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CALIF CONTRACTOR # 513857 A CORPORATION
REGISTERED GEOLOGISTS

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ENVIRONMENTAL PROTECTION

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Mr. John Rutherford
Desert Petroleum Inc.
P.O. Box 1601
Oxnard, California 93032
(805) 644-5892

February 27, 1997

RE: **Interim remedial workplan - excavate and remove gasoline tainted soils associated with former Desert Petroleum Station #796, located at 2844 Mountain Boulevard,** Oakland, CA 94602.

Dear Mr. Rutherford:

As requested the following is the workplan describing the excavating and removal of gasoline tainted soil from the above mentioned site. The need for a brief, descriptive workplan, with figures showing approximate area to be excavated, is needed for presentation to Ms. Jennifer Eberle, Alameda County Department of Environmental Health, Health Care Services Agency.

INTRODUCTION

An unauthorized release was reported in 1989 by Desert Petroleum, Inc. when Diablo Tank & Equipment identified petroleum hydrocarbon impacted soils during replacemnt of product lines in March, 1989. Analytical results of soil samples collected contained Total Petroleum Hydrocarbons (TPH) of 8,400 mg/Kg at the 10 foot depth of the southern edge of the pemium unleaded tank and less than 100 mg/Kg TPH beneath the lines near the pump islands.

In July 1989, On-Site Technologies (OST) excavated and disposed of and estimated 90 to 150 cubic yards of contaminated soil from the southern end of the premium unleaded tank. OST collected 12 soil samples from the sides of the excavation and reported TPHg ranging between ND to 3,300 mg/Kg.

In May 1990 four groundwater monitoring wells (RS-1 through RS-4) were installed and quarterly groundwater sampling commenced.

Soil Vapor extraction using the Remediation Service, Int'l, S.A.V.E. ICE (internal combustion engine) occurred from 1991 until 1994, removing an estimated 1,000 pounds of hydrocarbons from the soil and groundwater.

In April 1994 the waste oil underground storage tank was removed. The soil sample under the tank contained 160 mg/Kg TPHg and 4,600 mg/Kg Oil and Grease. Over-excavation removed 40 cubic yards of

hydrocarbon tainted soils. Five soil samples were then obtained from the base and sidewalls to document the over-excavation. Analytical results showed that TPHg ranged between ND (<1 mg/Kg) to 38 mg/Kg and Oil and Grease ranged between ND (100 mg/Kg) to 700 mg/Kg. The 40 cubic yards of excavated soil was transported to and disposed at Laidlaw Landfill, Buttonwillow, California.

In May 1996, RSI presented a Risk Base Corrective Action Plan (RBCA) and recommended the site for closure. Alameda County Health review (dated June 17, 1996) of the RSI RBCA found it to be insufficient in detail and requested continued groundwater sampling until site closure is obtained.

On September 19, 1996, Western Geo-Engineers (WEGE), performed the monitor well sampling and discovered free product in RS-1. The interim free product removal commenced on October 1, 1996 and terminated on December 3, 1996 removed, by bailing and limited vapor extraction, 30.4 gallons of gasoline and an estimated 1077 gallons of gasoline tainted groundwater.

On January 17, 1997, WEGE conducted a free product delineation in the area around RS-1, seven test holes were driven to the 15 foot depth and soil and water samples obtained. Free liquid phase product was present in RS-1 and test hole M7, see Table and Figures 1 through 5 in Appendix A.

Currently the site is and operating service station with mini mart. Three underground storage tanks (UST's) with individual storage capacities of 3,000, 4,000, and 10,000 gallons and two pump islands service the site. Desert Petroleum does not own the site, the present owner is planning to have the tanks relined and the product dispensing piping upgraded in the very near future.

PROPOSED WORK DESCRIPTION

Western Geo-Engineers in proposing to perform limited over-excavated of the RS-1 and M7 areas during station closure for tank and line upgrades. This over-excavation will need to be coordinated with the present station owner and his contractor to insure accessibility to the site and areas to be excavated, while they have the tanks open for relining.

Monitor well RS-1 must be destroyed, prior to excavating the site. Since this area will be excavated, the well will be grouted to surface.

As depicted on the boring logs reviewed in previous RSI reports and as found during the SPS investigation, the subsurface consists of silty clays to approximately 10 feet below ground surface (bgs), with silty clayey sands extending to 30 feet bgs. Groundwater was encountered in the SPS holes between 10 and 15 feet bgs. Monitor well soundings show groundwater static levels to range between 5 and 16.5 feet bgs at RS-1.

Experience has shown that in-situ remediations (vapor extraction, bio-venting, steam flooding/injecting with vapor extraction, bio-flooding/injecting, etc.) are not very successful on silty clay or clayey silt formations similar to these found at this site. The cost beneficial means to alleviate silty/clayey soil that are contaminated with gasoline range hydrocarbons is by excavating, if the excavation does not exceed too great a depth (about 25 feet below the surface).

Western Geo-Engineers, proposes to excavate the gasoline tainted soils to about the fifteen foot depth. The excavation will begin at the southwest edge of the UST area (M5, RS-1, M6 locations) an proceed to depth. Once depth has been achieved the sidewalls of the excavation will be field screened for the presence of gasoline range hydrocarbons using a Photovac 10S50 photoionizing gas chromatograph and vapor head space method, see Methods in Appendix A.

Excavating will continue laterally to around the area outlined on Figure 3, towards the pump dispensers (M7) and the southwest property line to where field screening indicates that less than 50 mg/Kg of gasoline remains in the soil.

Once the excavating has been accomplished sidewall samples for certified conformation analyses will be obtained between the 10 and 15 foot depths. The sample frequency will be at one per 25 linear feet of excavated sidewall.

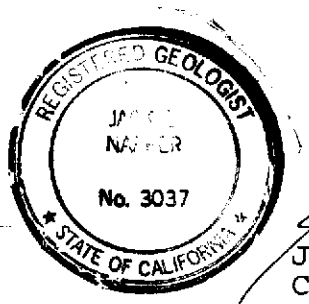
Samples will be obtained from the bucket of the excavator and will represent a freshly exposed surface. North State Environmental laboratory has been contracted to perform the analyses (DHS# 1753). Samples will be analyzed for total petroleum hyudrocarbons as gasoline with methyl tertiary-butyl ether (MTBE), benzene, toluene, ethylbenzene and xylenes distinction (TPHg-MBTEX).

All soil generated (estimated 160 cubic yards) from the excavation will be hauled under non-hazardous manifest to Forward Landfill, Stockton, California. The soil will be stockpiled at this facility (Class II landfill) until laboratory results indicate how the soil is to be handled, ie., Class III or Class II disposal.

Immediately after the excavation has been sampled, clean pea gravel will be used to backfill the excavation. At that time 6 inch Sch40 0.020 inch slot PVC casing will be placed at the soutwest corner of the excavation for later free product removal, if found necessary. This casing (well) will be installed vertically and secured with a traffic box set in the resurface concrete and lockable water tight well cap.

If you have any questions, please call me at (916) 668-5300.

Sincerely,



George L. Converse
Project Geologist

Jack E. Napper
CA. Reg. Geologist #3037

cc: Ms. Jennifer Eberle, Alameda County Department of Environmental Health

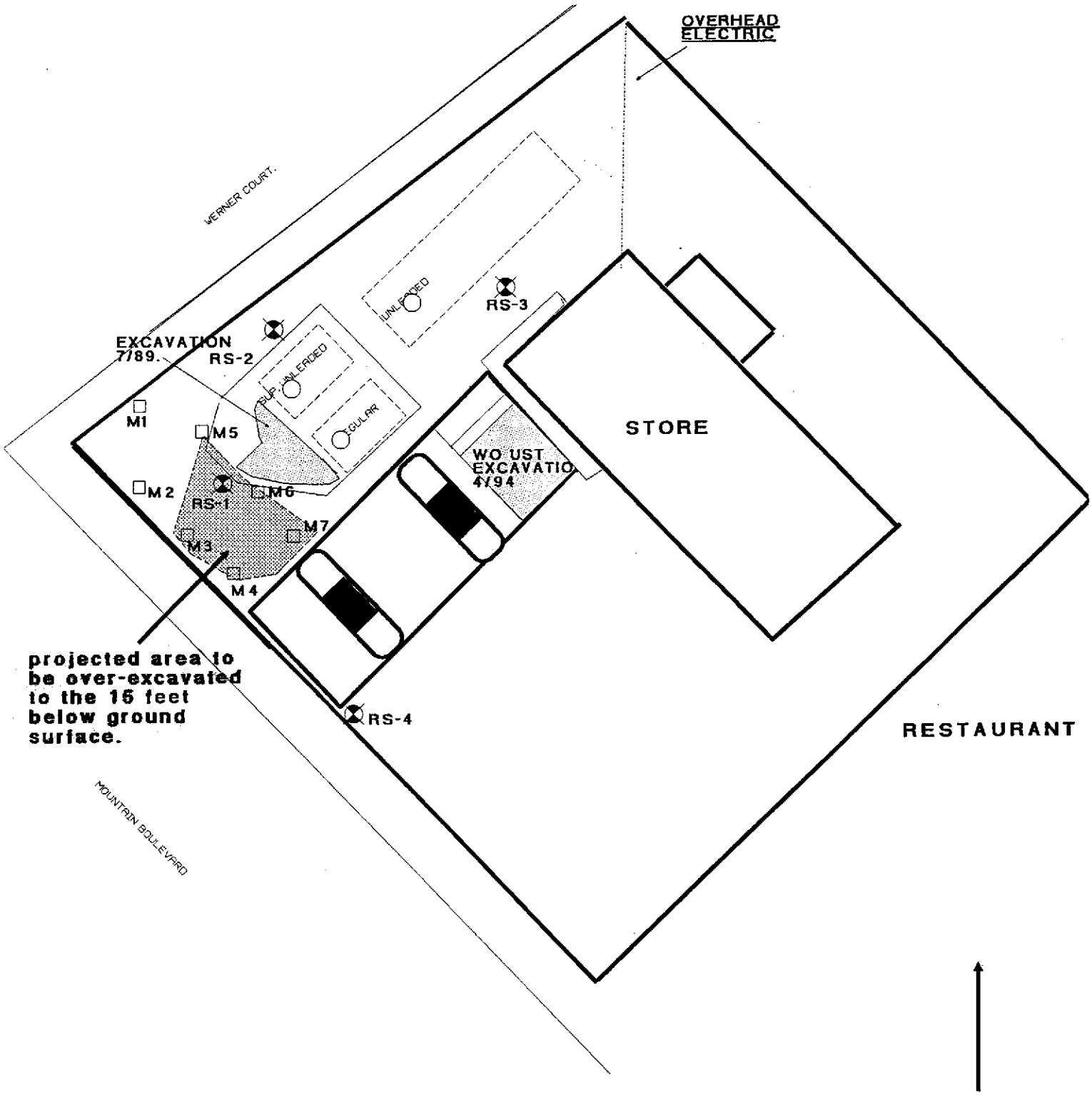


FIGURE 3

FORMER DESERT PETROLEUM #796
2844 MOUNTAIN BOULEVARD
OAKLAND, CALIFORNIA

SITE CONDITIONS
JANUARY 17, 1997.

APPENDIX A

FIELD SCREENING:

A WEGE geologist using a portable photoionizing gas chromatograph (PID-GC) will obtain sidewall samples for on-site field screening. Screening will exploit the high vapor pressure of gasoline range hydrocarbons using the heated head space method of analysis, to direct the over-excavation activities. This area will also be field screened using a UV fluorescence scope which uses the fluorescing nature of petroleum hydrocarbons under UV (ultraviolet) light.

Screening Methods

PID-GC

The PID-GC method employs the high vapor pressure of gasoline range hydrocarbons and most of the chlorinated solvents and the separation capability of gas chromatography. A 10 to 20 gram sample is placed into a pre-weighed 40 ml vial sealed with a septia cap and weighed. The sample is then placed on a hot plate and heated to around 140°F. A 0.5 cc sample of the headspace gases is then removed from the sample with a needle/syringe and injected into a 10s50 Photovac PID-GC, the resulting chromatogram is then compared to the chromatogram produced from the gasoline standard(s) used and calculated as mg/Kg as gasoline. Detection limits for this field screening is approximately 50 ug/Kg.

UV FLUORESCENCE

The UV screening favorably exploits petroleum hydrocarbon's fluorescing characteristics under ultraviolet light. Approximately 20 grams of sample is placed into a clean 40 ml vial and sealed with a teflon septia cap. This vial is then placed into the UV viewing chamber and inspected for fluorescence. If no fluorescence is seen, the sample is then cut with hexane, which will physically strip petroleum hydrocarbons from the soil, producing a UV excited fluorescing stream. Detection limits for this method is near 100 mg/L, dependent upon the size of sample used.

TABLE 1:DP796
DATE SAMPLED

HOLE	HOLE DEPTH	TFH PPM	BENZENE ppb	TOLUENE ppb	ETHYLB ppb	XYLENES ppb	MTBE ppb

TABLE 1:DP796
DATE SAMPLED

HOLE	HOLE DEPTH	TFH PPM -MTBE	BENZENE ppb	TOLUENE ppb	ETHYLB ppb	XYLENES ppb	MTBE ppb
1	15	0.488	14	<1	<2	<6	13813
2	15	0.443	96	<1	<2	<6	15560
3	15	22.799	5425	4576	1416	11441	35668
4	15	11.500	946	435	513	4346	31678
5	15	7.197	355	53	<2	<6	15763
6	15	13.361	2197	1906	137	775	60934
7	15	NOT RUN, FLOATING PRODUCT					
		MG/KG TPH WITHOUT MTBE	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
1	5 CLAY	0.2	<0.02	<0.03	<0.03	<0.11	<0.06
1	10 CLAY	4.7	<0.01	<0.01	<0.01	<0.02	0.33
1	15 CLAY	5.9	<0.02	<0.04	<0.04	<0.12	8.29
2	5 CLAY	0.8	0.02	<0.01	<0.01	<0.02	0.34
2	10 CLAY	8.9	2.08	<0.01	<0.01	<0.04	8.15
2	15 CLAY	0.8	0.00	<0.01	<0.01	<0.03	9.97
3	5 CLAY	1.8	0.06	<0.01	<0.01	0.19	1.62
3	10 CLAY	101.9	1.88	1.38	4.11	40.05	40.59
3	15 CLAY	22.4	0.35	0.13	0.37	2.43	33.14
4	5 CLAY	2.2	0.07	<0.01	<0.01	<0.04	0.88
4	10 CLAY	58.7	1.15	4.98	2.02	20.66	47.98
4	15 CLAY	1.6	0.04	<0.01	<0.01	<0.04	10.23
5	5 CLAY	11.8	0.02	<0.01	<0.01	<0.03	11.48
5	10 CLAY	5.8	0.14	<0.01	<0.01	<0.03	32.99
5	15 CLAY	0.4	0.05	<0.01	<0.01	<0.03	14.36
6	5 CLAY	9.1	0.16	0.07	<0.01	<0.03	15.40
6	10 CLAY	92.0	3.07	28.79	2.27	23.48	275.63
7	5 CLAY	33.0	0.17	<0.01	<0.01	<0.03	43.41
7	10 CLAY	259.2	3.99	0.05	6.38	63.32	199.26

TFH = TOTAL FUEL HYDROCARBONS (GASOLINE RANGE)
PPM = MILLIGRAMS/KILOGRAM (SOIL) = MILLIGRAMS/LITER (WATER)
ETHYLB = ETHYLBENZENE

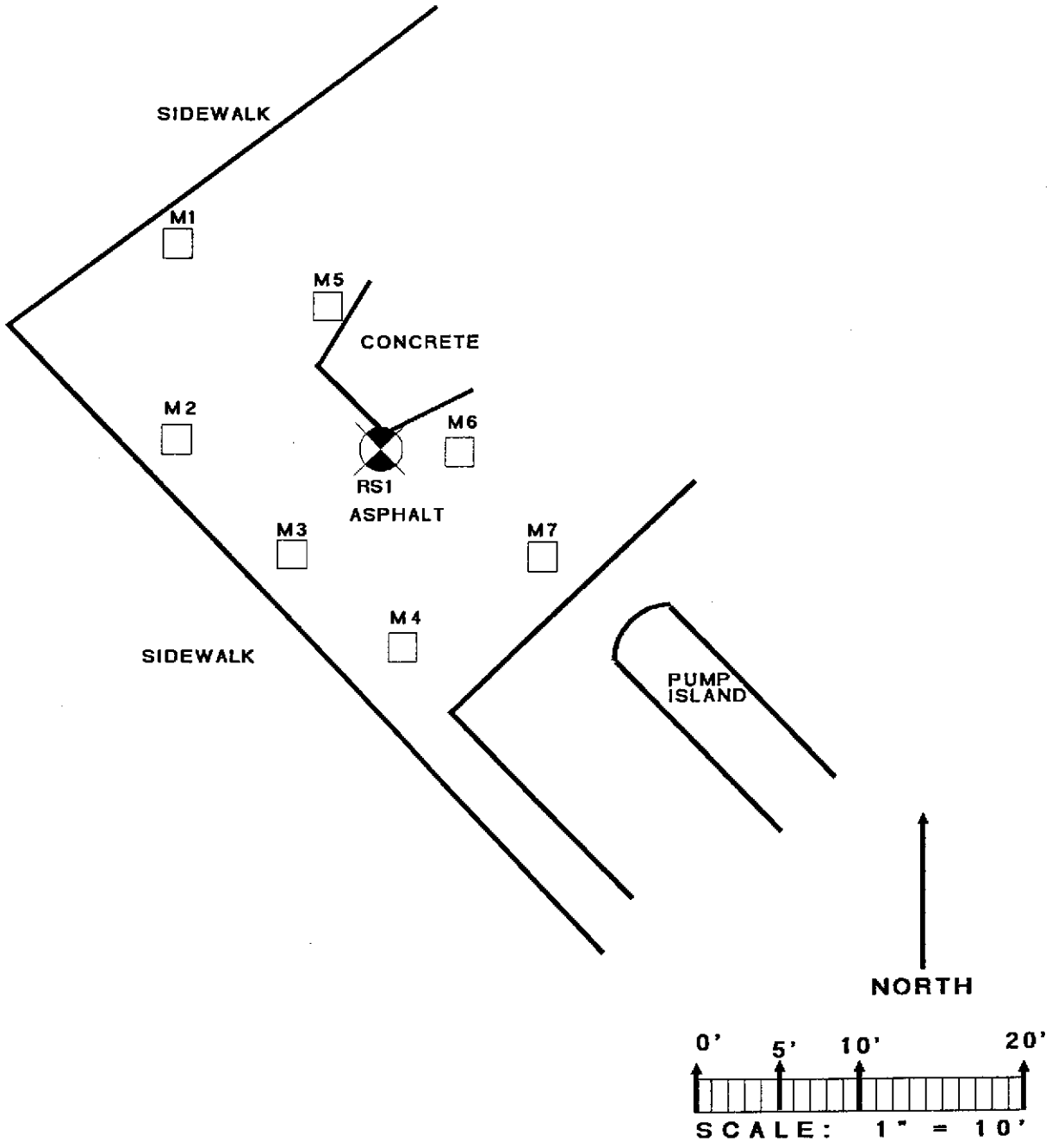


FIGURE 1

FORMER DESERT PETROLEUM #796
2844 MOUNTAIN BOULEVARD
OAKLAND, CALIFORNIA

SOIL PROBE SURVEY HOLE
LOCATIONS: JANUARY 17, 1997

GROUNDWATER MONITORING WELL.
RS-2 (16) well disignation with mg/L TPHg in water.

SOIL PROBE TEST HOLE, JANUARY 17, 1997.
M1

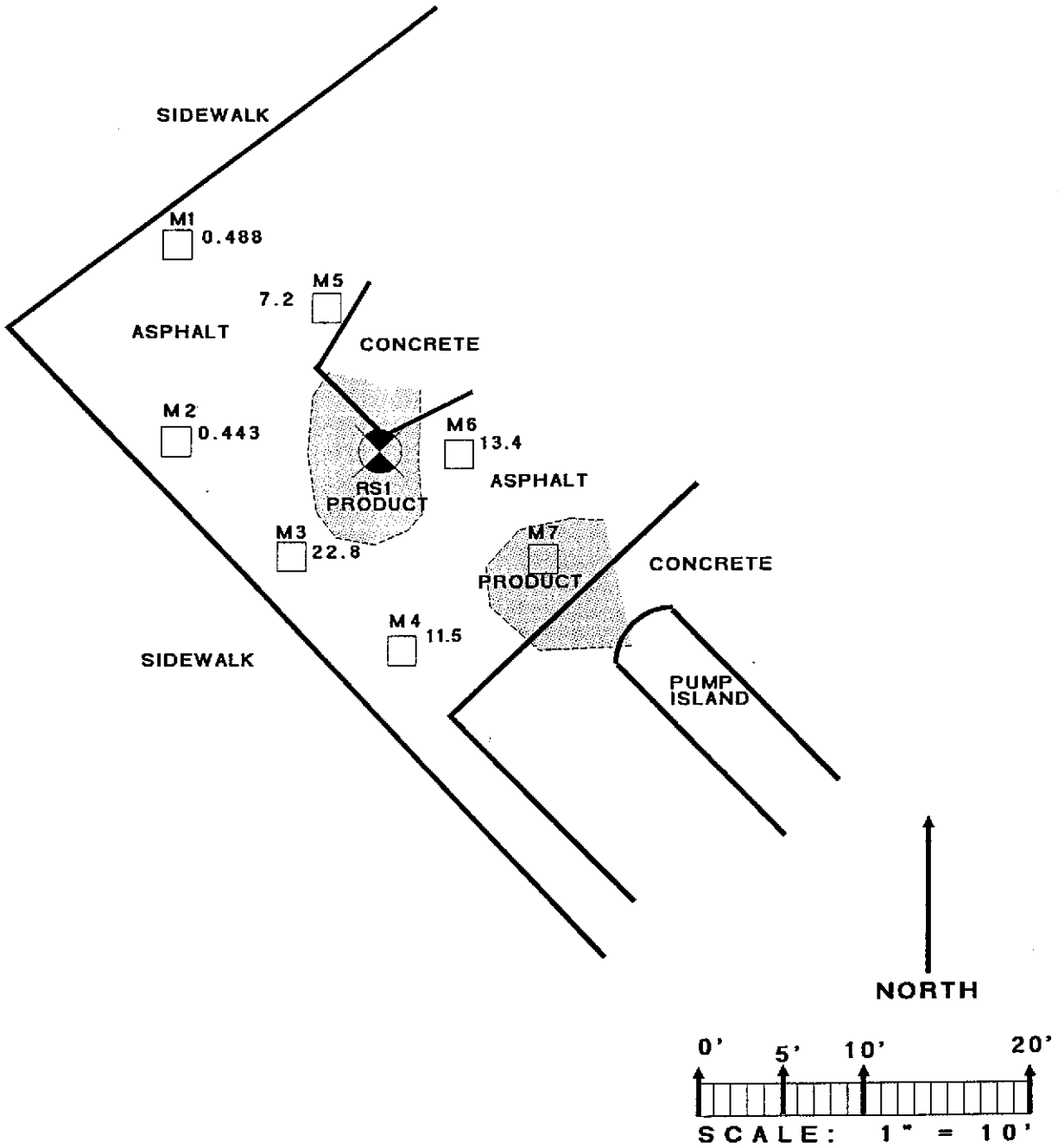


FIGURE 2 - GROUNDWATER SAMPLES

FORMER DESERT PETROLEUM #796
2844 MOUNTAIN BOULEVARD
OAKLAND, CALIFORNIA

SOIL PROBE SURVEY TOTAL
PETROLEUM HYDROCARBONS
GASOLINE RANGE: JANUARY 17, 1997

0.488 mg/L TOTAL PETROLEUM HYDROCARBONS AS GASOLINE

RS-1 GROUNDWATER MONITORING WELL.

M1 SOIL PROBE TEST HOLE, JANUARY 17, 1997.

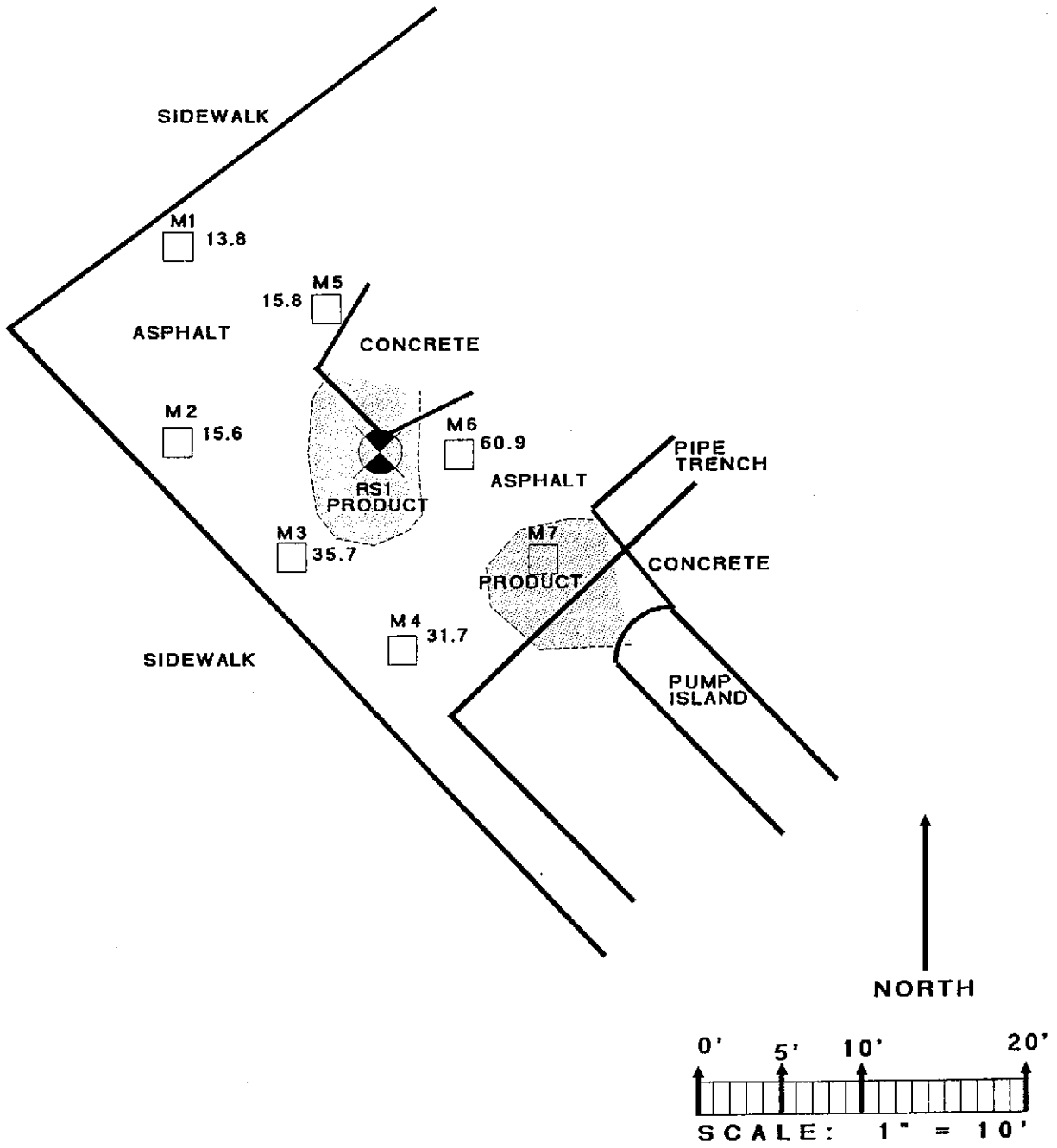


FIGURE 3 - GROUNDWATER SAMPLES

FORMER DESERT PETROLEUM #796
2844 MOUNTAIN BOULEVARD
OAKLAND, CALIFORNIA

SOIL PROBE SURVEY, MTBE:
JANUARY 17, 1997

13.8 mg/L METHYL t-BUTYL ETHER (MTBE)

RS-1 GROUNDWATER MONITORING WELL.

M1 SOIL PROBE TEST HOLE, JANUARY 17, 1997.

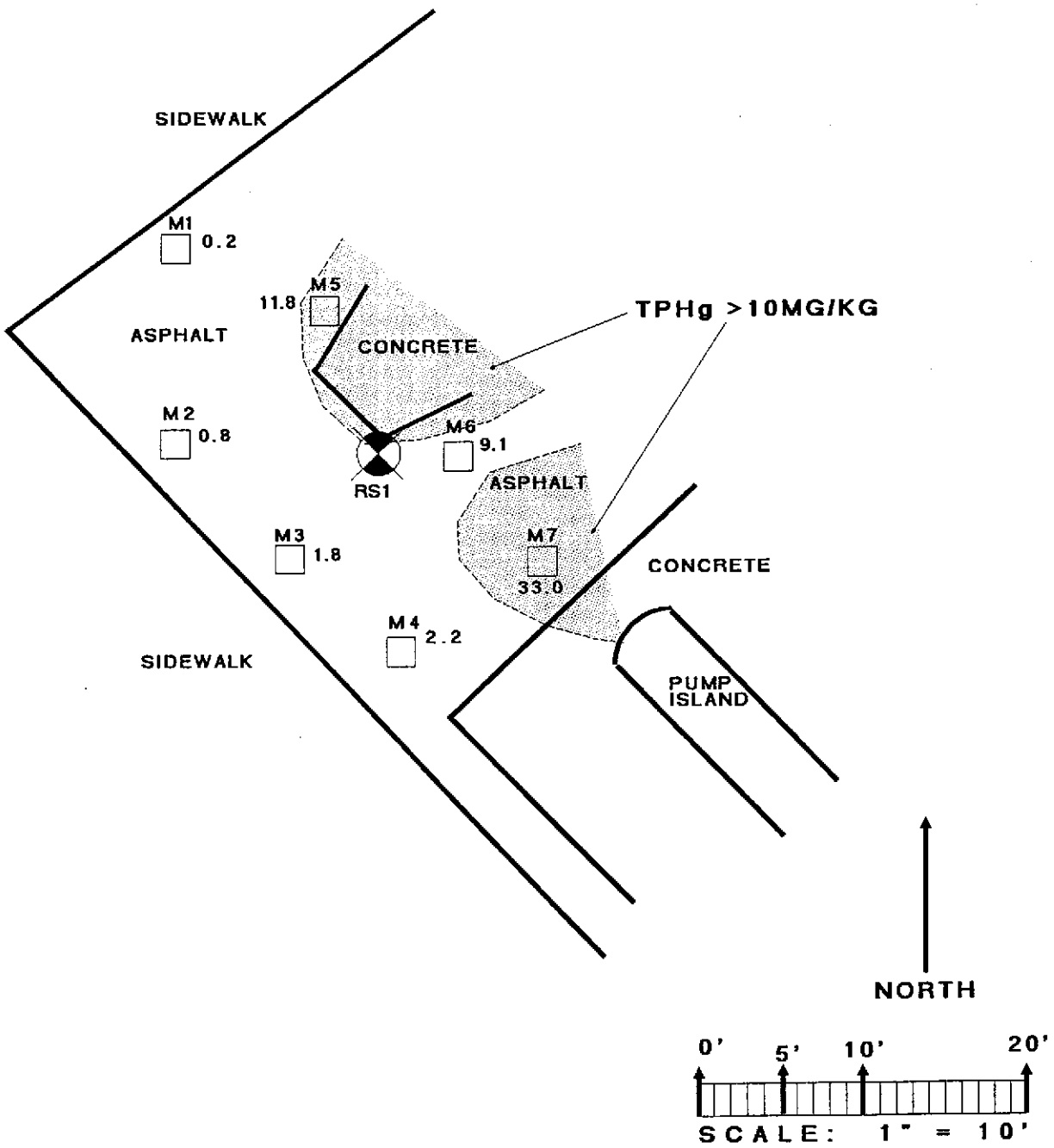


FIGURE 4 - SOIL SAMPLES 5 FEET

FORMER DESERT PETROLEUM #796
2844 MOUNTAIN BOULEVARD
OAKLAND, CALIFORNIA

SOIL PROBE SURVEY TOTAL
PETROLEUM HYDROCARBONS
GASOLINE RANGE: JANUARY 17, 1997

0.2 mg/Kg TOTAL PETROLEUM HYDROCARBONS AS GASOLINE

RS-1 GROUNDWATER MONITORING WELL.

M1 SOIL PROBE TEST HOLE, JANUARY 17, 1997.

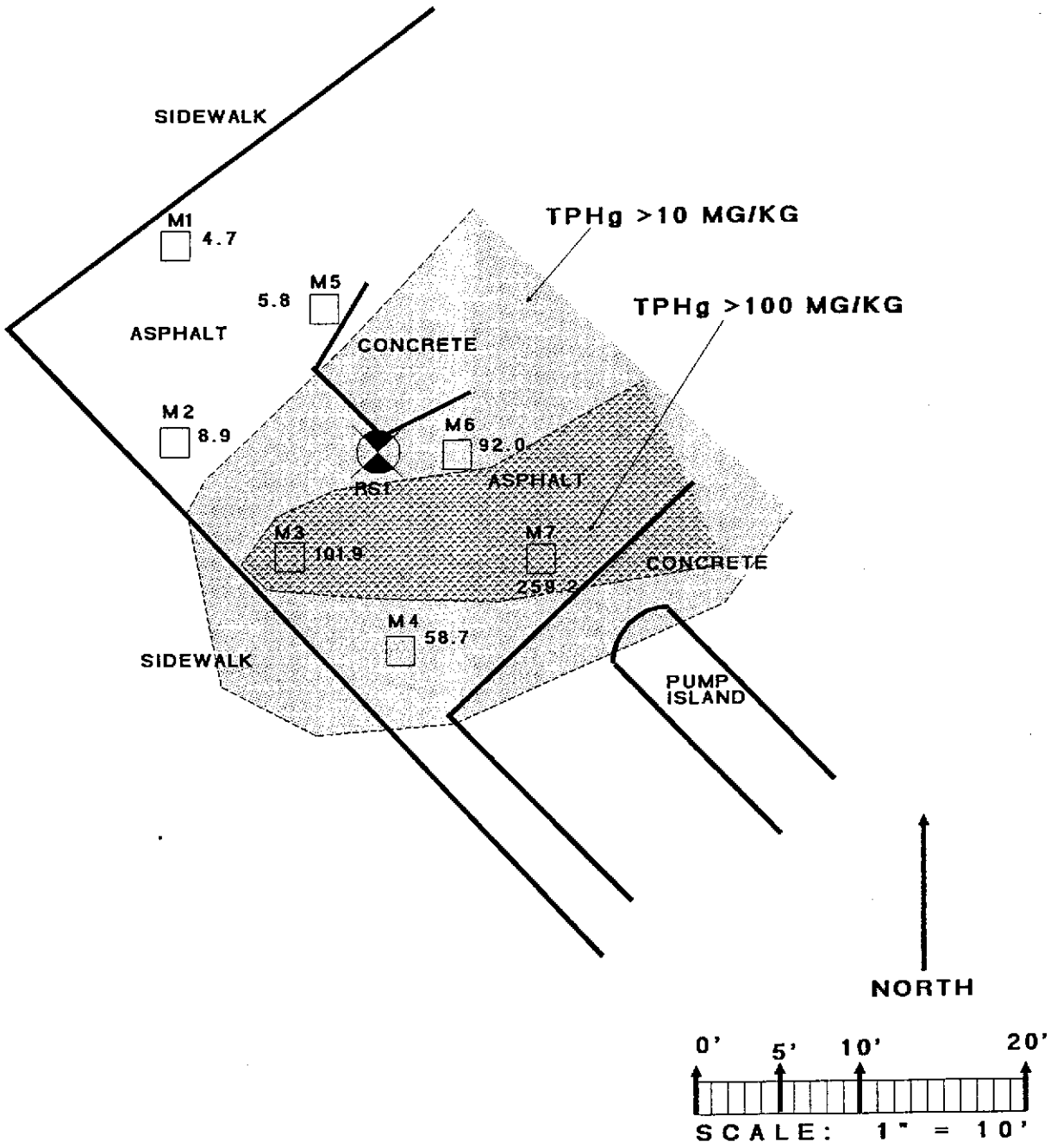


FIGURE 5 - SOIL SAMPLES 10 FEET

FORMER DESERT PETROLEUM #796
2844 MOUNTAIN BOULEVARD
OAKLAND, CALIFORNIA

SOIL PROBE SURVEY TOTAL
PETROLEUM HYDROCARBONS
GASOLINE RANGE: JANUARY 17, 1997

4.7 mg/Kg TOTAL PETROLEUM HYDROCARBONS AS GASOLINE

RS-1 GROUNDWATER MONITORING WELL.

M1 SOIL PROBE TEST HOLE, JANUARY 17, 1997.