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SOIL AND GROUNDWATER MANAGEMENT PLAN

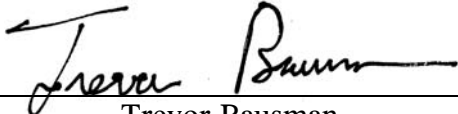
**160 14th Street
Oakland, California**


ACC Project Number: 6179-014-02

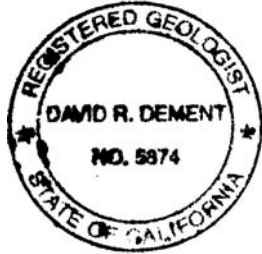
Prepared for:

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SOIL AND GROUNDWATER MANAGEMENT PLAN
160 14th Street
Oakland, California

1.0 INTRODUCTION

At the request of the Affordable Housing Associates (Client), ACC Environmental Consultants Inc., (ACC), has prepared this Soil and Groundwater Management Plan regarding proposed excavation work to be performed at 160 14th Street, Oakland, California (Site).

2.0 BACKGROUND

The Site consists of an approximate 15,000-square foot rectangular property located at the north corner of Madison Street and 14th Street in Oakland, California. Currently the Site is occupied by an asphalt-paved parking lot.

ACC prepared a *Phase I Environmental Site Assessment (ESA) Report* on April 9, 2001 and noted that two gasoline underground storage tanks (USTs) and one waste oil UST were removed in 1986 as part of dismantling of a Mobil-branded gasoline station.

ACC subsequently performed a subsurface soil boring investigation in the vicinity of the former USTs in July 2001. Tables 1 and 2 below summarize soil and grab groundwater analytical results which were included in ACC's *Letter Report – Soil Boring Investigation* dated August 6, 2001 (Report). The sample names indicate soil boring locations and the approximate depths of the soil samples.

TABLE 1 - SOIL SAMPLE ANALYTICAL RESULTS

Sample ID	TPHg	TEPH as Diesel	TEPH as Motor Oil	Benzene	Toluene	Ehtyl-Benzene	Total Xylenes	MTBE (mg/kg)
SB1-13.0	<1.0	N/A	N/A	0.014	<0.005	<0.005	<0.005	<0.005
SB1-15.5	<1/0	N/A	N/A	<0.005	<0.005	<0.005	<0.005	<0.005
SB2-8.0	87	100	600	1	8	2.0	<0.62	<0.62
SB2-13.0	<1.0	N/A	N/A	<0.005	<0.005	<0.005	<0.005	<0.005

Notes: all results reported in milligrams per kilogram (mg/kg) (approximately equivalent to parts per million)

N/A = not analyzed

< = below laboratory detection limit

TABLE 2 - WATER SAMPLE ANALYTICAL RESULTS

Sample ID	TPHg	HVOCs (PCE)	TEPH as Diesel	TEPH as Motor Oil	Benzene	Toluene	Ethyl-Benzene	Total Xylenes
SB1-W	78	6.1 [†]	340	< 690	5.7	< 0.5	1.9	< 0.5
SB3-W	N/A	2.6 [†]	N/A	N/A	N/A	N/A	N/A	N/A

Notes: $\mu\text{g/L}$ = micrograms per Liter (approximately equivalent to parts per billion)

[†] = All concentrations of HVOCs for both water samples were below laboratory detection limits with the exception of tetrachloroethene. (PCE) The value in the table is for that compound.

< = below laboratory detection limit

N/A = not analyzed

Generally, analytical results indicate that petroleum hydrocarbon residues are present in soil at approximately the bottom of the former USTs but were negligible or nonexistent in deeper soils from 13 to 15.5 feet below ground surface (bgs). TPHg was detected in boring SB2 at eight feet bgs at a concentration of 87 ppm but was not reported in the other three soil samples analyzed. MTBE was not detected in any of the soil samples. Concentrations of TEPH as diesel and motor oil were detected in boring SB2 at eight feet bgs; however these concentrations are suspect and may be the result of asphalt fragments in the soil.

ACC collected grab groundwater samples in soil borings SB1 and SB3. Analytical results for the grab groundwater sample from soil boring SB1, collected immediately between the two former fuel USTs, reported 340 ppb diesel and trace concentrations of benzene and ethylbenzene. The TEPH range petroleum hydrocarbons were flagged as not matching the diesel standard and likely represent weathered, degraded diesel residuals.

Analytical results also reported minor concentrations of tetrachloroethene (PCE) in both grab groundwater samples. Since PCE only was detected, ACC believes this compound originated from the dry cleaners located adjacent to the subject property. The release appears to be minor, as the impact to groundwater approximates the applicable drinking water standard maximum contaminant level.

While construction is proposed at grade for most of the Site, excess soil will be generated in order to install stacked parking spaces along the northeast border and the elevator pits in the middle of the Site. In order to profile this soil for offsite disposal and characterize the subsurface to assess potential worker safety issues, ACC will be conducting a soil boring subsurface investigation. Based upon field observations, analytical results, and conclusions of the investigation, this Soil and Groundwater Management Plan may be revised at a later date.

SUMMARY OF SITE RISKS

Based upon Tables 1 and 2 above, the only potential risk associated with development of the Site are minor hydrocarbon impacts to soil from former fuel USTs and minor tetrachloroethene (PCE)

impacts to groundwater from the former dry cleaners adjacent to the subject property. Since the samples were collected in July 2001, concentrations are expected to be less due to natural attenuations processes. However, the following safety protocols should be following by field workers while at the Site.

RISK MANAGEMENT MEASURES

The following risk management measures for both soil and groundwater shall be implemented in order to reduce identified potential risks.

Soil Management Measures

Specific soil management measures to be implemented are as follows:

1. Prior to conducting any soil excavation activities, a project -specific Health and Safety Plan will be prepared and implemented during fieldwork.
2. During initial ground breaking and as needed to assess possible soil management problems, a qualified geologist or engineer will be onsite.
3. During excavation, obvious fill materials (silts, sands, and gravels) will be stockpiled separately from obvious native soils (clays and silts). Stockpiles will be covered with plastic sheeting as a dust control measure.
4. If unusual conditions are encountered, such as USTs or obvious contaminated soils, then excavation in that area of the Site will be suspended, and the City of Oakland Fire Services Agency (OFSA) at (510) 238-3938 will be notified immediately.
5. Soils to be excavated and disposed offsite will be profiled through sampling and disposed of in accordance with all appropriate laws and regulations. The project geologist/engineer will collect soil samples and conduct soil profiling in accordance with requirements for disposal at an approved permitting facility. Soil will not be disposed of offsite until necessary approval by a permitting facility has been obtained.

Groundwater Management Measures

Due to the planned excavation total depths, groundwater is not anticipated to be encountered during development activities. However, in the event that groundwater is encountered and dewatering required, the following groundwater management measures will be implemented:

1. Following dewatering, the groundwater will be sampled, analyzed and profiled. If warranted, groundwater will be treated or specially handled. The project geologist / engineer will arrange for offsite disposal and/or obtain appropriate permit(s) from East Bay Municipal Utility District and/or another agency to dispose of the water to the sanitary sewer.
2. Groundwater from beneath the Site shall not be used for any purpose unless approved by OFSA or another appropriate regulatory agency.