11-7-88

REPORT ON SUBSURFACE INVESTIGATION

SITE LOCATION:
989 41st STREET, OAKLAND, CALIFORNIA

STID 313

Prepared for:

California Linen Rental Company
989 41st Street
Oakland, CA 94608

By :

Reinhard Ruhmke
Project Geologist

Cinda Crabbe MacKinnon
Registered Geologist

MILLER ENVIRONMENTAL COMPANY
631 Marina Way South
Richmond, California 94804
415/233-9068

November 3, 1988

INTRODUCTION

This report describes the work performed by Miller Environmental Consulting for California Linen Rental Co. A preliminary investigation of the subsurface was performed to determine whether fuel contamination had impacted the ground water. The investigation also gives an initial assessment of the extent and levels of fuel contamination in the soil. This report includes a description of the work performed, field observations, results of analyses, and recommendations for further action based on the findings of this project.

BACKGROUND

The site is located at the corner of 41st and Linden Streets in north Oakland, California, near the Emeryville city limits. California Linen operates a linen supply rental and commercial laundry on the premises. Land use in the area is both industrial and residential.

On February 8, 1989 the Robert J. Miller Co. removed three underground storage tanks from the site: a 10,000 gallon capacity tank which contained regular gasoline, a 2,500 gallon tank which contained #5 fuel oil and a 550 gallon tank which contained unleaded gasoline. Figure 1 shows the locations of the former tanks.

Analytical results from soil samples collected after tank removal indicated hydrocarbon contamination above action levels. In addition, a water sample taken from standing water in the fuel oil tank pit contained 14,000 ppm of oil and grease and 520 ppm total petroleum hydrocarbons as diesel. The discovery of the contamination led to this investigation.

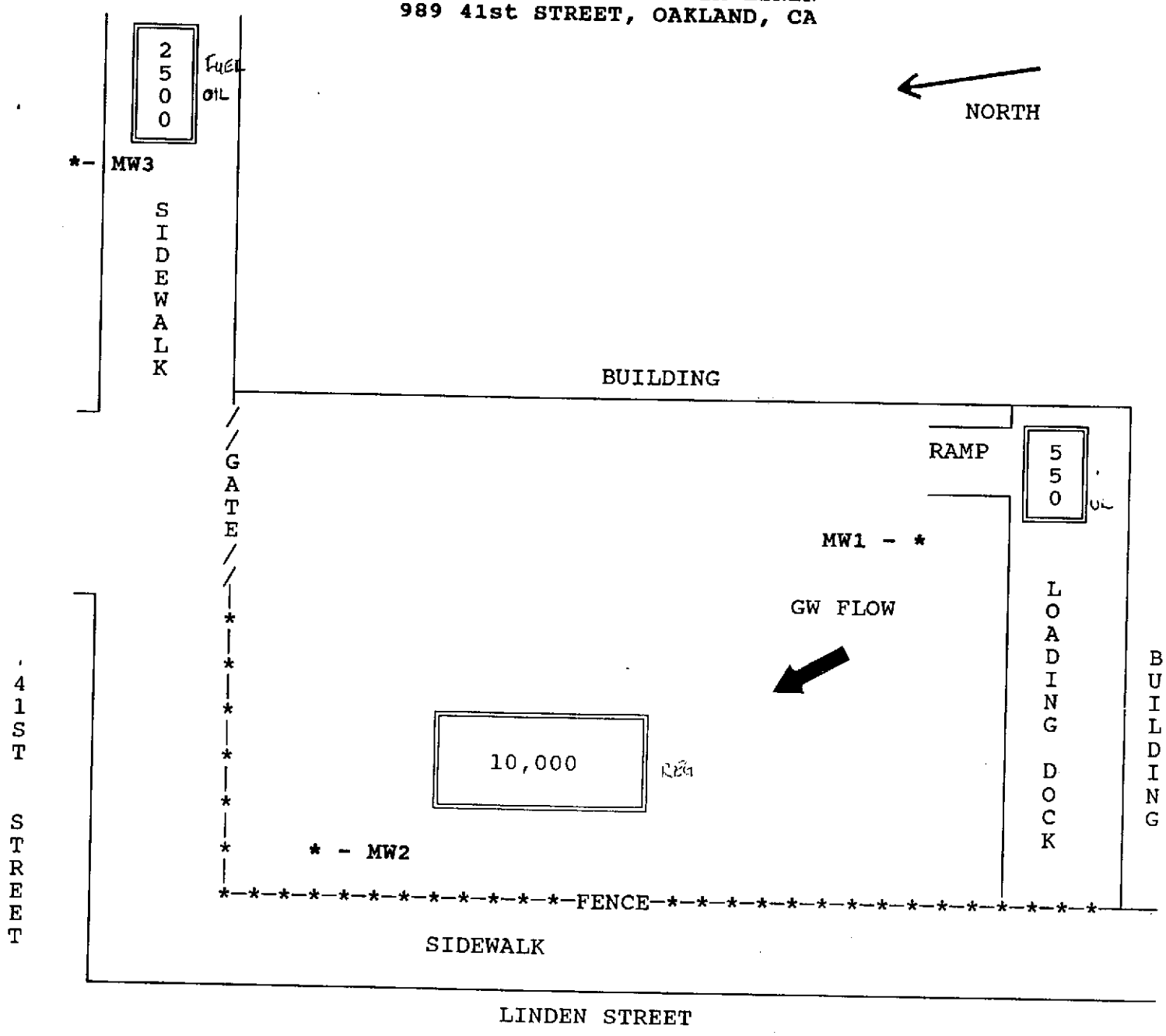
SCOPE OF WORK

A preliminary subsurface site investigation was conducted. The objectives of this study were to: 1) determine the ground water depth and direction of flow, 2) to investigate the extent of soil contamination in the immediate area, and 3) to determine whether ground water contamination had occurred.

Three monitoring wells were installed to satisfy the above objectives. Soil samples were collected from the borings and the monitoring wells were purged and sampled for ground water analysis.

The wells were surveyed by a licensed surveyor on October 12, 1989. Water levels were measured in all three monitoring wells and the ground water gradient and flow direction was estimated.

FIGURE 1
SITE PLAN - CALIFORNIA LINEN
989 41st STREET, OAKLAND, CA



approximate scale:

10'

= former underground tank location

* = monitoring well location

DRILLING AND WELL CONSTRUCTION

Three borings were drilled to describe the geology, locate the water table, and install the monitoring wells. Each of the borings were drilled into the water table with hollow stem augers, logged and sampled. Soil cuttings generated during drilling were placed in 55-gallon drums, labeled and left on site.

Figure 1 shows the location of the wells in relation to the site. MW1 was sited as close as possible to the former location of the upgradient tank pit. An upgradient well is not possible due to the existence of the building. MW2 and MW3 are located in the approximate downgradient directions from the former tanks.

Four-inch diameter, threaded PVC casing was used in well construction. The casing was capped at both ends and a Christy box was installed at the surface. Locks were attached to preclude tampering. Construction details for the wells are described below. Individual construction logs and boring logs are in Appendix A.

The monitoring wells were bored to depths ranging from 21.5-23 feet below ground level. Each well was constructed with fifteen feet of 0.02 inch slotted casing and with blank casing to the surface. The annular space between the borehole and the well casing was packed with #3 Monterey sand from the bottom of the borehole to one foot above the screened interval. A bentonite plug was set above the sand pack and the remaining annular space was sealed to the surface with a cement/bentonite slurry.

SAMPLING

Soil samples were collected at four foot intervals beginning at four feet below grade and terminating at the water table. (The four-foot sampling interval was requested by Alameda County Health Department due to the shallow water table.) The samples were taken with a modified California split-tube sampler fitted with three clean, brass liners. The lowermost brass liner with the soil sample was covered with teflon wrap, capped and placed on ice for delivery to the laboratory for analysis.

The wells were developed by pumping and bailing six well volumes (approximately sixty gallons) and then allowed to stabilize overnight. Samples of the ground water were taken from all three wells on October 2, 1989. Wells were again purged of four well volumes (approximately forty gallons) and then ground water was bailed into clean glass VOA bottles with teflon caps. All sampling equipment was cleaned with

reagent grade methanol and thoroughly rinsed between each sample collection. The sample bottles were immediately placed on ice and transported to the laboratory for analysis.

All soil and ground water samples were delivered under chain-of custody procedures.

HYDROGEOLOGY

Geologic Setting

San Francisco Bay lies in a low area in the Coast Range province, a region of northwest trending faults, hills and valleys. The site itself is situated on the flatlands, approximately 1 mile west of the eastern edge of the present Bay at Emeryville. The Bay is a drowned valley which is thought to have originally formed by erosion by the ancestral Sacramento River (Jenkins, 1951) and subsequently widened by subsidence and a rise in sea level. Quaternary (Pleistocene to recent) sediments deposited in what is now the Bay, include both shallow marine and continental deposits.

The youngest, surficial deposit is known as "Bay Mud" and occurs in areas adjacent to the Bay. Bay Mud is generally composed of unconsolidated, olive gray, blue gray, or black silty clay. It is typically plastic and varies from soft to stiff. Organic remains such as shells and peat are not uncommon. Permeability is generally low except where lenses of sand occur. Bay Mud is mainly derived from the sediment load carried by the Sacramento and San Joaquin Rivers and has been deposited in the Bay for almost 10,000 years (Helley et al.,1979). Bay Mud continues to be deposited today.

In the Oakland area, several other sedimentary units are noted by Radbruch & Case (1967). Franciscan bedrock has been documented underlying the sediments at Clay and 12th Streets approximately 2 miles south of the site (Woodward-Clyde, 1987). The Franciscan Formation is a complex assemblage of deformed and altered sediments and volcanic rocks which commonly form bedrock in the San Francisco Bay region.

Site hydrogeology

The geologic materials found during drilling consist dominantly of fine-grained sediments which generally fall into the category of Bay Mud. A black clay is present below the asphalt to a depth of approximately four to six feet. Underlying this dark clay is an olive gray, silty clay which extends to the bottom of the borings but becomes light brown in color at approximately 10 feet in MW1 and MW2.

In MW3 (located in 41st Street) a fine-grained sand lens is present between 3.5 and 4 feet. A brown silty clay underlies the sand. Except for the sand lens, the logs show a

homogenous clayey lithology in all three borings.

Ground water levels were estimated to be between 7 and 10 feet below ground surface during drilling. Water levels were measured with an electric sounder after the wells had stabilized on October 11, 1989. The three wells were surveyed on October 12, 1989 by a California licensed surveyor. The Plat of Survey is included in Appendix C. The water levels and conversions to elevations are given in Table 1 below.

TABLE 1
WATER LEVEL DEPTHS AND ELEVATIONS IN FEET. OCT 11, 1989

Well	TOC Elev.	Depth	Elevation
MW1	53.89	7.70	46.19
MW2	54.06	9.25	44.81
MW3	52.79	7.00	45.79

TOC=Top of casing

Based on the present data ground water is flowing in a north-northwest direction towards the intersection of 41st and Linden Streets. This data is shown on Figure 1.

RESULTS OF ANALYSES

Soil and water samples were delivered to Acculab Environmental Services in Petaluma, California. This laboratory is certified by the state of California for drinking water and hazardous waste testing and analysis. Samples were analyzed following procedures developed and verified by the Environmental Protection Agency (EPA). Soil and ground water samples were analyzed as follows:

EPA 5020/8015/602 - Total petroleum hydrocarbons as gasoline
EPA 3550/3510/8015 - Total petroleum hydrocarbons as diesel
EPA 3510/SM503A/418.1- Total petroleum hydrocarbons as waste oil
EPA 5030/8020 -Benzene, toluene, ethylbenzene, and xylene (BTEX)

Soils
Six soil samples were analyzed from the three monitoring

wells. Contamination was detected only in two soil samples. The highest levels were 140 ppm gasoline at the 4-foot depth in MW1 and 190 ppm waste oil at the same depth in MW2.

Significant results are shown in Table 2 below. Samples not listed in the table did not have detectable concentrations for any of the analytes tested (i.e MW3 tested "clean" as did the remaining samples for MW1 and MW2). Complete laboratory reports are attached in Appendix B.

TABLE 2
SIGNIFICANT ANALYTICAL RESULTS FOR SOIL SAMPLES

Well/ Depth	Gasoline	Diesel	Waste Oil	Benzene	Toluene	Xylene	Ethlybnzn
MW1/ 4'	140	36	41	5.3	2.2	16.0	2.9
MW2/ 4'	ND	ND	[illegible]	ND	ND	ND	ND

a) All results are expressed in milligrams per kilograms (mg/kg). Mg/kg is equivalent to parts per million (ppm).
b) ND = not detected

Ground Water

Contamination in the ground water was not detected in MW2 nor MW3. MW1 had low levels of contamination except for gasoline and benzene. Benzene has a very low action level (1ppb); no action level has been established for gasoline. The results are shown in the Table 3 below and the complete laboratory reports are in Appendix B.

TABLE 3
RESULTS FOR GROUND WATER SAMPLES

Well	Gasoline	Diesel	Benzn	Toluene	Xyln	Ethlybnzn	Waste oil
MW1	70	0.61	2.8	2.4	4.8	2.3	ND
MW2	ND	ND	ND	ND	ND	ND	ND
MW3	ND	ND	ND	ND	ND	ND	ND

Results are in milligrams per liter (mg/L) which is equivalent to ppm.

DISCUSSION

Miller Environmental Company generally attempts to review nearby subsurface investigations on file at the Oakland office of the Regional Water Quality Control Board (RWQCB). Due to earthquake related problems at the RWQCB the records could not be accessed at this time. We were also unable to contact members of the RWQCB to discuss the results of this investigation.

One of the problems to be discussed is the lack of maximum contaminant levels (MCLs) established for gasoline. MCLs, however, commonly apply to drinking water aquifers and the water table in this area can essentially be considered non-potable. The water table lies within Bay Mud, a low permeability unit which cannot properly, by definition of yield, be regarded an aquifer.

CONCLUSIONS

The underground tanks at the California Linen site have been removed and the surface has been covered with either asphalt or concrete. The results of this investigation indicate that the two underground tanks formerly located within the fence line were a source of contamination at the property. Records show that both of these tanks (labeled on Figure 1 as 10,000 and 550 gallon capacity) contained gasoline.

Soil contamination was found at the four foot depth in MW1 and MW2. Levels were relatively low (140 ppm for gasoline in MW1 and 190 ppm for waste oil in MW2). Waste oil is fairly immobile so that it is less of a problem than gasoline. Gasoline appears localized at the 4-foot depth in MW1. Soil contamination was not detected in MW3 at either the 4-foot or 8-foot depth.

Ground water contamination is focused in the vicinity of MW1. Analytical test results on ground water from MW1 indicate 70 ppm gasoline and 2.8 p[illegible]

Ground water contamination was not detected in either MW2 or MW3, located downgradient of former tank locations. These wells are located in close proximity to the former tank locations and will function effectively in detecting release of contaminants to the groundwater should that occur at those locations.

RECOMMENDATIONS

Due to the apparent localized and relatively low levels of soil contamination at this site remedial action is not suggested at this time. Additional sampling of the ground water in the three monitoring wells however is recommended to monitor contaminant levels. If ground water continues to test "clean" in MW2 and MW3 after the next round of analyses they should be sampled biannually. MW1 should be tested quarterly for a period of at least one year.

A copy of this report should be submitted to the RWQCB and Alameda County Department of Health Services for their review.

WARRANTY

Miller Environmental Company warrants all services to be of high professional quality. No other warranty, either expressed or implied, as to quality or result to be achieved as a consequence of this work, is made. This report provides an assessment of the potential problems noted and represents a professional opinion. All reports and recommendations are based upon conditions and information made available to Miller to date. Liability is not assumed in cases where the client or other parties involved have failed to disclose known environmental information. No responsibility is assumed for the control or correction of conditions or practices existing at the premises of the client. Data available from future subsurface exploration may modify the conclusions and recommendations of this report.

REFERENCES

Helley, E.J., et al., 1979: Flatland Deposits of the San Francisco Bay Region, California, U.S. Geological Survey P. Paper 943.

Jenkins, O. (editor), 1951: Geologic Guidebook of San Francisco Bay Counties, Bull 154 CDMG.

Radbruch, D.H., and Case, J.E., 1967: Preliminary Geologic Map & Engineering Geology Information, Oakland and Vicinity, California, USGS, Open File Report.

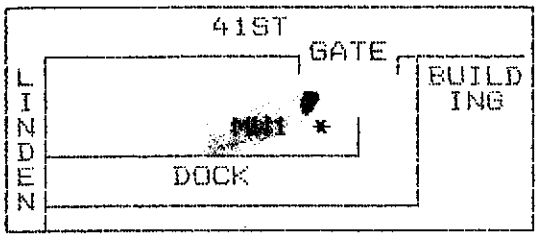
Woodward-Clyde Consultants and Kaplan, McLaughlin, Diaz, 1987: Subsurface Investigation and Technical Reports, Oakland Federal Building

APPENDIX A

BORING LOGS AND WELL CONSTRUCTION DETAILS

MILLER ENVIRONMENTAL COMPANY
BORING LOG

BORING # MW1 — SHEET 1 OF 1



SITE MAP

PROJECT # 89-1008 PROJECT NAME: CAL LINEN
LOCATION: 989 41ST STREET, OAKLAND, CA
LOGGED BY: REINHARD RUHMKE
CONTRACTOR: HEW DRILLING
DRILLING METHODS: 8 1/4" HOLLOW STEM AUGER
SAMPLING METHODS: SPLIT SPOON SAMPLER
START TIME: 9:15 DATE: 9/25/89
STOP TIME: 12:15 DATE: 9/25/89
TOTAL DEPTH: 22'

DEPTH	SAMPLE #	RECOVERY	TIME	BLOWS	DESCRIPTION	USCS SYMBOL
0					ASPHALT	
					DARK GRAY TO BLACK PEBBLY, SLIGHTLY SILTY CLAY; ORGANIC SMELL; STIFF.	
5	MW1A	18"	9:35	4-8-12	OLIVE GREEN-GRAY CLAY; SLIGHTLY OXIDIZED.	CL
					OLIVE-GREEN PEBBLY CLAY; STIFF; MOIST.	
	MW1B	18"	9:45	6-9-11		
10					LIGHT BROWN SILTY CLAY; WET.	CL
15						
20					END OF BORING;	
25						

REMARKS

MILLER ENVIRONMENTAL COMPANY

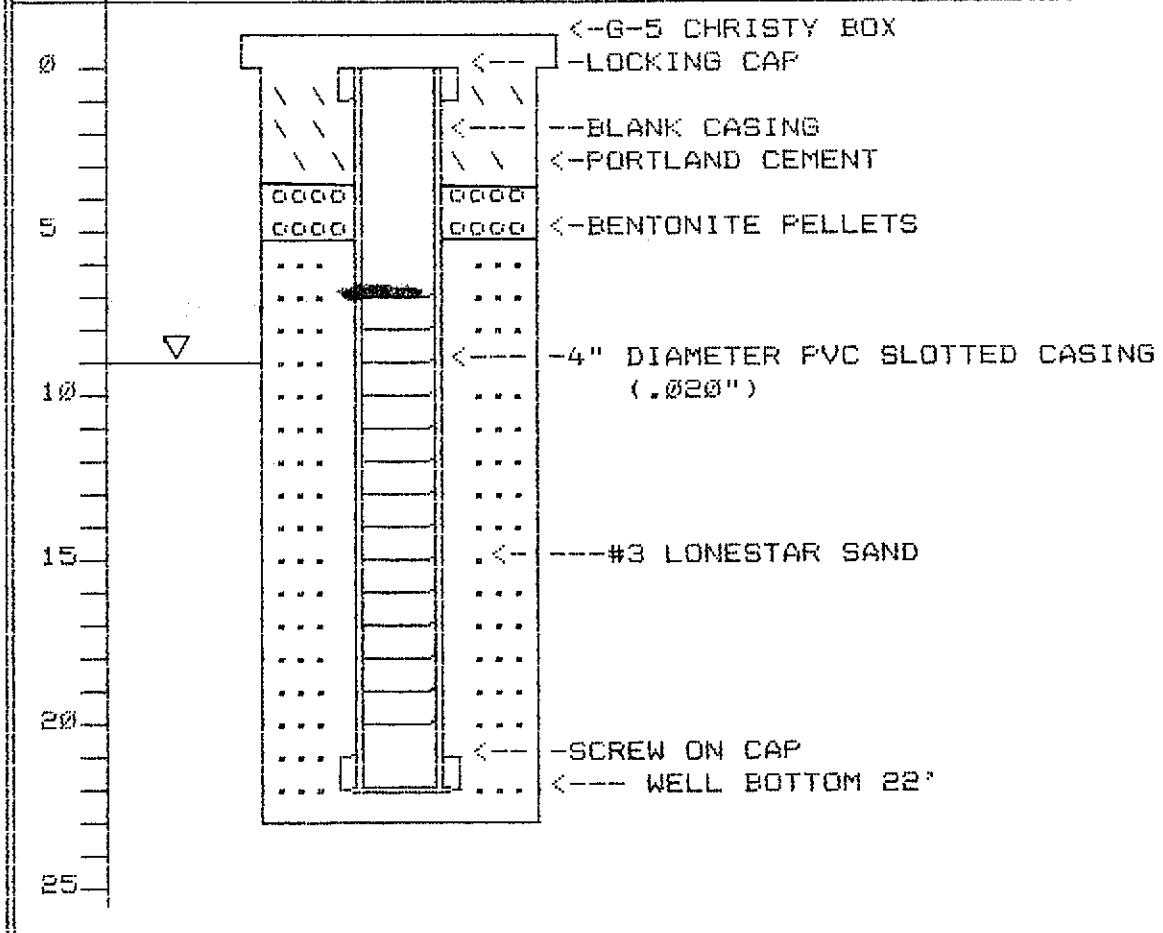
WELL CONSTRUCTION LOG

BORING # MW1

PROJECT #: 89-1008
PROJECT NAME: CALIFORNIA LINEN
DATE: 9/25/89

DEPTH

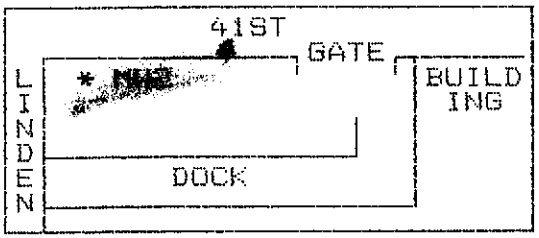
WELL CONSTRUCTION



REMARKS

MILLER ENVIRONMENTAL COMPANY
BORING LOG

BORING # MW2 — SHEET 1 OF 1



SITE MAP

PROJECT # 89-1008 PROJECT NAME:CAL LINEN
LOCATION:989 41ST STREET, OAKLAND, CA
LOGGED BY: REINHARD RUHMKE
CONTRACTOR: HEW DRILLING
DRILLING METHODS: 8 1/4" HOLLOW STEM AUGER
SAMPLING METHODS: SPLIT SPOON SAMPLER
START TIME:12:30 DATE: 9/25/89
STOP TIME: 4:00 DATE: 9/25/89
TOTAL DEPTH: 23'

DEPTH	SAMPLE #	RECOVERY	TIME	BLOWS	DESCRIPTION	USCS	SYMBOL
0					ASPHALT		
					BLACK PEBBLY CLAY; STIFF; DRY.		
5	MW2A	18"	12:50	3-4-4	BROWN SILTY CLAY WITH PEBBLES.	CL	
					OLIVE-GRAY SILTY CLAY WITH PEBBLES; STIFF.		
10	MW2B	18"	1:45	3-5-7			
					LIGHT BROWN SILTY CLAY; WET.	CL	
15					MORE DENSE		
20							
					END OF BORING;		
25							

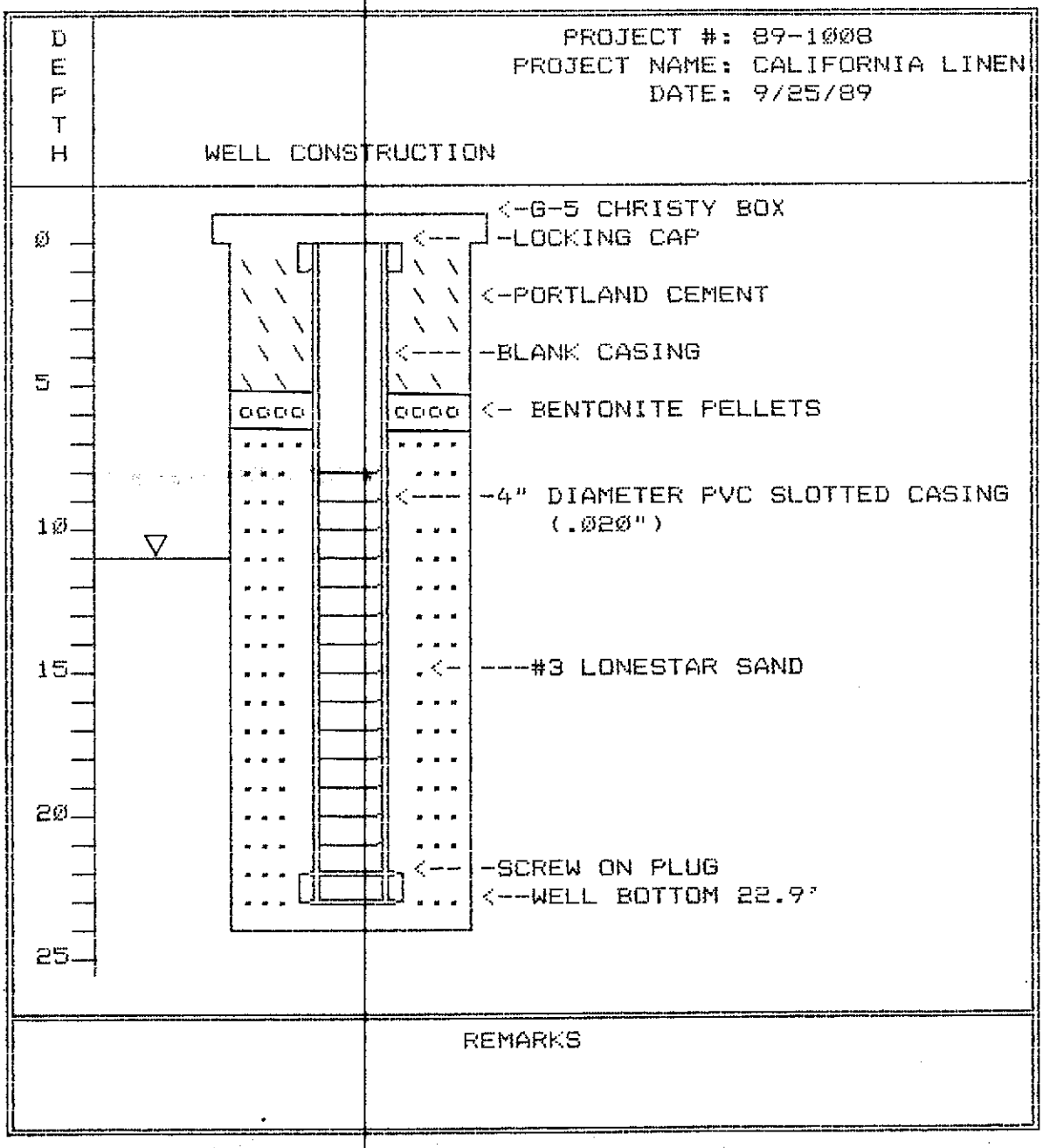
REMARKS

MILLER ENVIRONMENTAL COMPANY

WELL CONSTRUCTION LOG

BORING # MW2

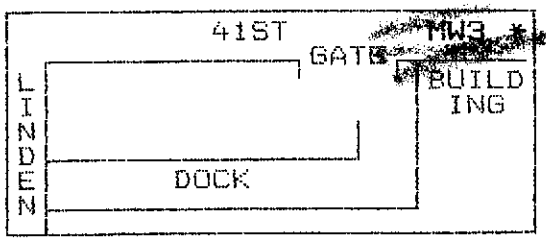
PROJECT #: 89-1008
PROJECT NAME: CALIFORNIA LINEN
DATE: 9/25/89



REMARKS

MILLER ENVIRONMENTAL COMPANY
BORING LOG

BORING # MW3



SITE MAP

PROJECT # 89-1008 PROJECT NAME:CAL LINEN
LOCATION:989 41ST STREET, OAKLAND, CA
LOGGED BY: REINHARD KUHNKE
CONTRACTOR: REW DRILLING
DRILLING METHODS: 8 1/4" HOLLOW STEM AUGER
SAMPLING METHODS: SPLIT SPOON SAMPLER
START TIME: 8:45 DATE: 9/26/89
STOP TIME: 12:15 DATE: 9/26/89
TOTAL DEPTH: 21.5'

DEPTH	SAMPLE #	RECOVERY	TIME	BLOWS	DESCRIPTION	USCS	SYMBOL
0					3" ASPHALT 6" GRAVEL BASE ROCK DARK BROWN-BLACK SILTY CLAY; DRY.	CL	
					BROWN PEBBLY FINE SAND; LOOSE; DRY; WELL-SORTED; LITTLE CLAY.	SP	
5	MW3A	18"	9:00	3-2-3	BROWN SILTY CLAY.		
	MW3B	18"	9:15	5-6-7	DARK GRAY-BROWN SILTY CLAY; WET.		
10					LIGHT BROWN SILTY CLAY WITH PEBBLES.	CL	
15					LIGHT BROWN SILTY CLAY.		
20					END OF BORING;		
25							

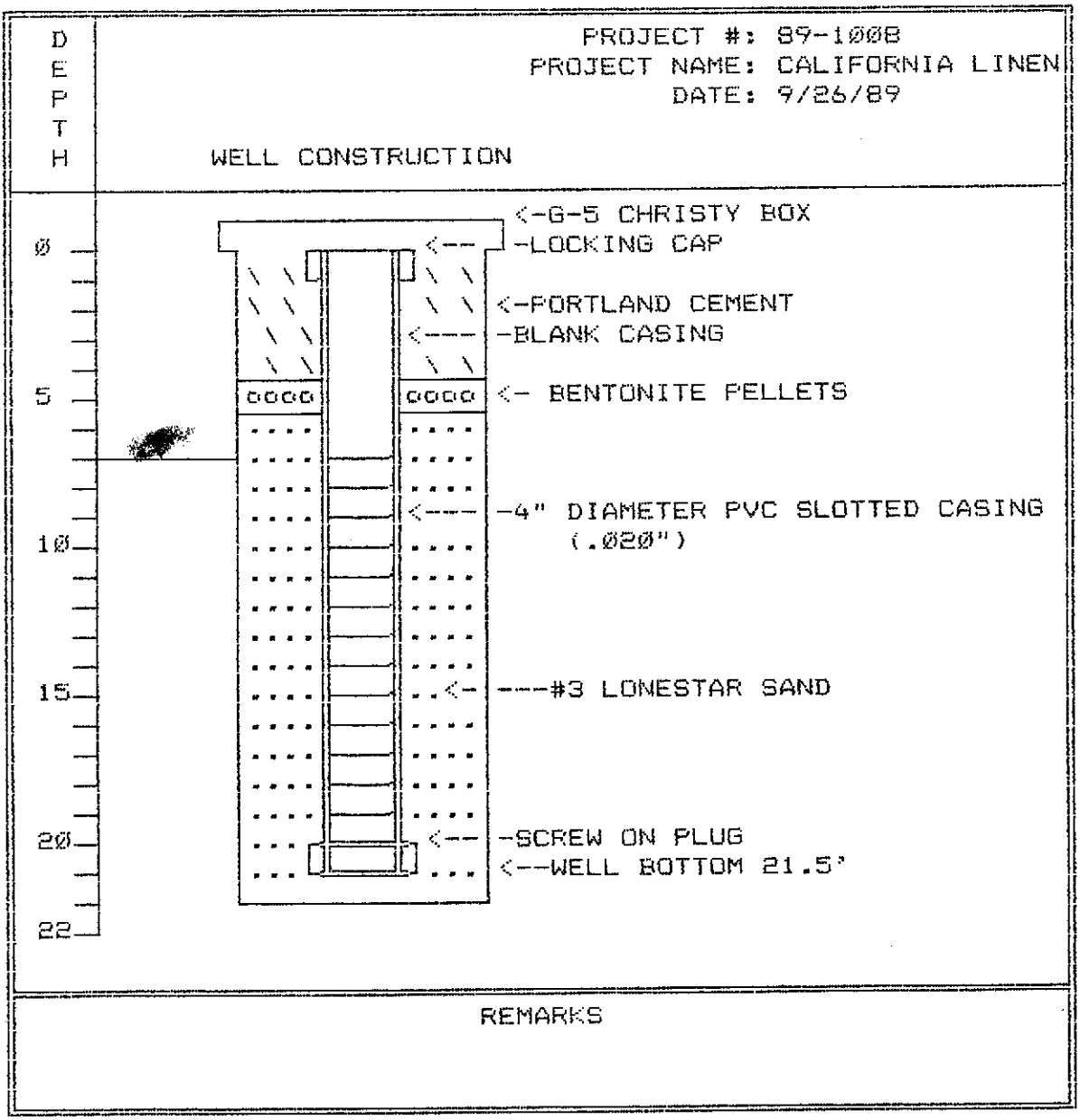
REMARKS

MILLER ENVIRONMENTAL COMPANY

WELL CONSTRUCTION LOG

BORING # MW3

PROJECT #: 89-100B
PROJECT NAME: CALIFORNIA LINEN
DATE: 9/26/89



REMARKS

APPENDIX B
LABORATORY RESULTS AND CHAIN-OF-CUSTODY FORMS

ENVIRONMENTAL SERVICES

3700 Lakeville Highway, Petaluma, CA 94954
P.O. Box 808024, Petaluma, CA 94975-8024
Telephone: (707) 763-8245 FAX: (707) 763-4065

Reinhard Ruhmke
Miller Env. Co.
631 Marina Way South
Richmond, CA 94804

Client Code: MIEC1
Survey # 89-1008

L A B O R A T O R Y R E S U L T S

Date Collected: 10/02/89
Date Extracted: 10/12/89
Date Analyzed: 10/16/89

Laboratory Job No.: 894623
Date Received: 10/03/89
Date Reported: 10/17/89

ASSAY: WASTE OIL (EPA 3510/SM503A)
MATRIX: LIQUID

LABNO	SMPLNO-ID	WASTE OIL mg/L	DETECTION LIMIT mg/L
53684	MW-1	ND	10
53685	MW-2	ND	10
53686	MW-3	ND	10

Approved for release

ENVIRONMENTAL SERVICES

3700 Lakeville Highway, Petaluma, CA 94954
P.O. Box 808024, Petaluma, CA 94975-8024
Telephone: (707) 763-8245 FAX: (707) 763-4065

L A B O R A T O R Y R E S U L T S

Date Collected: 10/02/89
Date Extracted: 10/11/89
Date Analyzed: 10/11/89

Laboratory Job No.: 894623
Date Received: 10/03/89
Date Reported: 10/17/89

ASSAY: TPH/GASOLINE and BTEX (EPA 5030/8015/602)
MATRIX: LIQUID

LABNO SMPLNO-ID	RESULTS	DET.LIM
53684 MW-1 GASOLINE	[redacted]	1.0 mg/L
53685 MW-2 GASOLINE	ND	0.05 mg/L
53686 MW-3 GASOLINE	ND	0.05 mg/L

ENVIRONMENTAL SERVICES

3700 Lakeville Highway, Petaluma, CA 94954
P.O. Box 808024, Petaluma, CA 94975-8024
Telephone: (707) 763-8245 FAX: (707) 763-4065

L A B O R A T O R Y R E S U L T S

Date Collected: 10/02/89
Date Extracted: 10/06/89
Date Analyzed: 10/11/89

Laboratory Job No.: 894623
Date Received: 10/03/89
Date Reported: 10/17/89

ASSAY: TPH/DIESEL (EPA 3510/8015)
MATRIX: WATER

LABNO SMPLNO-ID	RESULTS	DET.LIM
53684 MW-1		
DIESEL	0.61 mg/L	0.06 mg/L
53685 MW-2		
DIESEL	ND	0.06 mg/L
53686 MW-3		
DIESEL	ND	0.06 mg/L

ENVIRONMENTAL SERVICES

3700 Lakeville Highway, Petaluma, CA 94954
P.O. Box 808024, Petaluma, CA 94975-8024
Telephone: (707) 763-8245 FAX: (707) 763-4065

L A B O R A T O R Y R E S U L T S

Date Collected: 10/02/89
Date Extracted: 10/11/89
Date Analyzed: 10/11/89

Laboratory Job No.: 894623
Date Received: 10/03/89
Date Reported: 10/17/89

ASSAY: TPH/GASOLINE and BTEX (EPA 5030/8015/602)
MATRIX: LIQUID

LABNO SMPLNO-ID	RESULTS	DET.LIM
53684 MW-1		
BENZENE	2.8 mg/L	0.01 mg/L
TOLUENE	2.4 mg/L	0.01 mg/L
ETHYLBENZENE	2.3 mg/L	0.01 mg/L
XYLENE	4.8 mg/L	0.01 mg/L
53685 MW-2		
BENZENE	ND	0.001 mg/L
TOLUENE	ND	0.001 mg/L
ETHYLBENZENE	ND	0.001 mg/L
XYLENE	ND	0.001 mg/L
53686 MW-3		
BENZENE	ND	0.001 mg/L
TOLUENE	ND	0.001 mg/L
ETHYLBENZENE	ND	0.001 mg/L
XYLENE	ND	0.001 mg/L

ENVIRONMENTAL SERVICES

3700 Lakeville Highway, Petaluma, CA 94954
P.O. Box 808024, Petaluma, CA 94975-8024
Telephone: (707) 763-8245 FAX: (707) 763-4065

Reinhard Ruhmke
Miller Env. Co.
631 Marina Way South
Richmond, CA 94804

Client Code: MIEC1
Contract/PO # 89-1008

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 894531
Date Collected: 09/25/89
Date Analyzed: 10/10/89
Date Received: 09/26/89
Date Reported: 10/17/89

TOTAL PETROLEUM HYDROCARBONS(EPA 418.1)

MATRIX:SOIL

LABNO	SMPLNO	COMPOUND	FOUND mg/kg	DET.LIM. mg/kg
53181	MW1-A	TPH	[redacted]	6
53182	MW1-B	TPH	ND	6
53183	MW2-A	TPH	[redacted]	6
53184	MW2-B	TPH	ND	6
53185	MW3-A	TPH	ND	6
53186	MW3-B	TPH	ND	6

ENVIRONMENTAL SERVICES

3700 Lakeville Highway, Petaluma, CA 94954
P.O. Box 808024, Petaluma, CA 94975-8024
Telephone: (707) 763-8245 FAX: (707) 763-4065

L A B O R A T O R Y R E S U L T S

Date Collected: 09/25/89
Date Extracted: 09/29/89
Date Analyzed: 09/29/89

Laboratory Job No.: 894531
Date Received: 09/26/89
Date Reported: 10/17/89

ASSAY: TPH/DIESEL (EPA 3550/8015)
MATRIX: SOIL

LABNO SMPLNO-ID	RESULTS	DET.LIM
53181 MW1-A (4')		
DIESEL	36 mg/kg	7.5 mg/kg
53182 MW1-B (2')		
DIESEL	ND	6.5 mg/kg
53183 MW2-A		
DIESEL	ND	7.1 mg/kg
53184 MW2-B		
DIESEL	ND	6.7 mg/kg
53185 MW3-A		
DIESEL	ND	6.7 mg/kg
53186 MW3-B		
DIESEL	ND	7.1 mg/kg

ACCUTEST
ENVIRONMENTAL SERVICES

3700 Lakeville Highway, Petaluma, CA 94954
P.O. Box 808024, Petaluma, CA 94975-8024
Telephone: (707) 763-8245 FAX: (707) 763-4065

L A B O R A T O R Y R E S U L T S

Date Collected: 09/25/89
Date Extracted: 10/04/89
Date Analyzed: 10/04/89

Laboratory Job No.: 894531
Date Received: 09/26/89
Date Reported: 10/17/89

ASSAY: TPH/GASOLINE/BTEX (EPA 5020/8015/8020)
MATRIX: SOIL

LABNO SMPLNO-ID	RESULTS	DET.LIM
53181 MW1-A		
GASOLINE	140 mg/kg	2.5 mg/kg
53182 MW1-B		
GASOLINE	ND	1.0 mg/kg
53183 MW2-A		
GASOLINE	ND	1.0 mg/kg
53184 MW2-B		
GASOLINE	ND	1.0 mg/kg
53185 MW3-A		
GASOLINE	ND	1.0 mg/kg
53186 MW3-B		
GASOLINE	ND	1.0 mg/kg

ACCULAB
ENVIRONMENTAL SERVICES

3700 Lakeville Highway, Petaluma, CA 94954
P.O. Box 808024, Petaluma, CA 94975-8024
Telephone: (707) 763-8245 FAX: (707) 763-4065

L A B O R A T O R Y R E S U L T S

Date Collected: 09/25/89
Date Extracted: 10/04/89
Date Analyzed: 10/04/89

Laboratory Job No.: 894531
Date Received: 09/26/89
Date Reported: 10/17/89

ASSAY: TPH/GASOLINE/BTEX (EPA 5020/8015/8020
MATRIX: SOIL

LABNO SMPLNO-ID	RESULTS	DET.LIM
53181 MW1-A		
BENZENE	5.3 mg/kg	0.1 mg/kg
TOLUENE	2.2 mg/kg	0.1 mg/kg
ETHYLBENZENE	2.9 mg/kg	0.1 mg/kg
XYLENE	16 mg/kg	0.1 mg/kg
53182 MW1-B		
BENZENE	ND	0.040 mg/kg
TOLUENE	ND	0.040 mg/kg
ETHYLBENZENE	ND	0.040 mg/kg
XYLENE	ND	0.040 mg/kg
53183 MW2-A		
BENZENE	ND	0.040 mg/kg
TOLUENE	ND	0.040 mg/kg
ETHYLBENZENE	ND	0.040 mg/kg
XYLENE	ND	0.040 mg/kg
53184 MW2-B		
BENZENE	ND	0.040 mg/kg
TOLUENE	ND	0.040 mg/kg
ETHYLBENZENE	ND	0.040 mg/kg
XYLENE	ND	0.040 mg/kg
53185 MW3-A		
BENZENE	ND	0.040 mg/kg
TOLUENE	ND	0.040 mg/kg
ETHYLBENZENE	ND	0.040 mg/kg
XYLENE	ND	0.040 mg/kg

ACCULAB
ENVIRONMENTAL SERVICES

3700 Lakeville Highway, Petaluma, CA 94954
P.O. Box 808024, Petaluma, CA 94975-8024
Telephone: (707) 763-8245 FAX: (707) 763-4065

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 894531

LABNO	SMPLNO-ID	RESULTS	DET.LIM
53186	MW3-B		
	BENZENE	ND	0.040 mg/kg
	TOLUENE	ND	0.040 mg/kg
	ETHYLBENZENE	ND	0.040 mg/kg
	XYLENE	ND	0.040 mg/kg

ACCULAB ENVIRONMENTAL SERVICES
3700 Lakeville Highway, Petaluma, CA 94952
P.O. Box 808024, Petaluma, CA, 94975-8024
Telephone: (707) 763-8245 FAX: (707) 763-4065

SAMPLING DATA - ANALYSIS REQUEST

10 day TAT

P.O. NUMBER:	89-1008
RELEASE NO:	
SURVEY NO:	

NAME OF COMPANY	SAMPLE COLLECTED BY	DATE COLLECTED
Miller Environmental Co	Reinhard Ruhmke	9/25-9/26
MAILING ADDRESS: 631 Marina Way South, Richmond, Ca 94804 ATTENTION: Reinhard Ruhmke	SPECIAL INSTRUCTIONS	
TELEPHONE NO: 415-233-9068		

LAB USE ONLY	SAMPLE NUMBER	SAMPLE LOCATION OR DESCRIPTION	VOLUME OF AIR SAMPLED	ANALYZE FOR (GIVE SPECIFIC SUBSTANCES)
	MW1-A	California Linen	soil	All samples
	MW1-B			TPH/Gasoline-BTEX
	MW2-A			TPH/Diesel
	MW2-B			Waste Oil & Grease
	MW3-A			
	MW3-B			

RECEIVED BY ACCULAB ENVIRONMENTAL SERVICES SEP 26 PM 4:30

AUTHORIZED SIGNATURE:

RELINQUISHED BY: (SIGNATURE) Reinhard Ruhmke	DATE/TIME 9-26	RECEIVED BY LAB BY: (SIGNATURE) Barbara Adams
RELINQUISHED FROM LAB BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)

520004-20-86

CLIENT - FIELD COPY

ACCULAB ENVIRONMENTAL SERVICES

3700 Lakeville Highway, Petaluma, CA 94952
P.O. Box 808024, Petaluma, CA, 94975-8024
Telephone: (707) 763-8245 FAX: (707) 763-4065

SAMPLING DATA - ANALYSIS REQUEST

P.O. NUMBER:	
RELEASE NO:	
SURVEY NO:	89-1008

NAME OF COMPANY	SAMPLE COLLECTED BY	DATE COLLECTED
Miller Environmental Co.	Reinhard Ruhmke	10/2/89

MAILING ADDRESS	SPECIAL INSTRUCTIONS
831 Marina Way South Richmond, CA 94804 TELEPHONE NO: 415-233-9068	

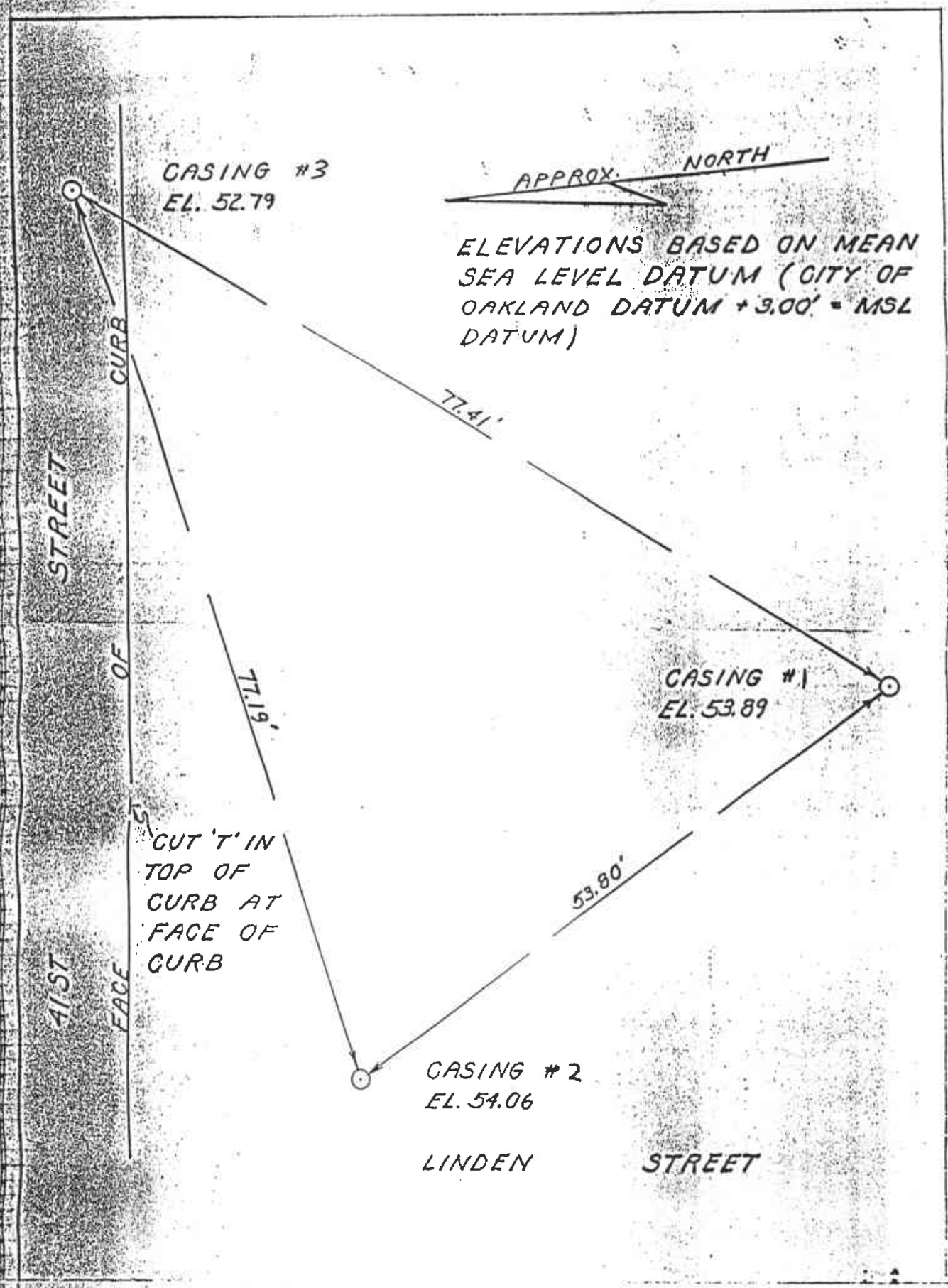
LAB USE ONLY	SAMPLE NUMBER	SAMPLE LOCATION OR DESCRIPTION	VOLUME OF AIR SAMPLED	ANALYZE FOR (GIVE SPECIFIC SUBSTANCES)
	MW1	California Linen		All samples
	MW2	" "		TPH/Gasoline-BTEX
	MW3	" "		TPH/Diesel
				Waste oil (3550/503E
		Water		

RECEIVED ACCULAB 1989 OCT -2 PM 4 36 ENVIRONMENTAL SERVICES

AUTHORIZED SIGNATURE: [signature]

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY LAB BY: (SIGNATURE)
Reinhard Ruhmke	10/2/89	Barbara Adams
RELINQUISHED FROM LAB BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)

CLIENT - FIELD COPY



PLAT OF SURVEY

LOCATION OF WELL CASINGS
989 41ST ST., OAKLAND, CALIF.
SCALE 1" = 10' OCTOBER, 1989

LICENSED LAND SURVEYOR
JEFFREY D. BLACK
5252
OF CALIFORNIA

12 OCT. 1989

LICENSE EXPIRES 12-31-91

MORAN ENGINEERING
BERKELEY CALIF.

89-2297