

2/23/99  
talked to Joel Berger  
Approved to implement WP. will install 2/26/99  
S. H. H. H.

**geo - logic**

geotechnical and environmental consulting services

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*LOP 1754*

GL-98-120.P2

February 13, 1999

Mr. Norm Albert  
Berkeley Farms  
2550 Clawiter Road  
Hayward, California

99 FEB 22 PM 5: 21  
ENVIRONMENTAL PROTECTION

RE: Work Plan/Proposal  
Further Assessment of Groundwater in the vicinity of  
Former Berkeley Farms Dairy Facility  
4550 San Pablo Avenue  
Emeryville, California 94608

Dear Mr. Albert:

Based on the results of the soil and groundwater sampling conducted during tank removals at the subject site, and per the requirements of the Alameda County Department of Environmental Health (ACDEH), Geo-Logic has prepared this workplan/proposal for the installation of two monitoring wells. The purpose of this work is further assess petroleum impacts to groundwater, and to determine the direction of groundwater flow. The soil and groundwater sampling referred to above is summarized in Geo-Logic's reports (GL-98-120.R1/P1 and GL-98-120.R2) dated September 23, 1998, and November 20, 1998, respectively.

PROPOSED WORK:

1. Geo-Logic proposes to install two two-inch diameter monitoring wells, designated as MW1 and MW2 on the Site Plan, by the use of hollow-stem auger equipment. Permits will be obtained from the Alameda County Public Works Agency - Water Resources Section prior to beginning work.

The wells will be drilled 10 feet into the saturated zone of the first encountered ground water. Ground water is anticipated at approximately 12 feet below grade, based on the ground water levels encountered during the recent tank removals.

2. Soil samples will be collected at a maximum spacing of 5 foot intervals, at significant changes in lithology, at obvious areas of contamination, and at/or within the soil/ground water interface, beginning at a depth of about 4 to 5 feet below grade. Sample intervals will be chosen so that an accurate profile of the subsurface soil conditions can be determined. Sampling for laboratory analyses and lithologic

logging purposes will continue until the first water table is encountered. A photo-ionization detector will be used to field screen soil samples. Additional sampling for lithologic logging purposes only will continue below the water table to the total depth drilled.

Classification of soil will be done by a registered geologist using the Unified Soils Classification System (USCS). Samples will be collected in a California-modified split-spoon sampler lined with two-inch diameter brass liners. The sampler will be advanced ahead of the drilling augers at designated depths by dropping a 140-lb. hammer 30 inches. Blow counts will be recorded. Samples will be removed from the sampler and retained in the brass liners. The liners will then be sealed with Teflon-lined plastic caps and placed in individually sealed plastic bags. They will then be labeled and stored in a cooler, on crushed ice or "blue ice," for delivery to a state-certified laboratory. Properly executed Chain of Custody documentation will accompany all soil samples.

3. During drilling operations, all soil materials, displaced groundwater, and rinsate will be stored on-site in properly labeled, DOT-approved 55-gallon drums (water), or else covered by visqueen (soil).
4. Finalized Boring Logs will be prepared from the field logs and submitted to the Alameda County Department of Environmental Health (ACDEH).
5. Well Construction:

The well casing will consist of two-inch diameter schedule 40 PVC with flush threaded joints and 0.010 inch factory slots. The screen will extend from the total depth of the well to approximately 5 feet above the depth of the first encountered ground water. Monterey sand (#2/12) will fill the annular space from the total depth to approximately two feet above the perforated casing interval. A 2-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. A Proposed Well Construction Diagram is attached to this proposal.

The well casings 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 each casing. The elevations of the well casings will be surveyed by a licensed land surveyor to Mean Sea Level and to a vertical accuracy of 0.01 feet.

6. The wells will be developed approximately one week after well completion. Prior to development, the wells will be checked for depth to the water table using an electronic sounder, and for the presence of free product using an interface probe or paste tape. After recording the monitoring data, the wells will be developed by the use of a surge block and a pump. Effluent generated during well development will be contained in DOT-approved drums and hauled from the site by a licensed hazardous materials hauler.

7. Ground Water Sampling:

The wells will be sampled at least 72 hours after development. Prior to sampling, the wells will be checked for free product using an interface probe or paste tape. The wells will also be checked for the presence of a sheen.

The wells will then be purged using a pump or bailer of a minimum of four casing volumes. Once the field parameters are observed to stabilize and a minimum of approximately four casing volumes have been removed from each well, water samples will then be collected by the use of a clean Teflon bailer, and promptly decanted into 40 ml VOA vials and/or one-liter amber bottles, as appropriate. The vials and/or bottles will be sealed with Teflon-lined screw caps, labeled, and stored, on ice, for delivery to a state-certified laboratory. The sampling bailer will be cleaned with non-phosphate soap and clean water rinses between uses. Properly executed Chain of Custody documentation will accompany all water samples.

8. Laboratory Analyses:

Water and selected soil samples will be analyzed by Sequoia Analytical Laboratory, a state-certified laboratory, for total petroleum hydrocarbons (TPH) as gasoline by EPA method 5030/modified 8015, TPH as diesel by EPA methods 3510/modified 8015 (water) and 3550/modified 8015 (soil), and benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tert butyl ether (MTBE) by EPA method 8020.

These analyses are as recommended by the RWQCB, and as specified in the Tri-regional guidelines. The analytical results will be presented in tabular form, showing the sample depths and results. The analytical results will be used to delineate the vertical and lateral extent of the contaminants in soil and ground water.

9. Hydrology:

The ground water flow direction and ground water gradient will be determined from the water level elevations measured in each monitoring well. Monitoring and sampling will be conducted on the same schedule as the three existing wells at the adjacent former Berkeley Farms site to the west (4575 San Pablo Avenue). The ground water flow direction derived from the water levels will be shown on the Site Plan.

10. Conclusions:

Conclusions and results of this work will be described in a technical report. The technical report will be submitted to the ACDEH.

LIMITATIONS

Soil deposits and rock formations may vary in thickness, lithology, saturation, strength and other properties across any site. In addition, environmental changes, either naturally-occurring or artificially-induced, may cause changes in the extent and concentration of any contaminants. Our studies assume that the field and laboratory data are reasonably representative of the site as a whole, and assume that subsurface conditions are reasonably conducive to interpolation and extrapolation.

The results of this study will be based on the data obtained from the field and laboratory analyses obtained from a state-certified laboratory. We will analyze this data using what we believe to be currently applicable engineering techniques and principles in the Northern California region. We make no warranty, either expressed or implied, regarding the above, including laboratory analyses, except that our services have been performed in accordance with generally accepted professional principles and practices existing for such work.

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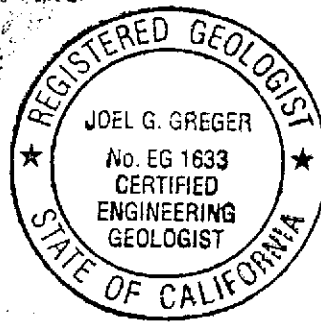
If you have any questions regarding this work plan/proposal, please do not hesitate to call me at (510) 787-6867.

Sincerely,

Geo-Logic

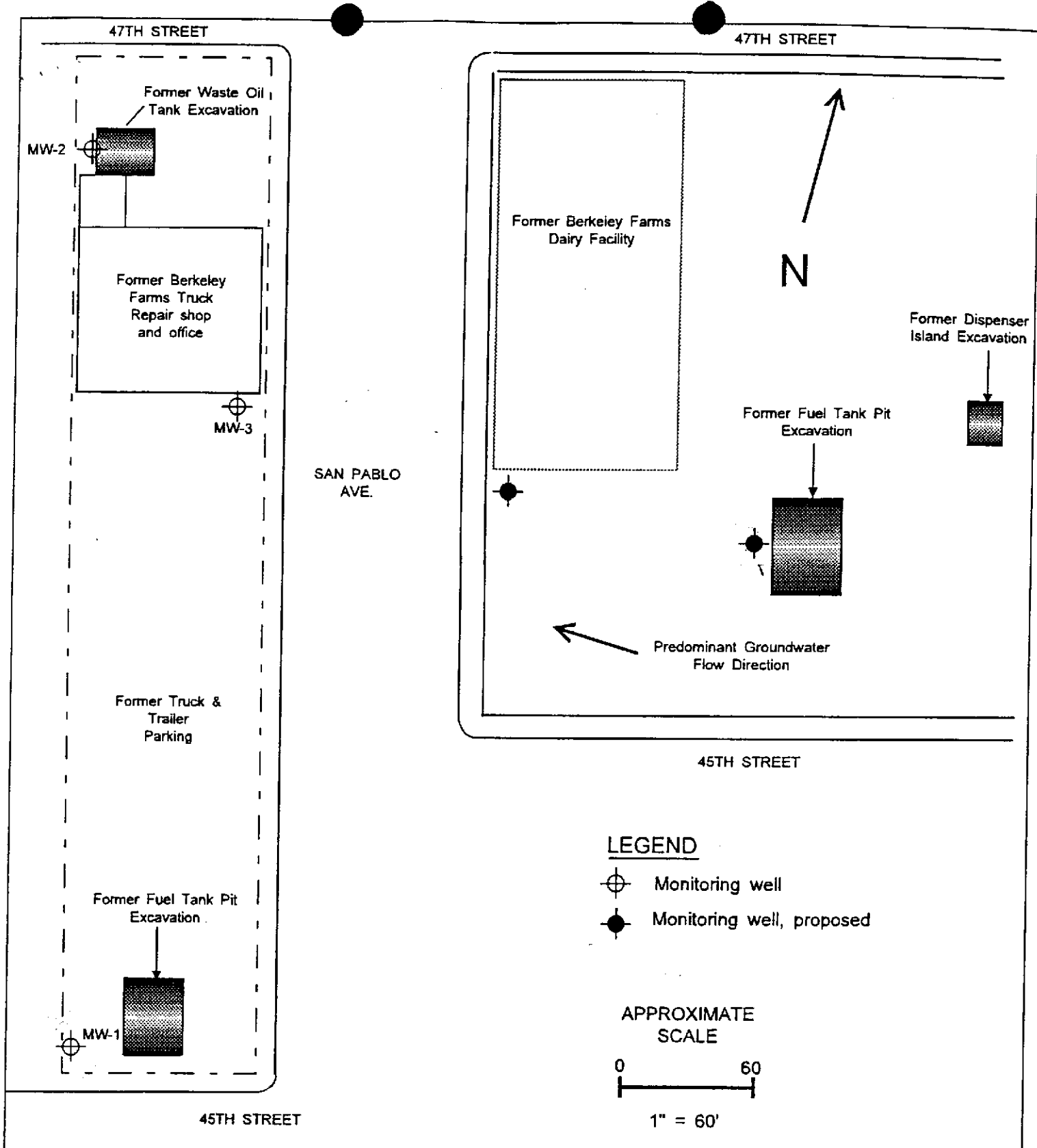


Joel G. Greger, C.E.G.  
Certified Engineering Geologist



License No. EG 1633  
Exp. Date 8/31/2000

Attachments: Site Plan - Figure 1  
Proposed Well Construction Diagram

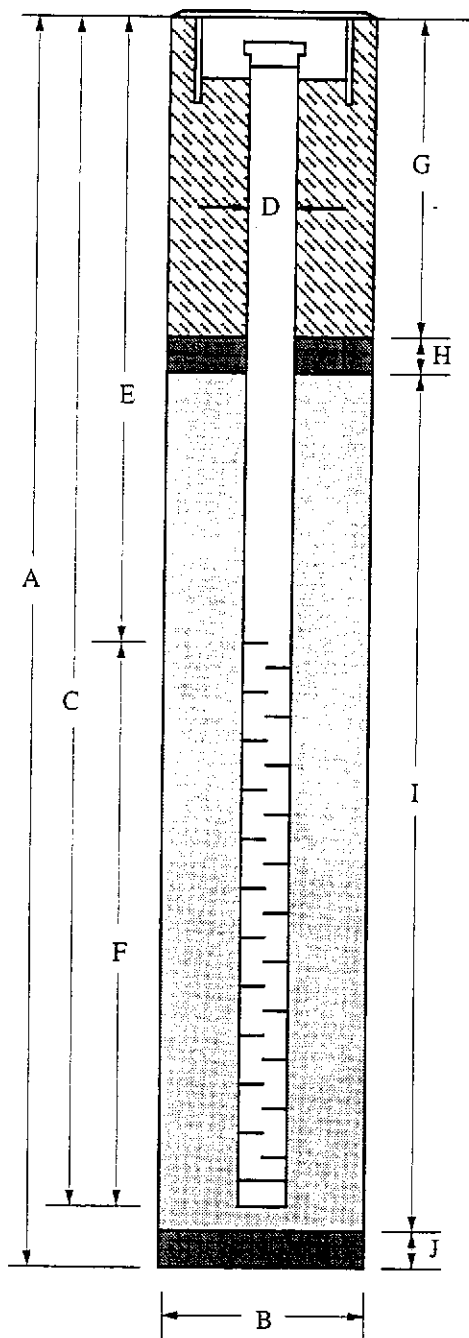


Former Berkeley Farms Dairy Facility 4550 San Pablo Avenue Emeryville, California	Figure No: <b>1</b>	Date: February 13, 1999
		Drawn By: JG/Geo-Logic

# Site Plan

## PROPOSED WELL CONSTRUCTION DIAGRAM

Flush-mounted Well Cover



### WELL DETAILS\*

1. Well will be terminated 10 feet into the first encountered ground water, unless an aquitard five feet or greater in thickness is encountered below the water table, in which case drilling will be halted and the well will be constructed so as to terminate within the aquitard [A].
2. Boring diameter [B] is 8 inches for 2 inch wells, 10 inches for 4 inch wells, and 12 inches for 6 inch wells.
3. Perforated interval [F] will extend from bottom of casing to five feet above the first encountered ground water table (unless water <5 feet deep).
4. Schedule 40 PVC casing, 2 inch in diameter [D], will be used. Screen is 0.020 or 0.010 inch factory machined slots, depending on filter pack grain size.
5. Filter pack will be placed from bottom of casing to two feet above perforated interval [I]. (Bottom seal [J] is not installed unless required.) One to two feet of bentonite [H] will be placed above the filter pack. Concrete grout [G] will be placed from top of bentonite seal to the surface (unless modified due to shallow water). Blank casing [E] will extend from the top of the perforated casing to the top of the hole.
6. The well will be installed with a waterproof cap, padlock and a flush-mounted well cover.

\* See text for additional information.