Artesian Environmental Consultants

November 27, 1991

91 DEC -6 PM 3:33

Mr. Barney Chan
~~Sr.~~ Hazmat Specialist
Alameda County
Division of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

Please put in LOP file
STID#71

Subject: Workplan for Installation of Three Groundwater Monitoring Wells and Collection of Samples at **2301 E. 12th St., Oakland, California.** #601
Formerly Mel Senna Brake Service

Dear Mr. Chan:

Artesian Environmental Consultants (Artesian) has been retained by Mr. James Brinker of Bernabe and Brinker Incorporated on behalf of the owner to install three groundwater monitor wells and collect samples at 2301 E. 12th Street (the site) in Oakland, California (Figure 1).

SITE DESCRIPTION

The project site is located in the southwest corner of the intersection of East 12th Street and 23rd Avenue in Oakland. Presently a one-story building exists on the site. The building is presently used by Alejo Automotive Repair, an automobile service business.

BACKGROUND

It is Artesian's understanding that four underground storage tanks were excavated and removed from the subject property by Mr. Ray Walker of Walker Hydraulics. One 6,000 gallon gasoline tank and one 1,000 gallon gasoline tank were removed on December 21,, 1990, and two 500 gallon waste oil tanks were removed on February 11, 1991. According to a letter from Mr. Barney Chan to Mr. Silveira dated March 14, 199, " Considerable contamination was discovered at both ends of the 1000 gallon tank and at the east side of the 6,,000 gallon tank. . . (from the waste oil tank pit there) had been some release of the tank's contents in the water which was vacuumed from this pit."

100 Shoreline Hwy., Suite 295 B • Mill Valley, CA 94941 • (415) 381-6456 • FAX (415) 389-0423

WORKPLAN

This phase of work includes the preparation of a workplan and a safety plan for submittal to the Regional Water Quality Control Board; the drilling of three soil borings to a depth of about 15 to 25 feet below ground surface for soil samples and analyses; the completion of three borings as two-inch groundwater monitor wells; the purging of the wells and the sampling of the groundwater for analyses; the surveying of the top of the casing elevation and incorporating it with the existing well data; and, the production of a potentiometric surface map based on the elevation of the groundwater above mean sea level. The purpose of the phase of work is to evaluate the presence and possible lateral and vertical extent of fuel hydrocarbons that may be present in the subsurface and to assess the groundwater quality beneath the site.

SITE PLAN

Site plan maps will be used to locate the product pipeline(s), and the new monitor wells that are proposed to be installed. The proposed locations are shown on Figure 2. Each boring, B-1 through B-3, will be converted into monitor wells MW-1 through MW-3.

SITE SAFETY PLAN

The site safety plan has been prepared and will be on-site during all field activities. Underground Service Alert (USA) will be notified to identify underground utilities and other possible subsurface obstacles.

SOIL BORINGS AND SAMPLING

The borings will be lithologically logged by a California-registered geologist using the Unified Soil Classification System (USCS). During drilling, discrete soil samples are collected at approximately 5.0 foot depth intervals to the top of groundwater for lithologic and hydrogeologic description and possible chemical analysis.

Soil samples for chemical analysis are collected in pre-cleaned, thin-walled brass tubes, 6-inches long and 2-inches in the outside diameter.

Three of these sample tubes are set in a 2-inch inside diameter, 18-inch modified California split-barrel sampler. The split-barrel sampler is driven its entire length using a drop hammer, typically 140 pounds. The sampler is extracted from the borehole and the brass tubes, containing the soil samples are removed. Upon removal from the sampler, the selected brass tubes are immediately capped on both open ends with Teflon tape, trimmed and capped with plastic caps. The caps are then hermetically sealed with electricians tape. The samples are then labeled and refrigerated for delivery, 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.
The sampler is rinsed with Alconox detergent between samples and steam-cleaned with all the other drilling equipment between borings to prevent cross-contamination.

WELL INSTALLATION

The boreholes for monitor wells are drilled using a truck-mounted hollow-stem auger drill rig. The diameter of the borehole is a minimum of four inches larger than the outside diameter of the casing when installing the well screen (DWR Publication 74-81). The hollow-stem auger provides minimal interuption of drilling while permitting soil sampling at the desired intervals (Figure 3).

The wells will be drilled to about 15 to 25 feet below ground surface. Approximately five feet of screen will be placed above the first water encountered during drilling and approximately ten feet of screened interval will be placed below the first water encountered. Care will be exercised not to drill through more than four feet into an aquitard. If that occurs, the borehole will be sealed to the top of the aquitard using bentonite chips and the well base will be at the base of the aquifer.

The monitor wells are cased with threaded, factory-perforated and blank Schedule 40 PVC pipe. The perforated interval consists of slotted casing, generally 0.020-inch wide by 1.5-inch long slot size, with 42 slots per foot. A threaded PVC cap is fastened to the bottom of the casing. Centering devices may be fastened to the casing to assure even distribution of filter material and grout within the borehole annulus. The well casing is thoroughly washed and steam-cleaned prior to installation.

After setting the casing inside the hollow stem, sand or gravel filter material is poured into the annular space to fill from the bottom of the boring to 1 foot above the perforated interval. A 1 to 2 foot thick bentonite plug is placed above the filter material to prevent the grout from infiltrating down into the filter material. Neat cement, containing about , is then poured or tremied into the annular space from the top of the bentonite plug to the surface. A lockable PVC cap is placed on each wellhead. Traffic-rated flush-mounted steel covers are installed around wellheads for wells in parking lots and driveways, while steel stove pipes are usually set over wellheads in landscaped areas.

WELL DEVELOPMENT

After installation, the wells are thoroughly developed to remove residual drilling materials from the wellbore, and to improve well performance by removing any fine material in the filter pack that can pass from the formation into the well. Well development techniques include pumping, bailing, surging, swabbing, jetting, flushing, and airlifting. All development water is collected in labeled 55-gallon containers for temporary storage, and is then disposed of properly depending on analytical results. To assure that cross-contamination does not occur between wells during drilling and development, all development equipment will be cleaned using Alconox, and rinsed twice with distilled water.

Since development can volatilize contaminants present, the wells will be allowed to settle for 72 hours before development and the first bailing/sampling event.

GROUNDWATER PURGING AND SAMPLING

Prior to groundwater sampling, each well is purged by evacuating a minimum of three to ten well-casing volumes of groundwater or until the discharge water temperature, conductivity, and pH stabilize. The groundwater sample is then collected. If the well is evacuated prior to bailing/pumping the required volume, samples will be collected after approximately 80 percent of the initial water level has been recovered, or within a two hour period, which ever comes first.

Groundwater samples to be analyzed are decanted into laboratory-prepared, 40-milliliter volatile organic analysis (VOA) vials and in 1 liter bottles. The VOA vials are filled completely, leaving no headspace, and are capped, sealed with Teflon-lined lids, labeled, and stored in a refrigerated environment and delivered under chain-of-custody to a state-certified hazardous materials testing laboratory. Purged water is labeled and contained pending receipt of laboratory results of groudwater samples. Disposal shall conform to applicable hazardous waste requirements.

ANALYTICAL LABORATORY

Soil and groundwater samples will be sent to a state-certified hazardous materials testing laboratory. All soil samples selected from the boring and groundwater samples from the monitor wells will be analyzed for the recommended minimum verification analyses for underground tank leaks as described by the California Regional Water Quality Control Board. The analyses include total petroleum hydrocarbons as gasoline and diesel

(TPH-g and TPH-d, respectively) and BTEX by EPA Methods 8015 and 8020. Because of the waste oil tanks, the samples will be analyzed for total oil and grease by EPA Method 503 D & E for soil and 503 A & E for water, and chlorinated hydrocarbons by EPA Method 8010 for soil and 601 for water.

WELL SURVEY

Following the installation of the proposed monitor wells, the wells will be surveyed relative to each other. These elevations will be used to determine groundwater elevations and groundwater flow direction.

WRITTEN REPORT

The laboratory results will be evaluated in conjunction with previously collected data, and a technical report will be prepared and submitted to Artesian's client who will be advised to submit copies of the reports to the appropriate agencies.

If you have any questions, please call us at (415) 381-6456.

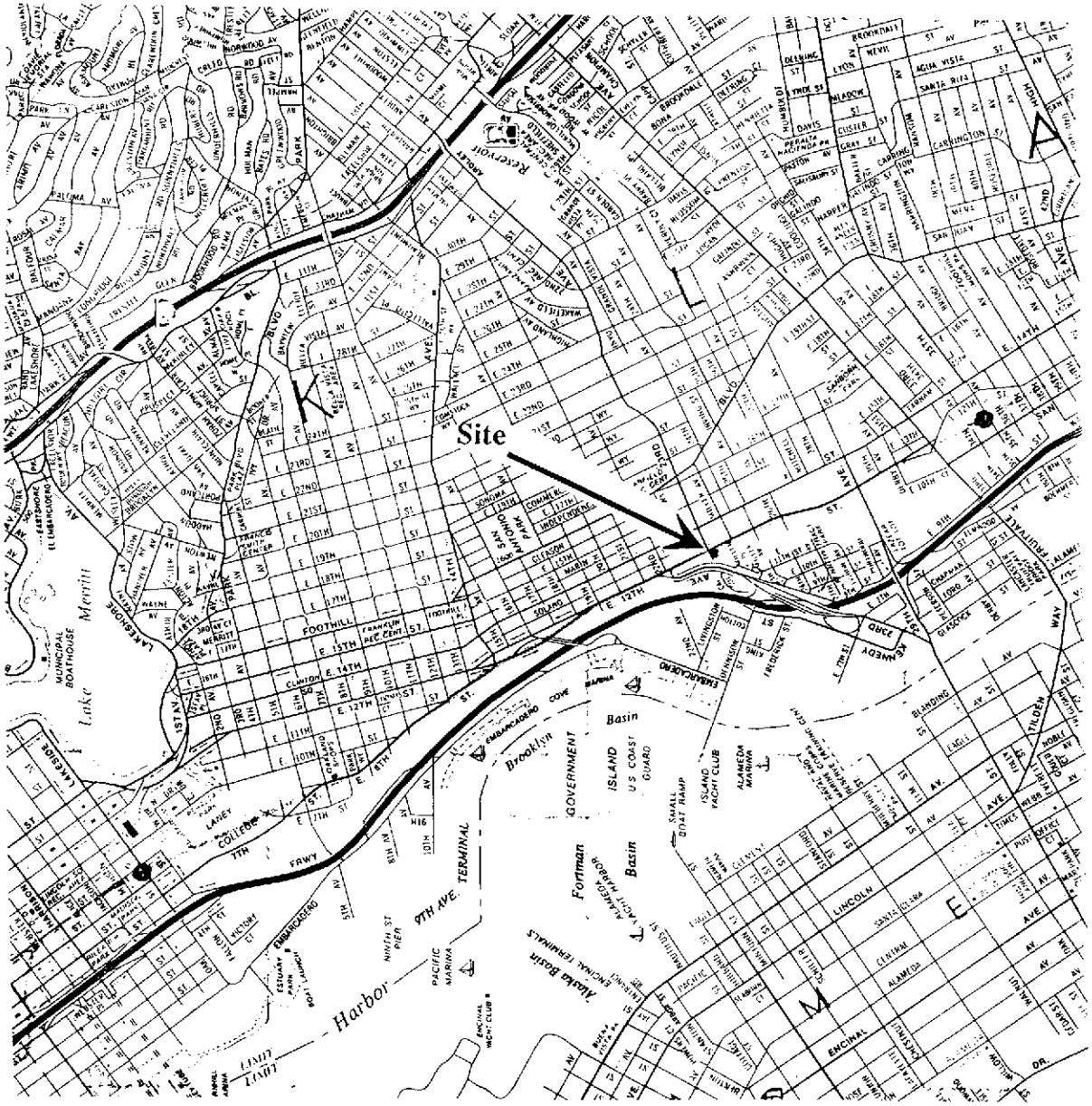
Sincerely,

Artesian Environmental Consultants

REGISTERED GEOLOGIST JAMES A. JACOBS NO. 4815 STATE OF CALIFORNIA

James A. Jacobs, RG # 4815
Principal Geologist

cc: Lester Feldman, Regional Water Quality Control Board
James Brinker, Bernabe and Brinker Incorporated

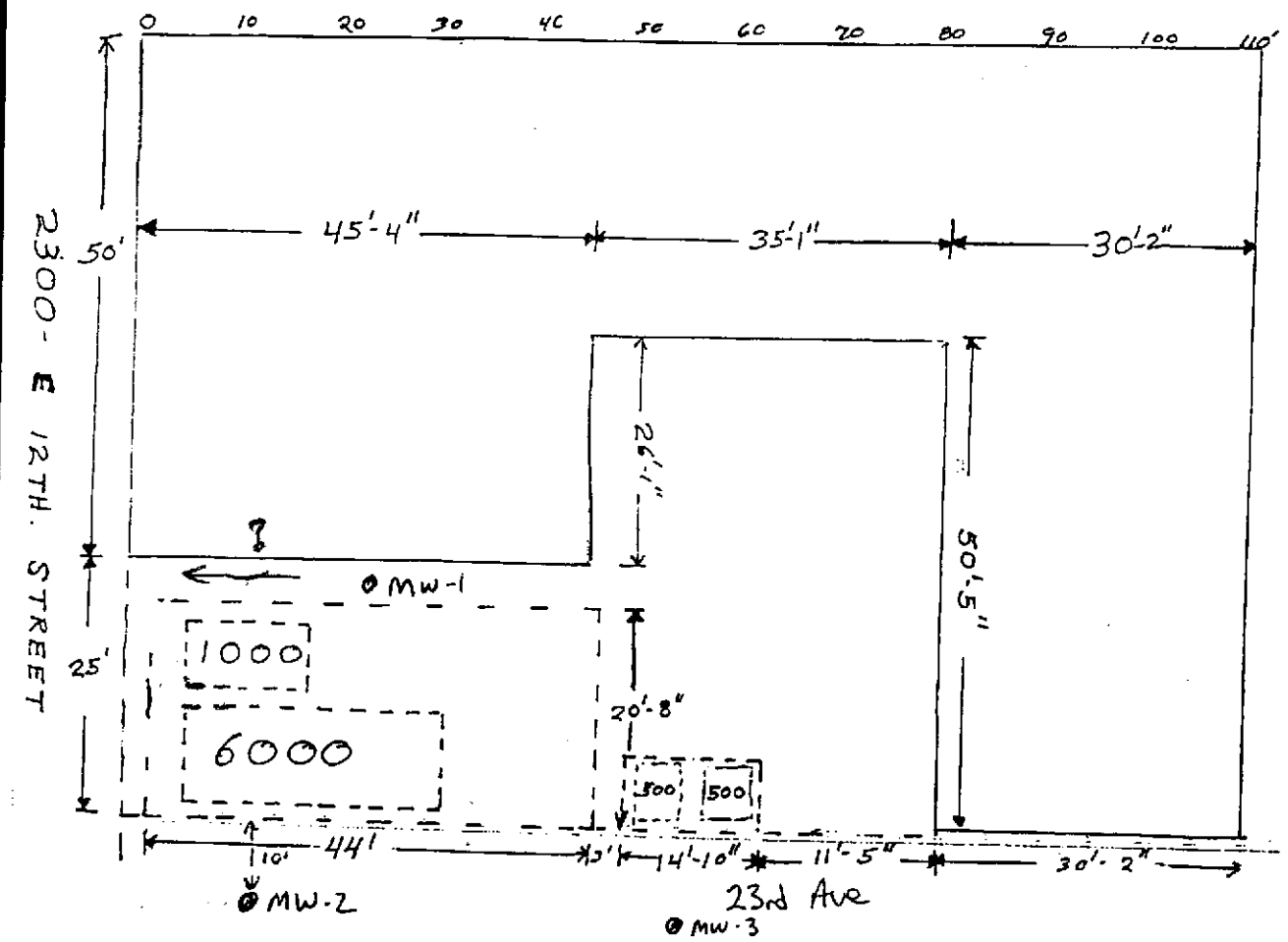


(Source: CSAA, 1980)

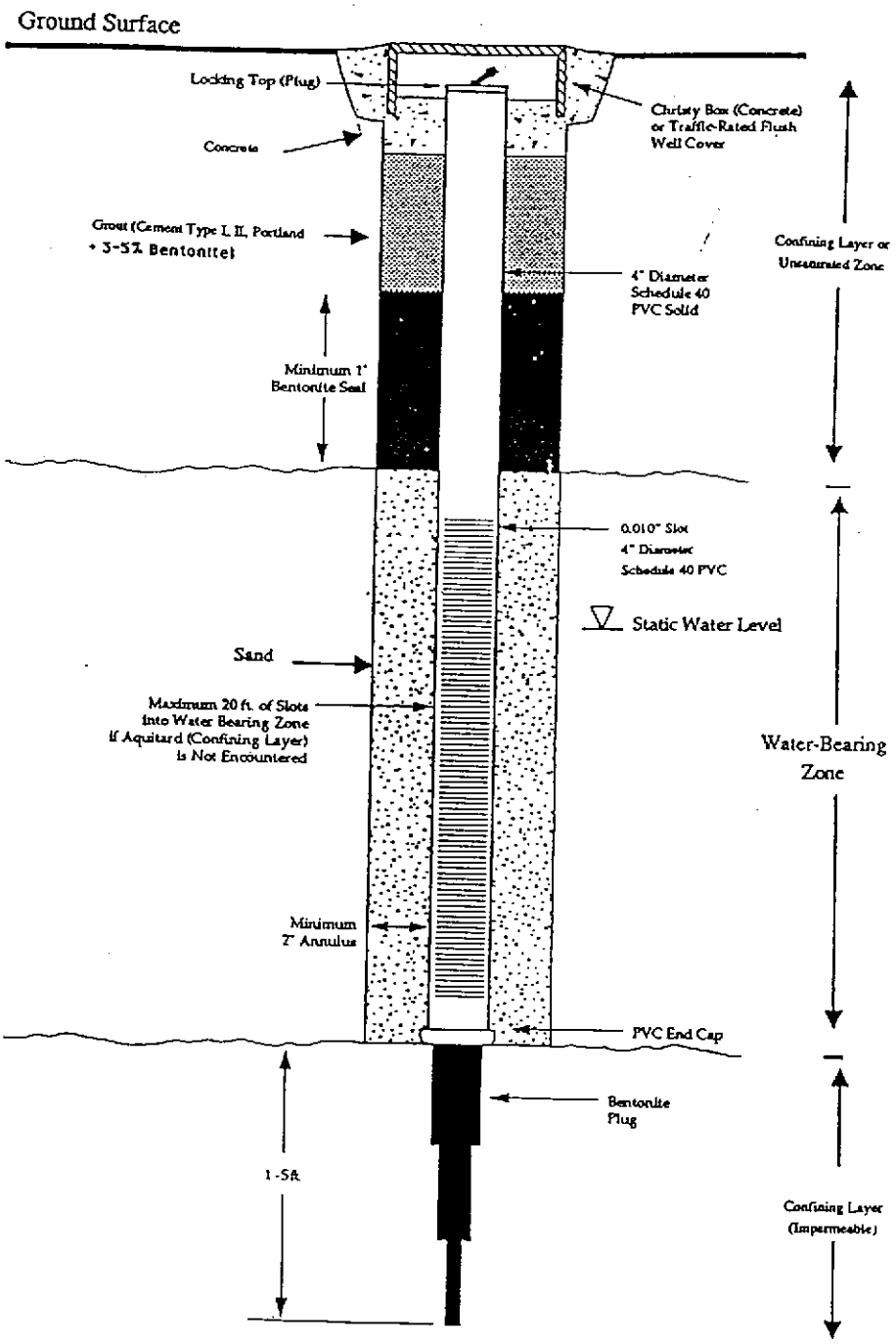
0 Scale 0.50 miles

1"=0.5 miles

Artesian Environmental Consultants 100 Shoreline Hwy., Suite 295 B Mill Valley, CA 94941 (415) 381-6456		SITE LOCATION MAP 2301 E. 12th Street Oakland, California	
Project No. B&B-2	11/22/91	Drawn by: OPJ	Figure No. 1



Artesian Environmental Consultants 100 Shoreline Hwy., Suite 295 B Mill Valley, CA 94941 (415) 381-6456		BORING/WELL LOCATION MAP 2301 E. 12th Street Oakland, California	
Project No. B&B-2	11/22/91	Drawn by: OPJ	Figure No. 2



NOT TO SCALE

Artesian Environmental Consultants 100 Shoreline Hwy., Suite 295 B Mill Valley, CA 94941 (415) 381-6456	Generalized Well Construction Details

Project No. B&B-2	11/22/91	Drawn by: OPJ	Figure No. 3