



# GETTLER-RYAN INC.

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## ADDITIONAL SUBSURFACE ASSESSMENT WORK PLAN

Can-Am Plumbing  
151 Wyoming Street  
Pleasanton, California

Report No. 25-948162.5-2  
Alameda County Site #RO0002425

**Prepared for:**

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October 16, 2006

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# **ADDITIONAL SUBSURFACE ASSESSMENT WORK PLAN**

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## **INTRODUCTION**

At the request of Can-Am Plumbing, Gettler-Ryan Inc. (GR) has prepared this Additional Subsurface Assessment Work Plan in response to an Alameda County Environmental Health (ACEH) letter dated August 2, 2006. The purpose of this workplan is to prepare a workplan for evaluation of the extent of petroleum hydrocarbons in groundwater and soil beneath the subject site (Figure 1). The proposed scope of work includes: obtaining the required encroachment and soil boring permits, obtaining an offsite access agreement, advancing two soil borings and converted them to groundwater monitoring wells, collecting soil samples from the borings for description and possible chemical analysis, advancing of six Geoprobe borings, collecting soil and grab groundwater samples from the Geoprobe borings for description and possible chemical analysis, surveying and developing the newly installed wells, and preparing a report presenting the findings of the investigation.

The scope of work described in this work plan is intended to comply with the California Code of Regulations, Title 23, Division 3, Chapter 16, *Underground Tank Regulations*, the California Regional Water Quality Control Board (CRWQCB) *Tri-Regional Board Staff Recommendations for Preliminary Investigation and Evaluation of Underground Tank Sites*, and ACEH guidelines and regulations.

## **SITE DESCRIPTION**

The subject site is located at 151 Wyoming Street in Pleasanton, California (Figure 1). Topography in the vicinity of the subject site is relatively flat at an elevation of approximately 361 feet above mean sea level. The closest surface water is Arroyo Del Valle, which is approximately 640 feet south of the site. Below ground facilities consisted of two 1,000-gallon gasoline underground storage tanks (USTs). The USTs were reportedly installed in 1972 and in use until June 1999 when they were removed. Pertinent site features and the location of the former USTs are shown on Figures 2 and 3

## **PREVIOUS ENVIRONMENTAL WORK**

On June 10, 1999, two 1,000 gallon single-wall fiberglass gasoline USTs, one dispenser, and related single-wall piping were removed by GR. GR personnel performed compliance sampling in conjunction with the UST removal.

The existing UST pit monitoring casing (W-1 on Figure 2) was allowed to remain in the UST excavation. Groundwater was encountered in the UST excavation at approximately 3.75 feet below ground surface (bgs). Two soil samples (X-1-3 and X-2-3) were collected from the sidewalls of the UST excavation a depth of 3 feet bgs. The soil samples were reported as not detected for Total Petroleum Hydrocarbons as gasoline (TPHg) by EPA 8015 modified, Benzene, Toluene, Ethylbenzene, and total xylenes (BTEX) by EPA Method 8020, and total lead by EPA Method 6010, except for 0.0050 parts per million (ppm) of benzene detected in X-1-3. Methyl tert-butyl ether (MtBE) by EPA Method 8020 was detected in X-1-3 and X-2-3 at concentrations of 3.3 ppm and 4.1 ppm, respectively.

Soil sample D-1-3 was collected from beneath the dispenser island at a depth of 3 feet bgs. Soil sample D-1-3 was reported as non-detected for TPHg, benzene, and lead and contained 3.6 ppm of MtBE.

One grab groundwater sample was collected from UST pit monitoring casing W-1. The sample contained 39,000 parts per billion (ppb) of TPHg, 1,100 ppb of benzene, and 100,000 ppb of MtBE (GR Report No. 1113.01, *Compliance Soil Sampling Report*, dated July 6, 1999).

Two on-site soil borings were drilled on January 21, 2000 and completed as groundwater monitoring wells MW-1 and MW-2. The wells were installed to a total depth of approximately 32 feet bgs. TPHg, BTEX and MtBE were not detected in the four soil samples collected from well boring MW-1. TPHg and BTEX were not detected in the six soil samples collected from well boring MW-2. MtBE was detected in five of the six samples from well boring MW-2 at concentrations of 0.12 ppm to 3.6 ppm.

Well MW-1 was developed on January 26, 2000. Depth to groundwater in wells MW-1 and MW-2 were measured and each well checked for the presence of floating product prior to development. Well MW-2 was found to be dry, therefore it was not developed. Well MW-1 dewatered during development, yielding only five well volumes. On January 31, 2000, a groundwater sample was collected from MW-1 and well MW-2 was again found to be dry. The two wells and UST pit monitoring casing W-1 were monitored on February 18 and 24, 2000. Groundwater was observed in well MW-2 on February 18, 2000 and the well was developed on February 24, 2000 at which time it dewatered after yielding approximately four well volumes. Wells MW-1 and MW-2 were monitored and sampled again on May 11, 2000. In addition, grab groundwater samples were collected from UST pit monitoring casing W-1 on January 27, February 24, and May 11, 2000.

Groundwater samples collected from well MW-1 on January 31 and May 11, 2000 were reported as not detected for all analytes. Groundwater sample MW-2, collected on May 11, 2000, contained 11,000 ppb of MtBE by EPA Method 8020, 12,000 ppb of MtBE by EPA Method 8260, and TPHg and BTEX were reported as not detected due to elevated detection levels (GR Report No. 948162.02-2, *Well Installation Report*, dated February 1, 2001).

Perched groundwater has been removed intermittently from UST pit monitoring casing W-1, starting on October 12, 1999. A total of 4,625 gallons of groundwater were removed from the former UST excavation on four separate occasions between October 12 and November 8, 1999. As of August 6, 2002, a total of 12,355 gallon of groundwater have been removed from W-1 by Nor Cal Oil and transported under uniform hazardous waste manifest to the Americlean, Inc. facility in Silver Springs, Nevada for disposal.

Three groundwater samples were collected from UST pit monitoring casing W-1 during the course of the pit dewatering activities. The groundwater sample collected on January 27, 2000 contained 8,300 ppb of TPHg, 1,900 ppb of MtBE, and benzene was reported as not detected (with elevated detection limits). The groundwater sample collected on February 24, 2000 contained 7,800 ppb of TPHg, 1,300 ppb of MtBE, and benzene was reported as not detected with an elevated detection limit. The groundwater sample collected on May 11, 2000 contained 130 ppb of TPHg, 3.5 ppb of benzene, 600 ppb of MtBE by EPA Method 8020, and 730 ppb of MtBE by EPA Method 8260 (GR Report No. 948162.02, *Soil Boring, Well Installation and Groundwater Sampling Report*, dated January 12, 2004).

On September 5, 2002, GR advanced one Geoprobe soil boring B-1 to 32 feet (drilling refusal depth). Soil samples B-1-20.5, B-1-23.5 and B-1-27.5 were collected from the soil boring. The soil boring was temporarily sealed with bentonite so it could be redrilled with hollow stem auger drilling equipment. On October 31, and November 1, 2002, GR installed soil borings B-2 and B-3 and groundwater monitoring well MW-3. Soil boring B-1 was overdrilled and deepened to 40 feet bgs. TPHg, BTEX, MtBE, ethanol, tert-butanol (TBA), di-isopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), tert amyl methyl ether (TAME), 1,2-dichloroethane (1,2-DCA) and ethylene dibromide (EDB) were not detected in any of the soil samples collected from soil boring B-1. TPHg, BTEX, ethanol, DIPE, ETBE, 1,2-DCA, TAME, and EDB were not detected in soil samples from soil borings B-2, B-3, and well boring MW-3. In soil boring B-2, MtBE and TBA were detected in sample B-2-36 at concentrations 0.28 ppb and 0.067 ppb, respectively, and were in sample B-2-40.5 at concentrations of 0.34 ppb and 0.17 ppb, respectively. MtBE was detected in samples B-3-39 and MW-3-41 at concentrations of 0.0052 ppm and 0.029 ppm, respectively (GR Report No. 948162.02, *Soil Boring, Well Installation and Groundwater Sampling Report*, dated January 12, 2004).

On May 8 through 10, 2006, GR installed groundwater monitoring wells MW-1A, MW-2A, and MW-3A and piezometers PZ-1 through PZ-7. TPHg, BTEX, MtBE, ETBE, DIPE, TAME and TBA concentrations were below laboratory reported method detection limits in soil samples collected from MW-1A. In well MW-2A, MtBE concentrations were detected in each sample collected from 10 feet through 50 feet bgs and ranged in concentrations from 0.12 ppm at 25 and 38.5 feet bgs to 1.3 ppm at 5 feet bgs. In well MW-3A, MtBE was detected at concentrations of 0.026 ppm and 0.0070 ppm at 10 feet bgs and 15 feet bgs, respectively. In soil samples collected at 10 feet bgs from PZ-1 through PZ-7, MtBE concentrations ranged from 0.0015 ppm in PZ-3 to 1.9 ppm in PZ-4.

TPHg, BTEX, DIPE and ETBE concentrations were below laboratory reported method detection limits in groundwater samples collected from wells MW-1A, MW-2A, and MW-3A. MtBE concentrations ranged from 3.9 ppb in groundwater sample PZ-3 to 5,300 ppb in groundwater sample MW-2A. TAME and TBA were detected in groundwater sample MW-2A at concentrations of 61 ppb and 860 ppb, respectively (GR Report No. 25-948162.05, *Site Investigation Report*, dated July 19, 2006).

A summary of historical soil analytical data is included as Table 1

## **WORK PLAN**

To further evaluate and delineate the extent of petroleum hydrocarbons at the subject site, GR proposes to install two groundwater monitoring wells at the locations shown on Figures 2 and 3. In addition, GR proposes to advance six Geoprobe borings around the former UST pit to better evaluate petroleum hydrocarbons in shallow soil and perched water around the former UST pit. GR Field Methods and Procedures are included in Appendix A.

To implement the proposed scope of work, GR proposes the following seven tasks:

### **Task 1. Pre-field Activities**

GR will update the site safety plan, and will obtain the necessary soil boring and encroachment permits from Zone 7 and City of Pleasanton (if necessary), respectively. In addition, GR will also obtain an offsite access agreement from the property owner of the adjacent parcel to the north. Underground Service Alert (USA) will be notified at least 48 hours prior to the proposed subsurface work.

### **Task 2. Well Installation**

Two groundwater monitoring wells will be installed at the locations shown on Figure 3. A California-licensed well driller will install the wells. A GR geologist will monitor the drilling activities and prepare a log of each well boring. Each well boring will be cleared for subsurface utilities to 5 feet bgs by hand auger. GR anticipates encountering groundwater at approximately 25 feet bgs. The well borings will be drilled using a truck mounted drill rig equipped with 8-inch diameter hollow-stem augers up to approximately 50 feet bgs. The wells will be constructed of 2-inch diameter Schedule 40 polyvinyl chloride (PVC) well casing and 0.020-inch machine-slotted well screen. The wells will be installed in 50-foot deep borings with a screened interval extending from 40 to 50 feet bgs. Actual well depth and screen interval will be determined by the field conditions encountered. Proposed well construction details are presented in Figure 4.

Soil samples for description and possible chemical analysis will be obtained from the well borings at five-foot intervals, as a minimum. Soil samples will be collected with a split-spoon sampler fitted with clean brass sample rings. The actual number of samples submitted for chemical analysis will depend on site conditions and field screening data. As a minimum, it is expected that five soil sample from each boring will be submitted for chemical analysis as described in Task 6.

Soil from each sampled interval will be screened in the field for the presence of volatile organic compounds using a photoionization detector (PID). These data will be collected for reconnaissance purposes only, and will not be used as verification of the presence or absence of petroleum hydrocarbons. The field screening data will be recorded on the field boring log.

Drill cuttings will be placed on and covered with plastic and stored at the site pending disposal. Four soil samples of the drill cuttings will be collected for disposal characterization. These samples will be submitted to the laboratory for compositing into one sample, and then analyzed as described in Task 6. Steam cleaning rinsate wastewater will be temporarily stored on site pending disposal.

### **Task 3. Geoprobe Borings**

To better evaluate petroleum hydrocarbons in shallow soil and perched water around the former UST pit, seven Geoprobe borings will be advanced at the locations shown on Figure 3. A California-licensed well driller will advance the borings. A GR geologist will monitor the drilling activities and prepare a log of each boring. Each boring will be cleared for subsurface utilities to 5 feet bgs by hand auger. GR anticipates encountering perched water at approximately 5 feet bgs. The borings will be then advanced to approximately 10 feet bgs using a GeoProbe® or similar equipment that advances the boring equipment hydraulically without generating soil cuttings. Soil samples for description and possible chemical analysis will be obtained from the borings at five-foot intervals, as a minimum. Soil samples will be collected with a 1.5-inch diameter split spoon sampler with clean liners. The actual number of samples submitted for chemical analysis will depend on site conditions and field screening data.

As a minimum, it is expected that one soil sample from each boring will be submitted for chemical analysis. Grab groundwater samples will also be collected from the borings. Soil and grab groundwater samples will be submitted for chemical analysis as described in Task 6

Upon completion the borings will be filled with neat cement to approximately 5 feet bgs. Auger cuttings generated during hand clearing will then be placed back in the boring and compacted

#### **Task 4. Survey Well Elevations**

Following installation, the top of casing elevation for the newly installed wells will be surveyed to mean sea level by a California licensed surveyor. Horizontal coordinates (including latitude and longitude by GPS) of the locations will also be obtained by the surveyor.

#### **Task 5. Well Development and Sampling**

The newly installed groundwater monitoring wells will be developed after they have been allowed to stand a minimum of 72 hours following installation. Prior to development, all wells at the site will be monitored, and a potentiometric map will be generated from the data. Groundwater removed from the wells during development and sampling will be temporarily stored on site pending disposal. A groundwater sample will be collected from the newly installed wells after they have been allowed to stand 72 hours following development. The groundwater samples from each well will be submitted for chemical analysis as described in Task 6.

#### **Task 6. Laboratory Analyses**

Soil and groundwater samples will be submitted for chemical analysis by Kiff Analytical, a California state-certified Hazardous Material Testing Laboratory. Soil and groundwater samples will be analyzed for TPHg, BTEX, MtBE, Di-isopropyl ether (DIPE), Ethyl-tert-butyl ether (ETBE), Tert-amyl methyl ether (TAME), Tert-Butanol (TBA), by EPA Method 8260B. The drill cuttings composite sample was analyzed for TPHg, TPHd, BTEX, and MtBE by EPA Methods 8015M/8020M, and total lead by EPA Method 6010B.

#### **Task 7. Report Preparation**

Following receipt and analysis of all data, a report will be prepared that summarizes the procedures and findings associated with this investigation. This report will be submitted to Can-Am Plumbing for their use and distribution.

### **PROJECT STAFF**

Mr. Robert A. Lauritzen, a Professional Geologist in the State of California (P.G. No. 7504), will provide technical oversight and review of the work. Mr. Greg A. Gurs, Senior Project Manager, will supervise implementation of field and office operations. Mr. Geoff Risse, Staff Geologist will manage and conduct all field operations. GR employs a staff of geologists, engineers, and technicians who will assist with the project.

### **SCHEDULE**

GR will implement the proposed scope-of-work upon receipt of regulatory approval.

**Table 1 - Historical Soil Chemical Analytical Results**

Can-Am Plumbing  
 151 Wyoming Street  
 Pleasanton, California

Sample No.	Sample Depth (feet)	Date Collected	TPHg (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)	MtBE (ppm)	TBA (ppm)	DIPE (ppm)	ETBE (ppm)	TAME (ppm)	Ethanol (ppm)	1,2-DCA (ppm)	EDB (ppm)	Total Pb (ppm)
<b>UST and Dispenser Excavation</b>																
X-1-3	3.0	6/10/1999	<1.0	0.005	<0.005	<0.005	<0.005	<b>3.3</b>	---	---	---	---	---	---	---	---
X-2-3	3.0	6/10/1999	<1.0	<0.005	<0.005	<0.005	<0.005	<b>4.1</b>	---	---	---	---	---	---	---	---
D-1-3	3.0	6/10/1999	<1.0	<0.005	<0.005	<0.005	0.008	<b>3.6</b>	---	---	---	---	---	---	---	---
<b>Boring B-1</b>																
B-1-20.5	20.5	9/5/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.20	<0.0050	<0.0050	---
B-1-23.5	23.5	9/5/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.20	<0.0050	<0.0050	---
B-1-27.5	27.5	9/5/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.20	<0.0050	<0.0050	---
B-1-35	35	10/31/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.20	<0.0050	<0.0050	---
B-1-38 <sup>1</sup>	38	10/31/2002	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---	---	---	---	---
<b>Boring B-2</b>																
B-2-36 <sup>2</sup>	36	10/31/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<b>0.28</b>	<b>0.067</b>	<0.0050	<0.0050	<0.0050	<0.20	<0.0050	<0.0050	---
B-2-40.5 <sup>2</sup>	40.5	10/31/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<b>0.34</b>	<b>0.17</b>	<0.0050	<0.0050	<0.0050	<0.20	<0.0050	<0.0050	---
<b>Boring B-3</b>																
B-3-23 <sup>2</sup>	23	10/31/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.20	<0.0050	<0.0050	---
B-3-35	35	10/31/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.20	<0.0050	<0.0050	---
B-3-39 <sup>1</sup>	39	10/31/2002	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<b>0.0052</b>	---	---	---	---	---	---	---	---
<b>Boring MW-1</b>																
MW-1-16	6	1/21/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	---	---	---	---	---	---	---	---
MW-1-13.5	13.5	1/21/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	---	---	---	---	---	---	---	---
MW-1-19	19	1/21/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	---	---	---	---	---	---	---	---
MW-1-25	25	1/21/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	---	---	---	---	---	---	---	---
<b>Boring MW-2</b>																
MW-2-6.5	6.5	1/21/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<b>3.6</b>	---	---	---	---	---	---	---	---
MW-2-11	11	1/21/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<b>0.97</b>	---	---	---	---	---	---	---	---
MW-2-15.5	15.5	1/21/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<b>0.12</b>	---	---	---	---	---	---	---	---



**Table 1 - Historical Soil Chemical Analytical Results**

Can-Am Plumbing  
 151 Wyoming Street  
 Pleasanton, California

Sample No.	Sample Depth (feet)	Date Collected	TPHg (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)	MtBE (ppm)	TBA (ppm)	DIPE (ppm)	ETBE (ppm)	TAME (ppm)	Ethanol (ppm)	1,2-DCA (ppm)	EDB (ppm)	Total Pb (ppm)
<b>Boring MW-2 (con't)</b>																
MW-2-21	21	1/21/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<b>0.14</b>	---	---	---	---	---	---	---	---
<b>Boring MW-3</b>																
MW-3-23	23	11/1/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.20	<0.0050	<0.0050	---
MW-3-39	39	11/1/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.20	<0.0050	<0.0050	---
MW-3-41 <sup>1</sup>	41	11/1/2002	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<b>0.029</b>	---	---	---	---	---	---	---	---
<b>Boring MW-1A</b>																
MW1A-10 <sup>3</sup>	10	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW1A-14.5 <sup>3</sup>	15	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW1A-20 <sup>3</sup>	20	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW1A-25 <sup>3</sup>	25	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW1A-30 <sup>3</sup>	30	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW1A-35 <sup>3</sup>	35	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW1A-39 <sup>3</sup>	39	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW1A-41.5 <sup>3</sup>	41.5	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW1A-45 <sup>3</sup>	45	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW1A-50 <sup>3</sup>	50	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
<b>Boring MW-2A</b>																
MW2A-10	10	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	1.3	1.0	<0.0050	<0.0050	0.021	---	---	---	---
MW2A-15 <sup>4</sup>	15	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	1.1	1.7	<0.0050	<0.0050	0.012	---	---	---	---
MW2A-20	20	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.91	0.36	<0.0050	<0.0050	0.0096	---	---	---	---
MW2A-25	25	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.12	0.028 <sup>5</sup>	<0.0050	<0.0050	<0.0050	---	---	---	---
MW2A-30	30	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.29	0.064 <sup>5</sup>	<0.0050	<0.0050	<0.0050	---	---	---	---
MW2A-35	35	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.14	0.008 <sup>5</sup>	<0.0050	<0.0050	<0.0050	---	---	---	---
MW2A-38.5 <sup>3</sup>	38.5	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.12	0.038	<0.0050	<0.0050	<0.0050	---	---	---	---

**Table 1 - Historical Soil Chemical Analytical Results**

Can-Am Plumbing  
 151 Wyoming Street  
 Pleasanton, California

Sample No.	Sample Depth (feet)	Date Collected	TPHg (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)	MtBE (ppm)	TBA (ppm)	DIPE (ppm)	ETBE (ppm)	TAME (ppm)	Ethanol (ppm)	1,2-DCA (ppm)	EDB (ppm)	Total Pb (ppm)
<b><u>Boring MW-2A (con't)</u></b>																
MW2A-40 <sup>3</sup>	40	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.18	0.036 <sup>5</sup>	<0.0050	<0.0050	<0.0050	---	---	---	---
MW2A-42.5	42.5	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.60	0.18	<0.0050	<0.0050	0.0080	---	---	---	---
MW2A-45	45	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.60	0.15 <sup>5</sup>	<0.0050	<0.0050	0.0078	---	---	---	---
MW2A-50	50	5/9/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.81	0.23 <sup>5</sup>	<0.0050	<0.0050	0.011	---	---	---	---
<b><u>Boring MW-3A</u></b>																
MW3A-10	10	5/8/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.026	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW3A-15	15	5/8/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.0070	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW3A-20	20	5/8/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW3A-25	25	5/8/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW3A-30	30	5/8/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW3A-35	35	5/8/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW3A-40	40	5/8/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW3A-45	45	5/8/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW3A-50	50	5/8/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
MW3A-55	55	5/8/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
<b><u>Boring PZ-1</u></b>																
PZ1-10	10	5/8/2006	<1.0	<0.0050	<0.0050	<0.0050	0.023	0.81	0.24	<0.0050	<0.0050	0.022	---	---	---	---
<b><u>Boring PZ-2</u></b>																
PZ2-10	10	5/8/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.52	0.17	<0.0050	<0.0050	0.015	---	---	---	---
<b><u>Boring PZ-3</u></b>																
PZ3-10	10	5/8/2006	<1.0	<0.0050	<0.0050	<0.0050	0.0071	0.015	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
<b><u>Boring PZ-4</u></b>																
PZ4-10	10	5/8/2006	<1.0	<0.0050	<0.0050	<0.0050	0.038	1.9	1.6	<0.0050	<0.0050	0.083	---	---	---	---
<b><u>Boring PZ-5</u></b>																

**Table 1 - Historical Soil Chemical Analytical Results**

Can-Am Plumbing  
151 Wyoming Street  
Pleasanton, California

Sample No.	Sample Depth (feet)	Date Collected	TPHg (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)	MtBE (ppm)	TBA (ppm)	DIPE (ppm)	ETBE (ppm)	TAME (ppm)	Ethanol (ppm)	1,2-DCA (ppm)	EDB (ppm)	Total Pb (ppm)
PZ5-10	10	5/10/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	1.0	0.74	<0.0050	<0.0050	0.010	---	---	---	---
<b>Boring PZ-6</b>																
PZ6-10	10	5/10/2006	3.3	<0.0050	<0.0050	0.023	0.034	0.024	0.013	<0.0050	<0.0050	<0.0050	---	---	---	---
<b>Boring PZ-7</b>																
PZ7-10 <sup>3</sup>	10	5/10/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.020	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---
<b>Soil Stockpile</b>																
SP1-A,B,C,D <sup>3</sup>	N/A	5/10/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0083	---	---	---	---	---	---	7.18

**EXPLANATION:**

ppm = parts per million

--- = not analyzed

N/A = not applicable

TPHg = Total Petroleum Hydrocarbons as gasoline

BTEX = Benzene, Toluene, Ethylbenzene, and Total Xylenes

MtBE = Methyl tertiary butyl ether

TBA = Tertiary butyl alcohol

DIPE = Di-isopropyl ether

ETBE = Ethyl tertiary butyl ether

TAME = Tertiary amyl methyl ether

1,2-DCA = 1,2-Dichloroethane

EDB = Ethylene dibromide

<sup>1</sup>TPHg, BTEX and MtBE according to EPA Method 8015M/8021

<sup>2</sup>This sample was originally analyzed within the EPA recommended hold time. Re-analysis for confirmation or dilution was performed past the recommend hold time. The results may still be useful for their intended purpose.

<sup>3</sup>Matrix Spike/Matrix Spike Duplicate Results associated with these samples for the analyte MtBE were affected by the analyte concentrations already present in the un-spiked sample.

<sup>4</sup>Matrix Spike/Matrix Spike Duplicate Results associated with this sample for the analytes TBA and MtBE were affected by the analyte concentrations already present in the un-spiked sample.

<sup>5</sup>TBA results for these samples may be biased slightly high and are flagged with a "J". A fraction of MtBE (up to 5%) converts to TBA during the analysis of soil samples. We consider this conversion effect to be mathematically significant in samples than contain MtBE/TBA in ratios of over 3:1.

**ANALYTICAL LABORATORY:**

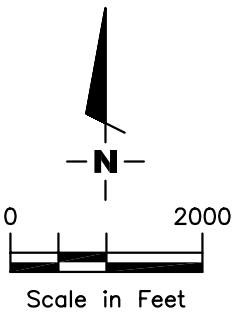
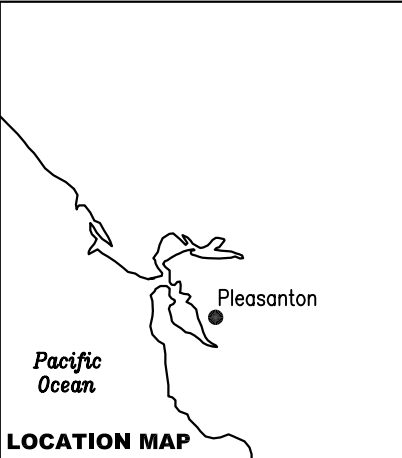
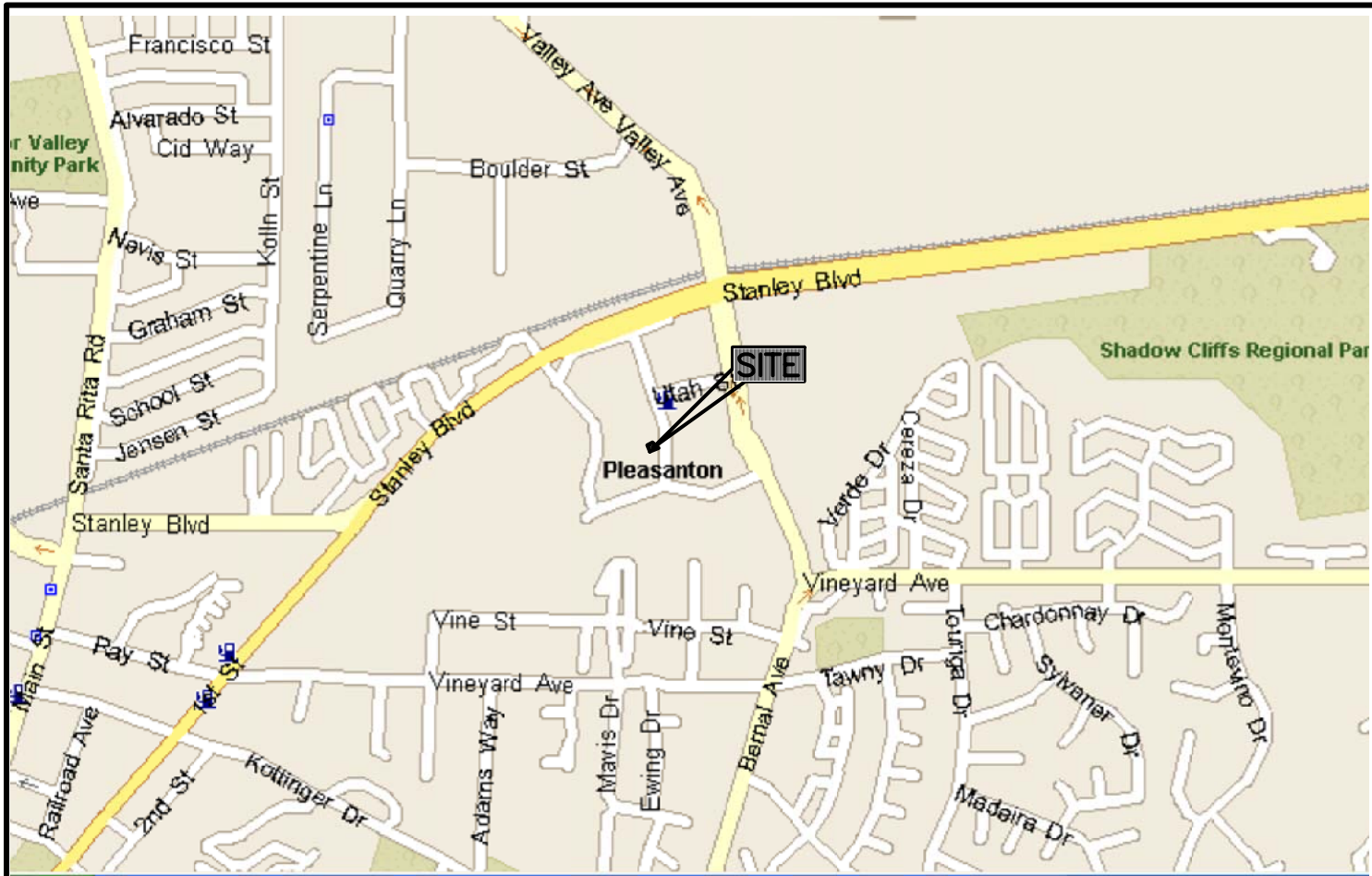
UST and Dispenser, B-1, B-2, B-3, MW-1 MW-2 and MW-3: Sequoia Analytical Sacramento (ELAP #1624)

MW-1A, MW-2A, MW-3A, PZ-1 thru PZ-7, and SP1-A,B,C,D: Kiff Analytical (ELAP #2236)

**ANALYTICAL METHODS:**

TPHg/BTEX/MtBE/TBA/DIPE/ETBE/TAME/1,2-DCA/EDB/Ethanol by EPA Method 8260B

Total Pb by EPA Method 6010B



Source: Microsoft Streets 2005

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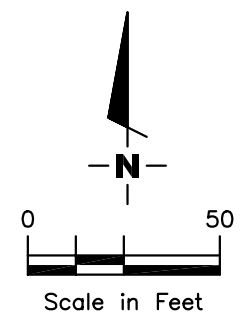
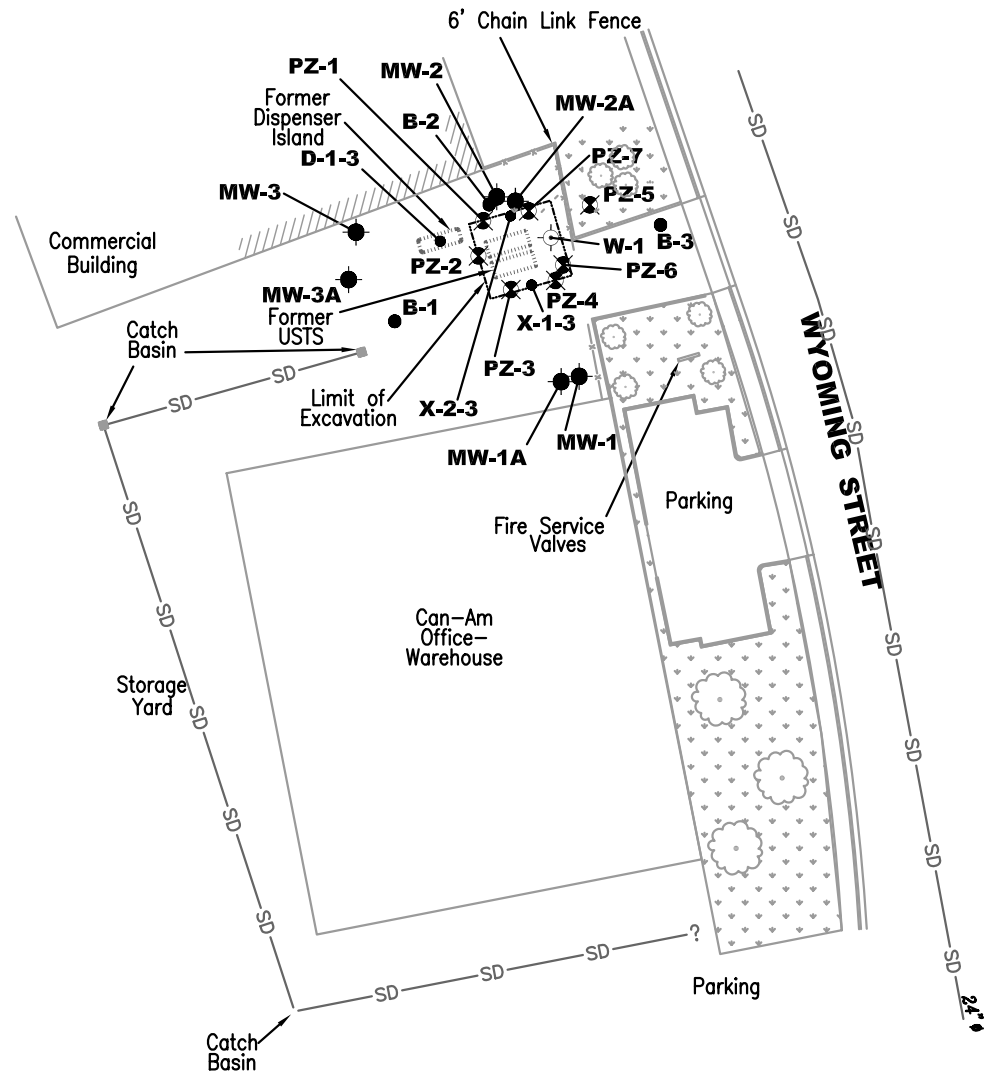
**VICINITY MAP**  
 Can-Am Plumbing  
 151 Wyoming Street  
 Pleasanton, California

FIGURE  
**1**

PROJECT NUMBER	REVIEWED BY	DATE	REVISED DATE
948162.04		01/06	

**EXPLANATION**

- Groundwater monitoring well
- ⊕ Existing tank backfill casing
- ⊗ Piezometer
- Soil boring
- Soil sample location
- SD— Storm drain



Source: Figure drawn from Gettler-Ryan field observations.

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**SITE PLAN**  
 Can-Am Plumbing Inc.  
 151 Wyoming Street  
 Pleasanton, California

FIGURE  
**2**

JOB NUMBER

REVIEWED BY

DATE

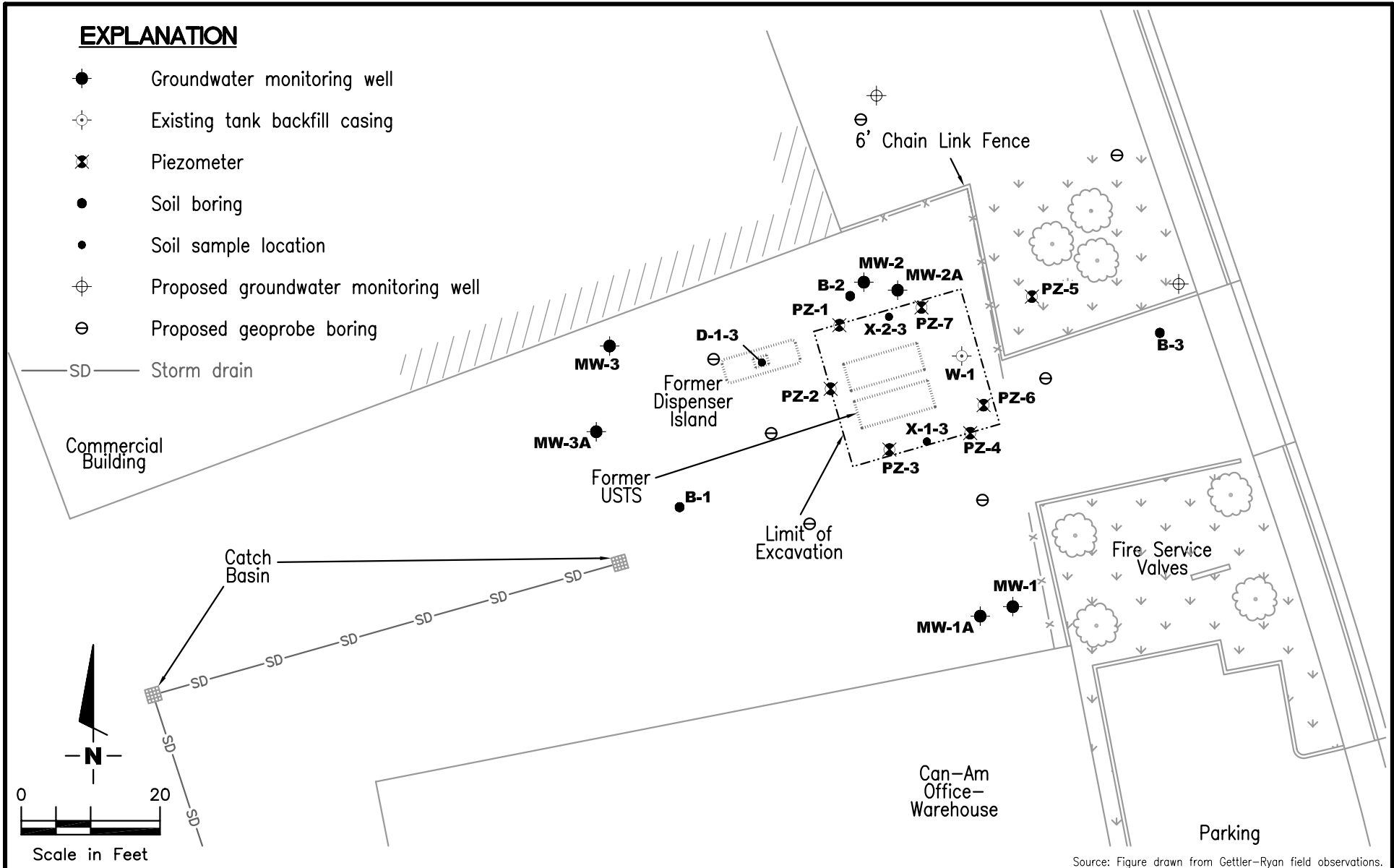
REVISED DATE

948162.4

June 15, 2006

**EXPLANATION**

- Groundwater monitoring well
- ⊕ Existing tank backfill casing
- ⊗ Piezometer
- Soil boring
- Soil sample location
- ⊕ Proposed groundwater monitoring well
- ⊖ Proposed geoprobe boring
- SD Storm drain



Source: Figure drawn from Gettler-Ryan field observations.

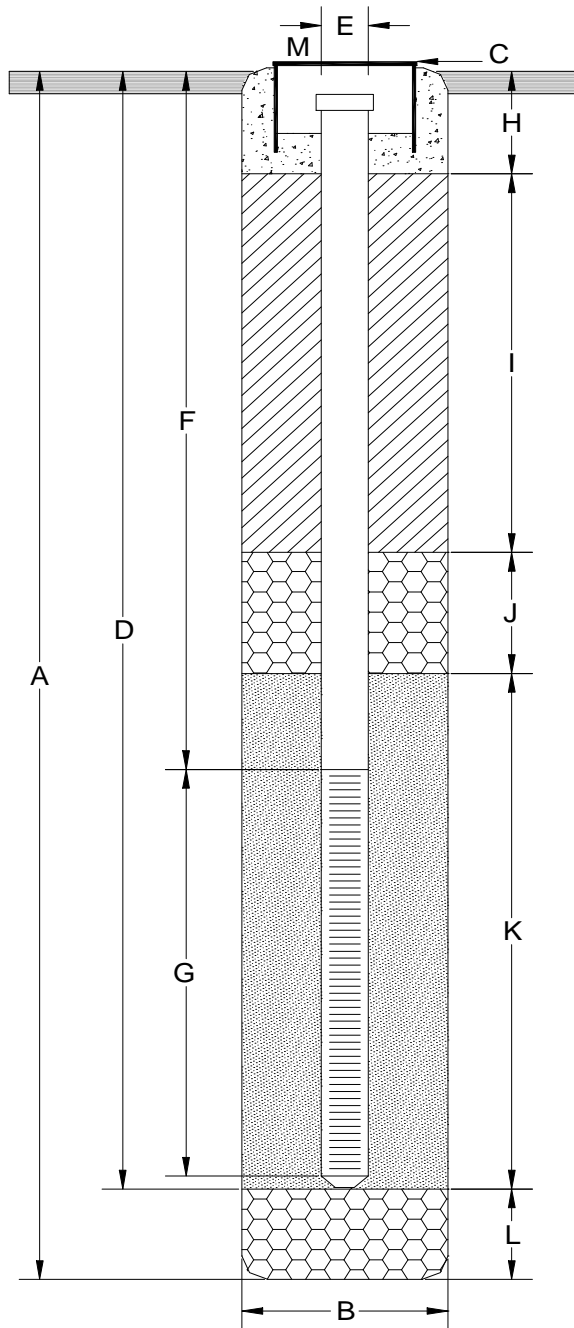
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**DETAILED SITE PLAN**  
 Can-Am Plumbing Inc.  
 151 Wyoming Street  
 Pleasanton, California

FIGURE  
**3**

JOB NUMBER 948162.4	REVIEWED BY	DATE June 15, 2006	REVISED DATE
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# WELL CONSTRUCTION DETAIL



- A Total Depth of Boring \_\_\_\_\_ 50 \_\_\_\_\_ ft.
- B Diameter of Boring \_\_\_\_\_ 8 \_\_\_\_\_ in.  
Drilling Method \_\_\_\_\_ Hollow Stem Auger \_\_\_\_\_
- C Top of Casing Elevation \_\_\_\_\_ ft.  
 Referenced to Mean Sea Level  
 Referenced to Project-Datum
- D Casing Length \_\_\_\_\_ 50 \_\_\_\_\_ ft.  
Material \_\_\_\_\_ Schedule 40 PVC \_\_\_\_\_
- E Casing Diameter \_\_\_\_\_ 2 \_\_\_\_\_ in.
- F Depth to Top Perforations \_\_\_\_\_ 40 \_\_\_\_\_ ft.
- G Perforated Length \_\_\_\_\_ 10 \_\_\_\_\_ ft.  
Perforated Interval from \_\_\_\_\_ 40 \_\_\_\_\_ to \_\_\_\_\_ 50 \_\_\_\_\_ ft.  
Perforation Size \_\_\_\_\_ 0.01 \_\_\_\_\_ in.
- H Surface Seal from \_\_\_\_\_ 0 \_\_\_\_\_ to \_\_\_\_\_ 1 \_\_\_\_\_ ft.  
Seal Material \_\_\_\_\_ Cement \_\_\_\_\_
- I Backfill from \_\_\_\_\_ 1 \_\_\_\_\_ to \_\_\_\_\_ 36 \_\_\_\_\_ ft.  
Backfill Material \_\_\_\_\_ Neat Cement \_\_\_\_\_
- J Seal from \_\_\_\_\_ 36 \_\_\_\_\_ to \_\_\_\_\_ 38 \_\_\_\_\_ ft.  
Seal Material \_\_\_\_\_ Bentonite \_\_\_\_\_
- K Gravel Pack from \_\_\_\_\_ 38 \_\_\_\_\_ to \_\_\_\_\_ 50 \_\_\_\_\_ ft.  
Pack Material \_\_\_\_\_ Lonestar #3 Sand \_\_\_\_\_
- L Bottom Seal \_\_\_\_\_ None \_\_\_\_\_ ft.  
Seal Material \_\_\_\_\_ \_\_\_\_\_
- M Water-resistant vault box, Locking well cap, and  
Lock

Note: Depths measured from initial ground surface.



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**Well Construction Detail**  
Can-Am Plumbing  
151 Wyoming Street  
Pleasanton, California

FIGURE  
**4**

## **GETTLER-RYAN INC.**

### **FIELD METHODS AND PROCEDURES WELL INSTALLATION**

#### Site Safety Plan

Field work performed by Gettler-Ryan Inc. (GR) is conducted in accordance with GR's Health and Safety Plan and the Site Safety Plan. GR personnel and subcontractors who perform work at the site are briefed on the contents of these plans prior to initiating site work. The GR geologist or engineer at the site when the work is performed acts as the Site Safety Officer. GR utilizes a photoionization detector (PID) to monitor ambient conditions as part of the Health and Safety Plan.

#### Collection of Soil Samples

Soil borings are drilled by a California-licensed well driller. A GR geologist is present to observe the drilling, collect soil samples for description, physical testing, and chemical analysis, and prepare a log of the exploratory soil boring. Soil samples are collected from the soil boring with a split-barrel sampling device fitted with 2-inch-diameter, clean brass tube or stainless steel liners. The sampling device is driven approximately 18 inches with a 140-pound hammer falling 30 inches. The number of blows required to advance the sampler each successive 6 inches is recorded on the boring log. The encountered soils are described using the Unified Soil Classification System (ASTM 2488-84) and the Munsell Soil Color Chart.

After removal from the sampling device, soil samples for chemical analysis are covered on both ends with teflon sheeting or aluminum foil, capped, labeled, and placed in a cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected soil samples to the analytical laboratory. Samples are selected for chemical analysis based in part on:

- a. depth relative to underground storage tanks and existing ground surface
- b. depth relative to known or suspected groundwater
- c. depth relative to areas of known hydrocarbon impact at the site
- d. presence or absence of contaminant migration pathways
- e. presence or absence of discoloration or staining
- f. presence or absence of obvious gasoline hydrocarbon odors
- g. presence or absence of organic vapors detected by headspace analysis

#### Field Screening of Soil Samples

A PID is used to perform head-space analysis in the field for the presence of organic vapors from the soil sample. This test procedure involves removing some soil from one of the sample tubes not retained for chemical analysis and immediately covering the end of the tube with a plastic cap. The PID probe is inserted into the headspace inside the tube through a hole in the plastic cap. Head-space screening results are recorded on the boring log. Head-space screening procedures are performed and results recorded as



reconnaissance data. GR does not consider field screening techniques to be verification of the presence or absence of hydrocarbons.

### Construction of Monitoring Wells

Monitoring wells are constructed in the exploratory soil borings with Schedule 40 polyvinyl chloride (PVC) casing. All joints are thread-joined; no glues, cements, or solvents are used in well construction. The screened interval is constructed of machine-slotted PVC well screen, which generally extends from the total well depth to a point above the groundwater. An appropriately sized sorted sand is placed in the annular space adjacent to the entire screened interval. A bentonite transition seal is placed in the annular space above the sand, and the remaining annular space is sealed with neat cement or cement grout.

Wellheads are protected with water-resistant traffic-rated vault boxes placed flush with the ground surface. The top of the well casing is sealed with a locking waterproof cap. A lock is placed on the well cap to prevent vandalism and unintentional introduction of materials into the well.

### Measurement of Water Levels

The top of the newly installed well casing is surveyed by a California-licensed Land Surveyor to mean sea level (MSL). Depth-to-groundwater in the well is measured from the top of the well casing with an electronic water-level indicator. Depth-to-groundwater is measured to the nearest 0.01-foot, and referenced to MSL.

### Well Development and Sampling

The purpose of well development is to improve hydraulic communication between the well and the surrounding aquifer. Prior to development, each well is monitored for the presence of floating product and the depth-to-water is recorded. Wells are then developed by alternately surging the well with a vented surge block, then purging the well with a pump or bailer to remove accumulated sediments and draw groundwater into the well. Development continues until the groundwater parameters (temperature, pH, and conductivity) have stabilized.

### Storing and Sampling of Drill Cuttings

Drill cuttings are stockpiled on and covered with plastic sheeting and samples are collected and analyzed for disposal classification on the basis of one composite sample per 100 cubic yards of soil. Stockpile samples are composed of four discrete soil samples, each collected from an arbitrary location on the stockpile. The four discrete samples are then composited in the laboratory prior to analysis.

Each discrete stockpile sample is collected by removing the upper 3 to 6 inches of soil, and then driving the stainless steel or brass sample tube into the stockpiled material with a hand, mallet, or drive sampler. The sample tubes are then covered on both ends with Teflon sheeting or aluminum foil, capped, labeled, and placed in a cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected soil samples to the analytical laboratory. Stockpiled soils are covered with plastic sheeting after completion of sampling.

# GETTLER-RYAN INC.

## FIELD METHODS AND PROCEDURES

### Site Safety Plan

Field work performed by Gettler-Ryan Inc. (GR) is conducted in accordance with GR's Health and Safety Plan and the Site Safety Plan. GR personnel and subcontractors who perform work at the site are briefed on the contents of these plans prior to initiating site work. The GR geologist or engineer at the site when the work is performed acts as the Site Safety Officer. GR utilizes a photoionization detector (PID) to monitor ambient conditions as part of the Health and Safety Plan.

### Collection of Soil Samples

Soil borings are drilled by a California-licensed well driller. A GR geologist is present to observe the drilling, collect soil samples for description, physical testing, and chemical analysis, and prepare a log of the exploratory soil boring. Soil samples obtained with a Geoprobe<sup>7</sup> rig are collected from the soil boring with a split-barrel sampling device fitted with 1.5-inch-diameter, clean brass tubes. The Geoprobe<sup>7</sup> drives the sampling device approximately 24 inches, and the filled sampler is then retrieved from the boring. The encountered soils are described using the Unified Soil Classification System (ASTM 2488-84) and the Munsell Soil Color Chart or GSA Rock Color Chart.

After removal from the sampling device, soil samples for chemical analysis are covered on both ends with teflon sheeting, capped, labeled, and placed in a cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected soil samples to the analytical laboratory. Samples are selected for chemical analysis based on:

- a. depth relative to underground storage tanks and existing ground surface
- b. depth relative to known or suspected groundwater
- c. presence or absence of contaminant migration pathways
- d. presence or absence of discoloration or staining
- e. presence or absence of obvious gasoline hydrocarbon odors
- f. presence or absence of organic vapors detected by headspace analysis

### Field Screening of Soil Samples

A PID is used to perform head-space analysis in the field for the presence of organic vapors from the soil sample. This test procedure involves placing a plastic cap over the end of the tube and allowing the sample to sit for several minutes. The PID probe is then inserted through a hole in the cap and the atmosphere within tested. Head-space screening results are recorded on the boring log. Head-space screening procedures are performed and results recorded as reconnaissance data. GR does not consider field screening techniques to be verification of the presence or absence of hydrocarbons.

### Grab Groundwater Sampling

Grab samples of groundwater are collected from the boring using a peristaltic pump or micro-bailer. With the peristaltic pump, new Tygon<sup>7</sup> tubing is placed in the pump prior to collection of each sample. The tubing is

lowered into the boring through the GeoProbe equipment after groundwater has been allowed to collect. The peristaltic pump is used to evacuate water from the boring where it is discharged to laboratory-supplied containers appropriate for the anticipated analyses. With the micro-bailer, the cleaned bailer is lowered through the GeoProbe equipment into the groundwater. The bailer is allowed to fill, then is brought to the surface where the water is decanted into the sample container. The micro-bailer may also consist of a clean piece of tubing with a check valve at the bottom. The tubing is pumped up and down to bring the water sample to the surface and discharge the sample to the appropriate container.

Following collection of the groundwater sample, the sample bottles are then labeled and placed in chilled storage for transport to the analytical laboratory. A chain-of-custody form is initiated in the field and accompanies the groundwater samples to the analytical laboratory.

### **Soil Vapor Sampling**

Soil vapor samples are collected by advancing the Geoprobe<sup>7</sup> to a discrete depth. Once the desired depth is attained, a 1/4-inch polyethylene tubing is threaded through the inside diameter of the drive rods and connected either to a tedlar bag or summa canister. The bottom portion of the drive rod is retracted and a vacuum is induced to purge a soil vapor sample. Used tubing is discarded after each sample.