

Nov. 11, '97

Dear Mr. Chan
Dear Mr. Liett

Please find the attached
Work Plan for 4341 Howard St.
Oakland.

J. Minors

ENVIRONMENTAL
PROTECTION
97 NOV 13 PM 4:35

ARTESIAN ENVIRONMENTAL

November 6, 1997



Mr. Jim Minor
c/o UniLect Corporation
7080 Donlon Way, Suite 220
Dublin, California 94568

Dear Mr. Minor,

Enclosed please find three copies of the workplan for a soil and groundwater investigation at 4341 Howard Street, Oakland, California.

A copy of this report, along with a cover letter, should be mailed to the following agencies.

Mr. Barney Chan
Alameda County Health Services Agency
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Mr. Richard Hiatt
Regional Water Quality Control Board
2101 Webster Street
Suite 500
Oakland, California 94612

If you should have any questions or comments, please do not hesitate to call me at (510) 307-9943, ext. 224.

Sincerely,

Thomas Fortner
Project Geologist

91 NOV 13 PM 4:35
ENVIRONMENTAL
PROTECTION

ARTESIAN ENVIRONMENTAL

November 6, 1997



Soil and Groundwater Investigation Workplan
4341 Howard Street
Oakland, California 94528
StID No. 2623

Prepared for:

Mr. Jim Minor
P.O. Box 726
Diablo, California 94528

Artesian Project No.: 100-001-09

Artesian Environmental Consultants (Artesian) has been retained by Mr. Jim Minor, owner of the property at 4341 Howard Street, Oakland, California (site)(see Figures 1 and 2), to prepare this workplan for a Soil and Groundwater Investigation. Mr. Barney Chan of the Alameda County Department of Environmental Health, Environmental Protection Division (ACDEH) requested further delineation of a chlorinated solvent plume at this site.

SITE SETTING

The subject site is located off High Street in Oakland between U.S. Highway 880 and Alameda (Figure 1). The site is approximately 280,000 square feet in area and has several structures; the remainder of the site is paved. The site is currently occupied by Dailey Body, which builds and installs customized truck bodies. There are two residences on Howard Street adjacent to the site; other surrounding properties are light industrial facilities. The Bank of America property is located east of the site across Howard Street (Figure 2).

BACKGROUND

On November 15, 1991, a 1,000 gallon underground gasoline storage tank (UST) was removed from the site by Zaccor Corp. of Menlo Park, California. Soil samples taken at the time of the tank removal contained up to 8,200 milligrams per kilogram (mg/kg) (equivalent to parts per million (ppm)) total petroleum hydrocarbons as gasoline (TPH-g), 33 milligrams per liter (mg/kg) (equivalent to parts per million (ppm)) benzene, 93 ppm toluene, 0.075 ppm ethylbenzene, and 0.33 ppm total xylenes. After removal of the tank the excavation was backfilled with clean fill material, excavated soil was stockpiled and left on-site.

On June 24, 1994, Artesian overexcavated additional gasoline-impacted soil; removing approximately 110 yards of soil and producing an excavation approximately 15 feet wide, 20 feet long, and 10 feet deep. The impacted soil excavated was stockpiled on-site. On August 19, 1993 the excavation was backfilled with clean soil.

On August 31, 1993 Artesian supervised the removal of the stockpiled soil. The soil was transported to Gibson Environmental of Bakersfield, California, for recycling.

On June 25, 1993 Artesian installed groundwater monitoring well MW-1. Monitoring well MW-1 was placed approximately 10 feet from the former UST excavation in the presumed downgradient direction. An estimated westerly groundwater flow direction was based on wells at the adjacent Bank of America site. Blymyer Engineers refers to MW-1 on the Minor property as MW-7.

Groundwater samples from MW-1 have been collected on July 7, 1993, April 27, 1994, July 29, 1994, October 25, 1994, and March 23, 1995. For the last sampling event, groundwater samples were analyzed for TPH-g by EPA Method 5030 and modified Method 8015, and BTEX by EPA Method 602/8020. The groundwater was reported to contain 0.08 ppm TPH-g and 1.6 ppb benzene. Other target analytes were not detected in the groundwater sample (reporting limit 0.5 ppb).

The groundwater sample collected from the March, 1995 sampling event was also analyzed for volatile organic compounds (VOCs) by EPA Method 8010 at the request of the client. Results of this analysis indicate 12 ppb trans-1,2-dichloroethene (trans-1,2-DCE), 36 ppb cis-1,2-dichloroethene (cis-1,2-DCE), and 220 ppb trichloroethene (TCE) were present in the sample. All other target analytes were reported to be below the laboratory detection limits for this method. Blymyer Engineering also sampled MW-1 for the last three quarters and their analytical results indicate detectable concentrations of VOCs. Blymyer has received permission to sample this well from Mr. Minor to investigate the extent of a VOCs release on the adjacent upgradient Bank of America site.

On October 13, 1995, Artesian drilled three borings (B-1, B-2, and B-3) down gradient of groundwater monitoring well MW-1 to delineate the extent of chlorinated solvent plume. On October 16, 1995, groundwater monitoring well MW-1 was sampled. The soil and groundwater samples collected from borings and monitoring well were analyzed for VOCs by EPA method 8010. The laboratory detected chlorinated solvents in groundwater samples collected from the three borings and MW-1, the laboratory did not detect chlorinated solvents in the soil samples collected from the borings. Groundwater samples collected from boring B-3 and monitoring well MW-1 contained the greatest concentrations of chlorinated solvents during this sampling event. Figure 2 shows analytical results for groundwater samples collected during October 1995.

PERMITTING

A Soil Boring permit will be obtained from the Alameda County Public Works Agency. Underground utilities will be located by Underground Service Alert (USA) prior to drilling. Artesian will provide additional limited magnetic and induction line locating services to aid in locating other buried pipes and utilities prior to drilling.

SITE SAFETY PLAN

The Site Safety Plan for this work will be prepared and will be onsite during all field activities. All persons working in the exclusion zone and the contamination reduction zone will be familiar with the SSP and will be required to comply with its provisions.

BORING LOCATIONS

Borings B-1 through B-3 were drilled during the October 1995 investigation. Boring B-4, B-5, and B-6 will be drilled along the north east side of the building located at 4341

Howard Street. The borings will be located in the upgradient direction of groundwater monitoring well MW-1/MW-7 and boring B-3. See Figure 3 for proposed boring locations.

FIELD ACTIVITIES

Field work will proceed following approval of this workplan by the ACDEH and RWQCB. Artesian will drill three continuous core borings to groundwater (approximately eight feet bgs). The drilling will be done with direct penetration technology (DPT) equipment. Soil samples will be collected using a drive sampler equipped with polyethylene terephthalate glycol (PETG) liners. The ends of the liners will be sealed with Teflon tape and plastic caps. Soil samples will be screened for organic vapors using a photoionization detector (PID) to assist in the characterization of the vadose zone.

Approximately ten feet of clean one-inch polyvinyl chloride (PVC) screen will be lowered down each open borehole to form temporary groundwater sampling points. Groundwater samples will be collected with a 0.75 inch disposable bailer and new nylon string. The groundwater will be decanted from the bailer into labeled bottles supplied by the analytical laboratory. Samples submitted for VOCs analyses will be dispensed from the bailer into labeled 40-milliliter volatile organic analysis (VOA) vials. The VOA vials will be filled completely, leaving no head space. The samples will then be stored on ice, and transported under chain-of-custody control to a California State Certified Laboratory.

The borings will be logged by a geologist under the supervision of a California Certified Hydrogeologist using the Unified Soils Classification System (ASTM D248890). The site geologist will supervise the drilling activities, collect soil and groundwater samples and document field activities. Artesian's standard operating procedures for DPT soil and groundwater sampling are attached.

All drilling and sampling equipment will be decontaminated by steam cleaning before and after drilling as well as between borings. Decontamination water and soil cuttings will be stored onsite in labeled DOT-approved containers, pending analytical results. The temporary well screen and casing will be withdrawn from the borings and disposed offsite. The borings will then be grouted to the surface with a neat cement grout on the same day.

Groundwater monitoring well MW-1/MW-7 will be sampled on the same day the borings are drilled. Prior to groundwater sampling, the well will be purged by pumping a minimum of three well casing volumes of groundwater while taking measurements of pH, temperature, and electrical conductivity between each well casing volume. The wells will be considered stabilized and ready for sampling when two subsequent measurements of these three parameters are within 10% of each other. Groundwater samples will be collected using a 1.5-inch diameter disposable bailer and new nylon string, and decanted into labeled, laboratory supplied bottles.

In order to reduce the loss of volatile hydrocarbons, samples for VOCs analysis will be dispensed from the bailer into labeled 40-milliliter VOA vials. The VOA vials will be filled completely, leaving no head space. The sample will then be stored in a refrigerated environment and transported under chain-of-custody control to a California state certified laboratory. Artesian's standard operating procedures for well sampling are attached.

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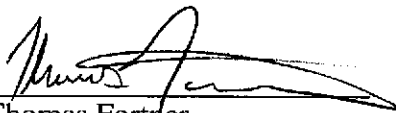
LABORATORY ANALYSES

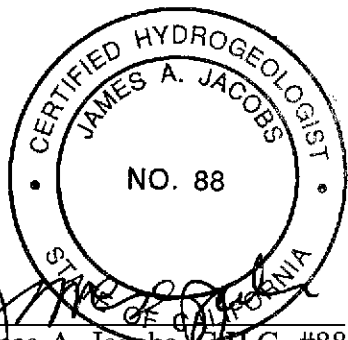
A total of 3 soil samples and 4 groundwater samples will be submitted to a state certified laboratory for analyses. A vadose zone sample, or the sample displaying the highest PID reading from each boring will be submitted for analyses. The soil and groundwater samples will be analyzed for VOCs by EPA Method 8010.

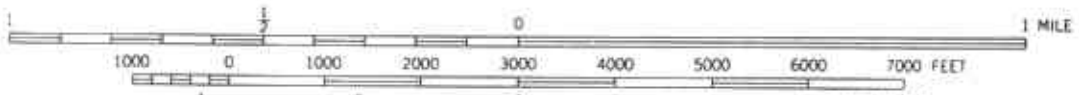
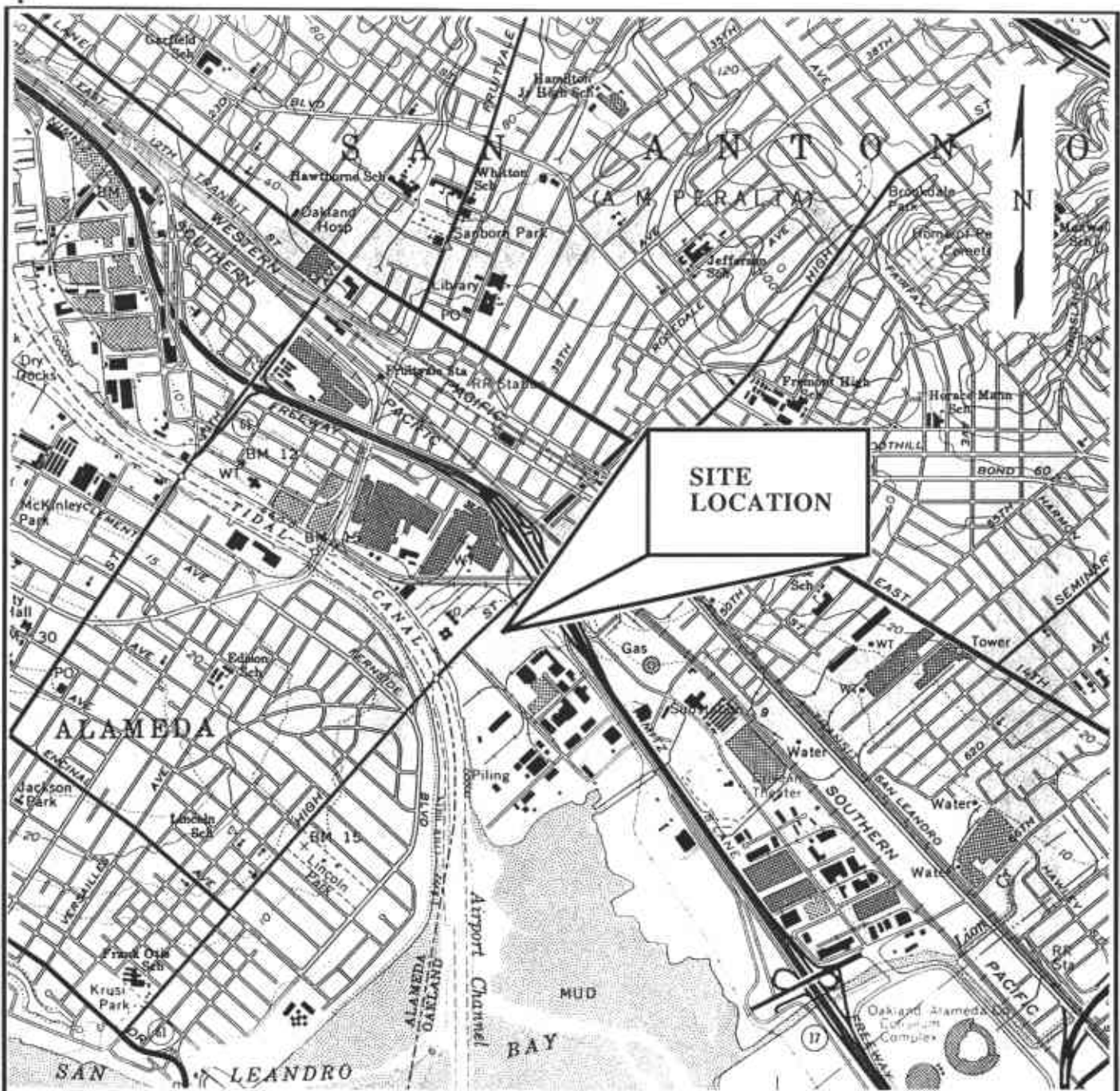
REPORT PREPARATION

Following completion of field activities and receipt of the laboratory results, a written report describing field activities. The report will include: boring logs, laboratory reports, chain-of-custody records and laboratory quality control documents, tabulated laboratory results and groundwater data. Site and boring location maps will be prepared, as well as recommendations for further activities, as appropriate.

Sincerely,
ARTESIAN ENVIRONMENTAL CONSULTANTS


Thomas Fortner
Project Geologist


James A. Jacobs, C.H.G. #88
Certified Hydrogeologist



OAKLAND EAST, CALIF.

SW 1/4 CONCORD 15 QUADRANGLE
N3745—W12207 5/7 5

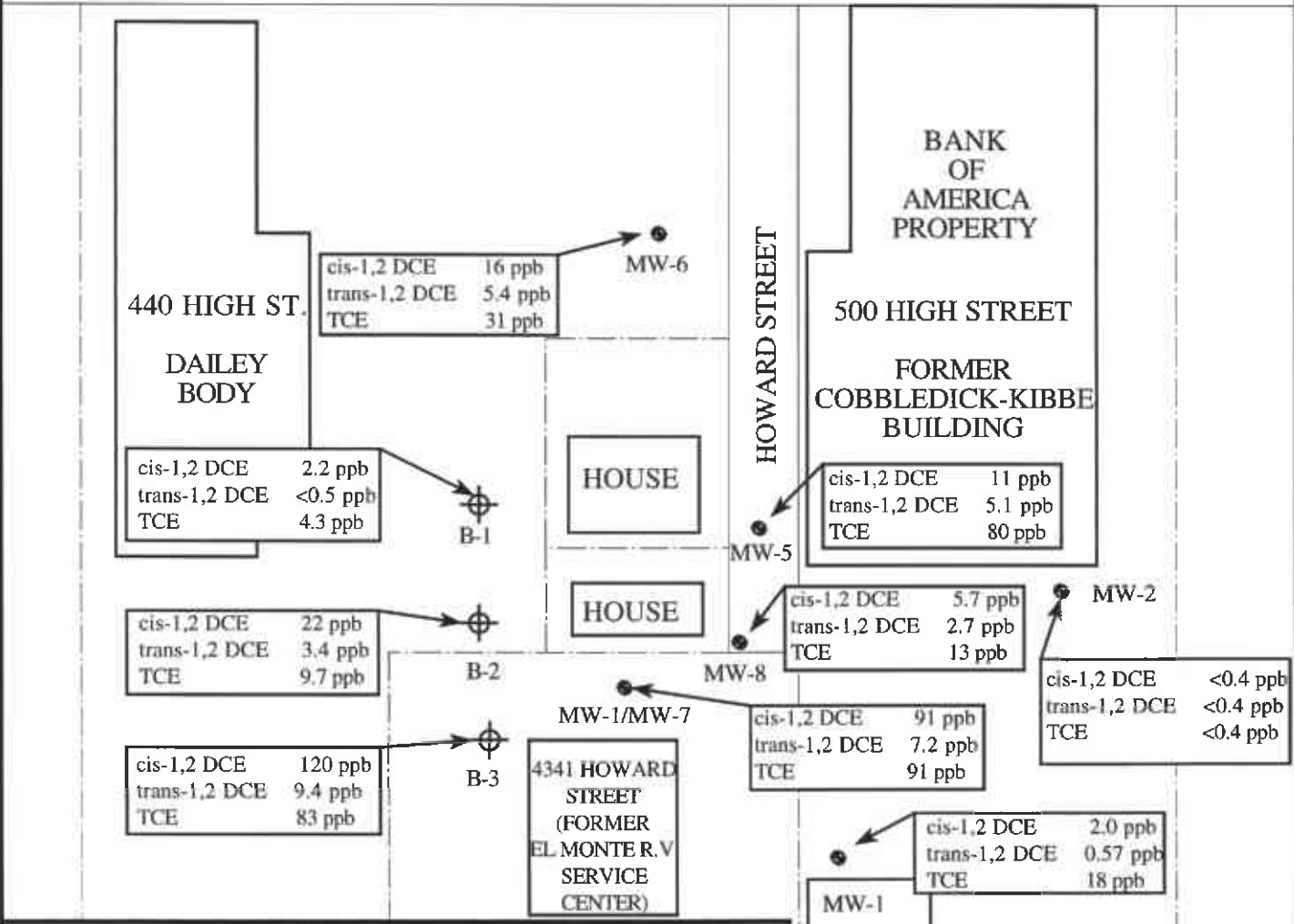
CONTOUR INTERVAL 20 FEET

1959
PHOTOREVISED 1980
DMA 1559 I SW—SERIES V895



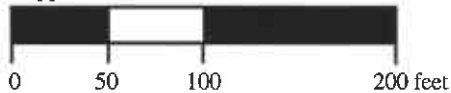
ARTESIAN ENVIRONMENTAL CONSULTANTS 229 Tewksbury Avenue Point Richmond, California 94801 (510) 307-9943 Fax (510) 232-2823		SITE LOCATION MAP MINOR PROPERTY 4341 Howard Street Oakland, California	
Project No.: 100-001-09	Date: 11/5/97	Prepared By: T. Fortner	Figure 1

HIGH STREET



EXPLANATION

Approximate Scale: 1 inch = 100 feet



Groundwater Sampling Point



Groundwater Monitoring Well Location and Number



Approximate Property Boundary

cis-1,2 DCE
 trans-1,2 DCE
 TCE
 ppb

cis 1,2 Dichloroethene
 trans 1,2 Dichloroethene
 Trichloroethene
 parts per billion



Map Based from Blymyer Engineers

ARTESIAN ENVIRONMENTAL CONSULTANTS

229 Tewksbury Avenue
 Point Richmond, California 94801
 (510) 307-9943 Fax (510) 232-2823

OCTOBER 1995 ANALYTICAL MAP

MINOR PROPERTY
 4341 Howard Street
 Oakland, California

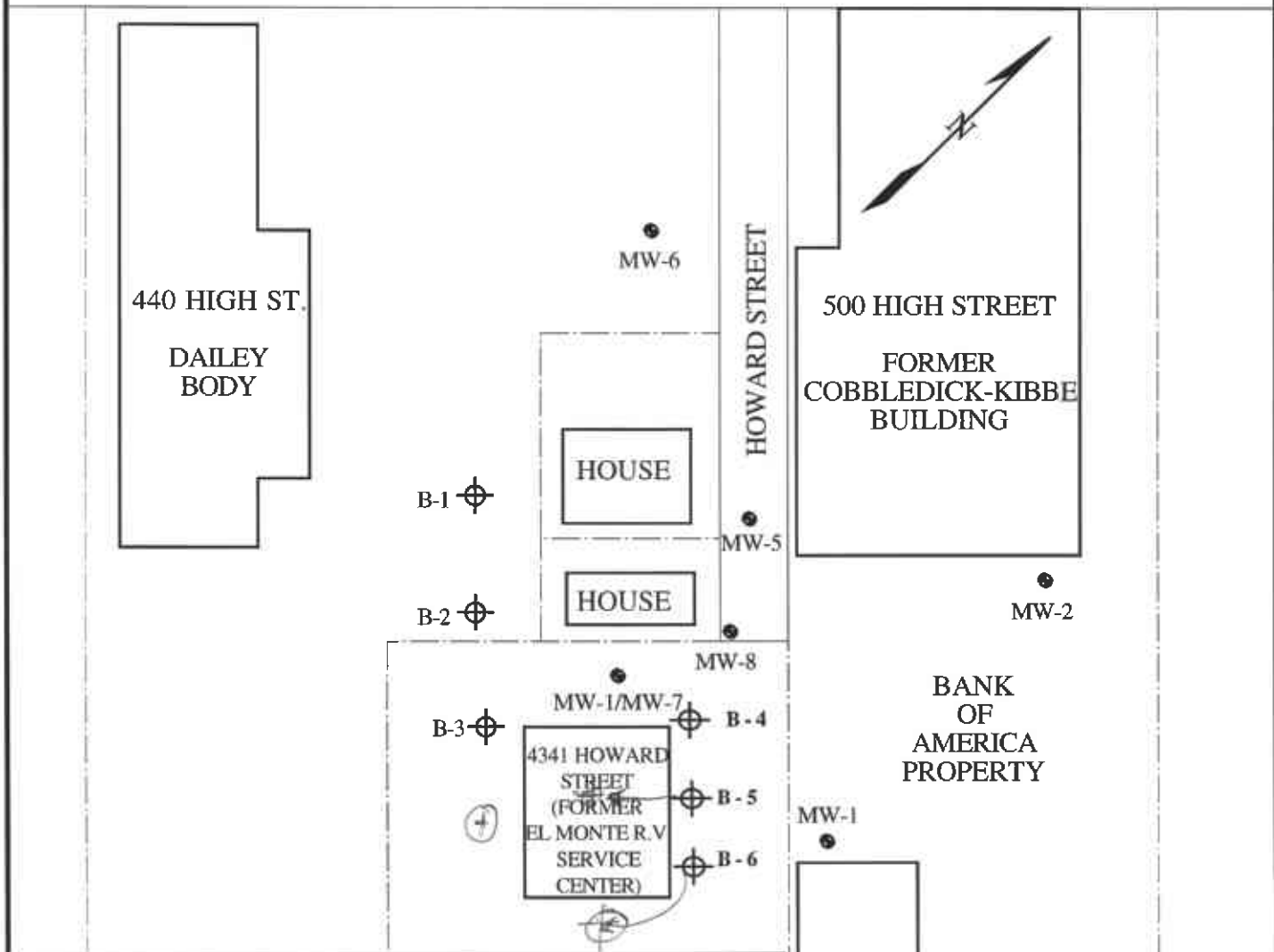
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Date: 11/5/97

Prepared By: T. Fortner

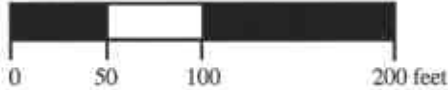
Figure 2





HIGH STREET



EXPLANATION

Approximate Scale: 1 inch = 100 feet



- B - 4  Proposed Boring Location and Number
- B - 1  Groundwater Sampling Point (October 1995)
- MW-1/MW-7  Groundwater Monitoring Well Location and Number
-  Approximate Property Boundary

Map Based from Blymyer Engineers

ARTESIAN ENVIRONMENTAL CONSULTANTS

229 Tewksbury Avenue
Point Richmond, California 94801
(510) 307-9943 Fax (510) 232-2823

PROPOSED BORING LOCATION MAP

MINOR PROPERTY
4341 Howard Street
Oakland, California

Project No.: 100-001-09

Date: 11/5/97

Prepared By: T. Fortner

Figure 3

ARTESIAN ENVIRONMENTAL CONSULTANTS

STANDARD OPERATING PROCEDURES

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Standard Operating Procedures

Direct Push Technology - Soil Sampling

Direct push technology, also called drive point sampling and soil probing, uses portable and limited access hydraulic or pneumatic probing methods to sample soils. Artesian uses hardened stainless steel soil sampling tools. The tools are designed for discrete or continuous coring.

Piston Probe-Drive Sampler

The 2-foot to 4-foot long Probe-Drive piston sampler remains completely sealed with disposable, rubber o-rings, while it is pushed or driven to the desired sampling depth. After the sampler has been driven to the target depth, a piston stop-pin at the trailing end of the sampler is removed using steel extension rods inserted down the inside diameter of the hollow probe rods. The piston tip retracts into the sample tube as it is displaced approximately 2 feet by the soil while the sample is being collected. Soil samples are usually collected in a 2 foot long inert PETG liners (clear plastic). The liners can be cut easily with a knife. Brass, stainless steel or Teflon liners are also available to suit various sampling requirements.

Continuous Coring Tools

Artesian uses continuous coring tools ranging from 0.5 inches to 2.0 inches in diameter. The soil sampling tools range from 1.0 feet to 4.0 feet in length. The continuous coring tool contains an inner liner composed of PETG (clear plastic), brass, stainless steel or Teflon.

Drive Points

Solid, hardened steel drive points are designed to pre-probe holes or be used where difficult drilling is encountered due to hard pan soils, penetrating frost or asphalt layers. After the hard zone has been penetrated, the drive point is removed and replaced with a coring tool.

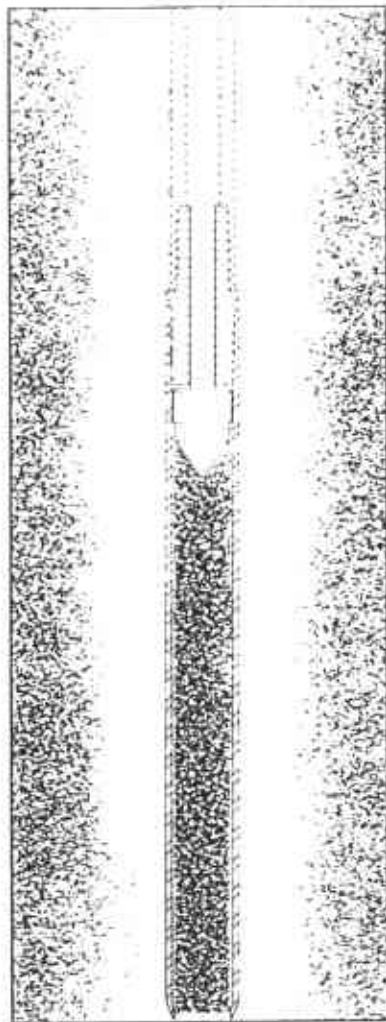
Sample Preparation

The sampler is extracted from the borehole to the surface using the Direct Push Technology (DPT) rig, a truck mounted crane, or a portable probe extractor. The sample liner containing the soil sample is removed from the sampler. The soil sample is generally logged for hydrogeologic and lithologic characteristics by a geologist or engineer under the direction and supervision of a state-registered geologist or state-registered engineer using the Unified Soil Classification System (USCS). Soil samples may be screened using an organic vapor analyzer (OVA) or a photoionization detector (PID).

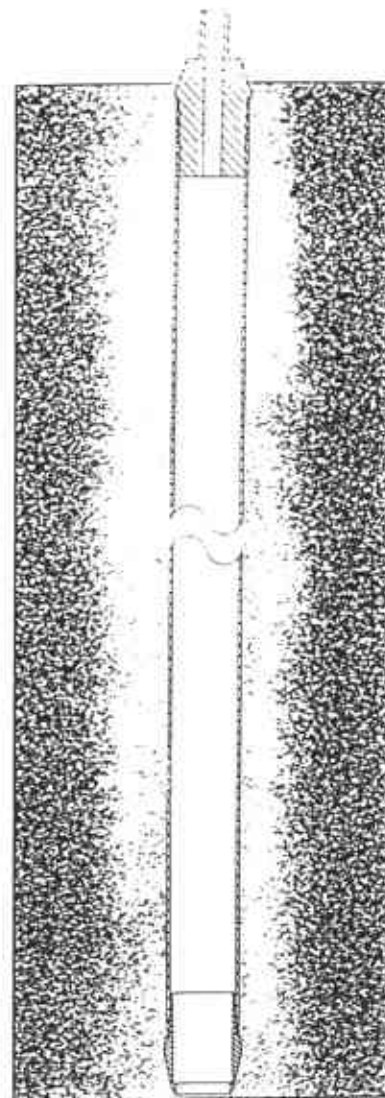
After the soil samples have been logged, the portions of the soil sample selected for analysis are immediately capped on both open ends with Teflon tape, trimmed and capped with plastic caps. The samples are then labeled and placed in individual see-through zip-lock plastic bags. The samples are stored in an ice chest with crushed ice. A thermometer is kept in the ice chest to ensure that the proper temperature is maintained. The samples are then delivered under chain-of-custody to a state-certified hazardous materials testing laboratory. The above mentioned procedures minimize the potential for cross-contamination and volatilization of volatile organic compounds (VOC) prior to chemical analysis.

Decontamination

All sampling equipment is cleaned either with a hot water pressure washer or with a phosphate-free detergent wash and two de-ionized water rinses between samples and between borings to prevent cross-contamination. The sampler is then refitted with a new soil liner and re-inserted into the borehole. The sampler is driven to the next target zone. This procedure is repeated until the total depth of the borehole is reached. Since all materials generated using direct push technology are actual samples, soil disposal is not required.



Discrete Sampling: After the probe is driven to the selected sampling depth, the point is retracted and the probe is driven down to obtain a discrete soil sample



Continuous Core Sampling: Samples are obtained from the initial insertion of the sampling tool down to the full extent of the boring. The clear PETG sample tubes are then cut to the desired size for analysis.

The Large Bore Sampler obtains a 22" X 1-1/16" core up to depths of 30' below ground surface
 The Macro-Core Sampler obtains a 45" X 1.5" core up to 20' below ground surface
 The Continuous Core Sampler obtains a continuous 1" diameter sample for the entire drilling depth
 The clear PETG sample tubes used in each method can be cut to any desired length for analyses
 Soil disposal is not required with any of these methods

Artesian Environmental Consultants is a general engineering contracting firm certified for drilling and hazardous waste removal (A/C57, Haz Waste #624461)

Artesian Environmental Consultants uses proprietary drilling equipment as well as Geoprobe, Clements Mobile Drill, and AHS Manufacturing

Soil Sampling System

ARTESIAN ENVIRONMENTAL
 3100 Kerner Blvd., Suite C • San Rafael, CA 94901
 TEL (800) 959-4801; FAX (415) 257-4805

Artesian Environmental Consultants

Standard Operating Procedures

ORGANIC VAPOR SAMPLING

Soil samples from drill cuttings, soil piles or tank excavations are placed with minimal disturbance into pre-cleaned standard soil sample collection jars. The jars are filled to approximately one half full. The soil samples are broken up to provide sufficient surface area to allow for volatilization. Aluminum foil is placed over the mouth of the jar. The jar mouth is then capped with the lid.

The jars are then placed out of direct sunlight and allowed to sit undisturbed for a minimum of twenty minutes; allowing time for the air in the headspace and soil to equilibrate.

An organic vapor analyzer (OVA) or photoionization detector (PID) is to be calibrated and the batteries checked prior to each use. After the headspace within the sample jar and soil vapor has equilibrated, the probe of the organic vapor analyzer or photoionization detector should be inserted into the jar, puncturing the aluminum foil. The presence of any organic vapor detected should be measured and recorded in parts per million (ppm).

The samples used for collecting organic vapor data are never submitted for analytical testing.

ARTESIAN ENVIRONMENTAL

Standard Operating Procedures

Groundwater Sampling Tools - Bailers and Tubing & Check Valve Systems

Artesian Environmental uses a push driven sampling method to advance a water sampling device (such as Artesian, Geoprobe or other samplers) to the target depth. After the top of the water bearing zone is encountered, the water sampling device is pushed an additional 2 to 3 feet into the aquifer. The water sampling rod consists of a steel inner core well screen nested inside a steel outer sampler sheath. The sampler is kept sealed by o-ring connections while being driven to the desired sampling depth. When the desired sampling depth is reached, the sampler is pulled up approximately 2 feet which exposes the open borehole to the inner core steel well screen, creating a temporary well from which to sample. A groundwater sample can then be collected by one of the following methods:

GROUNDWATER SAMPLING - Bailers

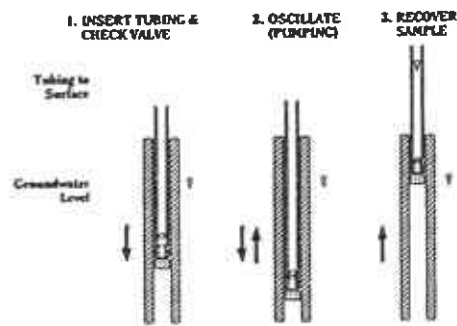
Grab groundwater samples are collected using miniature 1/2-inch diameter Teflon or stainless steel bailers. The bailers are lowered through the hollow centers of the drilling probe rods into the screened groundwater sampling device. The bailers are properly decontaminated between borings.

Groundwater Sampling with a Miniature Bailer



GROUNDWATER SAMPLING - Tubing & Check Valves

Tubing with a bottom check valve is another method of grab groundwater sampling. The 1/4-inch inner diameter polyethylene tubing with a 3/8-inch outer diameter is mounted with a stainless steel bottom check valve. The tubing, with check valve in place, is lowered down the hollow center of the drilling probe rod into the water column. An oscillating motion pumps the water column up into the tubing. The tubing recovers 9.65 ml per foot. Tests in sandy aquifers have recovered 0.5 liters of water per minute from a depth of 25 feet using the 1/4-inch inner diameter tubing and the bottom check valve.



Groundwater Sampling with a Tubing and Bottom Check Valve

Groundwater samples to be analyzed are decanted into laboratory-prepared, 40-milliliter volatile organic analysis (VOA) vials and 1 liter bottles. The VOA vials are filled completely, leaving no headspace, and are capped with septum topped Teflon-lined lids, labeled, and stored in a refrigerated environment of crushed ice and delivered under chain-of-custody to a state-certified hazardous materials testing laboratory.

Artesian Environmental Consultants

Standard Operating Procedures

MONITORING WELL SAMPLING

Prior to groundwater sampling, initial water level and floating liquid hydrocarbon measurements are recorded for each well. Each well is sounded for depth to ascertain if silting has occurred and to verify the actual depth below ground surface. These measurements are used to calculate the volume for each well. At this time, all non-dedicated pumping and sampling supplies are washed with an Alconox solution, rinsed with clean water, and final rinsed with either distilled or deionized water to prevent any cross contamination from other sampling events.

Each well is purged by evacuating a minimum of three well-casing volumes of groundwater from the well. The well-water may be evacuated either by bailing, or pumping. Any of the following may be used for bailing: a dedicated pvc bailer, sterile disposable polyethylene bailer, or a stainless steel bailer. For pumping the groundwater out of the well, a downhole impeller type pump (dedicated or removable with PVC tubing), a downhole dedicated bladder pump, or a surface peristaltic pump is used.

After three to four well volumes are pumped, each well is permitted to recharge to at least 80% of original capacity or for two hours; whichever occurs first. The water is then measured to verify whether the well has stabilized. Stabilization is determined by measuring the parameters of pH; temperature; and electrical conductivity. Stabilized measurements indicate that formation water has entered the well. When two subsequent measurements of these three parameters are within 10% of each other, the well is considered stabilized and is ready to be sampled.

The samples are collected using a new polyethylene bailer with a bottom siphon and nylon cord. The bailers are disposable, and therefore, never reused. The groundwater sample is visually inspected for the presence of free product in the sampling bailer. Agitation is minimized during sample retrieval to prevent aeration during the transfer from the well to the laboratory prepared sample containers. Duplicate water samples are collected from the well and siphoned into three, 40 ml, VOA, septum top vials, with additional 950 ml samples collected in an amber glass bottles or polyethylene bottles depending on the analyses to be performed. The VOA vials are filled completely, leaving no headspace, and are sealed with Teflon-lined lids. All samples are labeled, chilled to 4° C in an ice chest, and sent to a California State Certified hazardous materials testing laboratory under chain-of-custody documentation .

All groundwater samples are collected in accordance with California Regional Water Quality Control Board (RWQCB) procedures described in the *Leaking Underground Fuel Tank (LUFT) Field Manual*, the *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites*, and local regulatory guidelines.

Standard Environmental Protection Agency (EPA), San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), and Department of Health Services (DHS) methodologies for sampling and analyses are routinely utilized.

Chain of Custody documentation accompanies all samples to the laboratory. A copy of the Chain of Custody documentation is attached to the Certificate of Analysis.

Monitor well purge water is properly stored and labeled on site in DOT 17-H containers pending off site disposal.