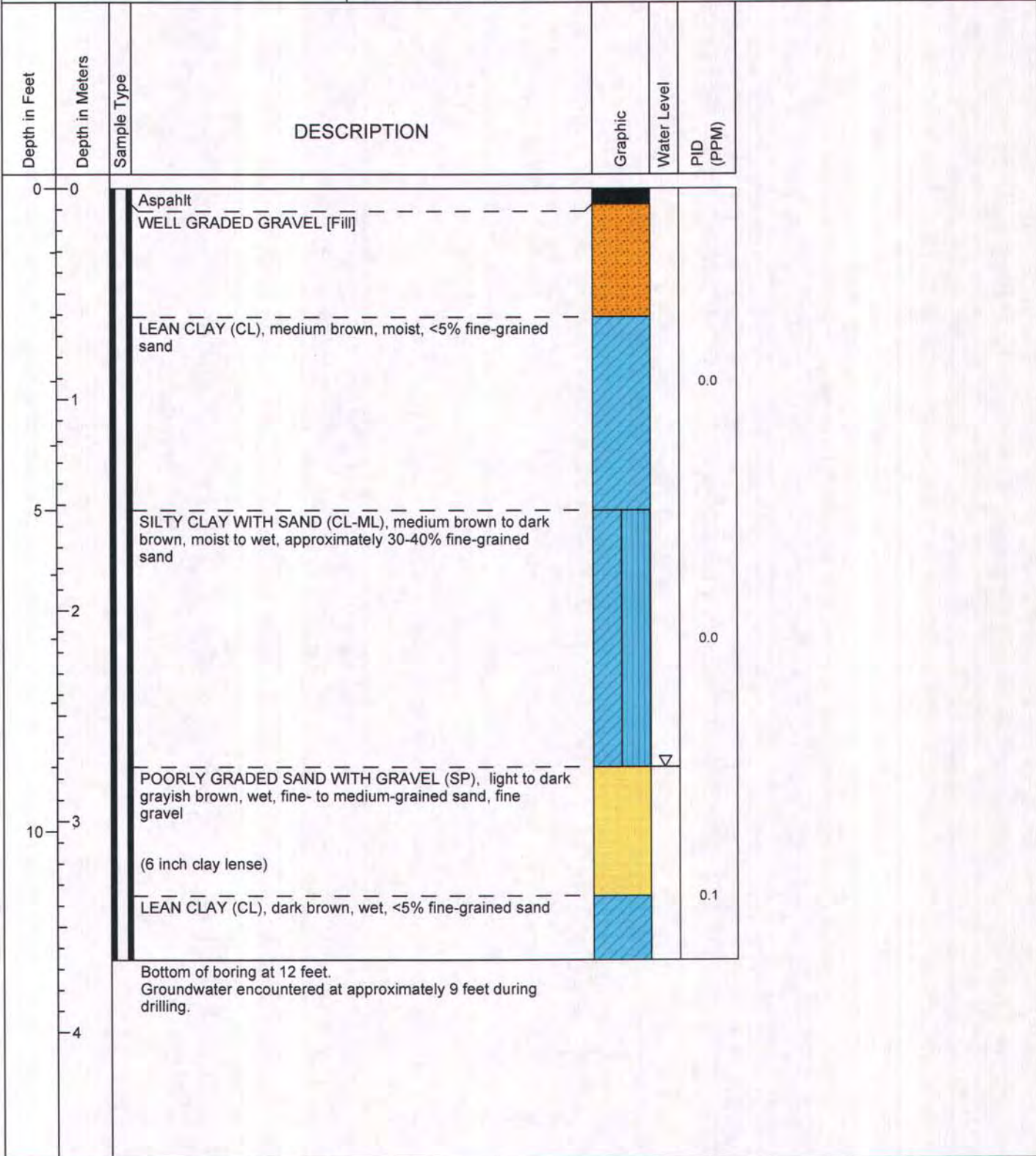
LOGGED/REVIEWED BY : R. Gandolfo/JA
 DRILLING CONTRACTOR: EnProb
 DRILLING METHOD : Direct Push
 HAMMER TYPE : Automatic
 HOLE DIAMETER (IN) : 3

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Graphic	Water Level	PID (PPM)
0	0		Asphalt/ Aggregate Base			
			LEAN CLAY (CL), dark brown, moist, <5 % fine-grained sand			
			(light brown, <20% fine- to medium-grained sand)			
			SILTY LEAN CLAY WITH SAND (CL-ML), dark grayish brown, moist to wet, <30% fine-grained sand		▽	
			Bottom of boring at 12 feet. Groundwater encountered at approximately 8 feet during drilling.			



LOG OF BORING GP-13

Site Characterization Macedo Property Livermore, California 7380.000.003	DATE DRILLED	: April 19, 2011	LOGGED/REVIEWED BY	: R. Gandolfo/JA
	HOLE DEPTH (FT)	: 12	DRILLING CONTRACTOR	: EnProb
	SUFR ELEV (FT-MSL)	: 529	DRILLING METHOD	: Direct Push
	LATITUDE (NAD83)	: 37.713270	HAMMER TYPE	: Automatic
	LONGITUDE (NAD83)	: -121.724910	HOLE DIAMETER (IN)	: 3





LOG OF BORING GP-14

Site Characterization
 Macedo Property
 Livermore, California
 7380.000.003

DATE DRILLED : April 19, 2011
 HOLE DEPTH (FT) : 12
 SUFR ELEV (FT-MSL) : 528
 LATITUDE (NAD83) : 37.713328
 LONGITUDE (NAD83) : -121.724567

LOGGED/REVIEWED BY : R. Gandolfo/JA
 DRILLING CONTRACTOR: EnProb
 DRILLING METHOD : Direct Push
 HAMMER TYPE : Automatic
 HOLE DIAMETER (IN) : 3

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Graphic	Water Level	PID (PPM)
0	0		Asphalt/ Aggragate Base			
			LEAN CLAY (CL), light brown to light grayish brown, moist to wet, 10-20% fine-grained sand			
1						
5						
2						
10	3		SANDY LEAN CLAY (CL), dark grayish brown, wet, <30% fine- to medium-grained sand			
			Botom of broing at 12 feet. Groundwater encountered at approximately 8 feet during drilling.			
4						



LOG OF BORING 3-P1

Macedo Property
1000 North Vasco Road
Livermore, CA
7380.1.001.03

DATE DRILLED: August 15 2006
HOLE DEPTH (FT): 12 ft.
HOLE DIAMETER: 2.0 in.
SURF ELEV (FT-MSL): 525 ft.

LOGGED / REVIEWED BY: K. Nowell / JBR
DRILLING CONTRACTOR: Gregg Drilling
DRILLING METHOD: Geoprobe
HAMMER TYPE: Direct push

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
0	0		Pavement section-- approximately 6 inches of CONCRETE over one foot of AGGREGATE BASE material. FILL.						
			SANDY CLAY (CL), dark grayish brown, moist, sand is predominantly fine grain. FILL.						
	1		As above, becoming dark yellowish brown. FILL.						
	5		As above, mixture of dark brown and yellowish brown material. FILL.						
	2		CLAYEY SAND (SC), yellowish brown, moist, sand is fine grain.						
			As above, greenish gray, very moist, slight petroleum odor.						
10	3		SILTY SAND - CLAYEY SAND (SM-SC), yellowish brown, very moist-wet.						
	4		Bottom of probehole at 12 feet. Groundwater encountered at 9.8 feet during probing.						
	15								
	5								
	6								
20									



LOG OF BORING 3-P2

Macedo Property
1000 North Vasco Road
Livermore, CA
7380.1.001.03

DATE DRILLED: August 15 2006
HOLE DEPTH (FT): 12 ft.
HOLE DIAMETER: 2.0 in.
SURF ELEV (FT-MSL): 525 ft.

LOGGED / REVIEWED BY: K. Nowell / JBR
DRILLING CONTRACTOR: Gregg Drilling
DRILLING METHOD: Geoprobe
HAMMER TYPE: Direct push

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
0	0		Pavement section-- approximately 6 inches of CONCRETE over one foot of AGGREGATE BASE material. FILL.						
			SILTY CLAY (CL), dark brown, moist, with fine sand.						
			CLAYEY SAND (SC), yellowish brown, moist, sand is fine grain.						
5			SILTY SAND - CLAYEY SAND (SM-SC), yellowish brown, moist to very moist.						
			CLAYEY SAND (SC), yellowish brown, very moist, sand is fine grain.						
10	3		Bottom of probehole at 12 feet. Groundwater encountered at 9.3 feet during probing.						
15									
20	6								



LOG OF BORING 3-P3

Macedo Property
1000 North Vasco Road
Livermore, CA
7380.1.001.03

DATE DRILLED: August 15 2006
HOLE DEPTH (FT): 12 ft.
HOLE DIAMETER: 2.0 in.
SURF ELEV (FT-MSL): 525 ft.

LOGGED / REVIEWED BY: K. Nowell / JBR
DRILLING CONTRACTOR: Gregg Drilling
DRILLING METHOD: Geoprobe
HAMMER TYPE: Direct push

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
0	0		Pavement section-- approximately 6 inches of CONCRETE over one foot of AGGREGATE BASE material. FILL.						
			SILTY CLAY (CL), dark grayish brown, moist, with fine sand.						
			As above, dark yellowish brown, moist, and fine sand.						
			CLAYEY SAND - SILTY SAND (SC-SM), dark yellowish brown, moist, sand is fine grain.						
			CLAYEY SAND (SC), brown, moist to very moist, sand is fine grain.						
			CLAYEY SAND - SILTY SAND (SC-SM), dark yellowish brown, very moist, sand is predominantly fine to medium grain.						
			As above, with trace coarse sand - fine gravel.						
			Bottom of probehole at 12 feet. Groundwater encountered at 8.7 feet during probing.						

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LOG OF BORING 3-P4

Macedo Property
1000 North Vasco Road
Livermore, CA
7380.1.001.03

DATE DRILLED: August 15 2006
HOLE DEPTH (FT): 12 ft.
HOLE DIAMETER: 2.0 in.
SURF ELEV (FT-MSL): 525 ft.

LOGGED / REVIEWED BY: K. Nowell / JBR
DRILLING CONTRACTOR: Gregg Drilling
DRILLING METHOD: Geoprobe
HAMMER TYPE: Direct push

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
0	0		Pavement section-- approximately 6 inches of CONCRETE over one foot of AGGREGATE BASE material. FILL.						
			SANDY CLAY (CL), dark grayish brown, moist, sand is fine to coarse grain. FILL.						
			As above, black, moist becoming very moist, with predominantly fine sand. FILL.						
5									
			GRAVEL (GW), gray, wet, gravels are well graded, subrounded and fine to coarse grain. FILL.						
10			SILTY CLAY (CL), dark yellowish brown, very moist, trace sand.						
			Bottom of probehole at 12 feet. Groundwater encountered at 8.2 feet during probing.						
15									
20									

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LOG OF BORING 3-P5

Macedo Property
1000 North Vasco Road
Livermore, CA
7380.1.001.03

DATE DRILLED: August 15 2006
HOLE DEPTH (FT): 12 ft.
HOLE DIAMETER: 2.0 in.
SURF ELEV (FT-MSL): 525 ft.

LOGGED / REVIEWED BY: K. Nowell / JBR
DRILLING CONTRACTOR: Gregg Drilling
DRILLING METHOD: Geoprobe
HAMMER TYPE: Direct push

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
0	0		Pavement section-- approximately 6 inches of CONCRETE over one foot of AGGREGATE BASE material. FILL.						
			CLAYEY SAND (SC), black, moist, sand is predominantly fine grain. FILL.						
			SILTY CLAY (CL), black, moist, to very moist, trace fine sand. FILL.						
			As above, with fine sand. FILL.						
			As above, dark yellowish brown, very moist, trace fine sand. FILL.						
			SILTY GRAVEL (GM), gray, slightly moist becoming wet, with sand. FILL.						
			SILTY SAND - CLAYEY SAND (SM-SC), dark yellowish brown, wet, sand is predominantly fine grain.						
			No recovery between 10.3 and 12 feet.						
			Bottom of probehole at 12 feet. Groundwater encountered at 8.7 feet during probing.						

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LOG OF BORING 3-P6

Macedo Property
1000 North Vasco Road
Livermore, CA
7380.1.001.03

DATE DRILLED: August 15 2006
HOLE DEPTH (FT): 12 ft.
HOLE DIAMETER: 2.0 in.
SURF ELEV (FT-MSL): 525 ft.

LOGGED / REVIEWED BY: K. Nowell / JBR
DRILLING CONTRACTOR: Gregg Drilling
DRILLING METHOD: Geoprobe
HAMMER TYPE: Direct push

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
0	0		Pavement section-- approximately 6 inches of CONCRETE over one foot of AGGREGATE BASE material. FILL.						
			SILTY CLAY (CL), dark grayish brown, moist, with fine sand.						
	1		As above, dark yellowish brown, moist becoming very moist, with sand, slight non-petroleum odor.						
	5		As above, dark yellowish brown, very moist, with fine sand.						
	2		CLAYEY SAND (SC), dark yellowish brown, very moist to wet, sand is predominantly fine grain.						
	10		SILTY SAND (SM), dark yellowish brown, wet, sand is fine to medium grain.						
	4		Bottom of probehole at 12 feet. Groundwater encountered at 10.6 feet during probing.						
	15								
	5								
	6								
	20								



LOG OF BORING 3-P7

Macedo Property
1000 North Vasco Road
Livermore, CA
7380.1.001.03

DATE DRILLED: August 15 2006
HOLE DEPTH (FT): 12 ft.
HOLE DIAMETER: 2.0 in.
SURF ELEV (FT-MSL): 525 ft.

LOGGED / REVIEWED BY: K. Nowell / JBR
DRILLING CONTRACTOR: Gregg Drilling
DRILLING METHOD: Geoprobe
HAMMER TYPE: Direct push

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
0	0		Pavement section-- approximately 6 inches of CONCRETE over one foot of AGGREGATE BASE material. FILL.						
			SILTY CLAY (CL), dark grayish brown, moist, trace fine sand.						
			As above, dark yellowish brown, moist, with fine sand.						
			SILTY SAND - CLAYEY SAND (SM-SC), dark yellowish brown, very moist, sand is fine grain.						
			SILTY CLAY (CL), dark yellowish brown, moist to very moist.						
			As above, with fine sand.						
			Bottom of probehole at 12 feet. Groundwater encountered at 9.7 feet during probing.						



LOG OF BORING 3-P8

Macedo Property
1000 North Vasco Road
Livermore, CA
7380.1.001.03

DATE DRILLED: August 15 2006
HOLE DEPTH (FT): 12 ft.
HOLE DIAMETER: 2.0 in.
SURF ELEV (FT-MSL): 525 ft.

LOGGED / REVIEWED BY: K. Nowell / JBR
DRILLING CONTRACTOR: Gregg Drilling
DRILLING METHOD: Geoprobe
HAMMER TYPE: Direct push

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
0	0		Pavement section-- approximately 6 inches of CONCRETE over one foot of AGGREGATE BASE material. FILL.						
			SILTY CLAY (CL), dark grayish brown, moist, trace fine sand. FILL.						
			As above, dark yellowish brown, moist, with fine sand. FILL.						
1			CLAYEY SAND (SC), yellowish brown, moist becoming very moist, sand is fine grain. FILL.						
5			SILTY CLAY (CL), dark yellowish brown, moist, trace fine sand. FILL.						
2			SILTY SAND (SM), grayish brown, damp, sand is fine to coarse grain, trace fine gravel. FILL.						
10	3		CLAYEY SAND (SC), dark yellowish brown, wet, sand is fine grain.		▽				
			SILTY CLAY (CL), dark yellowish brown, very moist, with fine sand.						
4			Bottom of probehole at 12 feet. Groundwater encountered at 9.4 feet during probing.						
15									
5									
20	6								

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LOG OF BORING 4-P1

Environmental Assessment
 1000 North Vasco Road
 Livermore, California
 7380.1.002.01

DATE DRILLED: 10/20/2006
 HOLE DEPTH: Approx. 12 ft.
 HOLE DIAMETER: 2.0 in.
 SURF ELEV (FT): Approx. 527 ft.

LOGGED / REVIEWED BY: K. Nowell / JBR
 DRILLING CONTRACTOR: Vironex
 DRILLING METHOD: Geoprobe
 HAMMER TYPE: Direct Push

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	PID (ppm)	Unconfined Strength (tsf) *field approx
			Pavement section: 7 inches of concrete over 8 inches of aggregate					
			SILTY CLAY (CL), dark brown, moist, some fine sand					
1			As above, becoming dark wellowish brown, very moist					
5			CLAYEY SAND (SC), yellowish brown- dark yellowish brown, very moist becoming wet, sand is predominantly fine grained					
2								
10			SILTY SAND (SM), yellowish brown, wet, sand is predominantly fine grained		▽			
			Bottom of probehole at approximately 12 feet Groundwater encountered at approximately 11 feet during probing					



LOG OF BORING 4-P2

Environmental Assessment
 1000 North Vasco Road
 Livermore, California
 7380.1.002.01

DATE DRILLED: 10/20/2006
 HOLE DEPTH: Approx. 12 ft.
 HOLE DIAMETER: 2.0 in.
 SURF ELEV (FT): Approx. 527 ft.

LOGGED / REVIEWED BY: K. Nowell / JBR
 DRILLING CONTRACTOR: Vironex
 DRILLING METHOD: Geoprobe
 HAMMER TYPE: Direct Push

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	PID (ppm)	Unconfined Strength (tsf) *field approx
			Pavement section: 8 inches concrete over 4 inches aggregate					
			SILTY CLAY (CL), dark brown, slightly moist, some fine sand				<1	
1								
5							1.3	
2							7.9	
			Sharp increase in moisture content at 7.5 feet					
			CLAYEY SAND (SC), dark yellowish brown, very moist becoming wet at layer base, sand is fine grained.				272	
10								
3							1.2	
			SILTY SAND (SM), dark yellowish brown, wet, sand is fine grained					
			Bottom of boring at approximately 12 feet Groundwater encountered at approximately 11.2 feet during probing.					



LOG OF BORING 4-P3

Environmental Assessment
 1000 North Vasco Road
 Livermore, California
 7380.1.002.01

DATE DRILLED: 10/20/2006
 HOLE DEPTH: Approx. 12 ft.
 HOLE DIAMETER: 2.0 in.
 SURF ELEV (FT): Approx. 527 ft.

LOGGED / REVIEWED BY: K. Nowell / JBR
 DRILLING CONTRACTOR: Vironex
 DRILLING METHOD: Geoprobe
 HAMMER TYPE: Direct Push

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	PID (ppm)	Unconfined Strength (tsf) *field approx
			Pavement section: 8 inches concrete over 5 inches aggregate					
			SILTY CLAY (CL), moist, some sand					
1			As above, becoming dark yellowish brown				19.4	
5							12.7	
2							47	
			Sharp increase in moisture content at 7.2 feet As above, dark gray, very moist, strong diesel odor					
			SILTY SAND (SM), dark gray, very moist becoming wet below 8.6 feet				<400	
10			As above, becoming yellowish brown				17.8	
			Bottom of boring at approximately 12 feet Groundwater encountered at approximately 8.8 feet during probing.					



LOG OF BORING 4-P4

Environmental Assessment
 1000 North Vasco Road
 Livermore, California
 7380.1.002.01

DATE DRILLED: 10/20/2006
 HOLE DEPTH: Approx. 12 ft.
 HOLE DIAMETER: 2.0 in.
 SURF ELEV (FT): Approx. 527 ft.

LOGGED / REVIEWED BY: K. Nowell / JBR
 DRILLING CONTRACTOR: Vironex
 DRILLING METHOD: Geoprobe
 HAMMER TYPE: Direct Push

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	PID (ppm)	Unconfined Strength (tsf) *field approx
			Pavement section: 8-inches concrete over 5 inches aggregate					
			SILTY CLAY (CL), dark grayish brown, moist some fine to medium grained sand, slight diesel odor.				4.2	
1								
5							71	
			Becoming mottled yellowish brown- dark yellowish brown, very moist, with carbonates.				<1	
2								
			CLAYEY SAND (SC), dark yellowish brown, wet					
			SILTY SAND (SM), dark yellowish brown, wet		▽			
			CLAYEY SAND (SC), dark yellowish brown, wet				2.3	
10		3						
			Bottom of boring at approximately 12 feet Groundwater encountered at approximately 8.6 feet during probing.					