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Alameda County
Environmental Health

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geotechnical and environmental consulting services

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December 22, 2008

Mr. Steven Plunkett
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6588

**RE: Work Plan for Installation of Monitoring Wells and
Interim Remediation of Metal Impacts
Allied Engineering Corporation
2421 Blanding Avenue
Alameda, CA**

Dear Mr. Plunkett:

At your request, as detailed in a letter from the your agency to Ms. Sharon Miller of Allied Engineering dated November 13, 2008, Geo-Logic has prepared this work plan for installation of three monitoring wells at the above-referenced site. In addition, a plan to address soil and groundwater impacts from metals has been proposed. The review letter from your agency was based on Geo-Logic's previous "Soil and Groundwater Investigation Report" dated August 3, 2007, which summarizes all of the previous work at the Property.

SITE DESCRIPTION

The subject site is located on the northeastern side of Blanding Avenue, southeast of Park Street, on the eastern perimeter of Alameda, Alameda County, California. The site is located adjacent to the tidal canal of Alameda Harbor. At the site, a 2,000-gallon gasoline tank, dispenser and the related product piping were removed. A Site Plan (Figure 1) showing the location of these features is attached to this report.

PROPOSED WORK

Installation of Monitoring Wells

The proposed work includes the following: preparing a site specific health and safety plan, obtaining permits from the Alameda County Water District (ACWD), obtaining utility clearance for the proposed well locations, sampling and logging of the borings, installation, development, monitoring, and groundwater sampling of the wells, surveying of the wells, and production of a technical report summarizing the well installation activities. In addition, the wells would be monitored and sampled for four consecutive quarters.

Task 1. Pre-field Activities

Following approval of this workplan by Alameda County Environmental Health (ACEH), a site specific health and safety plan will be prepared and monitoring well permits will be obtained from Alameda County Public Works. As required by law, the well locations will be marked in white paint, and Underground Service Alert (USA) will be notified 48 hours in advance of the scheduled work. The location of the proposed wells, designated as MW-1 through MW-3, are shown on Figure 1.

Task 2. Logging, Construction, Development, Monitoring and Sampling of the Wells

The wells will be completed using a macro-core geoprobe equipped with 3.25 inch rods. Drilling will be performed by a California-licensed well driller. A California-registered geologist will monitor the drilling activities. Per county well seal requirements, the uppermost five feet of each well will be widened with 6-inch augers.

The three wells are located directly adjacent to previous borings B1, B3, and B5, and therefore analysis of soil samples is not proposed. The soils would be logged for lithology and examined for contamination. If any contamination differing from the previous conditions is encountered, samples would be selected for analyses. Boring logs will be prepared showing the lithology and the well construction details and submitted with the technical report.

Cuttings generated during well installation will be placed in DOT-approved 5-gallon drums, or placed on visqueen, pending analysis and proper disposal.

Well Construction:

Based on groundwater in previous borings and in the tank pit excavation at about eight feet below grade, the well screens would extend from 5 to 20 feet below grade. . Based on the relatively fine-grained lithology, the screen would be comprised of 0.010 slot (one-inch diameter schedule 40 PVC with flush threaded joints) and the sand pack constructed with #2/12 or 2/16 sand. The Monterey sand will fill the annular space from the total depth to approximately one half foot above the perforated casing interval. A 1-foot thick bentonite seal will be placed in the annular space on top of the sand pack. Neat cement grout will be placed on top of the bentonite seal to the surface.

The well casing will be secured with a waterproof cap and a padlock. A round, watertight, flush-mounted well cover will be concreted in place over the top of the casing. The elevations of the well casing will be surveyed by a licensed land surveyor to Mean Sea Level and to a vertical accuracy of 0.01 feet.

Well Development and Sampling: The well seals will be allowed to set for at least 72 hours after well completion. Prior to development, the wells will be checked for total depth and depth to the water table using an electronic sounder. After recording the monitoring data, the wells will be developed by the use of a surge block and a pump. During purging operations, the field parameters pH, temperature, and electrical conductivity will be recorded after each 1/2 casing volume of groundwater is removed. The well purging will be terminated when successive parameter measurements vary by less than 10%. Effluent generated during well development will be contained in DOT-approved drums prior to analysis and proper disposal.

The wells will be sampled at least 48 hours after development. The well will first be purged using a pump or bailer of a minimum of four casing volumes. During purging operations, the field parameters pH, temperature, and electrical conductivity will be recorded after each 1/2 casing volume of groundwater is removed. The well purging will be terminated when successive parameter measurements vary by less than 10% and after at least three casing volumes of groundwater have been removed.

Following completion of purging, a water sample will be collected by the use of a clean disposable Teflon bailer or small diameter tubing, and promptly decanted into sample containers. The containers will be sealed with Teflon-lined screw caps, labeled, and stored, on ice, for delivery to a state-certified laboratory.

Task 4. Laboratory Analyses

The groundwater samples collected from the monitoring wells, and any soil samples, will be analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline, benzene, toluene, ethylbenzene and xylenes (BTEX) and MTBE by EPA Methods 8015 and 8020. The groundwater samples would also be analyzed for the fuel oxygenates and lead scavengers by EPA Method 8260, and for the CAM 17 metals. Properly executed Chain of Custody documentation will accompany the samples.

Task 5. Report Preparation and Future Monitoring and Sampling

Following analysis of the data, a report will be prepared which summarizes the procedures and findings associated with the completed work, and makes additional recommendations, as appropriate. The monitoring wells would then be sampled for four consecutive quarters, and monitoring and sampling reports generated after each event.

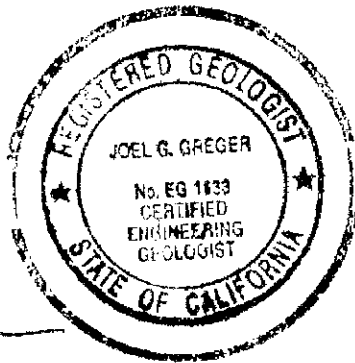
Task 6. Interim Remediation for Metal Impacts to Soil and Groundwater

Metal shavings and debris in soil from previous historical dumping practices have impacted soil and groundwater and may pose a threat to the adjacent estuary. Because the soil and groundwater is also impacted with petroleum hydrocarbons, and because the affected area is directly adjacent to both the building and the estuary, excavation and disposal is not considered feasible. Therefore, an inert impermeable membrane similar to "pond liner" is proposed to be used in areas of metal debris to prevent contact with tidal waters. It is anticipated that the thickness of the membrane would be 20 millimeters. The membrane would be placed in areas of exposed metal debris, from the low tide mark to at or near the top of slope. It is anticipated that a backhoe would be utilized to first remove rip-rap material, and then place imported clean sandy soils over metal and rock material as a base to prevent punctures in the liner material. The liner material would then be placed over the sandy base and rip rap material reinstalled at the surface. Any loose metal debris that can be excavated and removed during this process, without generating large amounts of additional soil, would be removed and properly disposed of.

If you have any questions regarding this work plan, please do not hesitate to contact me. I can be reached at (510) 593-5382.

Sincerely,

Geo-Logic



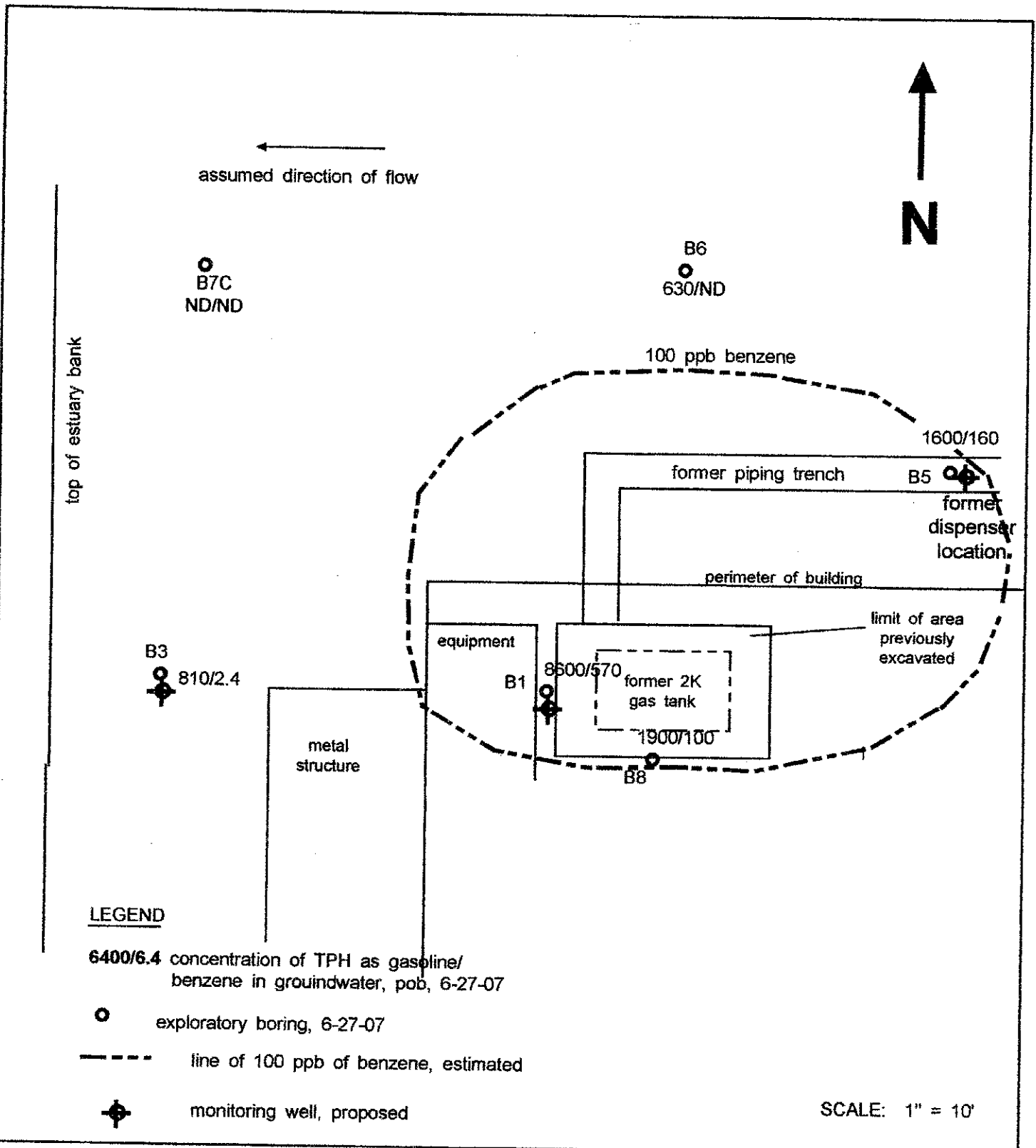
A handwritten signature in cursive script that reads "Joel G. Greger".

Joel G. Greger
Certified Engineering Geologist, Registered Environmental Assessor
CEG # EG1633, REA # 07079

Attachments
Figure 1

cc: Mr. Dave Belcher, Allied Engineering

FIGURES



Allied Engineering & Production Co. 2421 Blanding Avenue Alameda, California	Figure No: 1	Date: December 10, 2008
		Drawn By: JG/Geo-Logic

Site Plan showing Proposed Monitoring Wells