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terra firma  
consulting llc

TO DENISE  
FROM JANE ALLEN

**Prepared For:**

William Wong  
Unity Properties  
Oakland, California

**Date of Report:**

September 16, 2005

**RE: Findings of Environmental Subsurface Investigation**  
325 Martin Luther King Way, Oakland, CA

**Introduction**

A Subsurface Investigation to evaluate soil and groundwater from the referenced property for potential petroleum hydrocarbon and metals contamination has been completed. The scope of services for this project was: 1) to advance direct penetration borings to obtain soil and/or groundwater samples at representative locations; 2) to submit samples to a State-accredited laboratory to analyze for Total Petroleum Hydrocarbons as gasoline and diesel (EPA Standard Method 8015M), BTEX volatiles (EPA 8020), and inorganic lead (EPA 7420) and 3) to present all findings in written form and recommend further action as necessary to satisfy regulatory requirements or minimize environmental liability. This letter report summarizes the findings of the investigation; the complete Environmental Subsurface Investigation report will be delivered under separate cover.

Previous subsurface sampling had been completed at the Site by AEI Consultants, Inc., Walnut Creek, California on May 11, 2005. The AEI borings were completed as a Phase II Environmental Site Assessment after evidence of an underground fuel storage tank that had been closed in place on the premises was discovered during an earlier Phase I Environmental Site Assessment. The tank was reportedly located at the northeasterly corner of the building, and two boreholes were advanced: one near the tank location and one to the south, near the roll door entrance. Groundwater from the borehole nearest the tank was found to be contaminated with petroleum hydrocarbon constituents as follows:

TPH-gasoline: 780 parts per billion (ppb)  
TPH-diesel: 420 ppb  
Benzene: 53 ppb  
Toluene: 9 ppb  
Ethylbenzene: 35 ppb  
Xylenes: 100 ppb

The values for TPH-gasoline, Benzene, and Xylenes exceed the Environmental Screening Limits (ESL) established by the Regional Water Quality Control Board. The ESLs are

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considered to be conservative. Under most circumstances, and within certain limitations, the presence of a chemical in soil, soil gas or groundwater at concentrations below the corresponding ESL can be assumed to not pose a significant, long-term (chronic) threat to human health and the environment. Additional evaluation will generally be necessary at sites where a chemical is present at concentrations above the corresponding ESL. Active remediation may or may not be required, however, depending on site-specific conditions and considerations.

The groundwater from the borehole completed by AEI nearest the roll door was non-detect for all analyzed petroleum hydrocarbon constituents except for a trace amount of Xylenes.

#### Findings of Present Investigation

Terra Firma Consulting LLC advanced four additional borings at the Site to further characterize the horizontal and vertical extent of the petroleum hydrocarbon contamination that had been detected by the AEI Phase II Investigation. The attached Site Plan shows the locations of the borings and documents the laboratory analysis results for groundwater at each boring. The analytical results indicate that a contaminant plume containing TPH-gasoline, TPH-diesel, and the BTEX compounds extends westward from the underground storage tank location for a distance of at least 50 feet. The plume is approximately 30 feet wide. The range of analytical results from the four boreholes advanced on September 8, 2005 is as follows:

TPH-gasoline: 550 to 20,000 ppb .....	(500 ppb)
TPH-diesel: 230 to 3,600 ppb .....	(640 ppb)
Benzene: 6 to 990 ppb .....	(46 ppb)
Toluene: 7.5 to 3,100 ppb .....	(130 ppb)
Ethylbenzene: 19 to 590 ppb .....	(290 ppb)
Xylenes: 56 to 2,300 ppb .....	(13 ppb)
Lead: Non-detect to 310 ppb .....	(2.5 ppb)

The values in bold at the right margin are the respective Environmental Screening Level values for each constituent in groundwater. As can be seen, the upper limits of the respective ranges greatly exceed the ESL values for each of the constituents.

Based on the professional experience of TFC, the local environmental regulatory agency will require remediation at the subject property, particularly for the excessive concentrations of the petroleum hydrocarbon volatiles (BTEX compounds). Although the groundwater contaminant plume has not been definitively characterized, it appears to be approximately 30 feet in width by 50 feet in length, and is likely to be several feet in depth, from about 17 feet below ground surface to perhaps 20 feet below ground surface. Based on a similar site in Oakland recently evaluated by TFC, the remedial costs for excavation and disposal of the contaminated saturated zone is estimated to be \$ 500,000 to \$ 600,000. Other remedial procedures could be employed at the Site, however, excavation and disposal is generally the quickest and most effective procedure to obtain case closure from the lead regulatory agency.

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### Conclusions

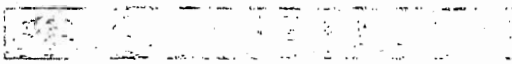
Groundwater adjacent to the abandoned underground fuel storage tank at the subject property is significantly contaminated with petroleum hydrocarbon constituents. In the professional opinion of Terra Firma Consulting LLC, the contaminated zone will require remediation subsequent to disclosure of the Environmental Subsurface Investigation findings to the local environmental regulatory agency as required by statute.

### Limitations

This report was prepared solely for the use of *Unity Properties*. The content and conclusions provided by Terra Firma Consulting LLC in this assessment are based on information collected during our investigation, which may include, but not limited to, visual site inspections, interviews with the site owner, regulatory agencies and other pertinent individuals; review of available public documents, subsurface exploration and our professional judgement based on said information at the time of preparation of this document. Any subsurface sample results and observations presented herein are considered to be representative of the area of investigation; however, geological conditions may vary between borings and may not necessarily apply to the general site as a whole. If future subsurface or other conditions are revealed which vary from these findings, the newly-revealed conditions must be evaluated and may invalidate the findings of this report.

This report is issued with the understanding that it is the responsibility of the owner, or his representative, to ensure that the information contained herein is brought to the attention of the appropriate regulatory agencies, where required by law. Additionally, it is the sole responsibility of the owner to properly dispose of any hazardous materials or hazardous wastes left onsite, in accordance with existing laws and regulations.

This report has been prepared in accordance with generally accepted practices using standards of care and diligence normally practiced by recognized consulting firms performing services of a similar nature. Terra Firma Consulting LLC is not responsible for the accuracy or completeness of information provided by other individuals or entities which is used in this report. This report presents our professional judgement based upon data and findings identified in this report and interpretation of such data based upon our experience and background, and no warranty, either express or implied, is made. The conclusions presented are based upon the current regulatory climate and may require revision if future regulatory changes occur.



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Thank you for using the environmental consulting services of Terra Firma Consulting LLC.  
Please contact us at 415-381-0855 with any questions regarding this report or for additional services.

Cabe C. Silverhame  
Professional Geologist 6201



Friday, September 16, 2005



TPH-g: 500 ppb  
 TPH-d: 640 ppb  
 Benzene: 46 ppb  
 Toluene: 130 ppb  
 Ethylbenzene: 290 ppb  
 Xylenes: 13 ppb

SB-2 (water)  
 TPH-g: 780 ppb  
 TPH-d: 420 ppb  
 Benzene: 53 ppb  
 Toluene: 9 ppb  
 Ethylbenzene: 35  
 Xylenes: 100 ppb

50901-1 (water)  
 TPH-g: 860 ppb  
 TPH-d: 740 ppb  
 Benzene: 6 ppb  
 Toluene: 7.5  
 Ethylbenzene: 22 ppb  
 Xylenes: 100 ppb

50901-4 (water)  
 TPH-g: 550 ppm  
 TPH-d: 230 ppb  
 Benzene: 20 ppb  
 Toluene: 17 ppb  
 Ethylbenzene: 19 ppb  
 Xylenes: 56 ppb

50901-2 (water)  
 TPH-g: 13,000 ppb  
 TPH-d: 3,600 ppb  
 Benzene: 410 ppb  
 Toluene: 1,200 ppb  
 Ethylbenzene: 390 ppb  
 Xylenes: 1,700 ppb

50901-3 (water)  
 TPH-g: 20,000 ppb  
 TPH-d: 2,000 ppb  
 Benzene: 990 ppb  
 Toluene: 3,100 ppb  
 Ethylbenzene: 590 ppb  
 Xylenes: 2,300 ppb

SB-4 (water)  
 TPH-g: ND  
 TPH-d: ND  
 Benzene: ND  
 Toluene: ND  
 Ethylbenzene: ND  
 Xylenes: 0.76 ppb

○ = B58bh50 by 5thoED  
 ◆ = TFC b58bh50Fd/e/Td

325 martin luther king  
 oakland, california

SCALE 1" = 25'

site plan

