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**W. A. Craig, Inc.**

Engineering & Construction

## ***SITE INVESTIGATION WORK PLAN***

**PROJECT SITE:**

**Former Clamp Swing Pricing Company  
2515 Blanding Avenue  
Alameda, California 94501  
Site No. RO0002513**

**PREPARED FOR:**

**Mr. Wilfred Garfinkle  
c/o Dr. Jay Garfinkle  
352 Capetown Drive  
Alameda, California 94501**

**SUBMITTED TO:**

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Alameda County Department of Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502**

**SUBMITTED BY:**

**W. A. Craig, Inc.  
6940 Tremont Rd.  
Dixon, California 95620  
A, B, & Haz Lic. No. 455752**

**Project No. 4287**

**February 1, 2006**

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## PROFESSIONAL CERTIFICATION

### *Site Investigation Work Plan*

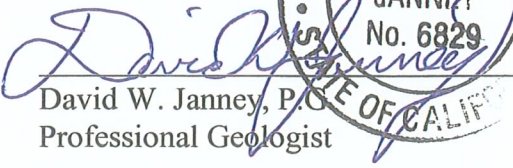
Former Clamp Swing Pricing Company  
2515 Blanding Avenue  
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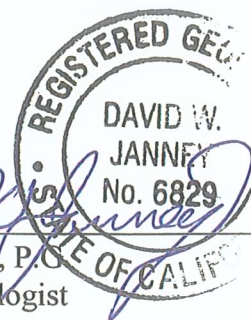
By: W.A. Craig, Inc.  
Project No. 4287  
February 1, 2006

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The conclusions presented in this document are professional opinions based solely upon visual observations of the site and vicinity, and interpretation of available information as described in this work plan. W.A. Craig, Inc. recognizes that the limited scope of services performed in execution of this investigation may not be appropriate to satisfy the needs, or requirements of other regulatory agencies, or of other users. Any use or reuse of this document or its findings, conclusions or recommendations presented herein is at the sole risk of said user.

  
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## INTRODUCTION

### *Objectives*

The objective of the Site Investigation described in this Work Plan is to delineate the horizontal and vertical extent of hydrocarbon contamination in the vicinity of a 300-gallon gasoline underground storage tank (UST) formerly located at 2515 Blanding Avenue, Alameda, California (the "Site"). Mr. Wilfred Garfinkle owned the UST and the property and is the responsible party for the Site. The Alameda County Department of Environmental Health (ACDEH) is the lead regulatory agency for the investigation.

### *Site Location and Description*

The Site is located on the northeast corner of Blanding Avenue and Everett Street in a commercial and industrial area of Alameda Island, Alameda County. The Site location is shown on **Figure 1**. The Site was reportedly operated as a light manufacturing plant until 1998 and is currently being remodeled to be used as a mixed commercial/residential development.

The Site is relatively flat with a slight regional slope to the east, towards the Tidal Canal that separates Alameda from Oakland. The Tidal Canal is the nearest surface water and is approximately 350 feet east of the Site.

An engineering and production company is located on the property north of the Site. Other properties in the vicinity of the Site include commercial and residential developments. Site features are depicted on **Figure 2**.

The static depth to groundwater in the UST excavation was reported as 4.5 feet below grade (fbg) on November 27, 2002. The presumed direction of groundwater flow is east-southeast, towards the Tidal Canal. Site soils are anticipated to be primarily silts, clays and sandy-clays.

### *Site Background*

On September 12, 2002, Golden Gate Tank Removal Inc. excavated and removed the UST. The UST was estimated to be approximately 60-80 years old and was not in use at the time it was removed. The UST was a 300-gallon single-walled steel tank that formerly contained gasoline. The tank was reportedly in fair condition with no visible holes. Soils were dark gray to black clays. Water was not encountered in the tank excavation. A petroleum odor and evidence of hydrocarbon staining were noted during the removal. Following UST removal, two soil samples were collected from the tank excavation bottom. A soil sample collected from the center of the UST pit, at approximately 8 fbg, at the time the UST was removed, yielded total petroleum



hydrocarbons as gasoline (TPH-g) at a concentration 0.579 milligrams per kilogram (mg/kg), toluene at 0.005 mg/kg, ethylbenzene at 0.009 mg/kg, and xylenes at 0.027 mg/kg. A sample collected from the soil stockpile excavated from above and around the UST yielded TPH-g at 50.1 mg/kg, toluene at 0.012 mg/kg, ethylbenzene at 0.008 mg/kg, and xylenes at 0.034 mg/kg. Benzene and methyl tert-butyl ether (MtBE) were not detected in either soil sample. At the direction of the ACDEH, the excavation was backfilled after removing the UST.

After reviewing the analytical results, the ACDEH requested additional excavation and sampling. The UST pit was re-opened and over-excavated in November of 2002. A soil sample from the northern sidewall at 6 fbg yielded 1,450 mg/kg of TPH-g and 13 mg/kg of toluene. A grab sample collected from water in the excavation yielded 890 micrograms per liter ( $\mu\text{g/L}$ ) of TPH-g. Low levels ( $<8 \mu\text{g/L}$ ) of ethylbenzene, toluene, and xylenes were detected in the water sample. Fuel oxygenates and additives, including MtBE, were not detected.

Based on the elevated hydrocarbon concentrations remaining in Site soils, additional excavation was performed on January 3, 2003. A sample collected from the northern wall of the excavation at 10 fbg did not yield detectable concentrations of petroleum hydrocarbons. However, a sample from the eastern wall at 6 fbg yielded TPH-g at 9.16 mg/kg, diesel range organics at 105 mg/kg, and low levels ( $<0.043 \text{ mg/kg}$ ) of ethylbenzene, toluene, and xylenes. TPH-g was detected at 8,910  $\mu\text{g/L}$  and diesel range organics were detected at 22,200  $\mu\text{g/L}$  in a water sample collected from the excavation. For both of the detections of diesel range organics, the laboratory reported that the result “does not match diesel”. The two excavation events generated a total of 10.01 tons of soil, which was disposed of at Forward Landfill in Stockton, California on January 8, 2003.

Based on these results, in a letter dated September 2, 2004, the ACDEH requested the preparation of a work plan to further investigate the nature and extent of the release. A *Site Investigation Work Plan* dated December 10, 2004 was submitted to the ACDEH in December 2004 and April 2005. In a phone conversation on January 31, 2006, Amir Gholami of the ACDEH requested one additional boring and that the borings be installed to 25 fbg (instead of the originally proposed 15 fbg). This *Site Investigation Work Plan* describes methods and procedures to install 5 exploratory soil borings to 25 fbg.

## SCOPE OF WORK

The following scope of work will be performed as part of this investigation:

- Prepare a *Site-specific Health and Safety Plan* describing the anticipated or potential hazards normally associated with similar projects;
- Obtain a drilling permit from Alameda County;
- Obtain an encroachment permit from the City of Alameda;



- Mark the outline of the work area in white paint and notify Underground Service Alert (USA) of the proposed work a minimum of 48 hours in advance;
- Install five soil borings to a maximum of 25 fbg;
- Collect soil samples from each boring;
- Collect groundwater samples from each boring;
- Submit the soil and groundwater samples for analysis of TPH-g, BTEX, MtBE, DIPE, EtBE, tAME, tBA, methanol, ethanol, EDB, and DCA (see the *Soil Sample Collection* section of this report for analyte names); and
- Prepare and submit a technical report certified by a California Registered Engineer or Geologist describing the results of the Site Investigation.

## **PREPARATORY PROCEDURES**

### ***Site-Specific Health and Safety Plan***

W.A. Craig, Inc (WAC) will prepare a *Site-Specific Health and Safety Plan* in accordance with 29 CFR 1910.120. All personnel entering the work area will be asked to indicate that they understand the plan. At a minimum the health and safety plan will specify the nature of the physical and chemical hazards associated with the site, routes of exposure, first aid procedures associated with the expected hazards, and contact information for, and a map to, the nearest emergency medical facility.

### ***Permits and Utility Clearance***

Drilling and encroachment permits will be obtained prior to the installation of the soil borings. The appropriate regulatory agency will be given at least 48 hours notice prior to the installation of borings.

WAC will mark the proposed boring locations in white paint and notify Underground Service Alert (USA) a minimum of two working days in advance of the drilling. USA will notify public and private utility companies to mark the location of underground utilities owned and maintained by each company.

Work in the Everett Street right-of-way may require both active (personnel) and passive (signs, cones, barricades, etc.) measures for traffic control. An engineered traffic control plan will be prepared and submitted with an encroachment permit application to the City of Alameda, Department of Public Works. At a minimum, traffic control personnel, cones, barricades, flagging, and signs will be used as specified in the traffic plan. Work will occur only in daylight hours.



### ***Site Access***

In order to install a boring in the asphalt parking lot in front of the Site (B-5) it will be necessary to obtain Site access permission from the current property owner. A Site access agreement will be prepared and the current property owner will be asked to sign it. If Site access is granted, boring B-5 will be installed in the location shown on **Figure 2**. If Site Access is not granted, boring B-5 will be installed in the alternate location shown on **Figure 2**.

## **FIELD PROCEDURES**

### ***Soil Boring Installation***

Five soil borings will be advanced using a truck-mounted drilling rig capable of using both direct push and hollow stem auger drilling methods. A California C-57 licensed well driller will install all of the proposed borings. The proposed boring locations are shown on **Figure 2**. A California Registered Engineer or Geologist, or a technician under the direct supervision of a Registered Engineer or Geologist will supervise drilling and sampling operations. The borings will be installed to approximately 25 fbg.

Borings will be continuously logged in the field using the Unified Soil Classification System. The field technician will observe significant changes in material penetrated, changes in drilling conditions, lithologic changes, the relative moisture content of soils, and water-producing zones. This record will be used later to prepare detailed boring logs. Lithologic descriptions will include soil type, color, grain size, texture, presence of hydrocarbons, and other pertinent information. A photo-ionization detector (PID) will be used to screen for the presence of volatile chemicals in the soil cores. PID measurements will be recorded on the boring logs.

### ***Soil Sample Collection***

Soil samples will be collected from each soil boring at 5-foot intervals. Soil samples will be collected using a 4-foot long split tube sampler lined with an acrylic sampling tube. The sampler will be placed down the boring and driven using a hydraulic ram. Immediately after removing the acrylic tube from the sampler, the tube will be cut to access the soil core and the PID will be used to screen the soil core. If the PID indicates hydrocarbons are present in the soil core, the section of core with the highest relative concentration in each 4-foot tube, as measured by the PID, will be selected for laboratory analysis. An additional soil sample obtained at the soil-groundwater interface in each of the borings will be collected and analyzed.

Soil samples will be collected using a 4-foot long steel tube sampler lined with an acetate sampling tube. The sampler will be placed down the boring and driven into undisturbed soil using a hydraulic hammer. Immediately after removing the acetate tube from the sampler, the tube will be





cut to access the soil core, the PID will be used to screen the soil core, and soil samples will be collected by cutting the appropriate section of acetate sample tube. The ends of the sample tube will be sealed with Teflon coated tape and plastic end caps. The samples will be labeled indicating sample ID and sample depth. The same information along with the project ID, sampler name, and date collected will be recorded on a chain-of-custody form. The samples will be placed on ice in an ice chest for transport and submittal under documented chain-of custody control to a State of California certified analytical laboratory within 72 hours of collection. The soil samples will be analyzed for TPH-g, benzene, toluene, ethylbenzene, xylenes (BTEX), MtBE, di-isopropyl ether (DIPE), ethyl tert-butyl ether (EtBE), tert-amyl methyl ether (tAME), tert-butyl alcohol (tBA), methanol, ethanol, ethylene dibromide (EDB), and 1,2-dichloroethane (DCA).

Soil cuttings will be stored onsite in appropriately labeled, sealed, 55-gallon, DOT approved, steel drums for disposal pending analytical results. Disposal of the soil cuttings will conform to applicable waste requirements.

### ***Groundwater Sample Collection***

Discreet groundwater samples will be collected from each soil boring at the soil-groundwater interface (the upper three feet of the first water bearing zone) and from 10 feet below the soil-groundwater interface. The soil sample assembly will be driven into the undisturbed soil at the desired depth and the sample barrel will be retracted to expose a 2-foot long section of temporary well screen inserted through the core barrel. Samples will be obtained either with a clean bailer, or with clean vinyl tubing fitted with a ball-check on one end and lowered inside the drill string to the depth of the discrete sampling zone. Water samples will be decanted from the bailer or tubing into three laboratory supplied, 40-ml volatile organic analysis (VOA) vials pre-preserved with hydrochloric acid. Care will be taken to ensure an airtight seal with no headspace in the sample vials. The samples will be labeled indicating sample ID and sample depth. The same information along with the project ID, sampler name, and date collected will be recorded on a chain-of-custody form. The samples will be placed on ice in an ice chest for transport and submittal under documented chain-of custody control to a State of California certified analytical laboratory within 72 hours of collection. The soil samples will be analyzed for TPH-g, BTEX, MtBE, DIPE, EtBE, tAME, tBA, methanol, ethanol, EDB, and DCA.

### ***Abandonment of Soil Borings***

The borings will be abandoned on the same day they are advanced by backfilling with Portland type I-II cement. The surface will be backfilled with concrete or asphalt to match the existing grade. If standing water is present in the boring, the cement will be placed with a Tremie piped lowered to within three feet of the bottom of the boring.





Soil cuttings from the drilling operations will be stored on-site in properly labeled, sealed 55-gallon, DOT-approved, steel drums. Drums will be labeled with contents, date filled, generator name, and contact information. After drilling is completed one soil sample will be collected by combining roughly equal amounts of soil from each drum of cuttings. This sample will be analyzed for TPH-g, BTEX, and total lead to determine the appropriate method of disposal. The investigation-derived wastes will be characterized as hazardous or non-hazardous based on the results of the laboratory analysis and disposed of according to applicable regulations.

### ***Field Equipment Decontamination Procedures***

Field equipment that comes into contact with soil and groundwater, including the split spoon sampler and drive rods, will be decontaminated before each use by steam cleaning or washing in a laboratory grade detergent solution, followed by a tap water rinse. Potable water will be used for decontamination of drilling equipment.

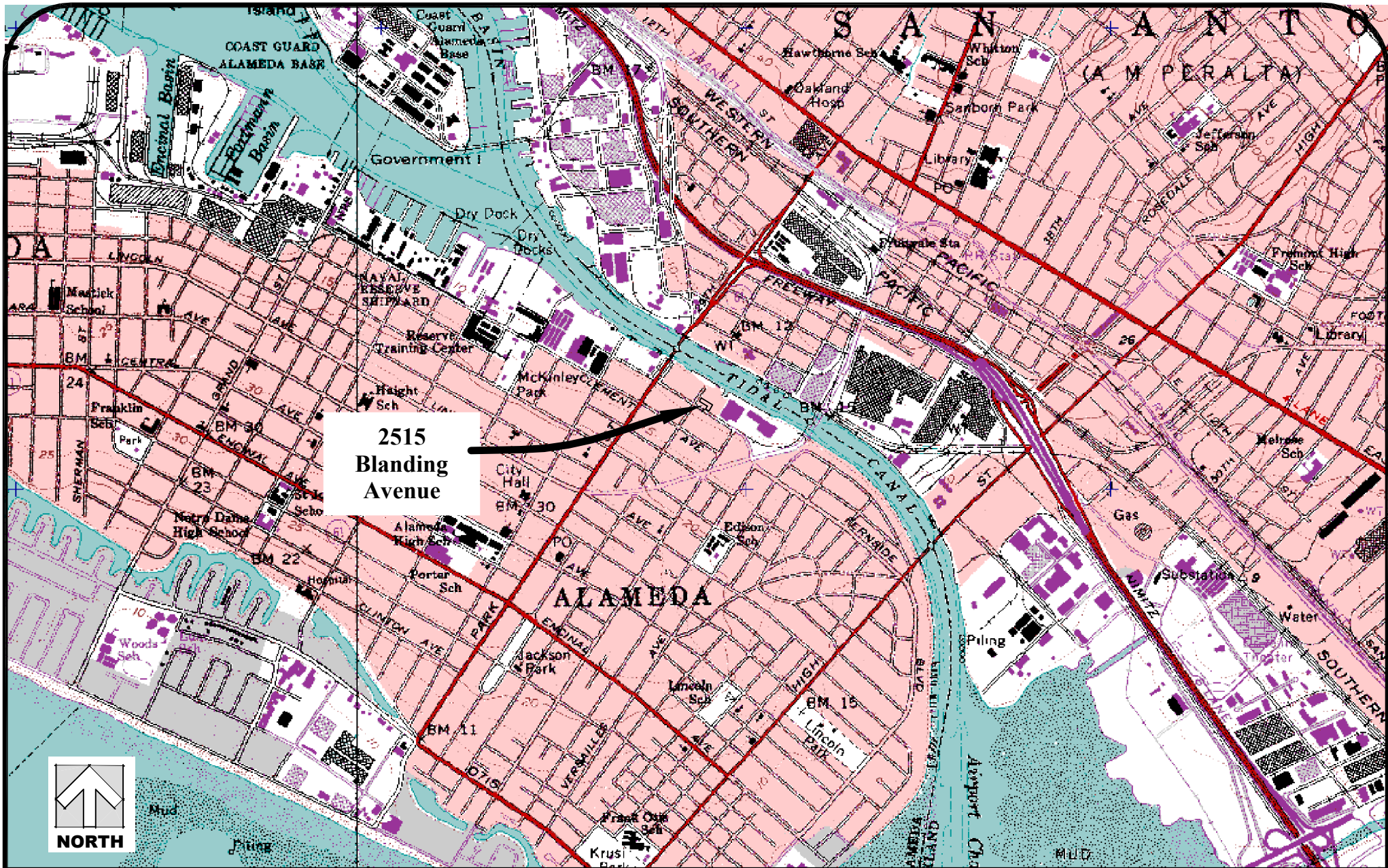
Rinseate water used in the decontamination process will be stored onsite in 55-gallon drums for subsequent disposal pending analytical results. Disposal of water will conform to applicable requirements.

## **REPORTING**

A *Site Investigation Report* will be prepared and submitted to the ACDEH. The report will include a description of the installation of the soil borings, a figure indicating boring and sample locations and site features, a tabulation of analytical results, laboratory analytical reports, soil boring logs, conclusions, and recommendations for additional investigation or remedial work, if necessary. If the data suggests that no further action is required, case closure will be recommended.

## **SCHEDULE**

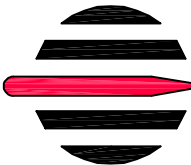
WAC will obtain well permits and schedule subcontractor services upon approval of this work plan by the ACDEH. Soil boring installation and sampling activities could be completed in approximately 14 days after receiving all of the permits. The results of soil and groundwater sample analyses will be obtained within 30 days of sample collection. The *Site Investigation Report* will be submitted to the ACDEH within 30 days after receiving the analytical results.



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS

Scale: 750 ft

Datum: WGS84



**W.A. Craig, Inc.**

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**Site Location Map**  
**Former Clamp Swing Pricing Company**  
**2515 Blanding Avenue**  
**Alameda, California**

Project #: 4287	Figure:
Date: 2/1/06	<b>1</b>
Scale: as shown	



Everett Street

water (11/27/02)      SW-N [4'6"] (11/27/02)

TPH-g 890      TPH-g 1,450

B <0.5      B <12.5

T 7.8      T 13

E 1.3      E <12.5

X 7.3      X <25

water (1/3/03)

TPH-g 8,910

B <2.5

T 42.5

E 24.6

X 74

tank pull 8ft (9/12/02)

TPH-g 0.579

B <0.005

T 0.005

E 0.009

X 0.027

N 10ft (1/3/03)

TPH-g <0.5

B <0.005

T <0.005

E <0.005

X <0.005

**LEGEND**

- Proposed Boring Location
- Soil Sample Location (date collected in parentheses)
- Fence Line
- Former Tank and Trench Excavation
- Covered Structure
- TPH-g Total Petroleum Hydrocarbons as Gasoline
- B Benzene
- T Toluene
- E Ethylbenzene
- X Xylenes
- \* Laboratory reports that result "does not match gasoline"

Note: Soil samples recorded in mg/kg.  
Water samples recorded in µg/L.  
Scale is approximate.

B5 (alternate location)

Sidewalk

Asphalt Parking Lot

**2515 Blanding Avenue**

Sliding Gate

Approximately 350' to the Tidal Canal  
(presumed groundwater flow direction)

E 6ft (1/3/03)

TPH-g 9.16\*

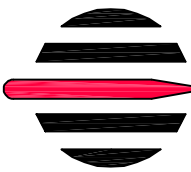
B <0.005

T 0.019

E 0.009

X 0.043

Asphalt



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**Site Plan and Proposed Sampling Locations**  
**Former Clamp Swing Pricing Company**  
**2515 Blanding Avenue**  
**Alameda, California**

Project #: 4287	Figure: <b>2</b>
Date: 2/1/06	
Scale: 1"=10'	