File No. 7-93-556-SI

ADDITIONAL SUBSURFACE INVESTIGATION FOR THE PROPERTY LOCATED AT 2740 98th AVENUE, OAKLAND, CALIFORNIA OCTOBER 3, 1996

PREPARED FOR:
MR. KIYOUMARS GHOFRANI
2740 98th AVENUE
OAKLAND, CA 94605

BY:
SOIL TECH ENGINEERING, INC.
1761 JUNCTION AVENUE
SAN JOSE, CALIFORNIA 95112

SOIL TECH ENGINEERING, INC.

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WELL COMPLETION REPORT

SOIL TECH ENGINEERING, INC.
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1761 JUNCTION AVENUE, SAN JOSE, CALIFORNIA 95112
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October 3, 1996

File No. 7-93-556-SI

Mr. Kiyoumars Ghofrani
Freeway Station and Service
2740 98th Avenue
Oakland, California 94605

SUBJECT: ADDITIONAL SUBSURFACE INVESTIGATION AT THE PROPERTY Located at 2740 98th Avenue, in Oakland, California

Dear Mr. Ghofrani:

Enclosed is a supplemental report summarizing the results of Soil Tech Engineering, Inc.'s (STE) subsurface investigation of the subject site located at 2740 98th Avenue, in Oakland, California.

During the current phase of investigation, three additional monitoring wells were installed at the site in order to characterize and delineate dissolved hydrocarbon contamination in soil and groundwater down-gradient from the tank system.

Monitoring well STMW-4 detected low to moderate levels of dissolved petroleum hydrocarbons as gasoline (TPHg) and Benzene, Toluene, Ethyl Benzene and Total Xylene (BTEX), well STMW-5 detected low levels of TPHg and BTEX. STMW-1, STMW-6 and W-4 detected TPHg and BTEX levels below laboratory detection limit.

We recommend quarterly groundwater monitoring and sampling of all the project wells for one year and eventual re-evaluation of the site condition. An additional subsurface investigation constituting drilling of two monitoring wells down-gradient of STMW-4 in order to characterize and delineate dissolved petroleum hydrocarbon contamination is recommended.

If you have any questions or require additional information, please contact our office at (408) 441-1881 at your convenience.

Sincerely,

SOIL TECH ENGINEERING, INC.

N. Ameli

NOORI AMELI
PROJECT ENGINEER

LAWRENCE KOO, P.E.
C.E. #34928

FRANK HAMEDI-FARD
GENERAL MANAGER

ADDITIONAL SUBSURFACE INVESTIGATION FOR THE PROPERTY LOCATED AT 2740 98th AVENUE OAKLAND, CALIFORNIA OCTOBER 3, 1996

INTRODUCTION:

This report presents the results of an additional subsurface investigation conducted by Soil Tech Engineering, Inc. (STE) for Mr. Ghofrani's property located at 2740 98th Avenue, in Oakland, California (Figure 1). The purpose of this investigation was to determine the direction of groundwater flow and assess the extent of subsurface petroleum hydrocarbons contamination at the subject site.

The supplemental subsurface investigation was conducted in accordance with STE's work plan dated November 3, 1995. The investigation was conducted in accordance with Alameda County Health Care Services Agency (ACHCSA) guidelines.

BACKGROUND:

There are four underground storage tanks located on the subject property. A Phase I Environmental Site Assessment for the subject site was conducted by Northwest Envirocon, Inc. (NE) of Sacramento. Details of the said site assessment is described in a report, dated July 22, 1992, prepared by Northwest Envirocon, Inc. According to NE's report, the building on-site is 26 years old. It has probably been used as an automobile service station since 1966. Based on information obtained from NE's report, there are two 10,000 gallon tanks and one 5,000 gallon tank used for the storage of gasoline, and one 500 gallon tank used for the storage of waste oil.

According to the same report, the three gasoline storage tanks were installed in July of 1975 and are constructed of fiberglass. The reason new fiberglass tanks were installed is not known. The waste oil tank is constructed of metal. An installation date for this tank could not be confirmed. These tanks are tested yearly for tightness by American River Testing of Sacramento. Tightness refers to a precision test which determines the integrity of the tank. This test is required annually by the State of California.

According to NE's report, in May of 1989, there was an accidental spill of an unknown quantity of waste oil during removal of waste oil by Evergreen Environmental Services. The waste oil drained into the exposed soil, leached onto/into a collection pipe that emptied into Stanley Avenue and drained down Stanley Avenue approximately fifty feet. In response to this spill, the following actions were taken: The waste oil was removed by U.S. Waste Oil Group, and three top soil samples were sent to Brown and Caldwell Laboratories for Total Oil & Grease (TOG) analysis. Three grab soil samples were taken at the Stanley Street fence line and were composited into one sample. Composite soil result showed TOG concentration to be 170 milligrams per kilogram (mg/Kg). No further remediation was performed for this spill.

On June 18, 1993, E&G Construction removed the product pipe-line and conducted soil sampling in the pipeline trenches. Eight soil samples were collected from a depth of approximately 3.5 feet below grade, under the supervision of Alameda County Health Department inspector, Mr. Ron Owcarz. Five of the shallow soil samples detected elevated levels of Total Petroleum Hydrocarbons as gasoline (TPHg) ranging from 310 mg/Kg to a maximum of 2,900 mg/Kg. E&G construction excavated additional soil from three locations (1, 4 & 5) where TPHg levels were 550 mg/Kg, 1,900 mg/Kg and 2,900 mg/Kg, respectively, to a depth of approximately 12 to 13 feet below grade. Three confirmation soil samples (A-1, B-

1 and C-1) were collected on July 1 and 2, 1993. Two of the three soil samples detected no TPHg, and one sample detected TPHg level of 15 mg/Kg. The lateral extent of TPHg contamination or impact to groundwater was not evaluated at that time.

Alameda County Health Care Services Agency (ACHCSA) requested a preliminary site assessment in a letter, dated September 1, 1993. However, in a letter dated October 5, 1993, ACHCSA agreed to conduct 4 exploratory soil borings in the vicinity of the contaminated areas and to collect one grab water sample to assess whether the ground-water has been impacted.

Soil Tech Engineering, Inc. (STE) was retained to conduct a preliminary site assessment near the product lines excavation area. In March 1994, four soil borings were drilled near the product line area. Groundwater was encountered between 6 to 12 feet below grade. A total of ten soil samples were collected from the four borings, and one water sample was collected from boring 1. The water samples detected low to moderate elevated levels of Total Petroleum Hydrocarbons as gasoline (TPHg) and BTEX. Five out of ten soil samples also detected low to elevated levels of TPHg. The details of the soil investigation is described in STE's report dated April 21, 1994, titled "Preliminary Site Assessment at Freeway Station and Service Property".

Since elevated concentrations of TPHg and Benzene were detected in the groundwater samples collected from boring 1, further investigation was requested by the Alameda County Health Care Services Agency (ACHCSA) in a letter dated July 8, 1994.

STE was retained by Mr. Ghofrani to conduct further investigation as requested by ACHCSA. A work plan, dated December 5, 1994, was prepared describing the scope of work which included drilling and installation of three shallow monitoring wells (STMW-1 to STMW-3), well development, soil and water

sampling, laboratory analysis and preparation of a technical report. Drilling and installation of three wells (STMW-1 to STMW-3) was conducted in February 1995. Soil results from the borings detected TPHg and BTEX below laboratory detection limit. Levels of TPHg and BTEX were also below laboratory detection limit in the water samples. STE's report dated March 8, 1995 describes the details of the environmental site assessment.

On January 31, 1996, STE's staff monitored the four on-site wells to measure water depth and check for the presence of sheen and/or odor. There was no water in wells STMW-2 and STMW-3. No sheen or odor was noted in the other two wells (STMW-1 and W-4). Table 1 summarizes the depth to groundwater measurements and observations made.

Following groundwater monitoring, the on-site wells were purged at least five well volumes and sampled in accordance with STE's Standard Operation Procedures (see Appendix "C"), which contain State and Local guidelines for sampling monitoring wells. The samples were submitted to a California State-Certified laboratory for analyses, accompanied by appropriate chain-of-custody.

Groundwater elevation data were used to determine groundwater flow direction. Table 1 summarizes the groundwater elevations. The groundwater gradient beneath the site appears to be disrupted by a branch of the Hayward fault that may traverse the site. The groundwater surface elevation appears to be anomalously high in well STMW-1 and anomalously low in well STMW-3 just 42 feet to the southeast. Using initial data from three wells (STMW-1 to STMW-3), the gradient appears to be steep to the east. However, the existing well W-4 at southeast of dry well STMW-2 and east of dry well STMW-3 has groundwater elevation higher than both wells STMW-2 and STMW-3 on January 31, 1996.

Total Petroleum Hydrocarbons as gasoline (TPHg) and BTEX were below laboratory detection limit in monitoring wells STMW-1 and MW-4. No sheen or

odor was noted in monitoring wells STMW-1 and MW-4. TPHg and BTEX concentrations were below laboratory detection limit in the two monitoring wells. Monitoring wells STMW-2 and STMW-3 were not sampled because the wells were dry.

SITE STRATIGRAPHY AND HYDROGEOLOGY:

Dorothy Radbruch's 1969 U.S. Geological Survey map GQ-769, Arial and Engineering Geology of the Oakland East Quadrangle, California, Scale 1:24,000, shows a branch of the active Hayward fault crossing the site in a southeasterly direction. There is an active spring at the base of the hill across 98th Avenue. The spring is probably related to the Hayward fault. She describes bedrock in the valley near the site to be in a Temescal Formation of Pleistocene age. Temescal Formation in the area is alluvial material derived from the Berkeley Hills. Temescal formation was encountered in our soil borings at depths from 8 to 11 feet below grade. It consists of a light yellowish-brown fat clay with 5% to 10% medium grained angular sand. A dark olive-gray sandy fat clay that is firm to stiff overlies the Temescal Formation at the site to a depth of 8 to 11 feet below grade. There is approximately 3 1/2 to 4 feet of fill in the southwest corner of the site that consists of a brown stiff clay with sand.

The great difference in depth to groundwater at the site may be related to the influence of the Hayward fault. More groundwater monitoring wells may be necessary to define groundwater gradient at the site. } - more ?!

OBJECTIVE:

The objective of this investigation was to satisfy the request for additional information set forth by ACHCSA Ms. Juliet Shin and to determine the direction of groundwater flow in order to follow the trend of contaminant transfer.

FIELD ACTIVITIES:

Three groundwater monitoring wells were installed in soil borings advanced on the site on August 7, August 8 and August 12, 1996.

Permits to install groundwater monitoring wells were obtained from Alameda County – Zone 7 Water Agency prior to drilling. A copy of the well permit is included in Appendix "F" of this report. All utility lines were located prior to drilling.

STE conducted the field work for this investigation which occurred between August 7 to August 12, 1996. Field work included the advancement of three soil borings (STMW-4, STMW-5 and STMW-6), soil sampling, installation of three monitoring wells, development of the wells, water sampling and chemical analysis of soil and ground water samples.

SOIL BORING:

Three additional monitoring wells (STMW-4, STMW-5 and STMW-6) were installed on-site, the locations are shown in Figure 2. The well borings were drilled using a truck mounted mobile drill rig B - 40L, equipped with eight-inch diameter, hollow-stem, continuous flight augers. STE staff engineer observed the drilling operations and prepared a log of each soil boring. These logs are presented in Appendix "D".

The three soil borings (for wells STMW-4, STMW-5 and STMW-6) were drilled to depths of 40 feet, 37 feet and 25 feet below grade. Groundwater was first encountered at depths of approximately 37 feet, 30 feet and 19 feet respectively, below grade in the borings while drilling. Soil boring STMW-4 was drilled to a depth of 40 feet and the well left open for a couple of hours in order for the water level to stabilize. The water level stabilized at 27' below ground surface.

SOIL SAMPLING:

Soil samples were collected at five-foot intervals by advancing a modified California-sampler through the hollow stem of the augers. The sampler was driven a maximum of 18 inches, using a 140-pound hammer with a 30-inch drop.

For each sampling interval, the soil samples were retained in two-inch diameter brass liners. The soil samples in brass liners were retained for chemical analysis by covering both ends of the liner with aluminum sheeting, and sealing with plastic end caps and tape. The sample was then labeled and stored in a chilled ice chest. Selected samples were later transported on ice to the laboratory using STE's chain-of-custody documentation.

Soil samples in brass liners were described according to the Unified Soil Classification System. The descriptions are shown on the boring logs presented in Appendix "D".

MONITORING WELL CONSTRUCTION:

Following completion of each boring, a monitoring well was constructed within the borehole. The wells were constructed of two-inch diameter Schedule 40, flush threaded PVC well casing with threaded bottom cap. The detailed construction of the three wells are shown in Piezometric Schematic presented in Appendix "D".

SOIL DESCRIPTION:

As shown on the logs the native soils encountered below surface grade consist predominantly of stiff sandy clays with minor gravel.

LABORATORY SOIL ANALYSIS:

Selected soil samples from each well boring were analyzed by Priority Environmental Laboratory in Milpitas, California. Soil samples from STMW-4, STMW-5 and STMW-6 were analyzed for Total Petroleum Hydrocarbons as Gasoline (TPHg), Benzene, Toluene, Ethyl Benzene and Total Xylenes (BTEX). In addition, soil samples from STMW-6 were analyzed for Total Petroleum Hydrocarbons as Diesel (TPHd) and Total Oil and Grease (TOG).

As shown in Table 1, soil samples from all three wells detected very low (below laboratory detection limit) to low levels of TPHg and BTEX.

LABORATORY GROUNDWATER ANALYSIS:

Following well completion, wells STMW-4, STMW-5 and STMW-6 were developed on September 5, 1996. The three newly installed wells along with the four existing on-site wells were surveyed and monitored on September 9, 1996. Wells STMW-2 and STMW-3 were dry, therefore water samples were collected from the remaining five wells. All monitoring and sampling was conducted in accordance with the existing Local and State Fuel Leak Guidelines.

The five water samples (from STMW-1, W-4, STMW-4, STMW-5 and STMW-6) were analyzed for TPHg, BTEX and MTBE. In addition, sample from STMW-6 was analyzed for TPHd, TOG, 5 heavy metals (Cadmium, Chromium, Lead, Nickel and Zinc) and Volatile Organic Compounds (VOCs) per EPA method 601. The results indicate very low to low concentrations of TPHg and BTEX in all the sampled wells. STMW-6 detected TOG at 1.7 mg/L while TPHd, 5 metals and VOCs were found below laboratory detection limit. All five samples detected MTBE below laboratory detection limit.

GROUNDWATER FLOW DIRECTION:

Groundwater elevation data was collected, charted and the figures used to compute the direction of groundwater flow. The results indicate a southerly direction of groundwater flow as of September 9, 1996 (Figure 2).

DISCUSSION AND RECOMMENDATIONS:

STE recommends continuation of quarterly groundwater monitoring and sampling for one year. The proposed program should then be re-evaluated at the end of one year.

Based on STE's investigational results, and the petroleum hydrocarbon contaminant plume (Appendix "B" -- Figures 3, 4, 5, 6 and 7), it seems that the contaminant transfer is down-gradient from STMW-5 towards STMW-4 following groundwater gradient. It can therefore be inferred that the contamination could have reached STMW-3 but since it is a dry well, the nature and extent of the contaminant cannot be determined. STE therefore suggests drilling two (2) monitoring wells down-gradient from STMW-4 (see Figure 2 for proposed well locations) in order to delineate the contaminant transfer.

A copy of this report should be sent to Alameda County Health Care Services Agency (ACHCSA) and California Regional Water Quality Control Board -- San Francisco Bay Region (CRWQCB-SFBR).

LIMITATIONS AND UNIFORMITY OF CONDITIONS:

The monitoring well installation services or soil and water sampling for pollution on this project was a direct request by Soil Tech Engineering Inc.'s client. These installations were performed to meet the existing requirements for fuel leak regulations.

This service does not make Soil Tech Engineering, Inc. liable for future maintenance, repairs, damages, injury to third party or any other elements causing future problems.

The locations of these monitoring wells are approximate and should not be used for any reference point, surveying, or any other uses except studying groundwater.

Any recommendations that were made in this report are based upon the assumption that the soil conditions do not deviate from those disclosed in the borings.

This report is issued with the understanding that it is the responsibility of the owner or his representative to ensure that the information and recommendations contained herein are called to the attention of the State and Local Environmental Agency.

The findings of this report are based on the results of an independent laboratory and are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man, on this property or adjacent properties.

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TABLE 1
GROUNDWATER MONITORING DATA (feet) AND ANALYTICAL RESULTS (mg/L)

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	B	T	E	X	MTBE	TOG
02/23/95	STMW-1 (101.33)	20	5	6.77	94.56	No sheen or odor	ND	ND	ND	ND	ND	NA	NA
07/26/95				13.87	87.46	No sheen or odor	ND	ND	ND	ND	ND	NA	NA
10/19/95				16.35	84.98	No sheen or odor	ND	ND	ND	ND	ND	NA	NA
01/31/96				5.43	95.90	No sheen or odor	ND	ND	ND	ND	ND	NA	NA
09/09/96				18.89	82.44	No sheen or odor	ND	ND	ND	ND	ND	ND	NA
02/23/95	STMW-2 (98.89)	20	5	17.19	81.70	No sheen or odor	ND	ND	ND	ND	ND	NA	NA
07/26/95				18.39	80.50	No sheen or odor	ND	ND	ND	ND	ND	NA	NA
10/19/95				Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA
01/31/96				Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA
09/09/96				Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA

TPHg - Total Petroleum Hydrocarbons as Gasoline
B - Benzene T - Toluene E - Ethylbenzene X - Total Xylenes
ND - Not Detected NA- Not Analyzed N/A - Not Applicable
GW Elev. - Groundwater Elevation
MTBE - Methyl Tertiary Butyl Ether TOG - Total Oil & Grease
Perf. - Perforation

TABLE 1 CONT'D
GROUNDWATER MONITORING DATA (feet) AND ANALYTICAL RESULTS (mg/L)

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	B	T	E	X	MTBE	TOG
02/23/95	STMW-3 (98.99)	20	5	Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA
07/26/95				Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA
10/19/95				Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA
01/31/96				Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA
09/09/96				Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA
02/23/95	W-4 (90.50)	19	Unknown	6.72	83.78	Rainbow sheen spots No odor	NA	NA	NA	NA	NA	NA	NA
07/26/95				15.51	74.99	No sheen or odor	0.072	ND	0.0006	0.0007	0.0021	NA	NA
10/19/95				18.03	72.47	No sheen or odor	ND	ND	ND	ND	ND	NA	NA
01/31/96				1.98	88.52	No sheen or odor	ND	ND	ND	ND	ND	NA	NA
09/09/96				16.42	74.08	No sheen or odor	ND	ND	ND	ND	ND	ND	NA

TPHg - Total Petroleum Hydrocarbons as Gasoline
B - Benzene T - Toluene E - Ethylbenzene X - Total Xylenes
ND - Not Detected NA- Not Analyzed N/A - Not Applicable
GW Elev. - Groundwater Elevation
MTBE - Methyl Tertiary Butyl Ether TOG - Total Oil & Grease
Perf. - Perforation

TABLE 1 CONT'D
GROUNDWATER MONITORING DATA (feet) AND ANALYTICAL RESULTS (mg/L)

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHd	TPHg	B	T	E	X	MTBE	TOG
09/09/96	STMW-4 (98.01)	40	20	25.89	72.12	No sheen or odor	NA	19	0.016	0.030	0.044	0.19	ND	NA
09/09/96	STMW-5 (97.81)	37	15	22.89	74.92	No sheen or odor	NA	0.58	0.0023	0.0022	0.018	0.013	ND	NA
09/09/96	STMW-6 (91.33)	25	5	17.16	74.17	No sheen or odor	ND	ND	ND	ND	ND	ND	ND	1.7

TPHg - Total Petroleum Hydrocarbons as Gasoline
TPHd - Total Petroleum Hydrocarbons as Diesel
B - Benzene T - Toluene E - Ethylbenzene X - Total Xylenes
ND - Not Detected NA- Not Analyzed
GW Elev. - Groundwater Elevation
MTBE - Methyl Tertiary Butyl Ether
Perf. - Perforation
TOG - Total Oil & Grease

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TABLE 2
SUMMARY OF WATER SAMPLE ANALYSIS RESULTS FOR VOCs AND FIVE HEAVY METALS IN mg/L

Date	Sample I.D.	VOCs	Cadmium	Chromium	Lead	Nickel	Zinc
09/09/96	STMW-6	ND	ND	ND	ND	ND	ND

VOCs - Volatile Organic Compounds
ND - Non Detected

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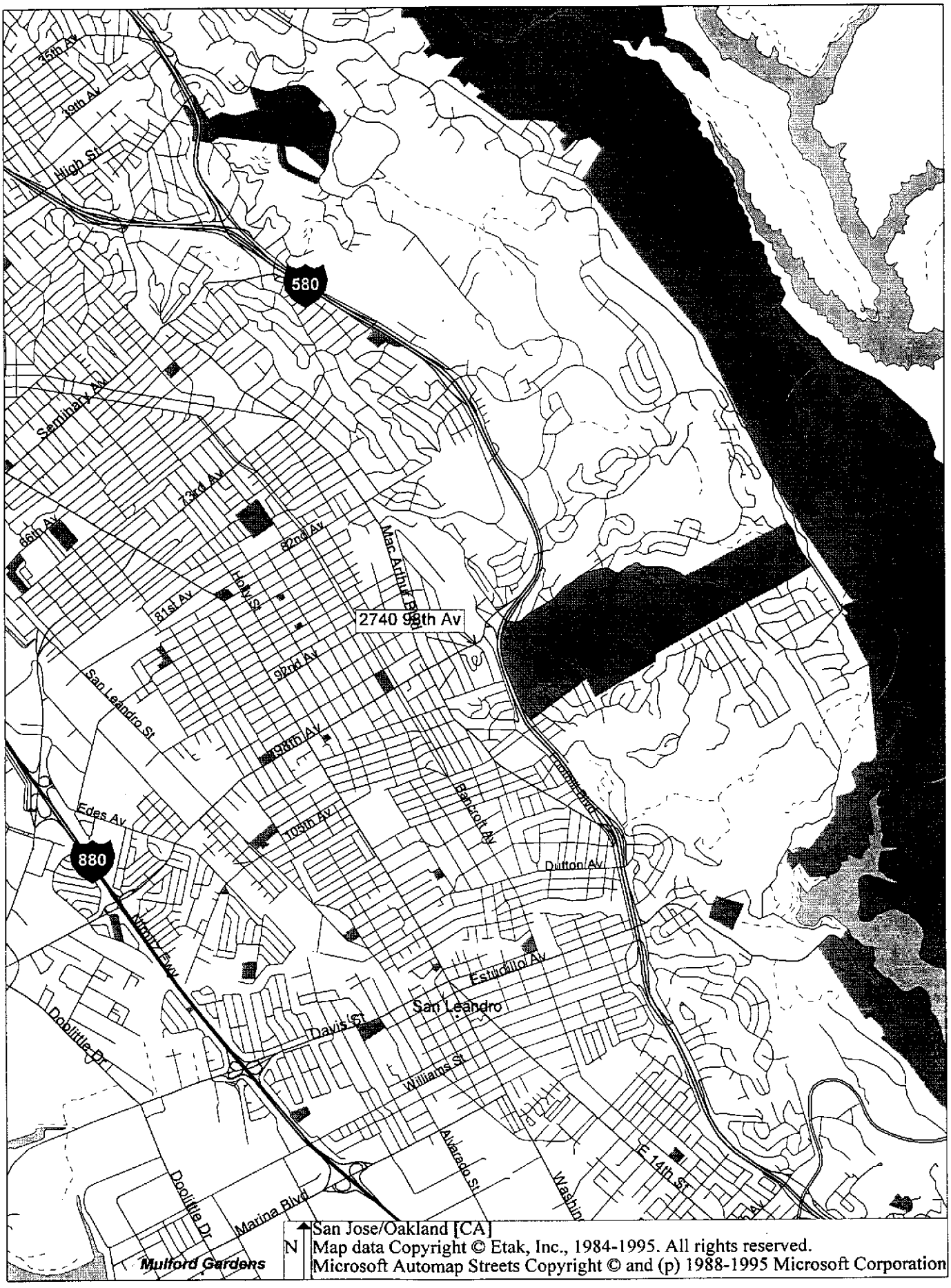
TABLE 3
SUMMARY OF SOIL OBSERVATIONS AND ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/Kg)

Date	Sample I.D.	Depth (ft)	Soil Observation	TPHg	TPHd	B	T	E	X	TOG
08/07/96	STMW-4-5	5	Light pet. Odor	2.0	NA	0.011	0.005	0.0064	0.015	NA
	STMW-4-10	10	Light pet. Odor	57.0	NA	0.11	0.067	0.065	0.058	NA
	STMW-4-15	15	No odor	ND	NA	ND	ND	ND	ND	NA
	STMW-4-20	20	No odor	ND	NA	ND	ND	ND	ND	NA
	STMW-4-25	25	No odor	ND	NA	ND	ND	ND	ND	NA
	STMW-4-30	30	V. light pet. Odor	ND	NA	ND	ND	ND	ND	NA
08/08/96	STMW-6-3	3	V. light pet. Odor	1.8	29.0	0.0053	ND	0.055	0.015	76
	STMW-6-5	5	No odor	ND	ND	ND	ND	ND	ND	ND
	STMW-6-10	10	No odor	ND	ND	ND	ND	ND	ND	ND
	STMW-6-15	15	No odor	ND	ND	ND	ND	ND	ND	ND
	STMW-6-20	20	No odor	ND	ND	ND	ND	ND	ND	ND
08/12/96	STMW-5-5	5	No odor	ND	NA	ND	ND	ND	ND	NA
	STMW-5-10	10	No odor	ND	NA	ND	ND	ND	ND	NA
	STMW-5-15	15	No odor	ND	NA	ND	ND	ND	ND	NA
	STMW-5-20	20	No odor	ND	NA	ND	ND	ND	ND	NA
	STMW-5-25	25	No odor	ND	NA	ND	ND	ND	ND	NA

Pet. - Petroleum
TOG - Total Oil & Grease
BTEX - Benzene, Toluene, Ethylbenzene, Total Xylenes
TPHg - Total Petroleum Hydrocarbons as Gasoline
NA - Not Analyzed
TPHd - Total Petroleum Hydrocarbons as Diesel
ND - Not Detected (Below Laboratory Detection Limit)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San Leandro St
98th Av
Edes Av
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Alvarado St
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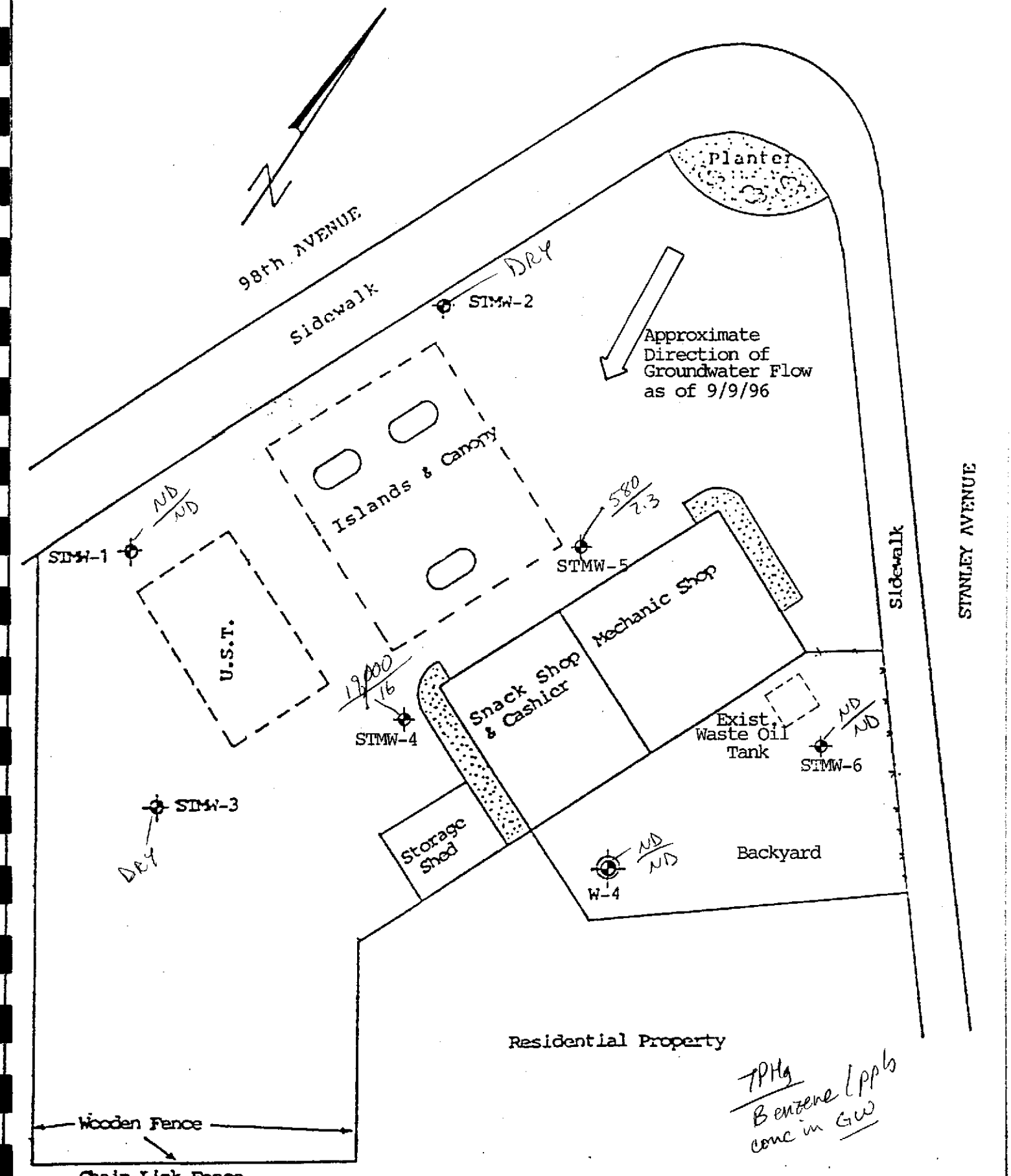
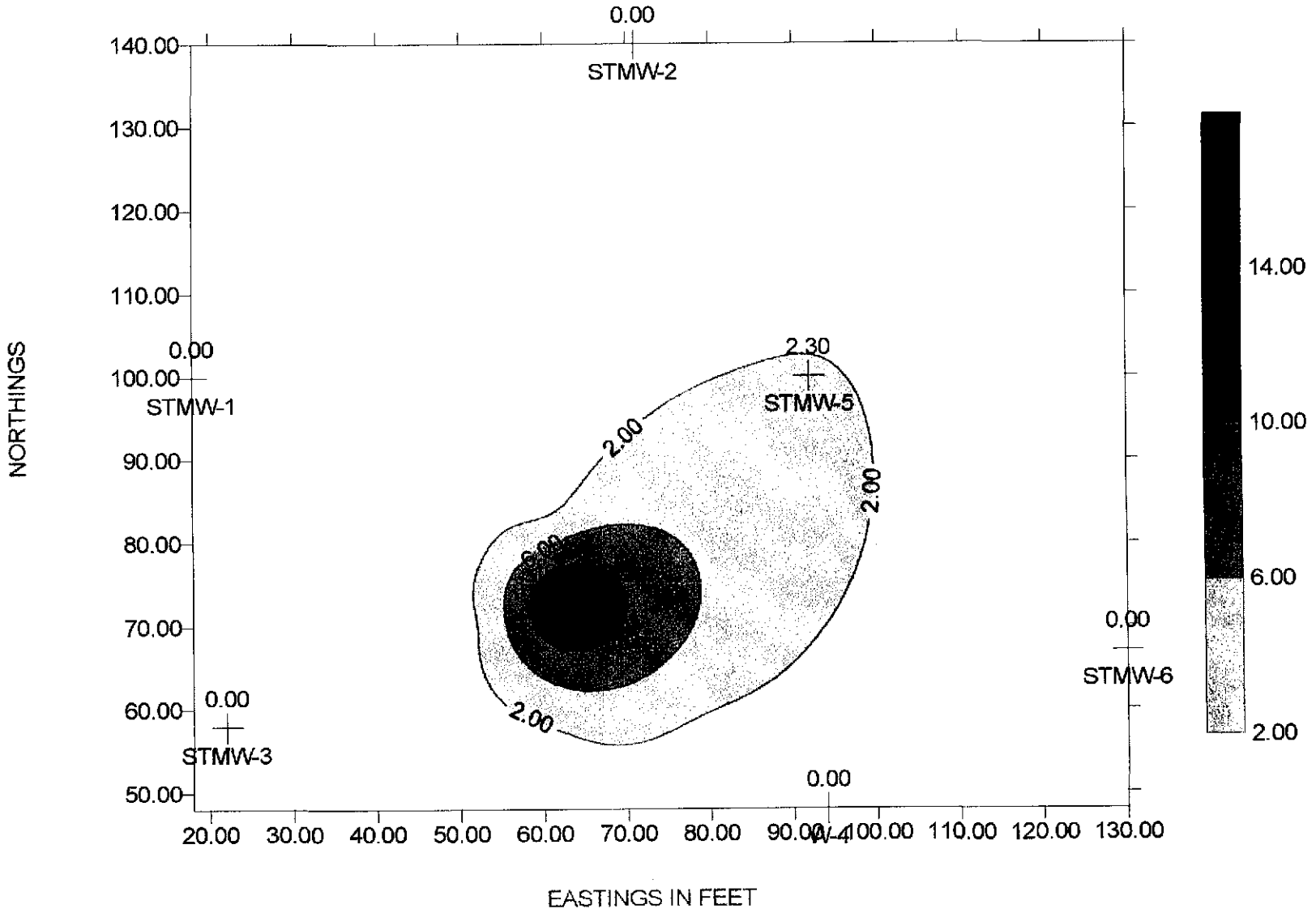


Figure 2

SOIL TECH ENGINEERING, INC.

M2

FILE NO. 7-93-556-SI BENZENE PLUME AS OF 09/09/96



TOLUENE PLUME AS OF 09/09/96

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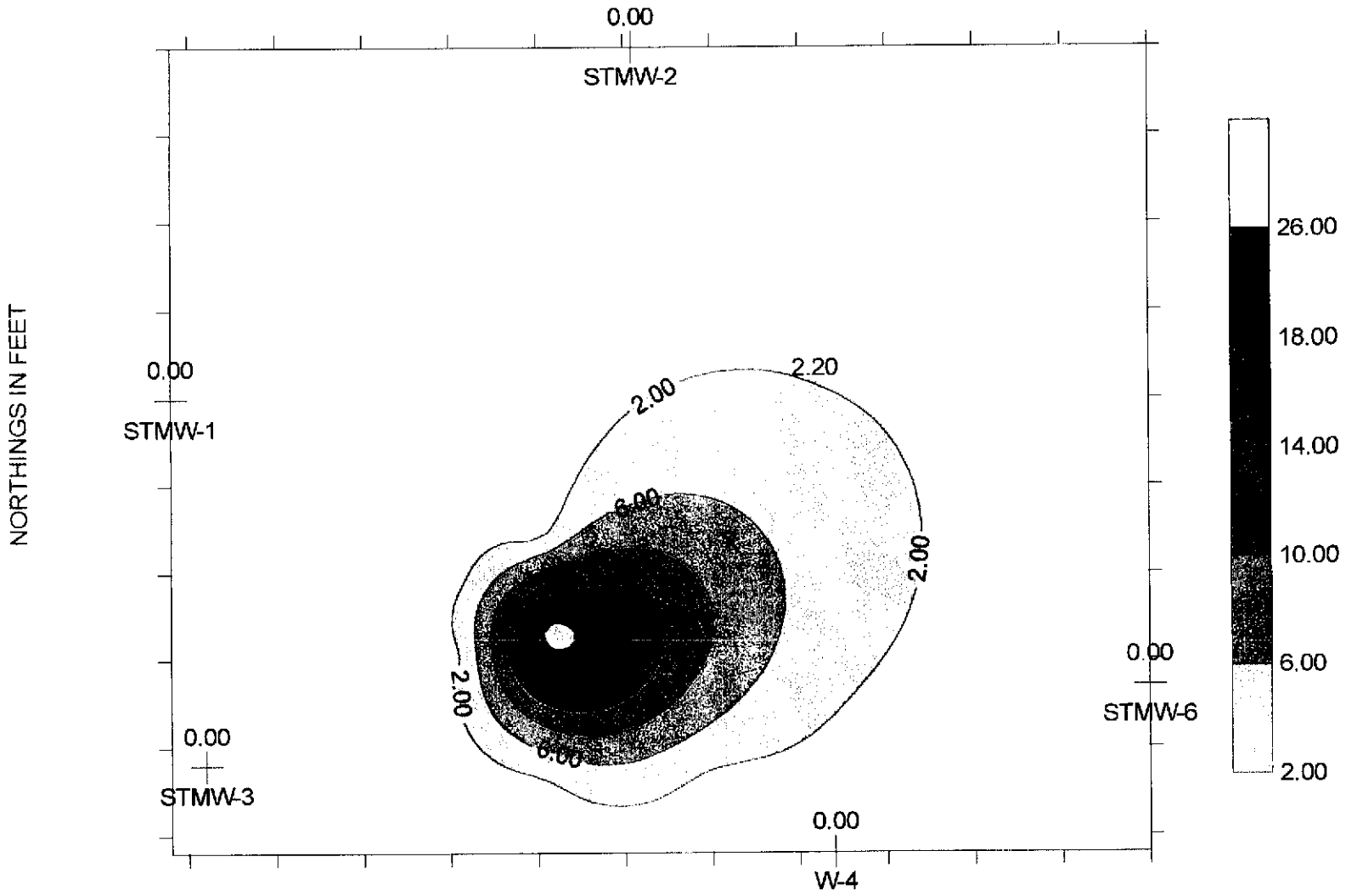

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ETHYL BENZENE PLUME AS OF 09/09/96

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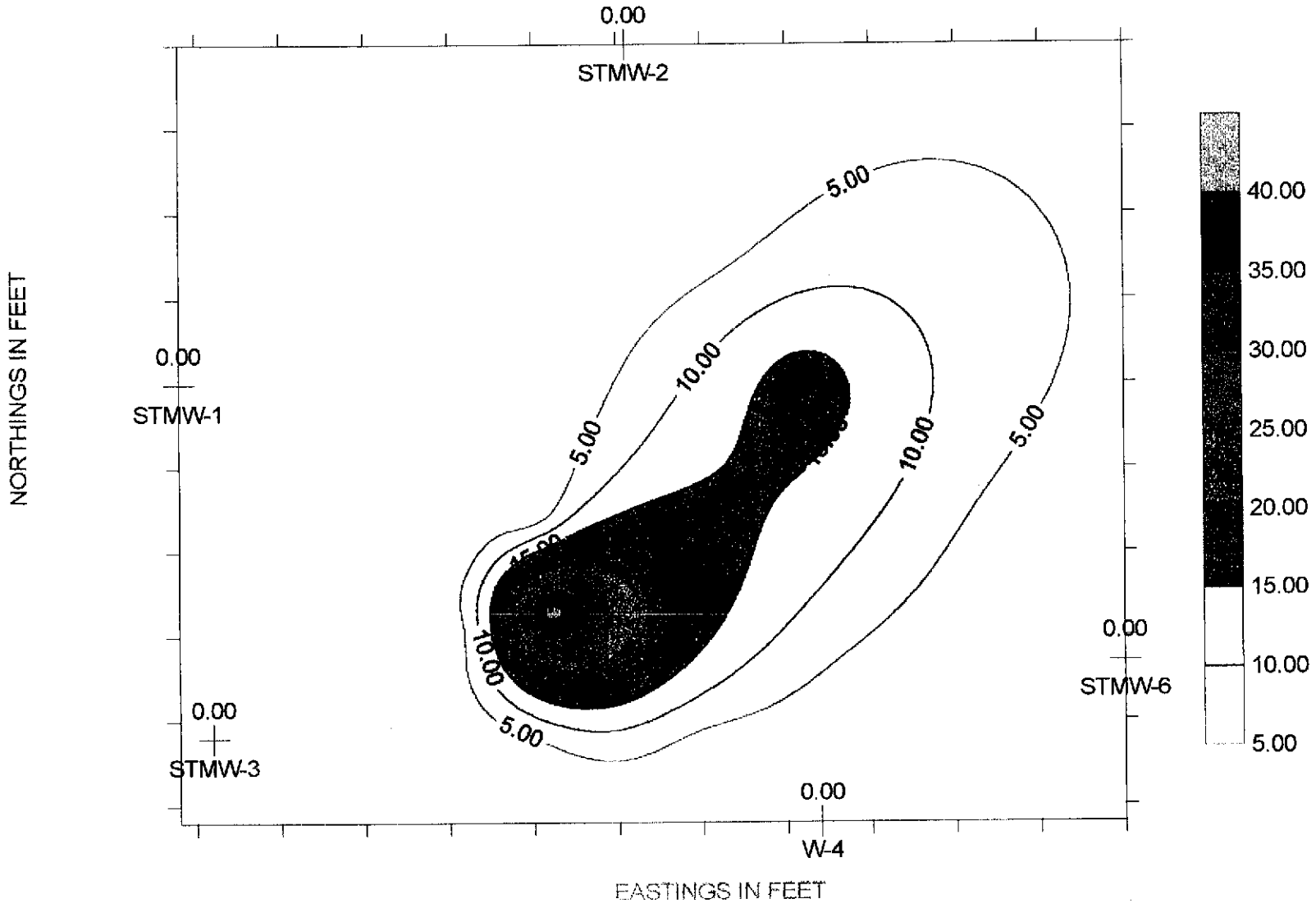

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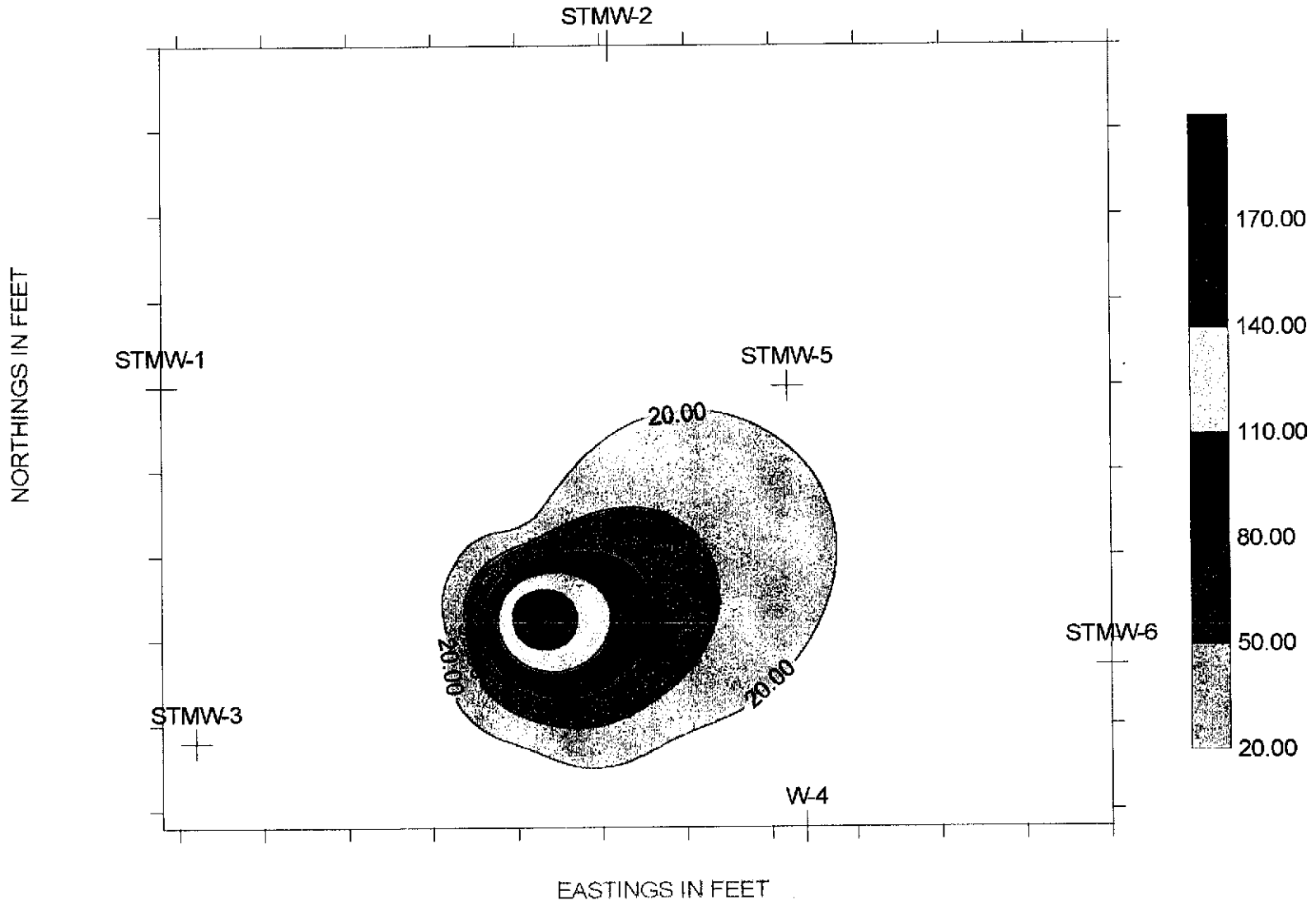
TOTAL XYLENE PLUME AS OF 09/09/96

FILE NO. 7-93-556-SI



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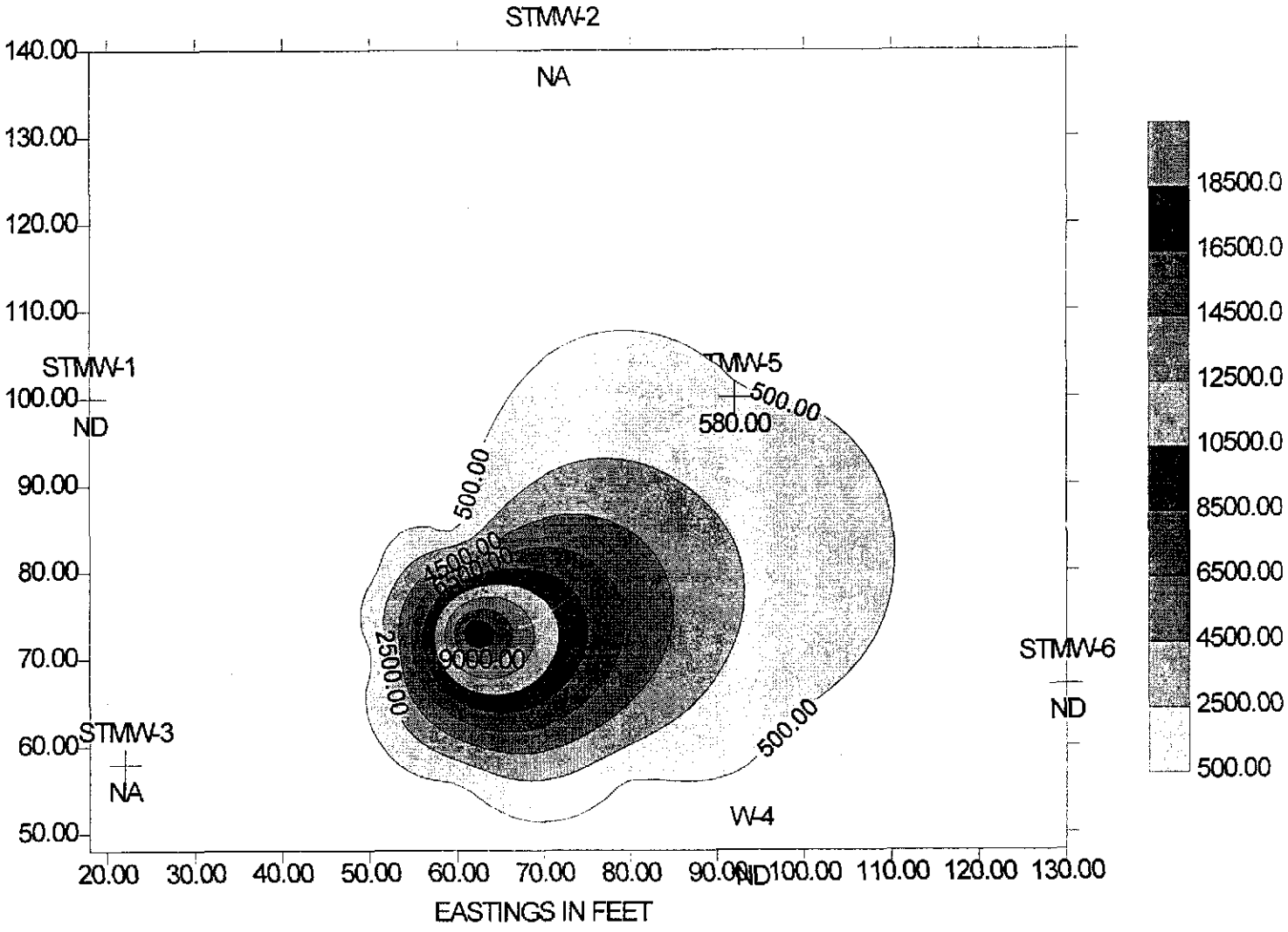
TPHg PLUME AS OF 09/09/96



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BENZENE PLUME / TOLUENE PLUME / ETHYL BENZENE PLUME / TOTAL XYLENE PLUME

Monitoring wells **STMW-2 and STMW-3** were dry and hence

Not Analyzed **(NA)**

Monitoring wells, **STMW-1, STMW-6 and** production well **W-4**,

detected BTEX Concentrations below Laboratory Detection Limit **(ND)**

SOIL TECH ENGINEERING, INC.

File No. 7-93-556-SI

DRILLING AND SOIL SAMPLING PROCEDURE

A hand auger was used in drilling the soil boring to the desired depth (see the Boring Log for more details).

Prior to drilling, all drilling equipment (i.e. auger, pin, drilling head) was thoroughly steam-cleaned to minimize the possibility of cross-contamination and/or vertical migration of possible contaminants.

In addition, prior to obtaining each individual soil sample, all sampling tools, including sampler and brass liners were thoroughly washed in a Trisodium Phosphate (TSP) solution followed by a rinse in distilled water.

During the drilling operation, relatively undisturbed soil samples were taken from the required depth by forcing a 2-inch I.D. sampler insert with a brass liner into the ground by means of a 40-lb. hammer falling 30-inches at various depths.

The samplers withdrew relatively undisturbed soil. In general, the first section of soil from the sampler (shoe) was used in the field for lithologic inspection and evidence of contamination. The selected brass liner was immediately trimmed, the ends of the brass liner were covered tightly with aluminum foil and plastic caps, sealed with tape, labeled, placed in a plastic bag and stored in an ice chest in order to minimize the escape of any volatiles present in the samples. Soil samples for analysis were sent to a state-certified hazardous waste laboratory accompanied by a chain-of-custody record.

Soil samples collected at each sampling interval were inspected for possible contamination (odor or peculiar colors). Soil vapor concentrations were measured in the field by using a Photoionization Detector (PID), PhotoVac Tip Air Analyzer. The soil sample was then sealed in a ZipLoc plastic bag and placed in the sun to enhance volatilization of the hydrocarbons from the sample. The purpose of this field analysis was to qualitatively determine the presence or absence of hydrocarbons and to establish which soil samples would be analyzed at the laboratory. The data was recorded on the drilling log at the depth corresponding to the sampling point.

Other soil samples might be collected to document the strati-graphy and estimate relative permeability of the subsurface materials.

Soil tailings obtained during drilling were stored at the site, pending the analytical test results to determine proper disposal.

SOP-1 cont'd

File No. 7-93-556-SI

MONITORING WELL INSTALLATION

The boreholes for the monitoring wells were hand augered with a diameter of at least two inches larger than the casing outside diameter (O.D.).

The monitoring wells were cased with threaded, factory-perforated and blank, schedule 40 P.V.C. The perforated interval consisted of slotted casing, generally 0.010 to 0.040 inch wide by 1.5 inch long slot size, with 42 slots per foot (slots which match formation grain size as determined by field grain-size distribution analysis). A P.V.C. cap was fastened to the bottom of the casing (no solvents, adhesive, or cements were used), the well casing was thoroughly washed and steam-cleaned.

After setting the casing inside the borehole, kiln-dried sand or gravel-filter material was poured into the annular space to fill from the bottom of the boring to two feet above the perforated interval. A one to two feet thick bentonite plug was placed above this filter material to prevent grout from infiltrating down into the filter material. Approximately one to two gallons of distilled water were added to hydrate the bentonite pellets. Then the well was sealed from the top of the bentonite seal to the surface with concrete or neat cement containing about 5% bentonite (see Well Construction Detail).

To protect the well from vandalism and surface water contami-nation, Christy boxes with a special type of Allen screw were installed around the well head, (for wells in parking lots, driveways and building areas). Steel stove pipes with padlocks were usually set over well-heads in landscaped areas.

In general, groundwater monitoring wells extend to the base of the upper aquifer, as defined by the consistent (less than 5 feet thick) clay layer below the upper aquifer, or at least 10 to 15 feet below the top of the upper aquifer, whichever is shallower. The wells do not extend through the laterally extensive clay layer below the upper aquifer. The wells are terminated one to two feet into such a clay layer.

WELL DEVELOPMENT

For all newly installed groundwater monitoring wells, the well casing, filter pack and adjacent formations were cleared of disturbed sediment and water.

Well development techniques included pumping, bailing, surging, swabbing, jetting, flushing or air lifting by using a stainless steel or Teflon bailer, a submersible stainless steel pump, or air lift pump. The well development continued until the discharged water appeared to be relatively free of all turbidity.

All water and sediment generated by well development were collected in 55-gallon steel drums (Department of Transportation approved), closed-head (17-H) for temporarily storage, and were then disposed of properly, depending on analytical results.

To assure that cross-contamination did not occur between wells, all well development tools were steam-cleaned or thoroughly washed in a Trisodium Phosphate (TSP) solution followed by a rinse in distilled water before each well development.

File No. 7-93-556-SI

GROUNDWATER SAMPLING

Prior to collection of groundwater samples, all of the sampling equipment (i.e. bailer, cables, bladder pump, discharge lines and etc.) was cleaned by pumping TSP water solution followed by distilled water.

Prior to purging, the well "Water Sampling Field Survey Forms" were filled out (depth to water and total depth of water column were measured and recorded). The well was then bailed or pumped to remove four to ten well volumes or until the discharged water temperature, conductivity and pH stabilized. "Stabilized" is defined as three consecutive readings within 15% of one another.

The groundwater sample was collected when the water level in the well recovered to 80% of its static level.

Forty milliliter (ml.), glass volatile organic analysis (VOA) vials with Teflon septa were used as sample containers. The groundwater sample was decanted into each VOA vial in such a manner that there was a meniscus at the top. The cap was quickly placed over the top of the vial and securely tightened. The VOA vial was then inverted and tapped to see if air bubbles were present. If none were present, the sample was labeled and refrigerated for delivery under chain-of-custody to the laboratory. The label information would include a sample identification number, job identification number, date, time, type of analysis requested, and the sampler's name.

File No. 7-93-556-SI

Logged By: Frank Hamedi	Exploratory Boring Log	Boring No. STMW-4
Date Drilled: 8/07/96	Approx. Elevation	Boring Diameter 8-inch

Drilling Method: Mobile drill rig B-40L

Sampling Method:

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/6"	Unified Soil Classification	DESCRIPTION
					2-inch asphalt, 5-inch reddish-brown baserock. Brown silty clay with some gravel.
3					Olive-green silty clay with some gravel, damp.
4					
	STMW-4-5		450 psi		Isolate 2-inch to 3-inch rock.
7					Black-olive, damp, petroleum odor.
8					
9					
10	STMW-4-10		400 psi		
11					
12					Light brown silty clay with some gravel, hard.
13					
14					
15	STMW-4-15				Dark brown silty clay with some pea gravel, hard. Munsell Color: HUE 10YR 3/3
16					

Remarks

File No. 7-93-556-SI

Logged By: Noori Ameli	Exploratory Boring Log	Boring No. STMW-4
Date Drilled: 8/07/96	Approx. Elevation	Boring Diameter 8-inch

Drilling Method: Mobile drill rig B-40L

Sampling Method:

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/6"	Unified Soil Classification	DESCRIPTION
17					Dark brown silty clay with some pea gravel, hard. Munsell Color: HUE 10YR 3/3
18					
19					
20	STMW-4-20				Dark yellowish-brown silty clay with some pea gravel, very stiff, hard to drill. Munsell Color: HUE 10YR 4/6
21					
22					
23					
24					
25	STMW-4-25				Dark yellowish-brown clayey silt with some pea gravel, stiff. Munsell Color: HUE 10YR 4/6
26					
27					Color changes to dark olive-grey silty gravelly clay, very light petroleum odor. Munsell Color: HUE 5Y 3/2
28					
29					
30	STMW-4-30				Dark olive-grey fine sandy gravelly clay, very light petroleum odor. Munsell Color: HUE 5Y 3/2
31					
32					

Remarks:

File No. 7-93-556-SI

Logged By: Noori Ameli	Exploratory Boring Log	Boring No. STMW-4
Date Drilled. 8/07/96	Approx. Elevation	Boring Diameter 8-inch
Drilling Method: Mobile drill rig B-40L		Sampling Method

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/Ft.	Unified Soil Classification	DESCRIPTION
33					Dark olive-grey fine sandy gravelly clay, very light petroleum odor. Munsell Color: HUE 5Y 3/2
34					
35					Damp.
36					
37					▽ First groundwater encountered at 37 feet. Moist, very light petroleum odor.
38					
39					
40					Dark olive-grey coarse sandy gravelly clay, very light petroleum odor, wet. Munsell Color: HUE 5Y 3/2 Boring terminated at 40 feet.
41					
42					
43					
44					
45					
46					
47					
48					

Remarks

File No. 7-93-556-SI

Logged By: Noori Ameli	Exploratory Boring Log	Boring No. STMW-5
Date Drilled: 8/12/96	Approx. Elevation	Boring Diameter 8-inch
Drilling Method: Mobile drill rig B-40L		Sampling Method

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/6"	Unified Soil Classification	DESCRIPTION
					4-inch asphalt, 8-inch dark yellowish-brown baserock. Dark olive-grey silty gravelly clay, stiff, damp.
4	STMW-5-5				Dark olive-grey silty gravelly clay, stiff.
8					Color gets darker to very dark grey silty pea gravelly clay, stiff. Munsell Color: HUE 5Y 3/2
10	STMW-5-10				Very dark silty clay with minor pea gravel, stiff. Munsell Color: HUE 5Y 3/2
15	STMW-5-15				Color changes to dark brown silty pea gravelly clay, hard. Munsell Color: HUE 10YR 3/3 Dark brown silty pea gravelly clay, hard. Munsell Color: HUE 10YR 3/3

Remarks

File No. 7-93-556-SI

Logged By: Noori Ameli	Exploratory Boring Log	Boring No. STMW-5
Date Drilled: 8/12/96	Approx. Elevation	Boring Diameter 8-inch

Drilling Method	Sampling Method
Mobile drill rig B-40L	

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/6"	Unified Soil Classification	DESCRIPTION
17					Color gets lighter to dark yellowish-brown silty clay with minor pea gravel, hard. Munsell Color: HUE 10YR 3/4
18					
19					
20	STMW-5-20				Dark yellowish-brown silty pea gravelly clay, hard. Munsell Color: HUE 10YR 4/4
21					
22					
23					
24					
25	STMW-5-25				Dark yellowish-brown silty clay with minor pea gravel, stiff. Munsell Color: HUE 10YR 4/4
26					
27					
28					
29					
30					▽ First groundwater encountered at 30 feet. Color gets darker to dark brown silty pea gravelly clay, moist. Munsell Color: HUE 10YR 3/3
31					
32					

Remarks

File No. 7-93-556-SI

Logged By: Noori Ameli	Exploratory Boring Log	Boring No. SIMW-5
Date Drilled: 8/12/96	Approx. Elevation	Boring Diameter 8-inch

Drilling Method	Sampling Method
Mobile drill rig B-40L	

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/Ft.	Unified Soil Classification	DESCRIPTION
33					Color gets darker to dark brown silty pea gravelly clay, moist. Munsell Color: HUE 10YR 3/3
34					
35					
36					
37					Dark brown clayey gravelly coarse sand, wet. Munsell Color: HUE 10YR 3/3 Boring terminated at 37 feet.
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					

Remarks

File No. 7-93-556-SI

Logged By: Noori Ameli	Exploratory Boring Log	Boring No. STMW-6	
Date Drilled: 8/08/96	Approx. Elevation	Boring Diameter 8-inch	
Drilling Method: Mobile drill rig B-40L		Sampling Method	

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/6"	Unified Soil Classification	DESCRIPTION
					4-inch asphalt, 8-inch dark yellowish-brown baserock. Very dark grey silty clay with some pea gravel, stiff. Munsell Color: HUE 10YR 4/6
4	STMW-6-3				Color gets darker to black silty clay, very light petroleum odor. Munsell Color: HUE 5Y 2.5/1
	STMW-6-5				Black silty clay, stiff. Munsell Color: HUE 5Y 2.5/1
8					Color changes to dark brown silty clay with some pea gravel, stiff. Munsell Color: HUE 10YR 4/3
10	STMW-6-10				Dark brown silty clay with some pea gravel, very stiff. Munsell Color: HUE 10YR 4/3
13					Color changes to olive-brown silty clay with some gravel, stiff. Munsell Color: HUE 2.5Y 4/4
15	STMW-6-15				Olive-brown fine sandy gravelly clay, stiff. Munsell Color: HUE 2.5Y 4/4

Remarks

File No. 7-93-556-SI

Logged By: Noori Ameli	Exploratory Boring Log	Boring No. STMW-6
Date Drilled. 8/08/96	Approx. Elevation	Boring Diameter 8-inch

Drilling Method	Sampling Method
Mobile drill rig B-40L	

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/Ft.	Unified Soil Classification	DESCRIPTION
17					Olive-brown fine sandy gravelly clay, stiff. Munsell Color: HUE 2.5Y 4/4
18					
19					▽ First groundwater encountered at 19 feet.
20	STMW-6-20				Olive-brown sandy gravelly clay, wet. Munsell Color: HUE 2.5Y 4/4
21					
22					
23					
24					
25					Olive-brown clayey sandy gravel, wet. Munsell Color: HUE 2.5Y 4/4 Boring terminated at 25 feet.
26					
27					
28					
29					
30					
31					
32					

Remarks

File No. 7-93-556-SI

A P P E N D I X "E"

SOIL TECH ENGINEERING, INC.

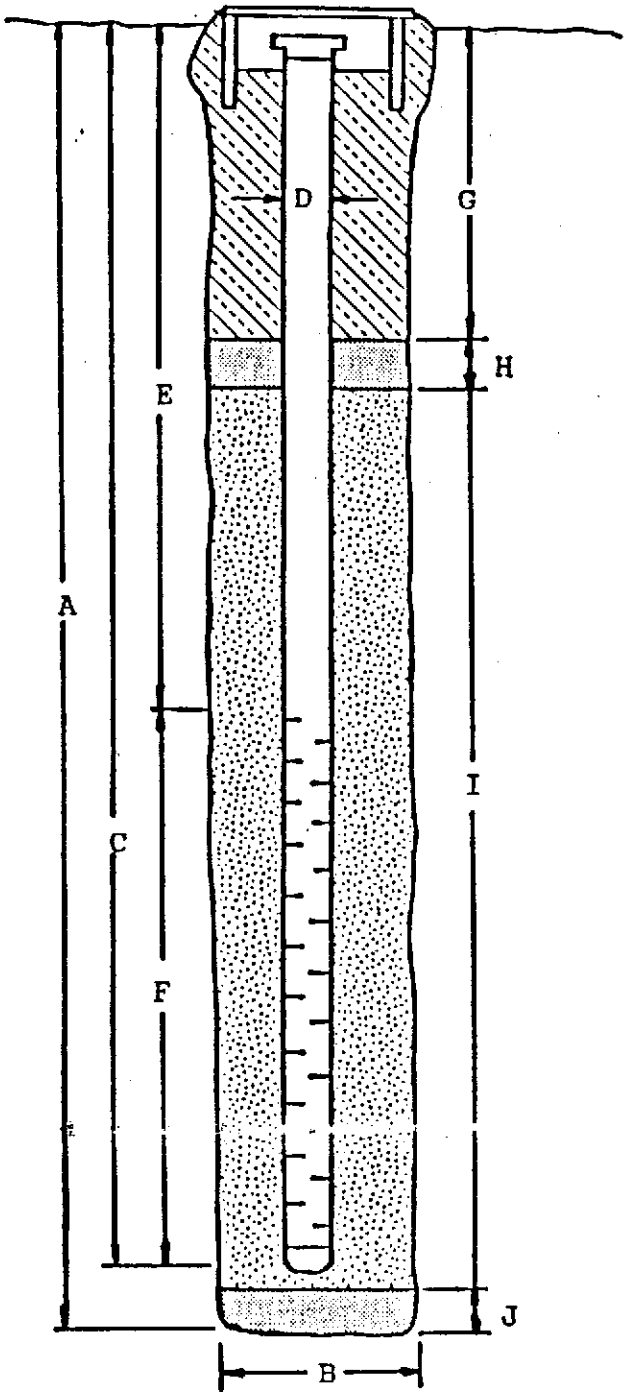
WELL DETAILS

PROJECT NAME: 2740 98 Ave. OAKLAND BORING/WELL NO. STMW-4

PROJECT NUMBER: 7-93-556-SI CASING ELEVATION: _____

WELL PERMIT NO.: 96541 SURFACE ELEVATION: _____

G-5 Vault Box



A. Total Depth: 40'-00"

B. Boring Diameter: 8"

Drilling method: Hollow Stem

C. Casing Length: 40'-00"

Material: PVC

D. Casing Diameter: 2"

E. Depth to Perforations: 20'-00"

F. Perforated Length: 20'-00"

Perforated Interval: _____

Perforation Type: Factory Slot

Perforation Size: 0.020

G. Surface Seal: 17'-00"

Seal Material: CEMENT

H. Seal: 1'-00"

Seal Material: BENTONITE

I. Gravel Pack: 22'-00"

Pack Material: SAND

Size: # 2/12

J. Bottom Seal: Ø

Seal Material: None

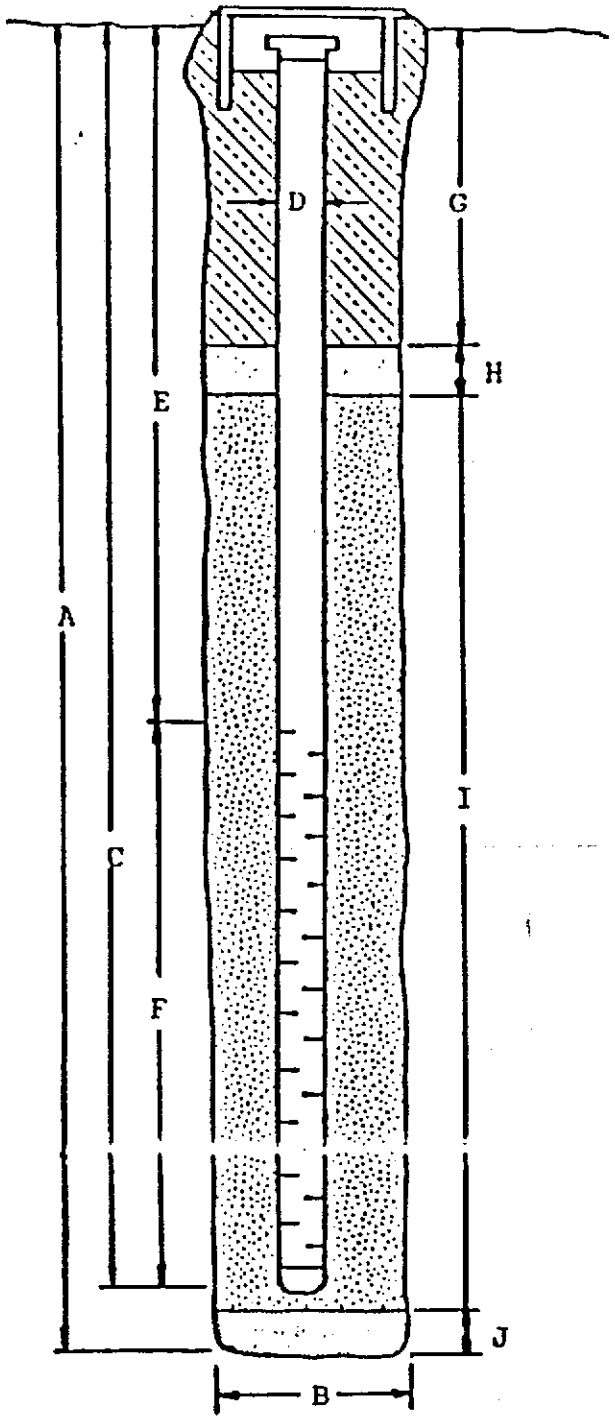
WELL DETAILS

PROJECT NAME: 2740 98th Av. OAKLAND BORING/WELL NO. STMW-5

PROJECT NUMBER: T-93-556-SI CASING ELEVATION: _____

WELL PERMIT NO.: 96541 SURFACE ELEVATION: _____

G-5 Vault Box



A. Total Depth: 37'-00"

B. Boring Diameter: 8"

Drilling method: Hollow Stem

C. Casing Length: 37'-00"

Material: PVC

D. Casing Diameter: 2"

E. Depth to Perforations: 15'-00"

F. Perforated Length: 22'-00"

Perforated Interval: _____

Perforation Type: Factory Slot

Perforation Size: 0.020

G. Surface Seal: 12'-00"

Seal Material: CEMENT

H. Seal: 1'-00"

Seal Material: BENTONITE

I. Gravel Pack: 24'-00"

Pack Material: SAND

Size: #2/12

J. Bottom Seal: Ø

Seal Material: None

SOP6

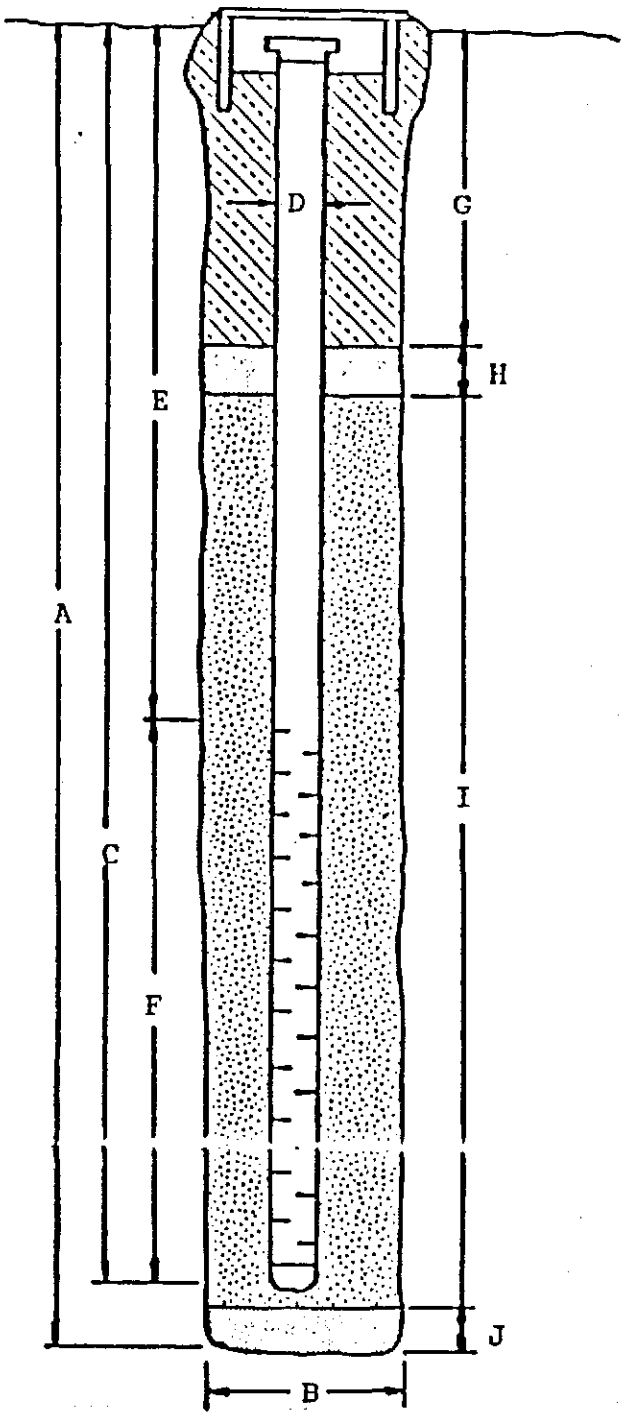
WELL DETAILS

PROJECT NAME: 2740 98 th Ave, OAKLAND BORING/WELL NO. STMW-6

PROJECT NUMBER: 7-93-556-SI CASING ELEVATION: _____

WELL PERMIT NO.: 96541 SURFACE ELEVATION: _____

G-5 Vault Box



A. Total Depth: 25'-00"

B. Boring Diameter: 8"

Drilling method: Hollow Stem

C. Casing Length: 25'-00"

Material: PVC

D. Casing Diameter: 2"

E. Depth to Perforations: 5'-00"

F. Perforated Length: 20'-00"

Perforated Interval: _____

Perforation Type: Factory Slot

Perforation Size: 0.020

G. Surface Seal: 2'-00"

Seal Material: CEMENT

H. Seal: 1'-00"

Seal Material: BENTONITE

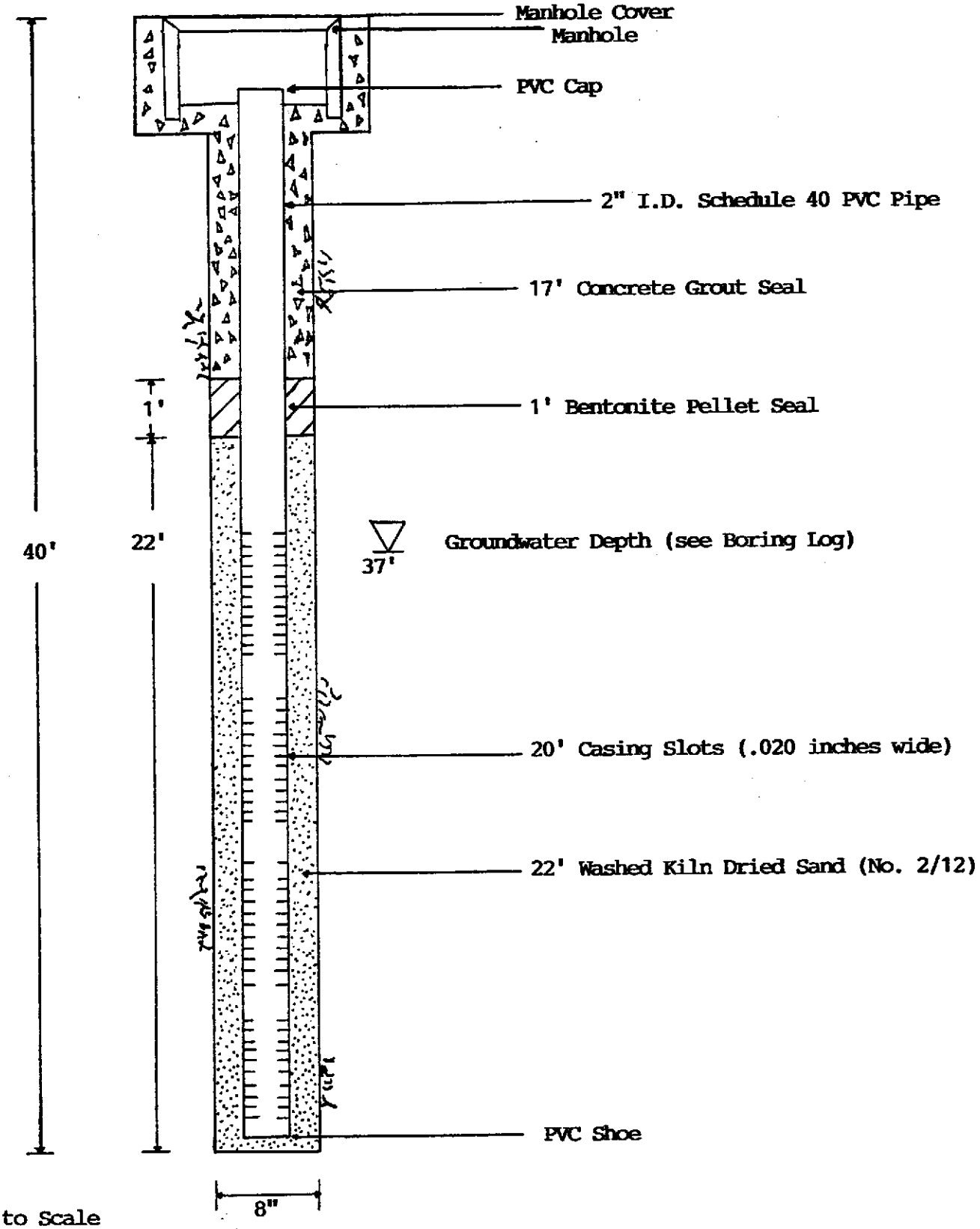
I. Gravel Pack: 22'-00"

Pack Material: SAND

Size: # 2/12

J. Bottom Seal: Ø

Seal Material: None

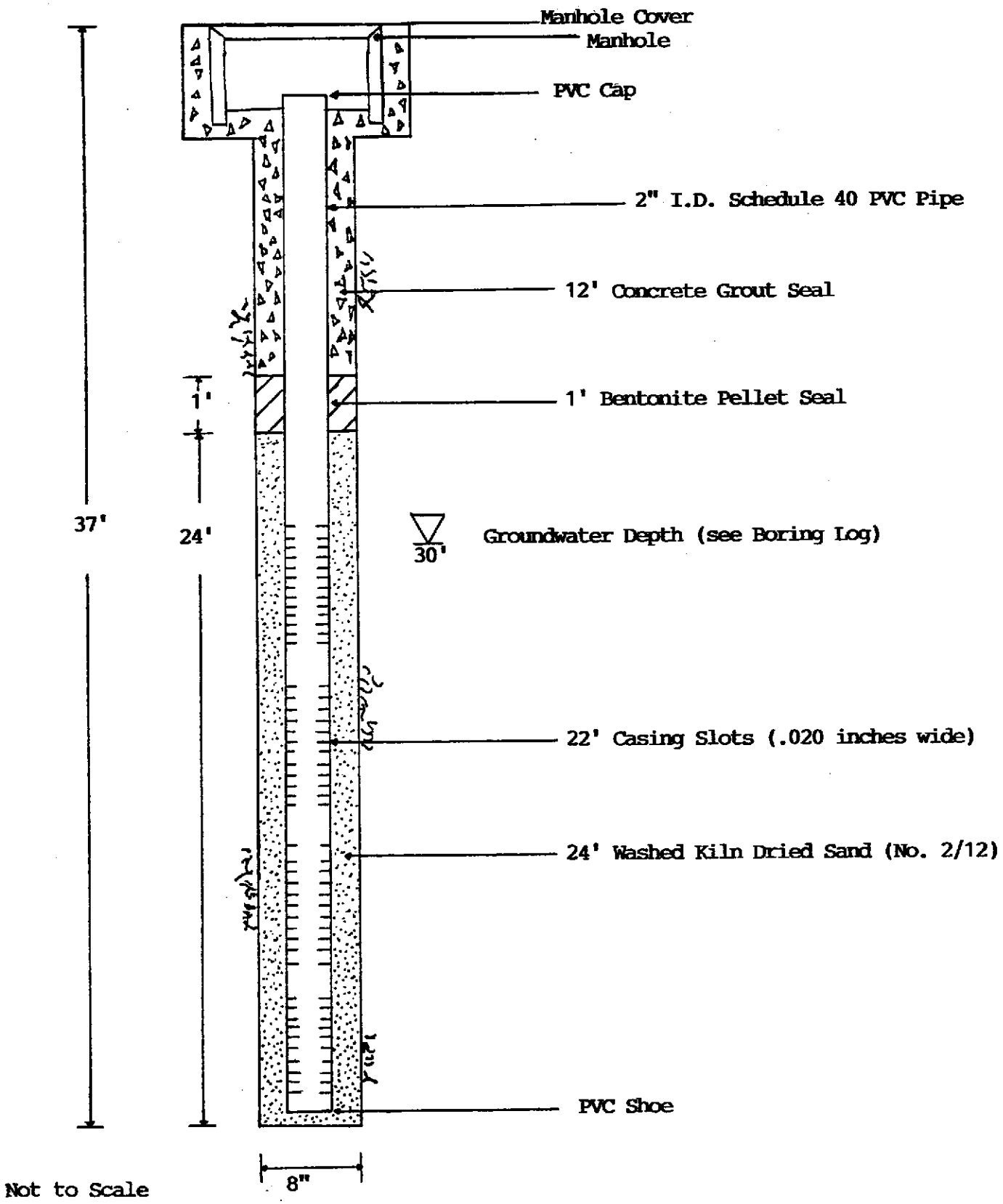


SIMW-4

Piezometer Schematic

SOIL TECH ENGINEERING, INC.

PS1

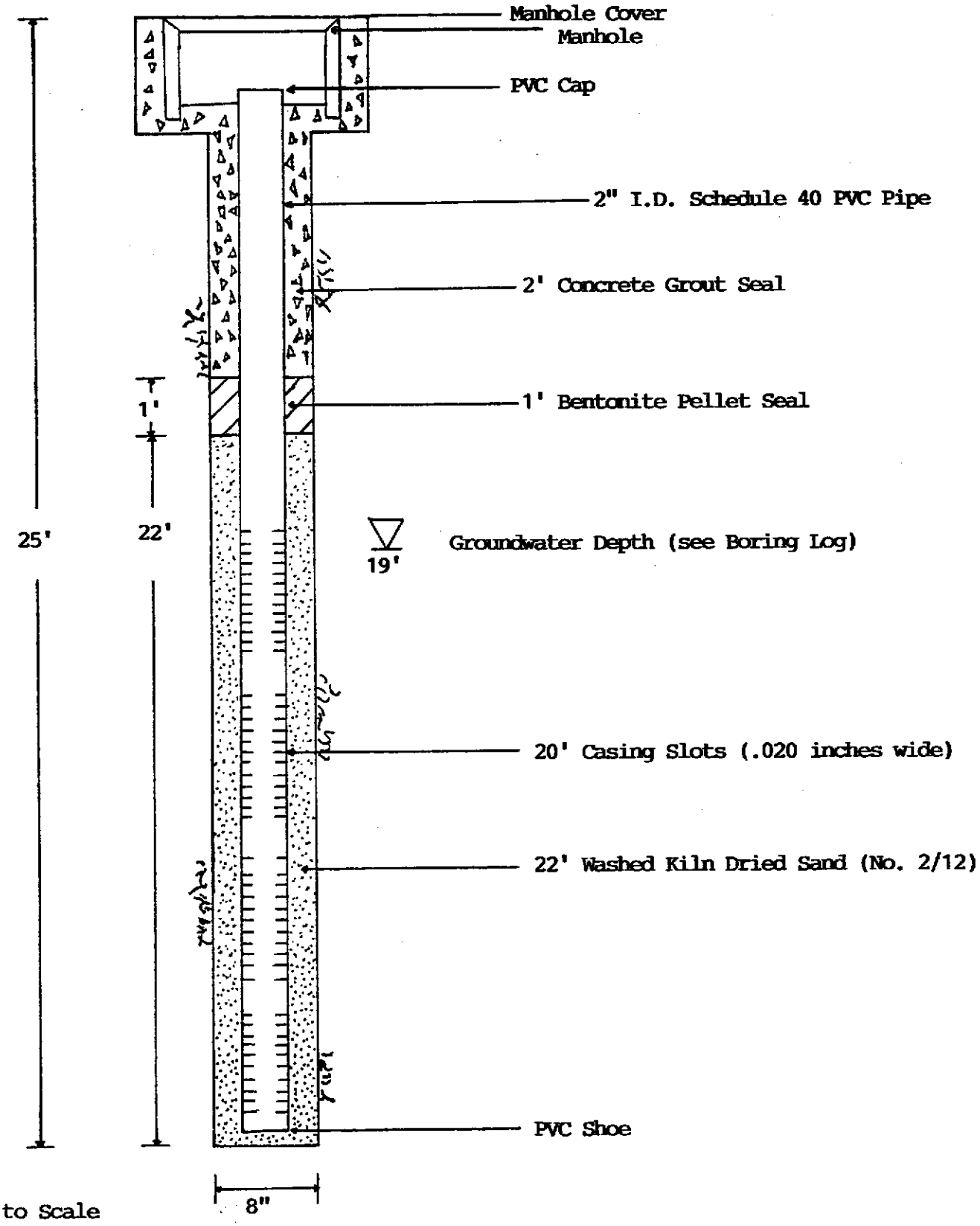


STMW-5

Piezometer Schematic

SOIL TECH ENGINEERING, INC.

PS2



STMW-6

Piezometer Schematic

SOIL TECH ENGINEERING, INC.

PS3

File No. 7-93-556-SI

A P P E N D I X "F"

SOIL TECH ENGINEERING, INC.

PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

September 11, 1996 PEL # 9609019

SOIL TECH ENGINEERING

Attn: Noori Ameli

Re: Five water samples for Gasoline/BTEX with MTBE, Diesel, and Oil & Grease analyses.

Project name: 2740 98th Ave., - Oakland
Project number: 7-93-556-SI

Date sampled: Sep 09, 1996 Date submitted: Sep 09, 1996
Date extracted: Sep 09-11, 1996 Date analyzed: Sep 09-11, 1996

RESULTS:

SAMPLE I.D.	MTBE (ug/L)	Gasoline (ug/L)	Diesel (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylene (ug/L)	Oil & Grease (mg/L)
STMW-1	N.D.	N.D.	---	N.D.	N.D.	N.D.	N.D.	---
STMW-4	N.D.	19000	---	16	30	44	190	---
STMW-5	N.D.	580	---	2.3	2.2	18	13	---
STMW-6	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1.7
W-4	N.D.	N.D.	---	N.D.	N.D.	N.D.	N.D.	---
Blank	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spiked Recovery	---	80.2%	84.8%	101.6%	105.0%	99.7%	96.1%	---
Detection limit	0.5	50	50	0.5	0.5	0.5	0.5	0.5
Method of Analysis	602	5030 / 8015	3510 / 8015	602	602	602	602	5520 C & F

David Duong
Laboratory Director

1764 Houret Court Milpitas, CA. 95035 Tel: 408-946-9636 Fax: 408-946-9663

PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

September 11, 1996 PEL # 9609019

SOIL TECH ENGINEERING Attn: Noori Ameli

Project name: 2740 98th Ave-Oakland Project number: 7-93-556-SI
Sample I.D.: STMW-6

Date Sampled: Sep 09, 1996 Date Submitted: Sep 09, 1996
Date Analyzed: Sep 09-11, 1996

Method of Analysis: EPA 601 Detection limit: 0.5 ug/L

COMPOUND NAME	CONCENTRATION (ug/L)	SPIKE RECOVERY (%)
Chloromethane	N.D.	-----
Vinyl Chloride	N.D.	-----
Bromomethane	N.D.	-----
Chloroethane	N.D.	-----
Trichlorofluoromethane	N.D.	-----
1,1-Dichloroethene	N.D.	-----
Methylene Chloride	N.D.	-----
1,2-Dichloroethene (TOTAL)	N.D.	102.6
1,1-Dichloroethane	N.D.	-----
Chloroform	N.D.	105.5
1,1,1-Trichloroethane	N.D.	-----
Carbon Tetrachloride	N.D.	-----
1,2-Dichloroethane	N.D.	-----
Trichloroethene	N.D.	99.8
1,2-Dichloropropane	N.D.	-----
Bromodichloromethane	N.D.	-----
2-Chloroethylvinylether	N.D.	-----
Trans-1,3-Dichloropropene	N.D.	-----
Cis-1,3-Dichloropropene	N.D.	-----
1,1,2-Trichloroethane	N.D.	-----
Tetrachloroethene	N.D.	77.1
Dibromochloromethane	N.D.	-----
Chlorobenzene	N.D.	-----
Bromoform	N.D.	-----
1,1,2,2-Tetrachloroethane	N.D.	-----
1,3-Dichlorobenzene	N.D.	-----
1,4-Dichlorobenzene	N.D.	-----
1,2-Dichlorobenzene	N.D.	-----

David Duong
Laboratory Director

1764 Houret Court Milpitas, CA. 95035 Tel: 408-946-9636 Fax: 408-946-9663

PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

September 11, 1996 PEL # 9609019

SOIL TECH ENGINEERING

Attn: Noori Ameli

Re: One water sample for Cadmium, Chromium, Lead, Nickel, and Zinc analyses.

Project name: 2740 98th Ave - Oakland
Project number: 7-93-556-SI

Date sampled: Sep 09, 1996 Date submitted: Sep 09, 1996
Date extracted: Sep 09-11, 1996 Date analyzed: Sep 09-11, 1996

RESULTS:

SAMPLE I.D.	Cadmium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Nickel (mg/L)	Zinc (mg/L)
STMW-6	N.D.	N.D.	N.D.	N.D.	N.D.
Blank	N.D.	N.D.	N.D.	N.D.	N.D.
Detection limit	0.10	0.10	0.10	0.50	0.50
Method of Analysis	7130	7190	7420	7520	7950

David Duong
Laboratory Director

1764 Houret Court Milpitas, CA. 95035 Tel: 408-946-9636 Fax: 408-946-9663

PROJ. NO.	NAME
7-93-556-S1	2740 98th Av. OAKLAND

SAMPLERS: *(Signature)* N. Amel

NO.	DATE	TIME	SOIL	WATER	LOCATION	CONTAINER	Analyses Requested (2) TPHG/BTEX (M)	Diesel	Oil & Grease	8010	Cd, Cr, Ni, Zn	
1	9/9/96	11:05		✓	STMW-1	1	✓					
2	9/9/96	11:35		✓	W-4	1	✓					
3	9/9/96	14:20		✓	STMW-4	1	✓					
4	9/9/96	13:45		✓	STMW-5	1	✓					
5	9/9/96	12:10		✓	STMW-6	4	✓	V	V	V	V	

per Noori Ameli on 09/10/96

PEL # 9609019

INV # 27270

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Receive by: *(Signature)*
N. Amel					
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Remarks	
			09/09/96 5:02 PM		

SOIL TECH ENGINEERING

Environmental and Geotechnical Engineers

PRIORITY ENVIRONMENTAL LABS
Precision Environmental Analytical Laboratory

August 14, 1996 PEL # 9608022

SOIL TECH ENGINEERING

Attn: Noori Ameli

Re: Five soil samples for Gasoline/BTEX analysis.

Project name: 2740 98th Ave., - Oakland
Project number: 7-93-556-SI

Date sampled: Aug 12, 1996 Date submitted: Aug 13, 1996
Date extracted: Aug 13-14, 1996 Date analyzed: Aug 13-14, 1996

RESULTS:

SAMPLE I.D.	Gasoline (mg/Kg)	Benzene (ug/Kg)	Toluene (ug/Kg)	Ethyl Benzene (ug/Kg)	Total Xylene (ug/Kg)
STMW-5-5	N.D.	N.D.	N.D.	N.D.	N.D.
STMW-5-10	N.D.	N.D.	N.D.	N.D.	N.D.
STMW-5-15	N.D.	N.D.	N.D.	N.D.	N.D.
STMW-5-20	N.D.	N.D.	N.D.	N.D.	N.D.
STMW-5-25	N.D.	N.D.	N.D.	N.D.	N.D.
Blank	N.D.	N.D.	N.D.	N.D.	N.D.
Spiked Recovery	86.9%	82.0%	94.0%	106.8%	112.4%
Detection limit	1.0	5.0	5.0	5.0	5.0
Method of Analysis	5030 / 8015	8020	8020	8020	8020

David Duong
Laboratory Director

1764 Houret Court Milpitas, CA. 95035 Tel: 408-946-9636 Fax: 408-946-9663

PROJ. NO.	NAME
7-93-556-SI	2740 98 th. Ave. OAKLAND

SAMPLERS: *(Signature)* [signature]

PEL# 9608022

INV# 27199

NO.	DATE	TIME	SOIL	WATER	LOCATION	CONTAINER	ANALYSES REQUESTED TPHG/BTEX					
1	8/12/96	9:40	✓		STMW-5-5	1	✓					
2	8/12/96	9:55	✓		STMW-5-10	1	✓					
3	8/12/96	10:15	✓		STMW-5-15	1	✓					
4	8/12/96	10:35	✓		STMW-5-20	1	✓					
5	8/12/96	10:55	✓		STMW-5-25	1	✓					

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Receive by: *(Signature)*
[signature]					
Relinquished by: *(Signature)*	**Date / Time**	**Received by:** *(Signature)*	**Relinquished by:** *(Signature)*	**Date / Time**	**Received by:** *(Signature)*
Relinquished by: *(Signature)*	**Date / Time**	**Received for Laboratory by:** *(Signature)*	**Date / Time**	**Remarks**	
		[signature]	08/13/96 8:10 Am		

SOIL TECH ENGINEERING

Environmental and Geotechnical Engineers

1761 Junction Ave. San Jose CA 95112 (408)441-1881

PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

August 12, 1996 PEL # 9608016

SOIL TECH ENGINEERING

Attn: Noori Ameli

Re: Eleven soil samples for Gasoline/BTEX, Diesel, and Oil & Grease analyses.

Project name: 2740 98th Ave., - Oaklans
Project number: 7-93-556-SI

Date sampled: Aug 07-08, 1996 Date submitted: Aug 08, 1996
Date extracted: Aug 08-12, 1996 Date analyzed: Aug 08-12, 1996

RESULTS:

SAMPLE I.D.	Gasoline (mg/Kg)	Diesel (mg/Kg)	Benzene (ug/Kg)	Toluene (ug/Kg)	Ethyl Benzene (ug/Kg)	Total Xylene (ug/Kg)	Oil & Grease (mg/Kg)
STMW-4-5	2.0	---	11	5.0	6.4	15	---
STMW-4-10	57	---	110	67	65	58	---
STMW-4-15	N.D.	---	N.D.	N.D.	N.D.	N.D.	---
STMW-4-20	N.D.	---	N.D.	N.D.	N.D.	N.D.	---
STMW-4-25	N.D.	---	N.D.	N.D.	N.D.	N.D.	---
STMW-4-30	N.D.	---	N.D.	N.D.	N.D.	N.D.	---
STMW-6-3	1.8	29	5.3	N.D.	55	15	76
STMW-6-5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
STMW-6-10	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
STMW-6-15	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
STMW-6-20	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Blank	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spiked Recovery	91.0%	82.9%	88.9%	104.3%	110.8%	129.5%	---
Detection limit	1.0	1.0	5.0	5.0	5.0	5.0	10
Method of Analysis	5030 / 8015	3550 / 8015	8020	8020	8020	8020	5520 D & F

David Duong
Laboratory Director

1764 Houret Court Milpitas, CA. 95035 Tel: 408-946-9636 Fax: 408-946-9663

PROJECT NO.	PROJECT NAME
7-93-556-ST	2740 98th Av. OAKLAND

SAMPLERS: *(Signature)*

NO.	DATE	TIME	SOIL	WATER	LOCATION	CONTAINER	TPHG/BTEX	TPHD	TOG	REMARKS
1	8/7/96	9:55	✓		STMW-4-5	1	✓			PEL# 9608016
2	8/7/96	10:15	✓		STMW-4-10	1	✓			INV# 27193
3	8/7/96	10:30	✓		STMW-4-15	1	✓			
4	8/7/96	10:50	✓		STMW-4-20	1	✓			
5	8/7/96	11:20	✓		STMW-4-25	1	✓			
6	8/7/96	11:45	✓		STMW-4-30	1	✓			
7	8/8/96	10:35	✓		STMW-6-3	1	✓	✓	✓	
8	8/8/96	10:50	✓		STMW-6-5	1	✓	✓	✓	
9	8/8/96	11:15	✓		STMW-6-10	1	✓	✓	✓	
10	8/8/96	11:30	✓		STMW-6-15	1	✓	✓	✓	
11	8/8/96	11:45	✓		STMW-6-20	1	✓	✓	✓	

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Receive by: *(Signature)*
Relinquished by: *(Signature)*	**Date / Time**	**Received by: *(Signature)***	**Relinquished by: *(Signature)***	**Date / Time**	**Received by: *(Signature)***
Relinquished by: *(Signature)*	**Date / Time**	**Received for Laboratory by: *(Signature)***	**Date / Time**	**Remarks**	
	8/8/96 16:10	PEL			

SOIL TECH ENGINEERING

Environmental and Geotechnical Engineers

1761 Junction Ave. San Jose CA 95112 (408)441-1881

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 2740 98th Avenue
Oakland, CA 94605

CLIENT
Name Mr. Kiyoumars Ghofrani
Address 2740 98th Avenue Voice 510-562-4505
City Oakland, CA Zip 94605

APPLICANT
Name Soil Tech Engineering, Inc.
Fax (408)441-0705
Address 1761 JUNCTION AVE. Voice (408)441-1881
City SAN JOSE Zip 95112

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	___	General	___
Water Supply	___	Contamination	___
Monitoring	X	Well Destruction	___

PROPOSED WATER SUPPLY WELL USE

Domestic	___	Industrial	___	Other	___
Municipal	___	Irrigation	___		

DRILLING METHOD:

Mud Rotary	___	Air Rotary	___	Auger	X
Cable	___	Other	___		

DRILLER'S LICENSE NO. 507520 C57

WELL PROJECTS

Drill Hole Diameter	8	in.	Maximum		
Casing Diameter	2	in.	Depth	30-40	ft.
Surface Seal Depth	3-5	ft.	Number	3	

GEOTECHNICAL PROJECTS

Number of Borings	___		Maximum		
Hole Diameter	___	in.	Depth	___	ft.

ESTIMATED STARTING DATE 8/1/1996
ESTIMATED COMPLETION DATE 8/2/1996

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE A. Ahmed Date 7/16/1996

FOR OFFICE USE

PERMIT NUMBER 96541
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 27 Jul 96
Wyman Hong

91992

6 CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED