ATT

November 18, 1992

Ms. Juliet Shin
Hazardous Materials Specialist
Alameda County Health Care Services Agency
Dept. of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, CA 94621

Subject: Workplan for Monitoring Well Installation
Alameda Collision Repair, 1911 Park Street
Alameda, CA 94501
(Project No. 929393)

Aqua Terra Technologies
Consulting Engineers
& Scientists

2950 Buskirk Avenue
Suite 120
Walnut Creek, CA
94596-2079
FAX 934-0418
510 934-4884

Dear Ms. Shin:

The following workplan for installation of a groundwater monitoring well for the property at the above referenced address is submitted in accordance with the San Francisco Bay Region of the Regional Water Quality Control Board (RWQCB) Staff Recommendations for Initial Evaluation and Investigation of Underground Fuel Storage Tanks, California Leaking Underground Fuel Tank (LUFT) Task Force LUFT Field Manual (October, 1989) guidelines, California Department of Health Services (DHS) regulations as outlined in Title 22 and Title 23 of the California Code of Regulations (CCR), the requirements of the Alameda Health Care Services Agency (ACHCSA) letter dated June 19, 1992, and the guidelines of the Alameda County Flood Control District - Zone 7.

I. INTRODUCTION

A. Scope of Work

Aqua Terra Technologies, Inc. (ATT) intends to determine the potential impacts to groundwater from underground fuel tanks removed from the subject property on June 20, 1988. Since groundwater gradient information is available from neighboring sites, this investigation will involve the installation of one groundwater monitoring well in the downgradient direction on the subject property. If groundwater gradient and groundwater quality indicates a shift in flow direction or the presence of contaminants above regulatory action levels, ATT will propose additional wells to investigate the lateral and vertical extent of the contamination.

B. Site Location

The subject property is located in a commercial retail area in the eastern part of the City of Alameda. The regional location for the site is shown on Plate 1 (Attachment A) and specific site features are shown on Plate 2 (Attachment A).

C. Background

Two underground gasoline fuel storage tanks were removed from the subject facility. The tanks were located in the approximate center of the property. The tanks, with subsequent sampling, were removed by Uriah Inc., in June, 1988. Laboratory analytical results are discussed below.

D. Site History

1. The subject property is currently occupied by Alameda Collision Repair. There is one building at the site which serves as an auto body and fender repair shop. The area is covered with asphaltic pavement. There are no operating above ground or underground fuel storage tanks currently on the subject property.

2. On June 20, 1988, Uriah, Inc. (report dated July 19, 1988) removed one, 200 gallon tank and one, 750 gallon underground gasoline storage tank from the western edge of the facility. A total of three soil samples were collected from the gasoline tank excavation on June 20, 1988 by Uriah, Inc. In addition, three water samples was collected from the tank pit. All samples were submitted to HAZCAT Mobile Organics Lab, San Carlos, California for analysis.

   Soil sample analyses by HAZCAT Labs collected from the bottom of the removed gasoline tank excavation indicated that total petroleum hydrocarbons as gasoline (THP-g) were below analytical detection levels (1.0 mg/Kg). Water samples

collected from the tank pit detected levels of TPH-g ranging to 1700 ug/L, and levels of benzene, toluene, ethylbenzene, and xylene (BTEX) ranging to 4.3 ug/L, 300 ug/L, 500 ug/L, and less than detection (100 ug/L), respectively. Lead concentrations detected in the soil samples ranged from 3.2 mg/Kg to 4.8 mg/Kg and lead concentrations detected in a single water sample was 27.4 ug/L.

ATT understands that an Underground Storage Tank Unauthorized Release (Leak/Contamination) Site Report was filed, however, it is not included in this submittal.

II. SITE DESCRIPTION

A. Vicinity Description and Hydrogeological Setting

The subject property is in the Alameda Alluvial Plain which consists of alluvial fan deposits of clay, silt, and sand interbedded with coarser gravels. According to the Alameda County Flood Control and Water Conservation District (ACFCWCD), 1988, 205 (J) report: "Geohydrology and Groundwater - Quality Overview, East Bay Plain Area, Alameda County, California" the shallow, unconfined groundwater table may range from 5 to 10 feet below grade. Groundwater flow direction determinations collected since June, 1988 from a near by EXXON service station, (Station #7-0104 - Plate 1, Attachment A) indicate that the verified flow direction is to the Tidal Canal (east).

B. Vicinity Map

The map showing the regional property location is shown on Plate 1 (Attachment A).

C. Site Specific Map

A map showing the specific site features is shown on Plate 2 (Attachment A).

D. Existing Soil Contamination and Excavation Results

ATT was not involved in the tank removal activities or in activities on the subject property prior to September, 1992; therefore, the following information is provided.

1. Sampling Procedures. No information is available to ATT on the protocol used concerning previously collected soil and water samples by Uriah Inc.. Samples collected and analyzed by HAZCAT Labs were submitted to involved regulatory agencies.

2. Depth to Groundwater. The maximum depth of the tank excavation was seven feet below grade. A review of data from the ACFCWCD (1988) 205 (J) report indicates the shallow, unconfined groundwater table in this area may range from 5 to 10 feet below grade.

3. Soil Profile Encountered. Site specific information is not available.

4. Sampling and Laboratory Data. Samples collected, from the former gasoline tank excavation, by HAZCAT Labs were analyzed for TPH (gasoline) using EPA Method 5020 and 8015, and benzene, toluene, ethylbenzene, and xylene (BTEX) using EPA Method 8020 and for lead using EPA Method 7420.

5. Underground Utilities. Information regarding underground utilities is not available from previous reports.

6. Unusual Problems. No unusual problems have been noted on the subject property.

7. Contaminated Soil Storage and Disposal. Information regarding excavated contaminated soil storage or disposal is not available.

8. Required Permits Obtained. A permit to remove the underground fuel storage tanks was obtained by Uriah Inc. At this time, no other permits have been required. A groundwater monitoring well permit, from the Alameda County Flood Control District (Zone 7), will be obtained prior to installation of the groundwater monitoring well.

III. Plan for Determining Extent of On Site Soil Contamination.

A. Extent of Contamination Within the Excavations.

Soil sample analytical results from the tank removal did not detect contaminants above analytical methods of detection, therefore an investigation to determine the extent of soil contamination within the excavation is not proposed.

B. Sampling Methods and Procedures for the Site.

1. Soil samples will be collected during the installation of the groundwater monitoring well; soil sample collection will be conducted according to the protocol given in Attachment B. The groundwater monitoring well boring will be continuously logged. Soil samples will be cooled with dry ice in accordance with agency requirements.

2. Soil sample analytical methods will follow the appropriate agency requirements. Sample analytical methods and detection limits are given in Table 1, Attachment C.

C. Onsite Soil Treatment.

Soil cuttings from the installation of the groundwater monitoring well will be managed pending analytical results. However, on-site soil treatment is not proposed.

D. Site Security Measures

The site is currently surrounded by a chain link fence with a gated entrance. Security is maintained by the onsite building owner.

IV. PLAN FOR DETERMINING GROUNDWATER CONTAMINATION.

According to ACHCSA correspondence, Alameda Collision Repair is to install three groundwater monitoring wells on the subject property to determine groundwater flow direction and soil and groundwater quality. However, if representative groundwater flow direction determinations can be obtained from a neighboring site, a single well may be placed in the downgradient direction. In addition, reports are required regarding groundwater quality results and flow direction will be submitted on a quarterly basis.

ATT proposes to install one, four-inch diameter groundwater monitoring well; the well will be placed in the downgradient groundwater flow direction, within ten feet of the former tank excavation. Groundwater flow direction determinations will be obtained on a monthly basis from a neighboring site. This site is the Exxon Service Station #7-0104, located at 1725 Park Ave. The Exxon station is approximately 1.5 city blocks south of Alameda Collision Repair. According to the Third Quarterly report prepared by Harding Lawson Associates (HLA) for Exxon static water table measurements have been ongoing since June, 1988.

Review of the groundwater table elevations collected by HLA, indicate a consistent flow direction to the east. Accordingly, the proposed location of the well at Alameda Collision Repair will be east of the former tank pit and within ten feet of the tank pit. The location of the proposed well is shown on Plate 3, Attachment A.

Soil and groundwater sampling and well development protocols are given in Attachment B. Drilling procedures and monitoring well construction are provided in Attachment D.

C. Site Safety Plan.

A site safety plan for this investigation is presented in Attachment E.

ATT is submitting this work plan at the request of Mr. Jim Thompson, President, Alameda Collision Repair. Please contact us if you have any questions or comments.

Sincerely,

AQUA TERRA TECHNOLOGIES, INC.

Karen S. Hee
Certified Engineering Geologist #1632
(Expires 6/30/94)

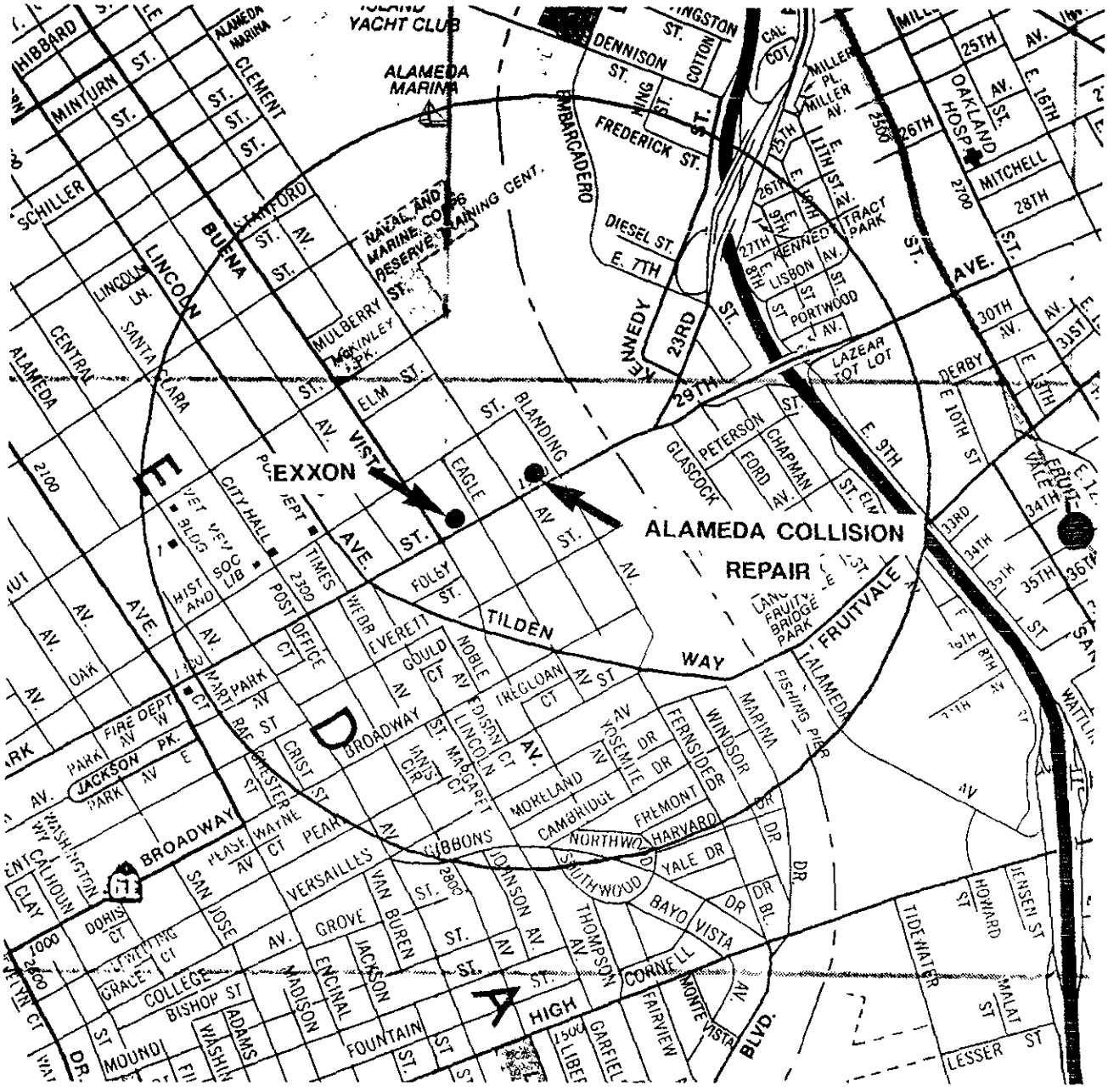
Terrance E. Carter
Senior Environmental Engineer
Project Manager

KSH/TEC:pd
Attachments

cc: Mr. Jim Thompson, Alameda Collision Repair

ATTACHMENT A

Plates



ALAMEDA COLLISION REPAIR
1911 PARK STREET
ALAMEDA

ATT Aqua Terra Technologies
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& Scientists

ALAMEDA COLLISION REPAIR		PLATE
JOB NUMBER	DATE	1
929393	10/92	

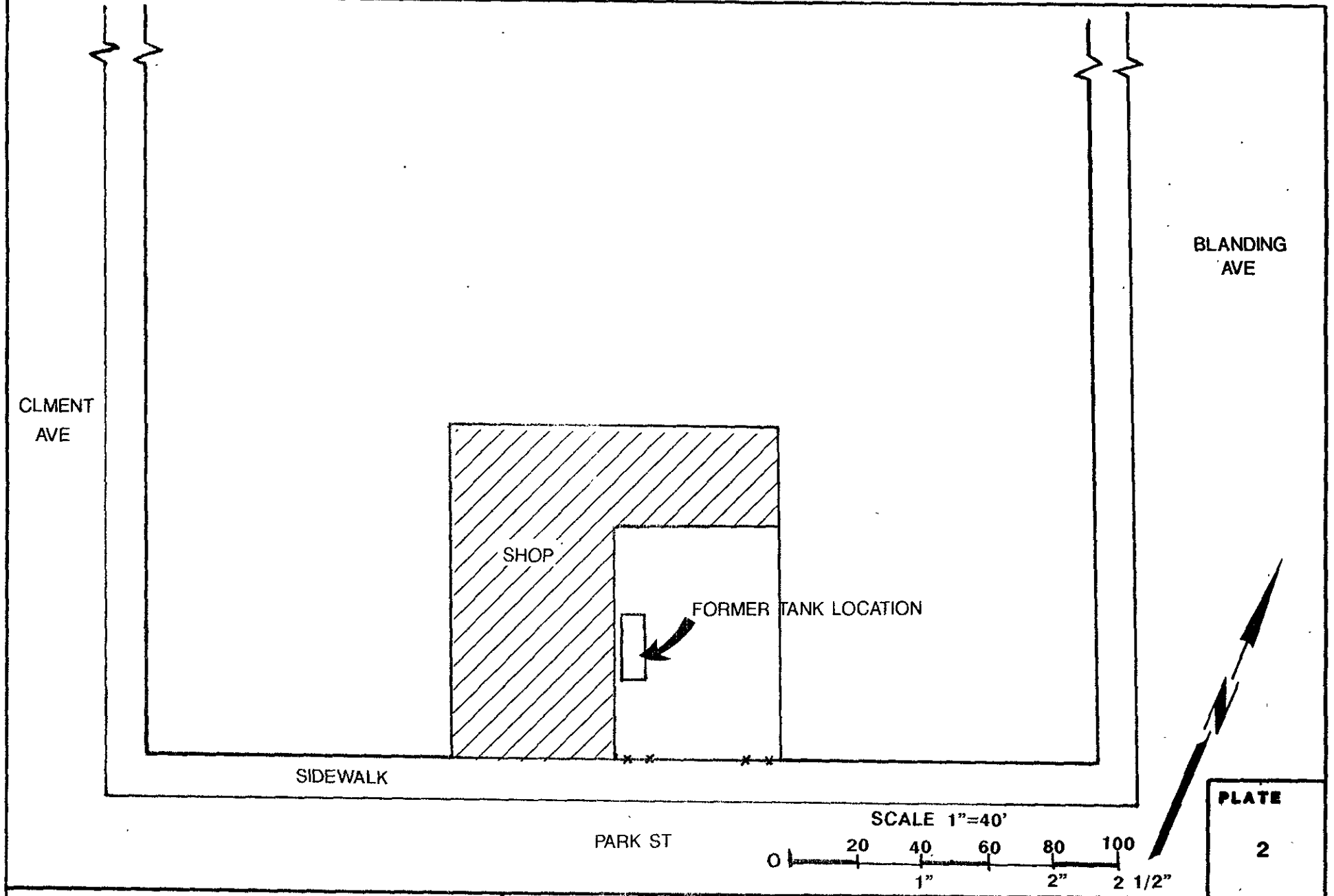

PLATE 2

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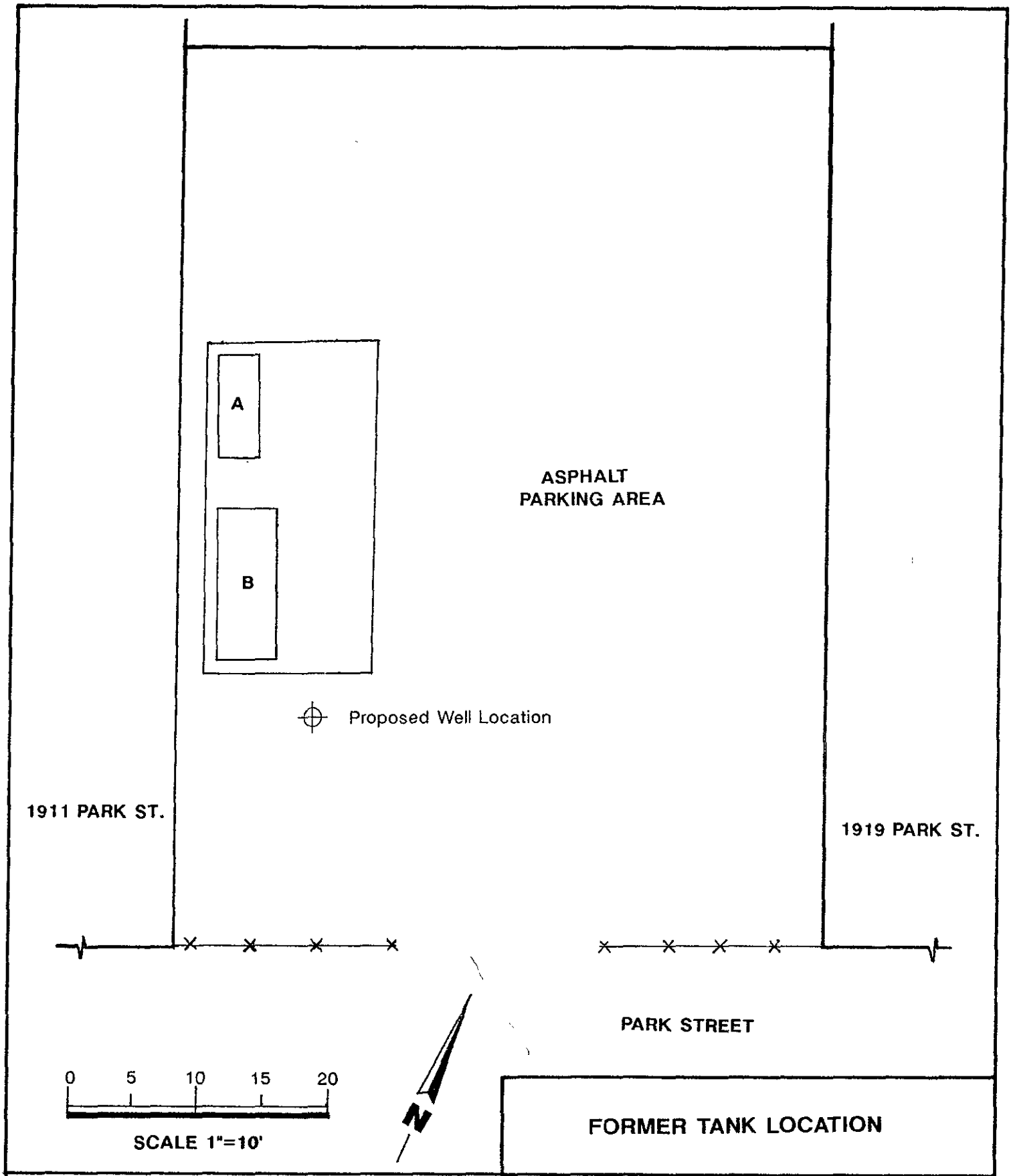
ALAMEDA COLLISION REPAIR
1911 PARK ST. ALAMEDA

ALAMEDA COLLISION REPAIR

JOB NUMBER	DATE
929393	10/92



FORMER TANK LOCATION

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ALAMEDA COLLISION REPAIR

JOB NUMBER	DATE	PLATE
929393	10/92	3

ATTACHMENT B

Soil & Groundwater Sample Collection & Handling Protocol

SOIL & GROUNDWATER SAMPLE COLLECTION & HANDLING PROTOCOL

INTRODUCTION & PURPOSE

Because reliable and representative test results must be generated from soil and groundwater samples, it is essential to establish a sampling procedure which assures that all samples are:

- Collected by approved and repeatable methods
- Representative of the materials(s) at the desired location and depth
- Uncontaminated by container and sampling equipment

The following sampling protocol is designed to be a guide to the sampling and handling procedures for soil and groundwater samples to be collected. Based on conditions which may be encountered in the field, some modifications to this protocol may be required to fit the needs of an individual site.

SAMPLING PROCEDURES

Groundwater Sampling

Prior to collecting groundwater samples, monitoring wells will be purged by bailing until pH, conductivity, and temperature levels stabilize. A minimum of four well casing volumes will be purged from each well. Wells will be purged and groundwater samples will be obtained using a teflon bailer or disposable polyethelene bailer, and nylon rope. New nylon rope will be used for each well.

The appropriate number and type of sample containers will be used for each sample collected, in accordance with the analytical laboratory requirements and EPA protocol. The bottles will be filled using the bailer. All sample bottles will be pre-cleaned by the supplier according to EPA protocols.

To prevent cross contamination of groundwater samples by the sampling equipment, all reusable equipment used in sampling will be washed with a trisodium phosphate solution (TSP), triple rinsed with purified water, and allowed to air dry prior to each use. A sample of the purified water will be retained for analysis as part of sample quality assurance.

Soil Sampling

After the soil sampler is driven to the desired depth and the samples are retrieved, each end of the tube containing the soil sample to be retained for laboratory analysis, will be sealed with teflon sheeting, covered with plastic end caps, and sealed with PVC tape. All sample containers (tubes) will be steam cleaned (or washed with TSP, as above) and air dried prior to use. The soil sample recovered in the tube just above the sample retained for chemical analysis will be examined in the field for visual and olfactory indications of chemical contamination and used for lithologic description.

The Unified Soil Classification System (USCS) will be used to log and describe the soil by the on-site geologist. These logs will also include details of the sampling process such as depth, apparent odors, discoloration, and any other factors which may be required to evaluate the presence of contamination at the site.

POST SAMPLING PROCEDURES

One field/travel blank consisting of one sample bottle filled with purified water will accompany soil and groundwater sample containers at all times, including during transport to and from the site. Purified water field/travel blanks will be analyzed according to the appropriate EPA Methods corresponding to the soil/groundwater sample analyses.

Sample containers will be labeled with sample number, project number, date, and the initials of the person collecting the sample. A separate sample collection record will be maintained for each groundwater sample collected.

Soil and groundwater samples collected will be analyzed by an analytical laboratory certified by the California Department of Health Services (DHS). Quality assurance documentation will accompany all analytical reports generated by the laboratory.

The samples will be placed in a cooler with dry ice (for soil samples) or bagged ice (for water samples) immediately following collection, and will remain in the iced cooler until refrigerated at the analytical laboratory. The samples will be delivered to the laboratory direct by courier or overnight freight within 48 hours of time of collection. Appropriate chain of custody forms will be used for all samples.

ATTACHMENT C

Tables

Table 1. Laboratory[a] Analytical Methods and Detection Limits

Matrix	TPH[b]		Hydrocarbons[b]			
	Gasoline	Diesel	B	T	E	X
Soil						
Detection	GCFID (5030/8015)	3550/8015	8020	8020	8020	8020
Limit (mg/Kg)	1.0	1.0	0.005	0.005	0.005	0.005
Water						
Detection	GCFID (5030/8015)	3510/8015	602	602	602	602
Limit (ug/L)	50	50	0.5	0.5	0.5	0.5

a. Sample analyses to be conducted by a California Department of Health Services Certified Laboratory

b. TPH = total petroleum hydrocarbons
B = benzene
T = toluene
E = ethylbenzene
X = xylene

ATTACHMENT D

Drilling Procedures & Groundwater Monitoring Well Construction/Design

DRILLING PROCEDURES & GROUNDWATER MONITORING WELL CONSTRUCTION/DESIGN

DRILLING AND SAMPLING PROCEDURES

All borings for well construction will be drilled using eight-inch diameter or larger hollow stem auger equipment. A California Registered Geologist or Engineer will direct or supervise the collection of undisturbed samples of the soils encountered and the preparation of detailed logs for each boring.

Soil sampling will be conducted using a modified California split-spoon sampler, a standard penetration sampler, or a five-foot continuous sampler. Samples will be retained in two-inch to three-inch diameter, six-inch long, clean, brass or stainless steel tubes. The samples will be retained for verification of soil classification and for chemical laboratory analytical testing, as appropriate. Teflon sheeting will be placed between the soil sample and the cap, and the cap will be sealed with PVC tape.

When access limitations do not allow drilling with truck mounted equipment, either a trailer mounted drilling rig, portable power driven, or manually operated soil sampling equipment will be utilized. If soil samples are to be retained for analysis, they will be collected in clean brass tubes fitted within a thin walled drive sampler. The soil samples will be capped and sealed as described above.

All down hole sampling, drilling, and well construction equipment and materials, including augers, casing, and screens will be steam cleaned prior to their initial use. The sampling equipment will be cleaned prior to each assembly by washing with a trisodium phosphate solution (TSP), rinsing with purified water, and allowing to air dry. The auger flights, drill bit, and sampler will be steam cleaned at each boring location.

MONITORING WELL CONSTRUCTION

Monitoring wells will be constructed in accordance with applicable local water district or California Department of Water Resources guidelines. The specific completion details for each well will be determined in the field at the time of drilling by a California Registered Geologist or Professional Engineer experienced in groundwater monitoring system design and installation.

Monitoring wells will usually consist of two or four-inch diameter, Schedule 40 PVC casing and screens with flush, threaded joints. No PVC glue will be used. The screened sections will be machine slotted with either 0.010-inch (0.255 mm) or 0.020-inch (0.51 mm) openings. The smaller slot size will be used where the wells are screened within fine-grained sandy soils, and the larger slots will be used where coarse sand or gravels are encountered. The slotted sections will be fitted with a threaded cap and placed opposite the water-bearing strata in the boring. The blank pipe will be connected to the perforated pipe and will usually extend to just below the ground surface.

The annulus between the side of the borehole and the slotted section will be filled with a clean sand pack to variable depths, but not less than one or two feet above the perforated pipe. The annulus will be packed with either Lonestar No. 1/20 or equivalent (where 0.010-inch slotted pipe is used) or No. 3 or equivalent (where 0.020-inch slotted pipe is used) washed sand filter material. The gradation of the filter material is summarized below:

U.S. Sieve No.	Opening (mm)	Percent Passing (No. 3)	Percent Passing (No. 1/20)
6	3.35	100	
8	2.36	99 - 100	
12	1.70	62 - 78	
16	1.18	15 - 33	100
20	0.85	0 - 8	90 - 100
30	0.60	0 - 4	14 - 40
40	0.425		0 - 5

A seal of bentonite pellets approximately 0.5 to 1.0 foot thick will be placed above the sand pack to reduce the risk of grout penetration into the sand. The bentonite pellets will be hydrated with purified water to form a tight plug. A cement/bentonite grout will be placed above the bentonite plug to a depth of approximately 0.5 to 2.0 feet below the ground surface. The grout will be pumped into the boreholes using a tremie pipe when required by local guidelines or regulation. A flush mounted traffic box or above-ground security enclosure will be set in concrete above the cement/bentonite mixture.

At most sites in sedimentary formations, it is not practical to "rationally design" a filter pack based on sieve analyses. From experience, Lonestar No. 1/20 or No. 3 washed sand, or equivalent, as a filter material has been selected for use in the proposed wells. The 0.010-inch and 0.020-inch slot sizes were selected to retain 100 percent of the filter material.

The completed wells will be enclosed in a traffic rated enclosure placed flush with grade or in an above-ground metal enclosure, and will be fitted with a locking cap. Well head elevations will be determined by a level survey, and well coordinates will be determined by a traverse survey. The level/traverse survey will be referenced to a bench mark of known or assigned elevation, and known coordinates. Once water levels have stabilized, water levels in all wells will be measured.

After the wells have been completed, they will be developed by pumping and surging to clean and stabilize the soils around the screens. A manually operated, positive displacement surge pump and teflon bailer, surge block, and/or centrifugal pump will be used for development. A minimum of 10 well casing volumes of water will be removed during development; however, development will continue until turbidity or sediment content has stabilized. All development equipment will be steam cleaned or triple rinsed in a solution of purified water and tri-sodium phosphate (TSP) prior to its initial use in each well. A well development record will be maintained which will include 1) a description of development water characteristics at frequent intervals, 2) the quantity of water removed during development, and 3) flow rates during development.

Soil cuttings generated during drilling will be stored in 55-gallon drums or wrapped in plastic sheeting, and water generated during well development and sampling will be retained in secured 55-gallon drums until chemical analytical data from samples are received.

ATTACHMENT E

Site Safety Plan

AQUA TERRA TECHNOLOGIES SITE SAFETY PLAN

A. GENERAL INFORMATION

Site: Alameda Collision Repair

Location: 1911 Park Street Alameda, CA

Plan Prepared By: Kimberly S. Lagomarsino
Staff Scientist

Date: November 16, 1992

Plan Approved By: Terrance E. Carter
Senior Engineer

Date: **November 16, 1992**

Objectives: Install groundwater monitoring well at the site.

Proposed Date of Investigation: December, 1992

Background Review: Complete: X Preliminary:

Documentation/Summary: See work plan dated November 17, 1992

Overall Hazard: Serious: Moderate:
Low: X Unknown:

B. SITE/WASTE CHARACTERISTICS

Waste Type(s): Liquid: Solid: X
Sludge: Gas:

Characteristic(s): Corrosive: Ignitable: X Radioactive:

Volatile: X Toxic: Reactive:

Unknown: Other(name):

Facility Description: There is currently a one story building.

Principal Disposal Method (type and location): Drilling soils will be offhauled to an approved landfill for disposal.

AQUA TERRA TECHNOLOGIES SITE SAFETY PLAN (continued)

Unusual Features (power lines, terrain, utilities, etc.): Prior to drilling activities, an underground utilities investigation will be conducted by contacting Underground Service Alert (USA) and/or a private location company.

Facility Status: Active: X Inactive: Unknown:

History (agency action, complaints, injuries, etc.): None known

C. HAZARD EVALUATION

Parameter:	TLV (ppm)	IDLH (ppm)	LEL (%)	HEALTH skin/eyes/inge./inha.
Gasoline:	300	20		X

Special Precautions and Comments: Use NIOSH approved gloves when handling soil samples and groundwater samples. Drill cutting to be immediately placed in 17-H 55 gallon drums. Samples to be collected in the open air.

D. SITE SAFETY WORK PLAN

Perimeter Establishment: Map/Sketch Attached: X (Plate 2)

Site Secured: X

Perimeter Identified: The site is identified and secured by a chain link fence.

Zone(s) of Contamination Identified: Groundwater monitoring well installation and sampling activities will identify the extent of groundwater contamination.

Personal Protection:

Level of Protection: A___ B___ C___ D X

Modifications: Advance to level C if the gasoline TLV of 300 ppm is exceeded.
Surveillance Equipment and Materials:

Instrument: HNU Action Level: 300 ppm

Site Entry Procedures: Permission of the on-duty site supervisor

Decontamination Procedures:

Personal: Wash hands, face, and boots before leaving the work site, and clothing as soon as possible. Smoking, eating, and drinking are not permitted onsite during active drilling or excavation.

AQUA TERRA TECHNOLOGIES SITE SAFETY PLAN (continued)

Equipment: Rinse equipment with water before removing it from the work site.

First Aid (type of equipment available)

1) First Aid Kit: A basic first aid kit containing antiseptic, tape, gauze, and bandages will be kept in company vehicles.

2) Fire Extinguisher: A portable dry chemical fire extinguisher will be kept in company vehicles.

3) Eyewash: An emergency eyewash kit will be kept in company vehicles.

Work Limitations (time of day, weather, heat/cold stress):

1) Work will be conducted during daylight hours, Monday through Friday.

2) No work will be conducted when temperatures fall below 33^{O}F or exceed 105^{O}F. If temperatures exceed 95^{O}F, workers will be allowed as many rest breaks as required to reduce the effects of heat stress.

3) No work will be conducted during periods of precipitation.

4) No active excavation will be conducted when winds exceed ten miles per hour.

Investigation-Derived Material Disposal: Soil cuttings from groundwater monitoring well installation borings will be added to on-site soils for disposal. Groundwater monitoring well development water will be contained on-site in 55 gallon drums (17-H) pending chemical analysis.

Team Composition:

Team Member	Responsibility
Karen S. Hee	Senior Hydrogeologist
Terrance Carter	Project Manager/Site Safety Manager
Kimberly S. Lagomarsino	Staff Scientist

E. EMERGENCY INFORMATION

Local Resources:

Ambulance:	911
Hospital Emergency Room:	(510) 522-3700, Alameda Hospital
Poison Control Center:	(415) 476-6600
Police:	911

AQUA TERRA TECHNOLOGIES SITE SAFETY PLAN (continued)

Fire Department:	911
Explosives Unit:	911
Agency Contact:	National Response Center (NRC) Toxic Chemical and Oil Spills: (1-800-424-8802)
Site Resources:	
Water Supply:	Fire hydrant located near the subject site
Telephone:	On-site
Radio:	No
Other:	N/A
Emergency Contacts:	
Name:	Phone:
Primary: Terrance E. Carter	Day: (415) 934-4884 Evening: (415) 459-7519
Secondary: Ronald M. Block	Day: (415) 934-4884 Evening: (415) 689-3573
Emergency Routes:	
Hospital:	Park Street south to Otis, Right to Willow, corner Willow and Clinton.
Other:	None