191

00 NOV 21 PM 3:54

HYDRO ANALYSIS, INC.

Environmental & Water Resources Engineering
Groundwater Consultants

November 17, 2000

Barney Chan
Alameda County Environmental Health Services
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

Quarterly Groundwater Monitoring Report including
Sensitive Receptor Survey and Conduit Study
Golden Gate Petroleum
421 23rd Avenue, Oakland, California
Fuel Leak Case No. 191

Dear Mr. Chan:

The enclosed report documents the following activities at the subject property:

- Measurement of water levels in 7 monitoring wells,
- Evaluation of the groundwater flow and magnitude,
- Collection and analysis of groundwater samples from 7 monitoring wells, and
- Completion of a sensitive receptor survey and conduit study.

If you have any questions, please call me at 510/620-0891.

Sincerely,

Hydro Analysis, Inc.

REGISTERED GEOLOGIST
KENNETH B. ALEXANDER
No. HG512
CERTIFIED HYDROGEOLOGIST
exp. 7/01
STATE OF CALIFORNIA

K. B. Alex

Kenneth B. Alexander, RG, CH
Principal Hydrogeologist

cc: Dennis O'Keefe/Golden Gate Petroleum, Concord, California

11100 SAN PABLO AVE., SUITE 200-A, EL CERRITO, CALIFORNIA 94530 • TEL 510-620-0891 • FAX 510-620-0894
www.HydroAnalysis.com

HYDRO ANALYSIS, INC.
Environmental & Water Resources Engineering
Groundwater Consultants

QUARTERLY GROUNDWATER MONITORING REPORT

INCLUDING

SENSITIVE RECEPTOR SURVEY AND CONDUIT STUDY

(Sampled October 18, 2000)

GOLDEN GATE PETROLEUM

421 23rd Avenue
Oakland, California

November 17, 2000

Hydro Analysis, Inc. Project No. 0277

11100 SAN PABLO AVE., SUITE 200-A, EL CERRITO, CALIFORNIA 94530 • TEL 510-620-0891 • FAX 510-620-0894
www.HydroAnalysis.com

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

I. INTRODUCTION

The site location is the Golden Gate Petroleum Cardlock at 421 23rd Avenue in Oakland, California (Figure 1). The site is situated at the northwest corner of the intersection of Kennedy Street and 23rd Avenue.

This report describes groundwater monitoring activities completed in October 2000 at 421 23rd Avenue, Oakland, CA. This report also includes the results of a sensitive receptor survey and conduit study. The work was performed at the request of Barney Chan, Alameda County Environmental Health Services (ACEHS). His August 25, 2000 request letter is included in Attachment A.

Background

The site has operated as a service station since 1976. In August 1998, five underground storage tanks (USTs) and associated piping were removed from the property. The USTs were used to store premium unleaded gasoline, regular unleaded gasoline, and diesel fuel. The USTs were replaced with two 20,000-gallon, double-walled, fiberglass underground storage tanks.

During the tank removal activities, approximately 1,300 cubic yards of petroleum-impacted soil was excavated and removed from the site. In addition, approximately 28,000 gallons of petroleum-impacted groundwater and floating product were removed.

On November 1999, Hageman-Aguiar, Inc. (now Hydro Analysis, Inc.) installed four monitoring wells in the vicinity of the former tank excavation (Figure 2). In July 2000, Hydro Analysis installed three offsite monitoring wells along the south side of Kennedy Street. Hydro Analysis has performed quarterly groundwater sampling since November 1999. Gasoline, MTBE, and diesel constituents have been detected in groundwater under and downgradient of the site.

II. FIELD WORK: GROUNDWATER SAMPLING

Monitoring Well Sampling

On October 18, 2000, Hydro Analysis, Inc. sampled the seven groundwater monitoring wells. The locations of the wells are shown in Figure 2. Prior to sampling, several casing volumes of water were removed from each well. Field conductivity, temperature, and pH were monitored during purging. Purging continued until these parameters stabilized. Groundwater samples were subsequently collected using new, disposable sampling bailers. The water samples were placed inside appropriate 40-ml VOA vials free of any headspace. The samples were immediately placed on crushed ice, then transported under chain-of-custody to the laboratory at the end of the workday.

The following information was recorded in the field at the sampling time: (1) depth-to-water prior to purging, (2) observation of any floating product, sheen, or odor prior to purging, (3) pH, (4) temperature, and (5) specific conductance. Copies of the well sampling logs are included in Attachment A.

Wastewater Generation

All water and other liquid waste removed from the wells during purging was drummed and stored onsite. The water and liquid waste is periodically picked up by a licensed waste hauler and transported under manifest to an appropriate recycling and disposal facility.

III. RESULTS OF WATER LEVEL MEASUREMENTS

Groundwater Flow Direction and Hydraulic Gradient

On October 18, 2000, Hydro Analysis, Inc. measured water levels in the seven monitoring wells (Table 1). Figure 3 presents a contour map for the groundwater beneath the site. As shown in Figure 3, the water level data indicate that groundwater flow in October 2000 was toward the southwest direction (S39°W).

The calculated hydraulic gradient for October 2000 was approximately 0.0027 feet/feet (about 14 feet per mile).

Floating Product

Measurements of floating product were performed prior to water level measurements on October 18, 2000. No floating product was observed.

IV. ANALYTICAL RESULTS

Laboratory Analysis

All analyses were performed by Chromalab, Inc., of Pleasanton, California, a California State Department of Health Services-certified laboratory. All samples were analyzed in accordance with U.S. EPA recommended procedures.

All groundwater samples were analyzed for:

- Total Petroleum Hydrocarbons as Gasoline (modified EPA Method 8015)
- Benzene, Toluene, Ethylbenzene, and Total Xylenes (EPA Method 8020)
- Methyl Tertiary Butyl Ether (MTBE) (EPA Method 8260B)
- Total Petroleum Hydrocarbons as Diesel (modified EPA Method 8015)

Analytical Results: Groundwater

Table 2 presents the analytical results for all groundwater samples collected at the site. Copies of the laboratory reports and chain-of-custody records for the October 18, 2000 sampling event are provided in Attachment C.

As shown in Table 2, gasoline was detected at a maximum concentration of 2,300 µg/L (ppb) in the groundwater sample from well MW-2. MTBE was detected at a maximum concentration of 8,300 µg/L in the groundwater sample from well MW-2. Diesel was detected at a maximum concentration of 510 µg/L in the groundwater sample from well MW-2.

V. SENSITIVE RECEPTOR SURVEY

In October and November 2000, Hydro Analysis conducted a sensitive receptor survey to evaluate potential exposure pathways in the vicinity of 421 23rd ~~Street~~ Ave, Oakland, CA. The sensitive receptor survey consisted of (1) a file review of water supply wells located within 1,000 feet of the site, (2) a field reconnaissance downgradient of the site to search for basements or sumps, and (3) a neighborhood door-to-door survey of undocumented private wells.

Well Survey

Hydro Analysis performed the well survey by requesting records from the Alameda County Public Works Agency (ACPWA). We reviewed available records for wells located within about a thousand feet of the site. Table 3 summarizes the available well data.

According to the available records provided by ACPWA, there are no water supply wells within 1,000 feet of the site. All of the wells in Table 3 are monitoring wells less than 30 feet deep.

Field Reconnaissance

Hydro Analysis performed a field reconnaissance of properties downgradient of the site to evaluate the possibility of basements or sumps, which could act as potential exposure pathways. No basements or sumps were observed.

Door-to-Door Survey

Hydro Analysis conducted a door-to-door survey of businesses and residences in the immediate vicinity of the site. Owners or tenants were interviewed to ascertain if any undocumented wells were located on their property. No undocumented wells were discovered. Responses to our survey are summarized in Table 4.

VI. CONDUIT STUDY

In October and November 2000, Hydro Analysis performed a conduit study to evaluate potential groundwater contamination pathways in the vicinity of 421 23rd Street, Oakland, CA. The conduit survey consisted of (1) evaluating the location for municipal storm and sanitary sewer lines in the vicinity of the site, (2) reviewing topographic maps for historical drainage features, and (3) reviewing boring logs.

Subsurface Utility Maps

Hydro Analysis visited the Oakland Department of Public Works and East Bay Municipal Water District and reviewed maps of storm drains, sanitary sewer lines, and water lines in the vicinity of the site. Copies of the maps are included in Attachment D.

As shown on the map, storm drains (hatched) and sanitary sewer lines (solid) are present under Kennedy Street and 23rd Avenue. There are no storm drains or sanitary sewers that traverse the site and Kennedy Street. Thus, there appears to be no manmade subsurface conduit for contaminant migration toward the southwest. However, a storm drain is present beneath Kennedy Street that drains eastward toward a connection beneath 23rd Avenue and then drains into the Tidal Canal. The storm drain line may act as a hydraulic barrier to groundwater flow during the wet season. In addition, it may be possible that contaminants from 421 23rd Avenue are intercepted by the backfill surrounding the storm sewer and are transported through the backfill toward 23rd Avenue.

Water supply lines are present along the southern property boundary under Kennedy Street. Similar to the storm drains and sanitary sewer lines, there are no water supply lines that cross under Kennedy Street from the site toward the southwest.

Historical Map Review

Hydro Analysis reviewed historical topographic maps to ascertain if any surface drainage features existed in the vicinity of the site. Specifically, we reviewed USGS 15-minute quadrangles (Concord 1897, 1915, and 1943) and 7.5-minute quadrangles (Oakland East 1949, 1968, and 1980). We also reviewed an 1897 Sanborn map of the area. Copies of the maps are provided in Appendix E.

The 1897 topographic map shows 23rd Avenue (then known as Park Avenue) and Kennedy Street. The Oakland Harbor is present to the west and southwest of the site but the Tidal Channel has not been completed (separating Oakland and Alameda). The closest drainage feature is Diamond Creek (later renamed Sausal Creek) located about one-half mile east and southeast of the site. Sausal Creek was later channelized and routed through culverts along the east side of 29th Avenue.

Our review of historical maps did not reveal any obvious drainage features near the site that may affect contaminant transport.

Boring Logs

Hydro Analysis reviewed boring logs for the seven monitoring wells onsite and along the south side of Kennedy Street. The lithology identified in each boring log was evaluated for evidence of relatively coarse-grained stream channel deposits.

Significantly, the boring with the greatest thickness of sandy units is MW-6. Sandy units are present at depths between 14 and 21 feet in the vicinity of MW-6. In contrast, the lithology of borings MW-5 and MW-7 between depths of 14 and 21 feet is comprised of silt and clay. It appears that an ancient stream channel flowed near the vicinity of MW-6 depositing relatively sandy material. As shown on Figure 6, the distribution of MTBE appears to indicate preferential groundwater flow from the site across Kennedy Street in the vicinity of well MW-6.

VII. DATA ANALYSIS AND RECOMMENDATIONS

The results of the October 2000 groundwater sampling revealed elevated concentrations of gasoline and MTBE in several monitoring wells, particularly MW-2, MW-3, and MW-6. Figures 4 and 5 show lines of equal concentration for gasoline and MTBE, respectively, using analytical data from the October 18, 2000 groundwater sampling event.

As shown on Figures 4 and 5, gasoline and MTBE plumes appear to have moved in the downgradient direction beneath Kennedy Street and the adjoining southern property. In well MW-6, located farthest downgradient, groundwater sampling revealed gasoline at a concentration of 890 µg/L and MTBE at a concentration of 2,400 µg/L. These concentrations are significantly higher than the previous groundwater sampling event in August 2000. The relatively coarse-grained sand observed in the boring for well MW-6 may facilitate the movement of contaminated groundwater through an ancient stream channel deposit.

The results of our sensitive receptor survey indicate that the only sensitive receptor downgradient of the site is the Tidal Channel of the Oakland Estuary. In our opinion, the risk of impacting the estuary is minimal. The results of our conduit study confirmed that the movement of contaminated groundwater is not influenced by any manmade conduits but is facilitated by an ancient stream channel deposit in the vicinity of MW-6. There does not appear to be a human health or ecological risk associated with the groundwater contamination emanating from the site.

We believe that contaminant migration is limited due to the very low permeability of the clay and silt encountered beneath the site with the notable exception of the sandy channel deposits in the vicinity of well MW-6. Accordingly, we recommend continuing quarterly groundwater monitoring of the existing monitoring wells. The next groundwater sampling event is scheduled for January 2001. If the concentrations of gasoline and MTBE in the groundwater sample from monitoring well MW-6 increase, we will recommend further offsite investigation to evaluate the downgradient extent of contamination.

TABLE 1.

Groundwater Elevation Measurements
Golden Gate Petroleum, 421 23rd Avenue, Oakland, California

	MW-1		MW-2		MW-3		MW-4		MW-5		MW-6		MW-7	
	MP Elev = 9.47 feet		MP Elev = 8.72 feet		MP Elev = 9.00 feet		MP Elev = 9.30 feet		MP Elev = 10.19 feet		MP Elev = 9.86 feet		MP Elev = 8.60 feet	
Date	Depth	Elev	Depth	Elev	Depth	Elev	Depth	Elev	Depth	Elev	Depth	Elev	Depth	Elev
Nov. 11, 1999	8.27	1.20	7.75	0.97	8.09	0.91	8.44	0.86	--	--	--	--	--	--
Mar. 28, 2000	8.02	1.45	7.50	1.22	8.92	1.08	8.33	0.97	--	--	--	--	--	--
Aug. 7, 2000	8.30	1.17	7.78	0.94	8.22	0.78	8.60	0.70	9.67	0.52	9.34	0.52	7.92	0.68
Oct. 18, 2000	8.31	1.16	7.81	0.91	8.20	0.80	8.54	0.76	9.68	0.51	9.33	0.53	7.93	0.67

General Notes

(a) Depth measurements cited in units of feet below measuring point (MP). MP is top of PVC well casing.

(b) Elevation measurements cited in units of feet above Mean Sea Level and referenced to City of Oakland benchmark at 333 23rd Avenue. Benchmark elevation is 7.91 feet above Mean Sea Level.

TABLE 2.

Groundwater Analytical Results
Golden Gate Petroleum, 421 23rd Avenue, Oakland, California

Well Number	Date	TPH as Diesel (µg/L)	TPH as Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)
MW-1	Nov 11, 1999	<50	<50	<0.5	<0.5	<0.5	<0.5	<5
	Mar 28, 2000	<50	<50	<0.5	<0.5	<0.5	<0.5	<5
	Aug 7, 2000	<50	<50	<0.5	<0.5	<0.5	<0.5	<5
	Oct 18, 2000	<50	<50	<0.5	<0.5	<0.5	<0.5	<5*
MW-2	Nov 11, 1999	*220*	*6,800*	<50	<50	<50	<50	*13,000**
	Mar 28, 2000	*1,800*	*2,500*	<25	<25	<25	<25	*1,800*
	Aug 7, 2000	*620*	*4,500*	<25	<25	<25	<25	*6,300*
	Oct 18, 2000	*510*	*2,300*	<5	<5	<5	<5	*8,300**
MW-3	Nov 11, 1999	<50	*1,600*	<12.5	<12.5	<12.5	<12.5	*2,500**
	Mar 28, 2000	<50	*280*	<2.5	<2.5	<2.5	<2.5	*610*
	Aug 7, 2000	<50	*1,100*	<5	<5	<5	<5	*1,500*
	Oct 18, 2000	58	*900*	<5	<5	<5	<5	*2,000**
MW-4	Nov 11, 1999	<50	*650*	<5	<5	<5	<5	*540**
	Mar 28, 2000	<50	*430*	<2.5	<2.5	<2.5	<2.5	*800*
	Aug 7, 2000	<50	*600*	<5	<5	<5	<5	*500*
	Oct 18, 2000	<50	*260*	<2.5	<2.5	<2.5	<2.5	*410**
MW-5	Aug 7, 2000	<50	*110*	<0.5	<0.5	<0.5	<0.5	*470**
	Oct 18, 2000	83	*150*	<0.5	<0.5	<0.5	<0.5	*420**
MW-6	Aug 7, 2000	<50	*460*	<0.5	<0.5	<0.5	<0.5	*1,900**
	Oct 18, 2000	62	*890*	*5.6*	<2.5	<2.5	3.1	*2,400**
MW-7	Aug 7, 2000	<50	<50	<0.5	<0.5	<0.5	<0.5	<5*
	Oct 18, 2000	<50	<50	<0.5	<0.5	<0.5	<0.5	<5*

TABLE 2 (Concluded).

Groundwater Analytical Results
Golden Gate Petroleum, 421 23rd Avenue, Oakland, California

	TPH as Diesel (µg/L)	TPH as Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)
Drinking Water Criteria	100 (T&O)	5 (T&O)	1 (MCL)	150 (MCL)	700 (MCL)	1,750 (MCL)	5 (MCL)
EPA Method No.	Modified 8015	Modified 8015	8020	8020	8020	8020	8020 or 8260B

General Notes

(a) "<" = parameter below laboratory method reporting limit.

(b) * = MTBE confirmed by EPA Method 8260B.

(c) Drinking water criteria is for comparison purposes only. Source: Jon B. Marshack, *A Compilation of Water Quality Goals*, Central Valley Regional Water Quality Control Board, Sacramento, CA, March 1998. T&O = Taste and Odor Threshold. MCL = California Primary Maximum Contaminant Level.

(d) Concentrations exceeding the drinking water criteria in ***bold italic***.

TABLE 3.

Wells Located Near Site
Golden Gate Petroleum
421 23rd Avenue, Oakland, California

Calif. Well No.	Map ID No. (Fig. 6)	Well Location	Owner	Total Depth (feet)	Comments
2S/3W-7F1	3	333 23rd Avenue	Chevron/Rhodes-Jamieson	24	Monitoring wells were installed in 1987 and 1988. According to property manager, active remediation is no longer being performed at the site. Groundwater monitoring is conducted semi-annually.
2S/3W-7F2	3	333 23rd Avenue	Chevron/Rhodes-Jamieson	24	
2S/3W-7F3	3	333 23rd Avenue	Chevron/Rhodes-Jamieson	24	
2S/3W-7F4	3	333 23rd Avenue	Chevron/Rhodes-Jamieson	24	
2S/3W-7F5	3	333 23rd Avenue	Chevron/Rhodes-Jamieson	24	
2S/3W-7F6	3	333 23rd Avenue	Chevron/Rhodes-Jamieson	24	
2S/3W-7F7	3	333 23rd Avenue	Chevron/Rhodes-Jamieson	24	
2S/3W-7F8	3	333 23rd Avenue	Chevron/Rhodes-Jamieson	24	
2S/3W-7F9	3	333 23rd Avenue	Chevron/Rhodes-Jamieson	24	
2S/3W-7F10	3	333 23rd Avenue	Chevron/Rhodes-Jamieson	24	
2S/3W-7F11	3	333 23rd Avenue	Chevron/Lonestar	20	
2S/3W-7F12	3	333 23rd Avenue	Chevron/Lonestar	20	
2S/3W-7F13	3	333 23rd Avenue	Chevron/Lonestar	20	
2S/3W-7F14	3	Kennedy & 23rd	Chevron/Lonestar	26	
2S/3W-7F15	10	401 Kennedy Street	Right Away Ready Mix	20	Monitoring wells installed in 1992. Site recommended for closure in 1994.
2S/3W-7F16	10	401 Kennedy Street	Right Away Ready Mix	19	
2S/3W-7F17	10	401 Kennedy Street	Right Away Ready Mix	19	
2S/3W-7F18	20	646 Kennedy Street	Fidelity Packaging	16	Fidelity Apartments currently occupies site.
2S/3W-7F19	20	646 Kennedy Street	Fidelity Packaging	17	
2S/3W-7F20	14	534 23rd Avenue	Filmore Marks	20	Consolidated Engineering Labs currently occupies site.
2S/3W-7F21	14	534 23rd Avenue	Filmore Marks	20	
2S/3W-7F22	13	527 23rd Avenue	Exchange Linen Service	17	An apartment building currently occupies site.
2S/3W-7F23	13	527 23rd Avenue	Exchange Linen Service	20	
2S/3W-7F24	13	527 23rd Avenue	Exchange Linen Service	17	
2S/3W-7F25	3	333 23rd Avenue	Chevron Products Co.	20	

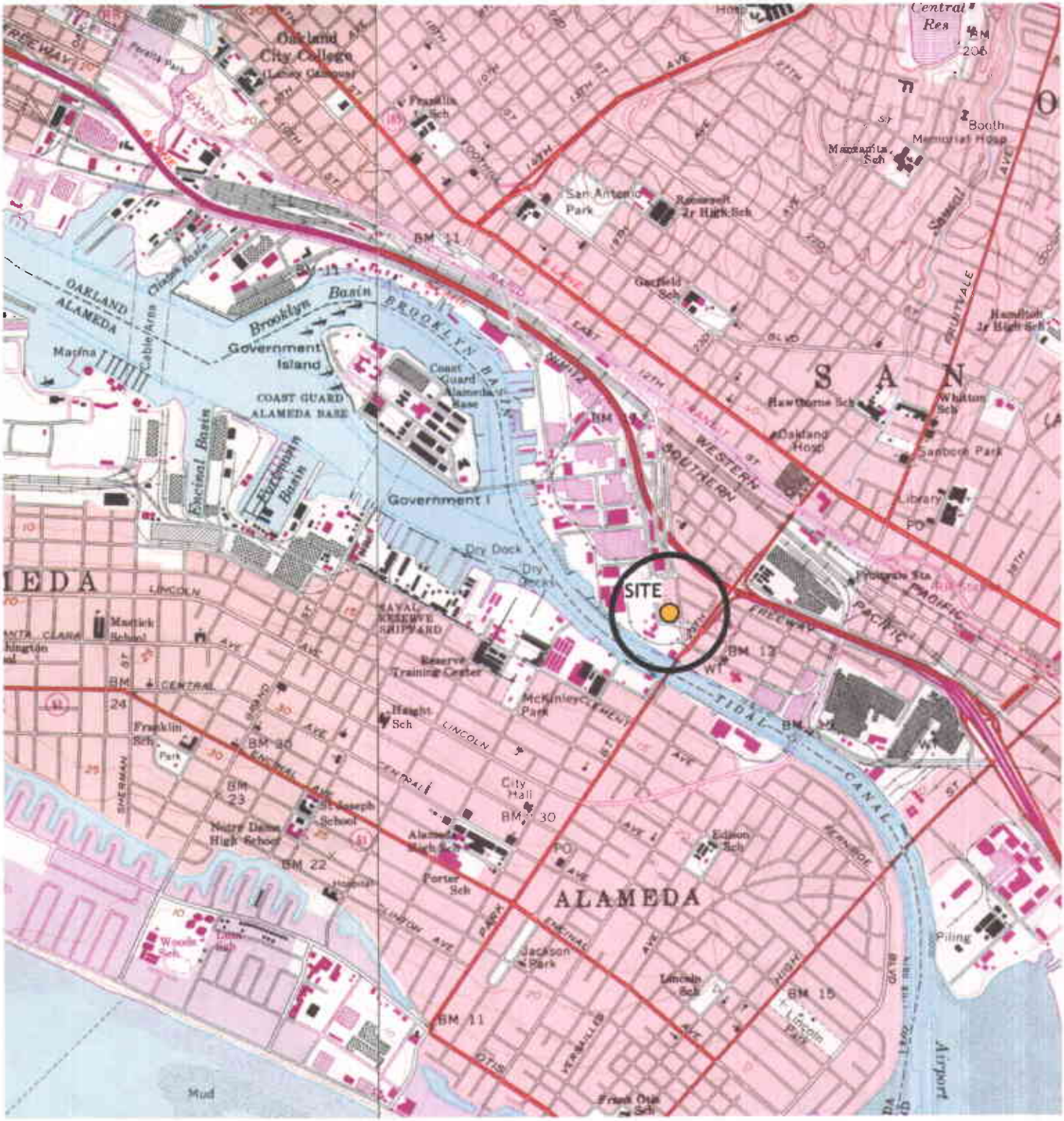
Note: Data provided by Alameda County Public Works Agency. All wells listed are monitoring wells.

TABLE 4.

Summary of Door-to-Door Survey
Golden Gate Petroleum
421 23rd Avenue, Oakland, California

Map ID No. (Fig. 6)	Well Location	Address	Any Wells?	Comments
1	Con-Agra	2201 7th Street	No	According to manager's rep.
2	Alameda County Household Haz Waste	2100 7th Street	No?	Unable to confirm.
3	RMC-Lonestar	333 23rd Street	Yes	Fifteen monitoring wells.
4	Nikkos Café	23rd St. & Ford St.	No	According to manager.
5	Strauss Flooring	23rd St. & Kennedy Ave.	No?	Unable to confirm.
6	Carpet Master	23rd Ave. north of site	No	According to manager.
7	www.euro-sport	501 23rd Street	No	According to owner.
8	Various	501 - 515 Kennedy Ave.	No	
9	SeaPower Marine	333 Kennedy Avenue	No	According to manager.
10	Right Away Ready Mix	401 Kennedy Avenue	Yes	Three monitoring wells.
11	Marzolf Brothers	430 23rd Avenue	No	According to owner.
12	Marzolf Brothers	438 23rd Avenue	No	According to owner.
13	Linen Exchange	527 23rd Avenue	No?	Unable to confirm.
14	CE Labs	534 23rd Avenue	No	Two monitoring wells are listed by ACPWA but are unknown o tenant.
15	Residence	2814 Chapman Street	No?	Unable to confirm.
16	Residence	2818 Chapman Street	No?	Unable to confirm.
17	Residence	2824 Chapman Street	No	According to tenant.
18	Residence	2832 Chapman Street	No	According to owner.
19	Residence	2836 Chapman Street	No	According to owner.
20	Fidelity Apartments	646 Kennedy Avenue	Yes	Two monitoring wells
21	Vacant lot	7th Street & 23rd Avenue	No	

Note: Data provided by Alameda County Public Works Agency. All wells listed are monitoring wells.



Basemap: USGS 7.5-minute topographic quadrangles,
Oakland West, Calif. and Oakland East, Calif., Photorevised 1980.

NORTH

1,000 0 1,000 2,000 3,000 4,000 feet

FIGURE 1.

Location Map

Golden Gate Petroleum
421 23rd Avenue
Oakland, California

Hydro Analysis, Inc.

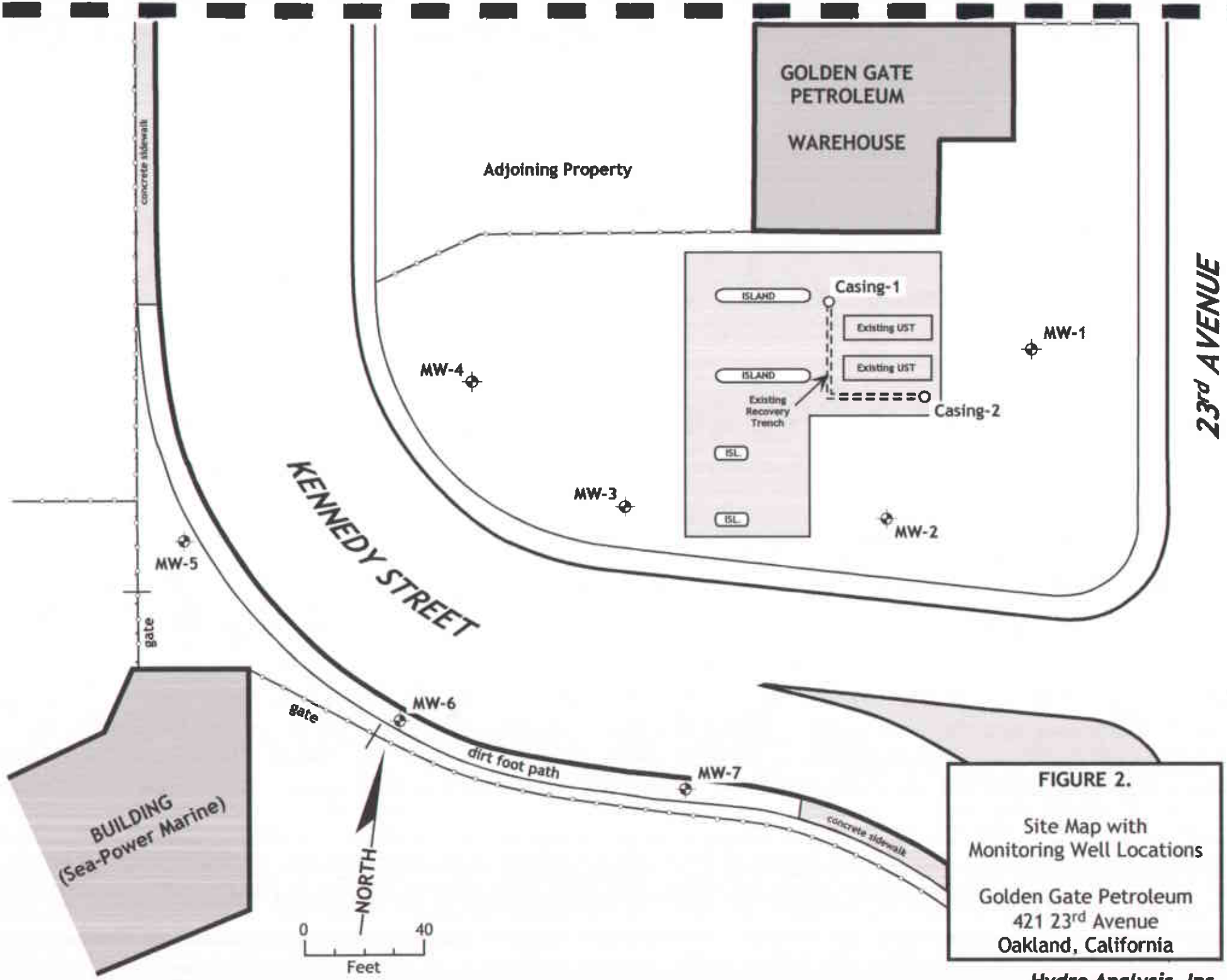
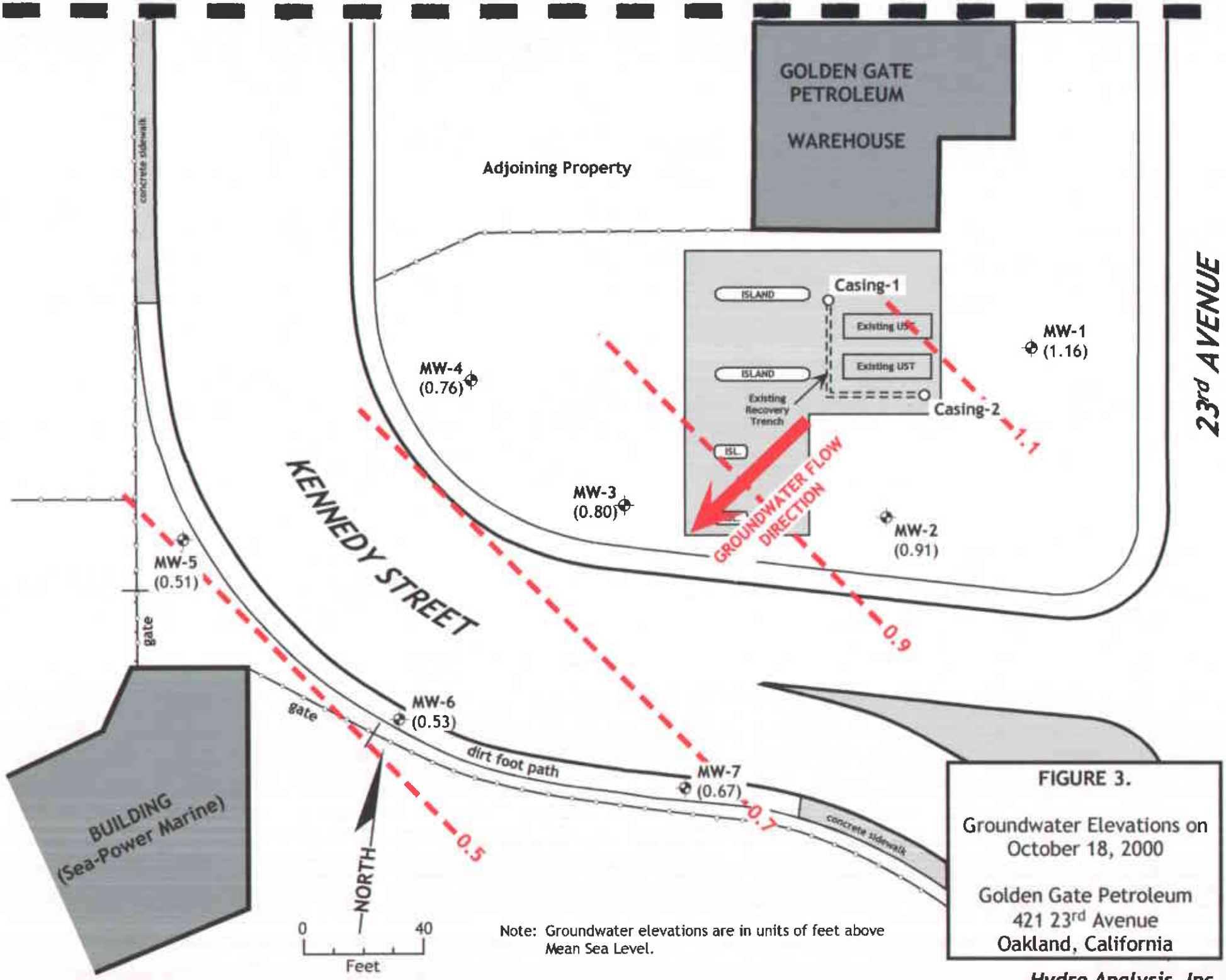


FIGURE 2.

Site Map with
Monitoring Well Locations

Golden Gate Petroleum
421 23rd Avenue
Oakland, California

Hydro Analysis, Inc.



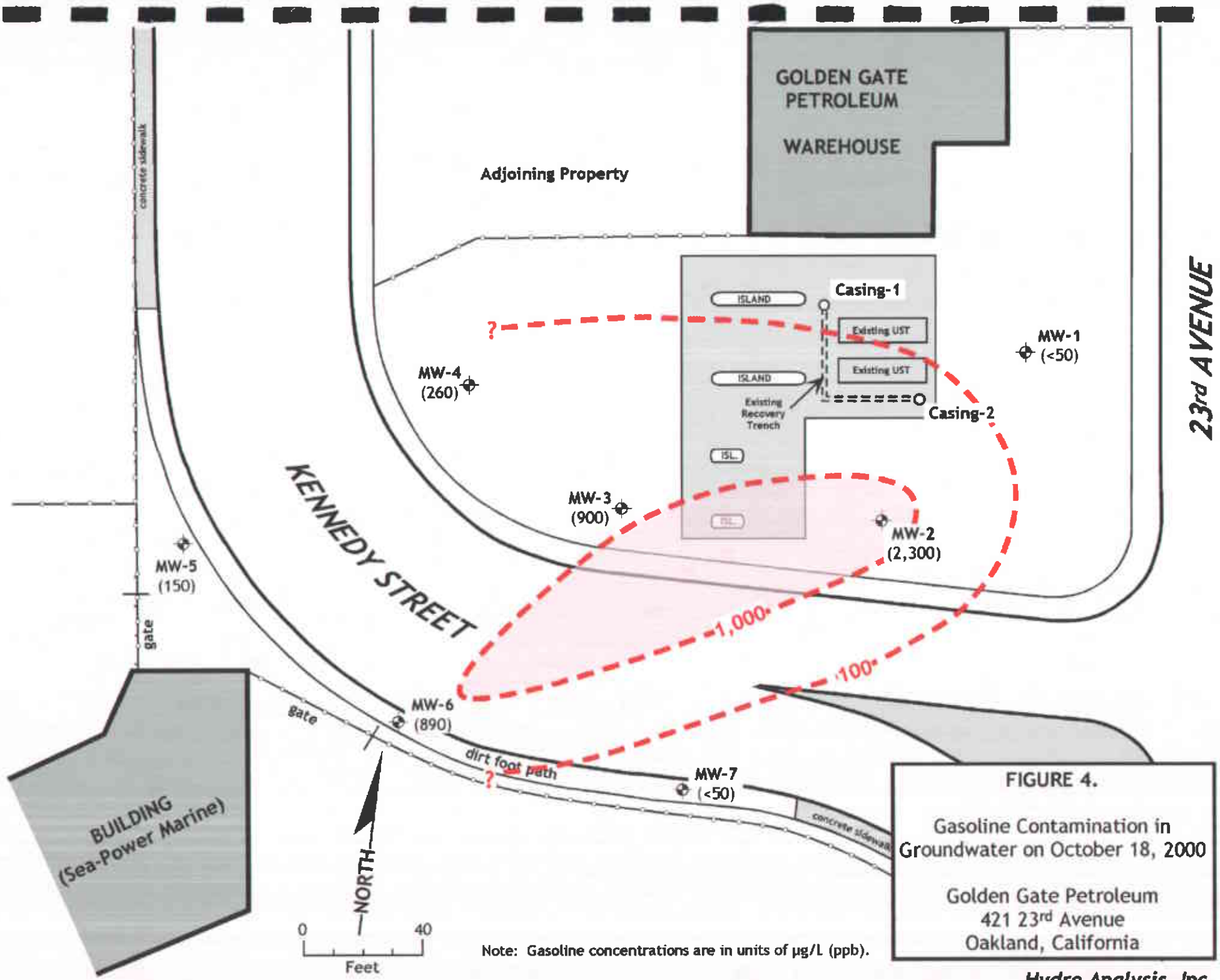
Note: Groundwater elevations are in units of feet above Mean Sea Level.

FIGURE 3.

Groundwater Elevations on October 18, 2000

Golden Gate Petroleum
421 23rd Avenue
Oakland, California

Hydro Analysis, Inc.



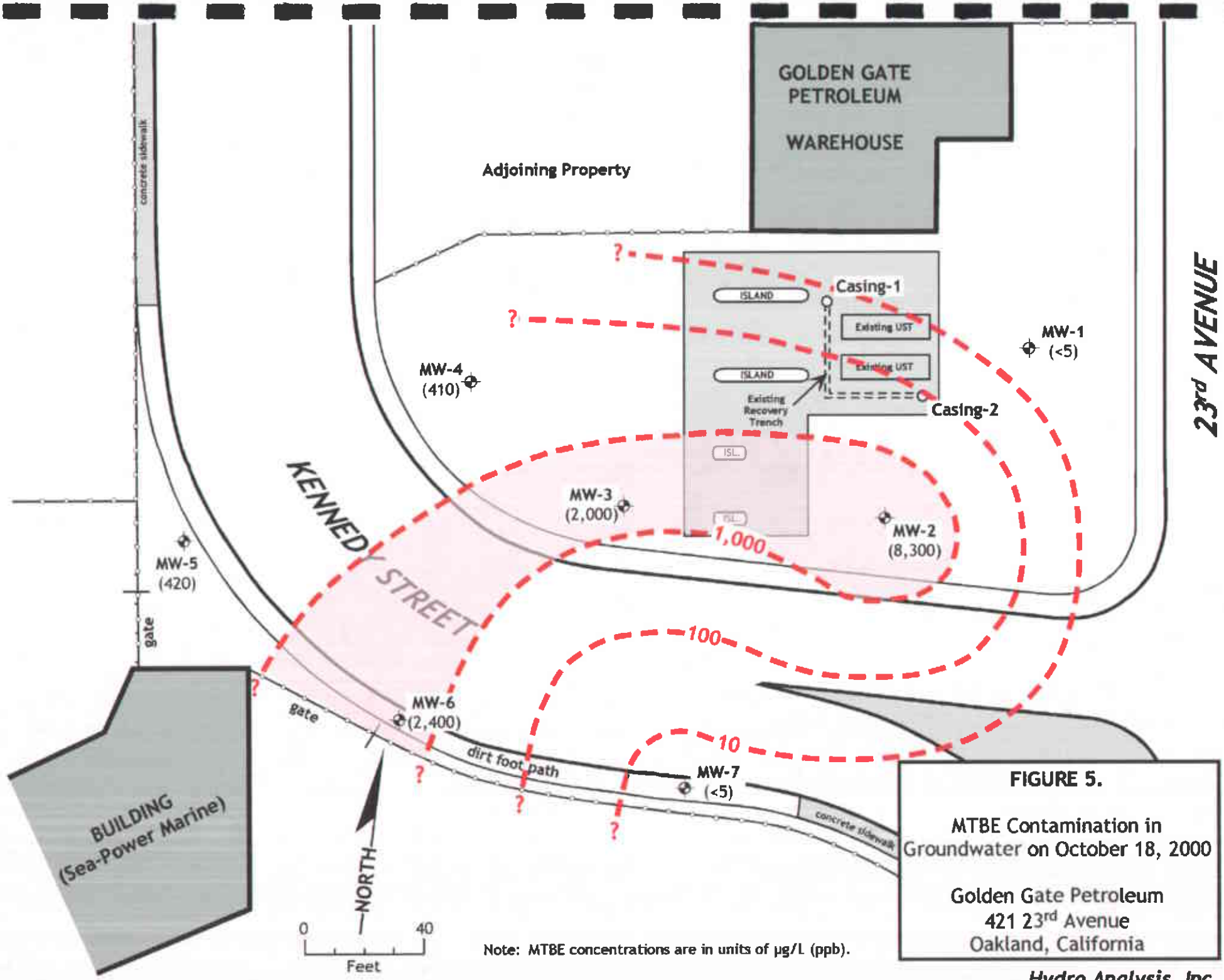
Note: Gasoline concentrations are in units of µg/L (ppb).

FIGURE 4.

Gasoline Contamination in Groundwater on October 18, 2000

Golden Gate Petroleum
421 23rd Avenue
Oakland, California

Hydro Analysis, Inc.



Note: MTBE concentrations are in units of µg/L (ppb).

FIGURE 5.

MTBE Contamination in Groundwater on October 18, 2000

Golden Gate Petroleum
421 23rd Avenue
Oakland, California

Hydro Analysis, Inc.

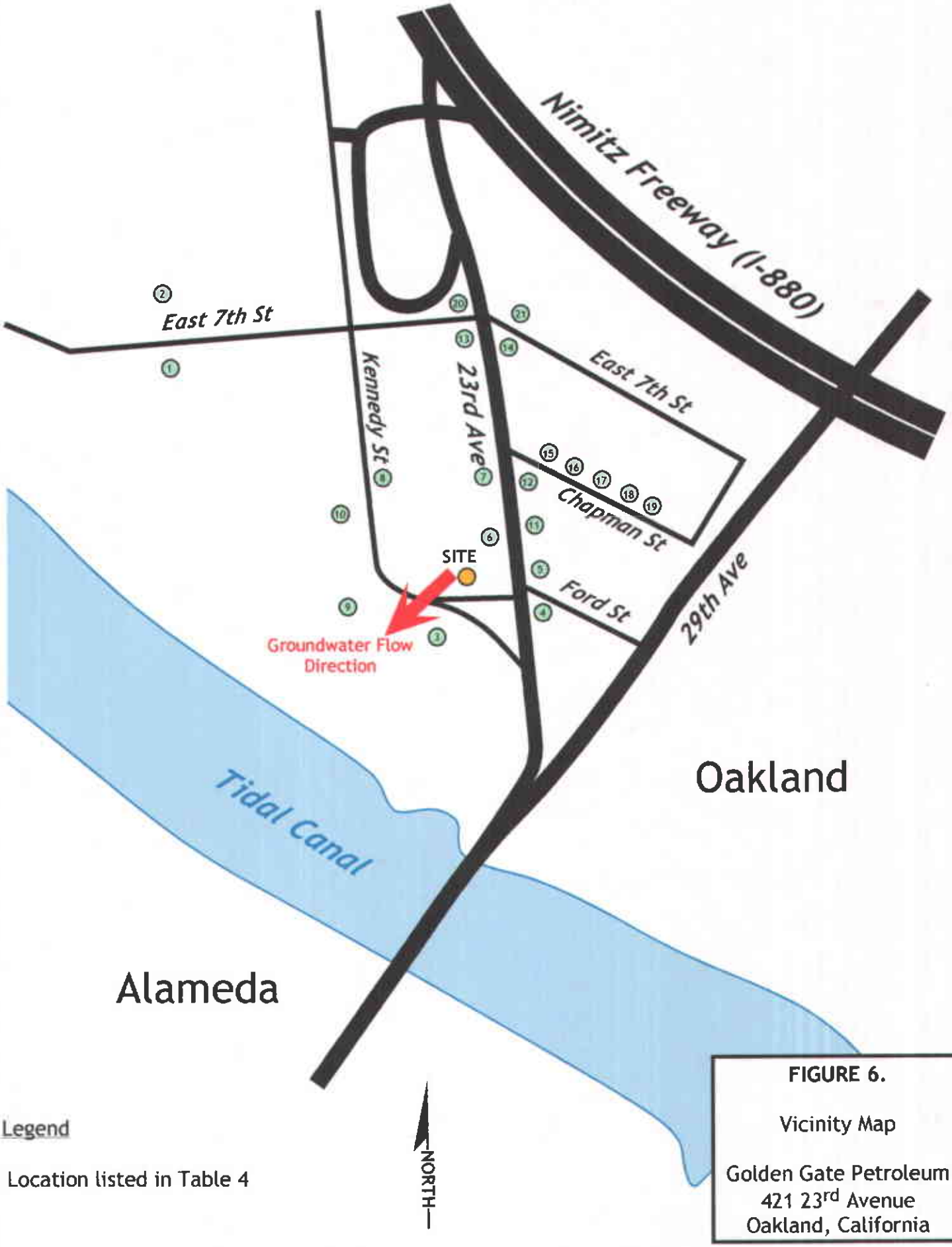


FIGURE 6.

Vicinity Map

Golden Gate Petroleum
421 23rd Avenue
Oakland, California

Hydro Analysis, Inc.

ATTACHMENT A

Correspondence

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

August 25, 2000
StID # 191

Mr. Dennis O'Keefe
Golden Gate Petroleum
1001 Galaxy Way, Suite 308
Concord, CA 94520

Re: Subsurface Investigation at Golden Gate Petroleum, 421 23rd Ave., Oakland CA 94606

Dear Mr. O'Keefe:

Our office has received and reviewed the **Hydro Analysis (HA) August 22, 2000 Well Installation and Quarterly Groundwater Monitoring Report** for the above referenced site. This report details the results of the recent installation of three off-site monitoring wells and their sampling plus sampling from the other four monitoring wells and two tank pit casings. The results indicate that groundwater contamination has migrated in the westerly direction, but concentrations do not appear to be at levels, which would pose a human health or ecological risk. The results illustrate how methyl tertiary butyl ether (MTBE) migrates faster than the rest of the petroleum plume and how its concentration is less attenuated than petroleum.

Our office has the following comments to your consultant's recommendations:

- At this time, you may put on-hold any further off-site subsurface investigation until groundwater concentrations have stabilized or show a consistent trend.
- We concur that quarterly groundwater monitoring should occur on all existing wells. You may discontinue sampling from the tank pit casings.
- We concur that a sensitive receptor survey should be performed. The results of this survey will help determine if additional subsurface investigation will be required.
- We concur that a conduit study should be done to determine if there are any preferential pathways for groundwater migration. This study should be in conjunction with the receptor survey to determine if there is a potential health or ecological risk.
- A human health and ecological risk assessment can be put on-hold at this time. No immediate human health risk appears to exist and until the prior items are done, representative data and exposure pathways are unknown.

8/31/00 verbal approval by GGP

You may contact me at (510) 567-6765 if you have any questions.

Sincerely,

Barney M Chan

Barney M. Chan
Hazardous Materials Specialist

C: B. Chan, files
Mr. K. Alexander, Hydro Analysis, Inc., 11100 San Pablo Ave., Suite 200-A, El Cerrito, CA 94530

comment421 23rd

ATTACHMENT B

Well Sampling Logs

HYDRO ANALYSIS, Inc.

WELL MONITORING DATA SHEET

Project: GGP - 23rd Ave. Date: 10/18/2000

WELL #	DEPTH TO WATER	PRODUCT	WELL DEPTH	PRODUCT REMOVED	WATER REMOVED	COMMENTS
MW-1	8.31'	none	18.91'	—	7.5 gal	
MW-2	7.81'	sheen	19.88'	—	18 gal	
MW-3	8.20'	none	20.14'	—	16 gal	
MW-4	8.54'	none	19.00'	—	9 gal	
MW-5	9.68'	none	19.61'	—	6 gal	
MW-6	9.33'	none	19.63'	—	9 gal	
MW-7	7.93'	none	19.54'	—	6 gal	

WELL SAMPLING LOG

Site Location: GGP - 23rd Ave
Well Number: MW-5
Weather: Sunny, 60°-70°
Sampling Personnel: R Wilson

Page: 1 of 7
Date: 10/18/2000
Time Began: 10:09
Completed: 10:22

EVACUATION DATA

Description of Measuring Point (MP): T.O.C.

Total Sounded Depth of Well Below MP	19.34' ± 0.27'	Sample Collected	
- Depth to Water Below MP	9.68'	Volatile Organics (VOA's)	6
= Water Column in Well	9.93'	1 Liter Amber Glass	2
x Casing Diameter Multiplier	0.169 (2")	Polyethylene (plastic)	
= Gallons in Casing	1.68	Other	
Gallons Pumped Prior to Sampling	6	Samples Filtered	no

Evacuation Method:		Sample Method:	
PVC Bailer	X	Evacuation Bailer	X
Acrillyc Bailer		Disposable Bailer	
Pump		Pump	
Other		Direct	

SAMPLING DATA / FIELD PARAMETERS

Inspection for Free Product: None, Clear
(thickness to 0.01 foot, if any)

Time	10:12	10:16	10:19	10:22	
Gals Removed	1.5	3	4.5	6	
Temperature	21.7	21.6	21.3	21.3	
Conductivity	659	758	780	796	
pH	6.69	6.63	6.64	6.65	
Color / Odor	Tan	Tan	Tan	Tan	
Turbidity	high	high	high	high	
Other					

Comments:

WELL SAMPLING LOG

Site Location: GGP - 23rd Ave
Well Number: MW-6
Weather: Sunny, 60°-70°
Sampling Personnel: K Wilson

Page: 2 of 7
Date: 10/18/2000
Time Began: 11:06
Completed: 11:26

EVACUATION DATA

Description of Measuring Point (MP): T.O.C.

Total Sounded Depth of Well Below MP	19.36' + 0.27'		
- Depth to Water Below MP	9.33'		
= Water Column in Well	10.30'		
x Casing Diameter Multiplier	0.169	2"	
= Gallons in Casing	1.74		
Gallons Pumped Prior to Sampling	9		

Sample Collected

Volatile Organics (VOA's)	6
1 Liter Amber Glass	2
Polyethylene (plastic)	
Other	
Samples Filtered	no

Evacuation Method:		Sample Method:	
PVC Bailer	X	Evacuation Bailer	X
Acrillyc Bailer		Disposable Bailer	
Pump		Pump	
Other		Direct	

SAMPLING DATA / FIELD PARAMETERS

Inspection for Free Product: None, clear
(thickness to 0.01 foot, if any)

Time	11:09	11:13	11:17	11:20	11:23	11:26
Gals Removed	1.5	3	4.5	6	7.5	9
Temperature	20.9	20.6	20.5	20.4	20.4	20.2
Conductivity (non-potable)	4789	4968	6.08×10^3	6.81×10^3	6.26×10^3	6.48×10^3
pH	6.50	6.69	6.71	6.72	6.78	6.80
Color / Odor	Tan	Tan	Tan	Tan	Tan	Tan
Turbidity	high	high	high	high	high	high
Other						

Comments:

WELL SAMPLING LOG

Site Location: GGP - 23rd Ave
Well Number: MW-7
Weather: Sunny, 65°-75°
Sampling Personnel: R Wilson

Page: 3 of 7
Date: 10/18/2000
Time Began: 12:02
Completed: 12:14

EVACUATION DATA

Description of Measuring Point (MP): T.O.C.

Total Sounded Depth of Well Below MP	19.27' ± 0.27'	Sample Collected	
- Depth to Water Below MP	7.93'	Volatile Organics (VOA's)	6
= Water Column in Well	11.61'	1 Liter Amber Glass	2
x Casing Diameter Multiplier	0.169 (2")	Polyethylene (plastic)	
= Gallons in Casing	1.96	Other	
Gallons Pumped Prior to Sampling	6	Samples Filtered	no

Evacuation Method:		Sample Method:	
PVC Bailer	X	Evacuation Bailer	X
Acrillyc Bailer		Disposable Bailer	
Pump		Pump	
Other		Direct	

SAMPLING DATA / FIELD PARAMETERS

Inspection for Free Product: (thickness to 0.01 foot, if any) None, clear

Time	12:05	12:08	12:11	12:14	
Gals Removed	1.5	3	4.5	6	
Temperature	22.1	21.8	21.8	21.8	
Conductivity	10.95×10^3	10.77×10^3	10.62×10^3	10.64×10^3	
pH	6.76	6.88	6.92	6.95	
Color / Odor	Tan	Tan	Tan	Tan	
Turbidity	med	med	high	high	
Other					

Comments:

WELL SAMPLING LOG

Site Location: GGP- 23rd Ave.
Well Number: MW-1
Weather: Sunny 65°-75°
Sampling Personnel: R Wilson

Page: 4 of 7
Date: 10/18/2000
Time Began: 13:03
Completed: 13:18

EVACUATION DATA

Description of Measuring Point (MP): T.O.C.

Total Sounded Depth of Well Below MP	18.64' +0.27'		Sample Collected
- Depth to Water Below MP	8.31'	Volatile Organics (VOA's)	5
= Water Column in Well	10.60'	1 Liter Amber Glass	2
x Casing Diameter Multiplier	0.169 2"	Polyethylene (plastic)	
= Gallons in Casing	1.79	Other	
Gallons Pumped Prior to Sampling	7.5	Samples Filtered	no

Evacuation Method:		Sample Method:	
PVC Bailer	X	Evacuation Bailer	X
Acrillyc Bailer		Disposable Bailer	
Pump		Pump	
Other		Direct	

SAMPLING DATA / FIELD PARAMETERS

Inspection for Free Product: (thickness to 0.01 foot, if any) None, clear

Time	13:06	13:09	13:12	13:15	13:18
Gals Removed	1.5	3	4.5	6	7.5
Temperature	24.0	24.0	23.7	23.5	23.1
Conductivity	1120	1077	1035	978	958
pH	7.77	7.55	7.41	7.37	7.33
Color / Odor	Tan	Tan	Tan	Tan	Tan
Turbidity	med	high	high	high	high
Other					

Comments:

WELL SAMPLING LOG

Site Location: GGP - 23rd Ave.
Page: 5 of 7

Well Number: MW-4
Date: 10/18/2000

Weather: Sunny, 65°-75°
Time Began: 14:50

Sampling Personnel: B Wilson
Completed: 15:08

EVACUATION DATA

Description of Measuring Point (MP): T.O.C.

Total Sounded Depth of Well Below MP	18.73' ± 0.27'		Sample Collected
- Depth to Water Below MP	8.54'	Volatile Organics (VOA's)	5
= Water Column in Well	10.46'	1 Liter Amber Glass	2
x Casing Diameter Multiplier	0.169 (2")	Polyethylene (plastic)	
= Gallons in Casing	1.77	Other	
Gallons Pumped Prior to Sampling	9	Samples Filtered	no

Evacuation Method:		Sample Method:	
PVC Bailer	X	Evacuation Bailer	X
Acrillyc Bailer		Disposable Bailer	
Pump		Pump	
Other		Direct	

SAMPLING DATA / FIELD PARAMETERS

Inspection for Free Product: (thickness to 0.01 foot, if any) None, Clear

Time	14:53	14:56	14:59	15:02	15:05	15:08
Gals Removed	1.5	3	4.5	6	7.5	9
Temperature	23.9	23.8	23.8	23.7	23.7	23.6
Conductivity	937	949	966	959	969	968
pH	7.20	7.00	6.81	6.71	6.69	6.69
Color / Odor	Tan	Tan	Tan	Tan	Tan	Tan
Turbidity	high	high	high	high	high	high
Other						

Comments:

WELL SAMPLING LOG

Site Location: GGP - 23rd Ave
Page: 6 of 7

Well Number: MW-3
Date: 10/18/2000

Weather: Sunny, 65°-75°
Time Began: 15:21

Sampling Personnel: R Wilson
Completed: 15:45

EVACUATION DATA

Description of Measuring Point (MP): T.O.C.

Total Sounded Depth of Well Below MP	19.87' ±0.27'		Sample Collected
- Depth to Water Below MP	8.20'		Volatile Organics (VOA's) 5
= Water Column in Well	11.94'		1 Liter Amber Glass 2
x Casing Diameter Multiplier	0.653	4"	Polyethylene (plastic)
= Gallons in Casing	7.80		Other
Gallons Pumped Prior to Sampling	16		Samples Filtered no

Evacuation Method:
- PVC Bailer: X
- Acrillyc Bailer:
- Pump:
- Other:

Sample Method:
- Evacuation Bailer: X
- Disposable Bailer:
- Pump:
- Direct:

SAMPLING DATA / FIELD PARAMETERS

Inspection for Free Product (thickness to 0.01 foot, if any): None, Clear

Time	15:26	15:30	15:35	Sample 15:45	
Gals Removed	6	12	16	16	
Temperature	23.6	22.6	22.0	21.8	
Conductivity	1019	1027	997	1015	
pH	6.86	6.94	7.03	7.25	
Color / Odor	Tan	Tan	Tan	Tan	
Turbidity	med	med	high	med	
Other			dewatered		

Comments:

WELL SAMPLING LOG

Site Location: GGP - 23rd Ave.
Well Number: MW-2
Weather: Sunny, 65°-75°
Sampling Personnel: R Wilson

Page: 7 of 7
Date: 10/18/2000
Time Began: 16:13
Completed: 16:39

EVACUATION DATA

Description of Measuring Point (MP): T.O.C.

Total Sounded Depth of Well Below MP: 19.61' ± 0.27'
- Depth to Water Below MP: 7.81'
= Water Column in Well: 12.07'
x Casing Diameter Multiplier: 0.653 4"
= Gallons in Casing: 7.88
Gallons Pumped Prior to Sampling: 18

Sample Collected
Volatile Organics (VOA's): 5
1 Liter Amber Glass: 2
Polyethylene (plastic):
Other:
Samples Filtered: no

Evacuation Method:
PVC Bailer: X
Acrilyc Bailer:
Pump:
Other:

Sample Method:
Evacuation Bailer: X
Disposable Bailer:
Pump:
Direct:

SAMPLING DATA / FIELD PARAMETERS

Inspection for Free Product: Sheen, Clear
(thickness to 0.01 foot, if any)

Time	16:18	16:23	16:29	16:39 Sample	
Gals Removed	6	12	18	18	
Temperature	24.1	23.4	23.5	23.5	
Conductivity	1074	1133	1147	1049	
pH	7.14	7.10	7.08	6.99	
Color / Odor	Tan	Tan	Tan	Tan	
Turbidity	med	med	high	low	
Other	Sheen	Sheen	Sheen dewatered	—	

Comments:

ATTACHMENT C

Groundwater Analytical Results

CHROMALAB, INC.
Environmental Services (SDB)

Submission #: 2000-10-0453
Date: November 6, 2000

Hydro Analysis
11100 San Pablo Ave. Suite 200-A
El Cerrito, CA 94530

Attn.: Mr. Gary Aguiar

Project: GGP-23RD

Dear Mr. Aguiar,

Attached is our report for your samples received on Friday October 20, 2000
This report has been reviewed and approved for release. Reproduction of this report is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after December 4, 2000 unless you have requested otherwise. We appreciate the opportunity to be of service to you.
If you have any questions, please call me at (925) 484-1919. You can also contact me via email.
My email address is: vvancil@chromalab.com

Sincerely,

Vincent Vancil

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-10-0453

MTBE - Volatile Organics by GC/MS

Hydro Analysis

Attn: Gary Aguiar

Project #:

11100 San Pablo Ave. Suite 200-A
El Cerrito, CA 94530

Phone: (510) 620-0891 Fax: (510) 620-0894

Project: GGP-23RD

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	10/18/2000 13:18	1
MW-2	Water	10/18/2000 16:40	2
MW-3	Water	10/18/2000 15:45	3
MW-4	Water	10/18/2000 15:08	4
MW-5	Water	10/18/2000 10:22	5
MW-6	Water	10/18/2000 11:26	6
MW-7	Water	10/18/2000 12:14	7

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8260A
Prep Method: 5030

MTBE - Volatile Organics by GC/MS

Sample ID:	**MW-1**	Lab Sample ID:	**2000-10-0453-001**
Project:	GGP-23RD	Received:	10/20/2000 17:36
		Extracted:	11/01/2000 13:15
Sampled:	10/18/2000 13:18	QC-Batch:	2000/11/01-01.09
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/L	1.00	11/01/2000 13:15	
Surrogate(s)						
1,2-Dichloroethane-d4	105.5	76-114	%	1.00	11/01/2000 13:15	

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8260A
Prep Method: 5030

MTBE - Volatile Organics by GC/MS

Sample ID: **MW-2**
Project: GGP-23RD
Sampled: 10/18/2000 16:40
Matrix: Water

Lab Sample ID: **2000-10-0453-002**
Received: 10/20/2000 17:36
Extracted: 10/31/2000 16:46
QC-Batch: 2000/10/31-01.09

Sample/Analysis Flag o (See Legend & Note section)

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	8300	500	ug/L	100.00	10/31/2000 16:46	
Surrogate(s)						
1,2-Dichloroethane-d4	109.7	76-114	%	1.00	10/31/2000 16:46	

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8260A
Prep Method: 5030

MTBE - Volatile Organics by GC/MS

Sample ID: **MW-3**
Project: GGP-23RD
Sampled: 10/18/2000 15:45
Matrix: Water

Lab Sample ID: **2000-10-0453-003**
Received: 10/20/2000 17:36
Extracted: 10/31/2000 17:25
QC-Batch: 2000/10/31-01.09

Sample/Analysis Flag o (See Legend & Note section)

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	2000	250	ug/L	50.00	10/31/2000 17:25	
Surrogate(s)						
1,2-Dichloroethane-d4	112.9	76-114	%	1.00	10/31/2000 17:25	

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8260A
Prep Method: 5030

MTBE - Volatile Organics by GC/MS

Sample ID: **MW-4**
Project: GGP-23RD
Sampled: 10/18/2000 15:08
Matrix: Water

Lab Sample ID: **2000-10-0453-004**
Received: 10/20/2000 17:36
Extracted: 10/31/2000 19:59
QC-Batch: 2000/10/31-01.09

Sample/Analysis Flag o (See Legend & Note section)

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	410	25	ug/L	5.00	10/31/2000 19:59	
Surrogate(s)						
1,2-Dichloroethane-d4	108.7	76-114	%	1.00	10/31/2000 19:59	

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8260A
Prep Method: 5030

MTBE - Volatile Organics by GC/MS

Sample ID: **MW-5**
Project: GGP-23RD
Sampled: 10/18/2000 10:22
Matrix: Water

Lab Sample ID: **2000-10-0453-005**
Received: 10/20/2000 17:36
Extracted: 10/31/2000 20:37
QC-Batch: 2000/10/31-01.09

Sample/Analysis Flag o (See Legend & Note section)

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	420	25	ug/L	5.00	10/31/2000 20:37	
Surrogate(s)						
1,2-Dichloroethane-d4	108.0	76-114	%	1.00	10/31/2000 20:37	

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8260A
Prep Method: 5030

MTBE - Volatile Organics by GC/MS

Sample ID: **MW-6**
Project: GGP-23RD
Sampled: 10/18/2000 11:26
Matrix: Water

Lab Sample ID: **2000-10-0453-006**
Received: 10/20/2000 17:36
Extracted: 11/01/2000 13:54
QC-Batch: 2000/11/01-01.09

Sample/Analysis Flag o (See Legend & Note section)

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	2400	250	ug/L	50.00	11/01/2000 13:54	
Surrogate(s)						
1,2-Dichloroethane-d4	107.0	76-114	%	1.00	11/01/2000 13:54	

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8260A
Prep Method: 5030

MTBE - Volatile Organics by GC/MS

Sample ID: **MW-7**
Project: GGP-23RD
Sampled: 10/18/2000 12:14
Matrix: Water

Lab Sample ID: **2000-10-0453-007**
Received: 10/20/2000 17:36
Extracted: 10/31/2000 18:04
QC-Batch: 2000/10/31-01.09

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/L	1.00	10/31/2000 18:04	
Surrogate(s)						
1,2-Dichloroethane-d4	114.7	76-114	%	1.00	10/31/2000 18:04	

To: **Hydro Analysis** Test Method: 8260A
Attn.: Gary Aguiar Prep Method: 5030

Batch QC Report
MTBE - Volatile Organics by GC/MS

Method Blank **Water** **QC Batch # 2000/10/31-01.09**

MB: 2000/10/31-01.09-001 Date Extracted: 10/31/2000 13:22

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Benzene	ND	0.5	ug/L	10/31/2000 13:22	
Chlorobenzene	ND	0.5	ug/L	10/31/2000 13:22	
1,1-Dichloroethene	ND	0.5	ug/L	10/31/2000 13:22	
Toluene	ND	0.5	ug/L	10/31/2000 13:22	
Trichloroethene	ND	0.5	ug/L	10/31/2000 13:22	
MTBE	ND	5.0	ug/L	10/31/2000 13:22	
Surrogate(s)					
1,2-Dichloroethane-d4	98.8	76-114	%	10/31/2000 13:22	

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8260A
Prep Method: 5030

Batch QC Report

MTBE - Volatile Organics by GC/MS

Method Blank | **Water** | **QC Batch # 2000/11/01-01.09**

MB: 2000/11/01-01.09-001 | Date Extracted: 11/01/2000 11:58

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Benzene	ND	0.5	ug/L	11/01/2000 11:58	
Chlorobenzene	ND	0.5	ug/L	11/01/2000 11:58	
1,1-Dichloroethene	ND	0.5	ug/L	11/01/2000 11:58	
Toluene	ND	0.5	ug/L	11/01/2000 11:58	
Trichloroethene	ND	0.5	ug/L	11/01/2000 11:58	
MTBE	ND	5.0	ug/L	11/01/2000 11:58	
Surrogate(s)					
1,2-Dichloroethane-d4	102.4	76-114	%	11/01/2000 11:58	

To: **Hydro Analysis**
Attn: Gary Aguiar

Test Method: 8260A
Prep Method: 5030

Batch QC Report

MTBE - Volatile Organics by GC/MS

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/10/31-01.09**

LCS: 2000/10/31-01.09-002 Extracted: 10/31/2000 11:57 Analyzed 10/31/2000 11:57
LCSD: 2000/10/31-01.09-003 Extracted: 10/31/2000 12:44 Analyzed 10/31/2000 12:44

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Benzene	51.0	44.9	50.0	50.0	102.0	89.8	12.7	69-129	20		
Chlorobenzene	56.5	49.4	50.0	50.0	113.0	98.8	13.4	61-121	20		
1,1-Dichloroethene	50.0	44.9	50.0	50.0	100.0	89.8	10.7	65-125	20		
Toluene	51.7	45.1	50.0	50.0	103.4	90.2	13.6	70-130	20		
Trichloroethene	46.2	40.2	50.0	50.0	92.4	80.4	13.9	74-134	20		
Surrogate(s)											
1,2-Dichloroethane-d4	476	498	500	500	95.2	99.6		76-114			

To: **Hydro Analysis**
Attn: Gary Aguiar

Test Method: 8260A
Prep Method: 5030

Batch QC Report

MTBE - Volatile Organics by GC/MS

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/11/01-01.09**

LCS: 2000/11/01-01.09-002 Extracted: 11/01/2000 09:28 Analyzed 11/01/2000 09:28
LCSD: 2000/11/01-01.09-003 Extracted: 11/01/2000 12:37 Analyzed 11/01/2000 12:37

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Benzene	47.6	46.8	50.0	50.0	95.2	93.6	1.7	69-129	20		
Chlorobenzene	54.7	53.0	50.0	50.0	109.4	106.0	3.2	61-121	20		
1,1-Dichloroethene	48.4	45.4	50.0	50.0	96.8	90.8	6.4	65-125	20		
Toluene	47.0	46.7	50.0	50.0	94.0	93.4	0.6	70-130	20		
Trichloroethene	42.8	42.5	50.0	50.0	85.6	85.0	0.7	74-134	20		
Surrogate(s)											
1,2-Dichloroethane-d4	488	524	500	500	97.6	104.8		76-114			

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8260A
Prep Method: 5030

Batch QC Report

MTBE - Volatile Organics by GC/MS

Matrix Spike (MS / MSD) **Water** **QC Batch # 2000/10/31-01.09**

Sample ID: **MW-7** Lab Sample ID: 2000-10-0453-007

MS: 2000/10/31-01.09-004 Extracted: 10/31/2000 18:42 Analyzed: 10/31/2000 18:42 Dilution: 1.0
MSD: 2000/10/31-01.09-005 Extracted: 10/31/2000 19:20 Analyzed: 10/31/2000 19:20 Dilution: 1.0

Compound	Conc. [ug/L]			Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD	[%]	Recovery	RPD	MS	MSD
Benzene	54.4	54.2	ND	50.0	50.0	108.8	108.4	0.4	69-129	20		
Chlorobenzene	60.0	58.7	ND	50.0	50.0	120.0	117.4	2.2	61-121	20		
1,1-Dichloroethene	53.9	53.4	ND	50.0	50.0	107.8	106.8	0.9	65-125	20		
Toluene	54.4	54.3	ND	50.0	50.0	108.8	108.6	0.2	70-130	20		
Trichloroethene	49.5	47.7	ND	50.0	50.0	99.0	95.4	3.7	74-134	20		
Surrogate(s)												
1,2-Dichloroethane-d4	544	533		500	500	108.8	106.6		76-114			

To: **Hydro Analysis**
Attn: Gary Aguiar

Test Method: 8260A
Prep Method: 5030

Legend & Notes

MTBE - Volatile Organics by GC/MS

Analysis Flags

o Reporting limits were raised due to high level of analyte present in the sample.

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-10-0453

Gas/BTEX

Hydro Analysis	☒ 11100 San Pablo Ave. Suite 200-A El Cerrito, CA 94530
Attn: Gary Aguiar	Phone: (510) 620-0891 Fax: (510) 620-0894
Project #:	Project: GGP-23RD

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	10/18/2000 13:18	1
MW-2	Water	10/18/2000 16:40	2
MW-3	Water	10/18/2000 15:45	3
MW-4	Water	10/18/2000 15:08	4
MW-5	Water	10/18/2000 10:22	5
MW-6	Water	10/18/2000 11:26	6
MW-7	Water	10/18/2000 12:14	7

CHROMALAB, INC.
Environmental Services (SDB)

Submission #: 2000-10-0453

To: **Hydro Analysis**

Attn.: Gary Aguiar

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-1**	Lab Sample ID:	**2000-10-0453-001**
Project:	GGP-23RD	Received:	10/20/2000 17:36
		Extracted:	10/27/2000 15:17
Sampled:	10/18/2000 13:18	QC-Batch:	2000/10/27-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	10/27/2000 15:17	
Benzene	ND	0.50	ug/L	1.00	10/27/2000 15:17	
Toluene	ND	0.50	ug/L	1.00	10/27/2000 15:17	
Ethyl benzene	ND	0.50	ug/L	1.00	10/27/2000 15:17	
Xylene(s)	ND	0.50	ug/L	1.00	10/27/2000 15:17	
Surrogate(s)						
Trifluorotoluene	87.5	58-124	%	1.00	10/27/2000 15:17	
4-Bromofluorobenzene-FID	78.3	50-150	%	1.00	10/27/2000 15:17	

To: **Hydro Analysis**

Attn.: Gary Aguiar

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-2**	Lab Sample ID:	**2000-10-0453-002**
Project:	GGP-23RD	Received:	10/20/2000 17:36
		Extracted:	10/31/2000 18:10
Sampled:	10/18/2000 16:40	QC-Batch:	2000/10/31-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	2300	500	ug/L	10.00	10/31/2000 18:10	g
Benzene	ND	5.0	ug/L	10.00	10/31/2000 18:10	
Toluene	ND	5.0	ug/L	10.00	10/31/2000 18:10	
Ethyl benzene	ND	5.0	ug/L	10.00	10/31/2000 18:10	
Xylene(s)	ND	5.0	ug/L	10.00	10/31/2000 18:10	
Surrogate(s)						
Trifluorotoluene	87.5	58-124	%	10.00	10/31/2000 18:10	
4-Bromofluorobenzene-FID	84.2	50-150	%	10.00	10/31/2000 18:10	

To: **Hydro Analysis**

Attn.: Gary Aguiar

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-3**	Lab Sample ID:	**2000-10-0453-003**
Project:	GGP-23RD	Received:	10/20/2000 17:36
		Extracted:	10/31/2000 18:41
Sampled:	10/18/2000 15:45	QC-Batch:	2000/10/31-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	900	500	ug/L	10.00	10/31/2000 18:41	g
Benzene	ND	5.0	ug/L	10.00	10/31/2000 18:41	
Toluene	ND	5.0	ug/L	10.00	10/31/2000 18:41	
Ethyl benzene	ND	5.0	ug/L	10.00	10/31/2000 18:41	
Xylene(s)	ND	5.0	ug/L	10.00	10/31/2000 18:41	
Surrogate(s)						
Trifluorotoluene	88.2	58-124	%	10.00	10/31/2000 18:41	
4-Bromofluorobenzene-FID	81.5	50-150	%	10.00	10/31/2000 18:41	

To: **Hydro Analysis**

Attn.: Gary Aguiar

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID: **MW-4**

Project: GGP-23RD

Sampled: 10/18/2000 15:08

Matrix: Water

Lab Sample ID: **2000-10-0453-004**

Received: 10/20/2000 17:36

Extracted: 10/27/2000 17:47

QC-Batch: 2000/10/27-01.02

Sample/Analysis Flag Irn (See Legend & Note section)

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	260	250	ug/L	5.00	10/27/2000 17:47	g
Benzene	ND	2.5	ug/L	5.00	10/27/2000 17:47	
Toluene	ND	2.5	ug/L	5.00	10/27/2000 17:47	
Ethyl benzene	ND	2.5	ug/L	5.00	10/27/2000 17:47	
Xylene(s)	ND	2.5	ug/L	5.00	10/27/2000 17:47	
Surrogate(s)						
Trifluorotoluene	95.4	58-124	%	1.00	10/27/2000 17:47	
4-Bromofluorobenzene-FID	78.4	50-150	%	1.00	10/27/2000 17:47	

To: **Hydro Analysis**

Attn.: Gary Aguiar

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-5**	Lab Sample ID:	**2000-10-0453-005**
Project:	GGP-23RD	Received:	10/20/2000 17:36
		Extracted:	10/27/2000 18:18
Sampled:	10/18/2000 10:22	QC-Batch:	2000/10/27-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	150	50	ug/L	1.00	10/27/2000 18:18	g
Benzene	ND	0.50	ug/L	1.00	10/27/2000 18:18	
Toluene	ND	0.50	ug/L	1.00	10/27/2000 18:18	
Ethyl benzene	ND	0.50	ug/L	1.00	10/27/2000 18:18	
Xylene(s)	ND	0.50	ug/L	1.00	10/27/2000 18:18	
Surrogate(s)						
Trifluorotoluene	89.3	58-124	%	1.00	10/27/2000 18:18	
4-Bromofluorobenzene-FID	80.6	50-150	%	1.00	10/27/2000 18:18	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-10-0453

To: **Hydro Analysis**

Attn.: Gary Aguiar

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-6**	Lab Sample ID:	**2000-10-0453-006**
Project:	GGP-23RD	Received:	10/20/2000 17:36
		Extracted:	10/27/2000 18:49
Sampled:	10/18/2000 11:26	QC-Batch:	2000/10/27-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	890	250	ug/L	5.00	10/27/2000 18:49	
Benzene	5.6	2.5	ug/L	5.00	10/27/2000 18:49	
Toluene	ND	2.5	ug/L	5.00	10/27/2000 18:49	
Ethyl benzene	ND	2.5	ug/L	5.00	10/27/2000 18:49	
Xylene(s)	3.1	2.5	ug/L	5.00	10/27/2000 18:49	
Surrogate(s)						
Trifluorotoluene	85.5	58-124	%	5.00	10/27/2000 18:49	
4-Bromofluorobenzene-FID	75.8	50-150	%	5.00	10/27/2000 18:49	

To: **Hydro Analysis**

Attn.: Gary Aguiar

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-7**	Lab Sample ID:	**2000-10-0453-007**
Project:	GGP-23RD	Received:	10/20/2000 17:36
		Extracted:	10/27/2000 19:21
Sampled:	10/18/2000 12:14	QC-Batch:	2000/10/27-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	10/27/2000 19:21	
Benzene	ND	0.50	ug/L	1.00	10/27/2000 19:21	
Toluene	ND	0.50	ug/L	1.00	10/27/2000 19:21	
Ethyl benzene	ND	0.50	ug/L	1.00	10/27/2000 19:21	
Xylene(s)	ND	0.50	ug/L	1.00	10/27/2000 19:21	
Surrogate(s)						
Trifluorotoluene	88.9	58-124	%	1.00	10/27/2000 19:21	
4-Bromofluorobenzene-FID	80.4	50-150	%	1.00	10/27/2000 19:21	

To: **Hydro Analysis**

Attn.: Gary Aguiar

Test Method: 8015M
8020
8021B

Prep Method: 5030

Batch QC Report
Gas/BTEX

Method Blank | **Water** | **QC Batch # 2000/10/27-01.02**

MB: 2000/10/27-01.02-001

Date Extracted: 10/27/2000 03:52

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	10/27/2000 03:52	
Benzene	ND	0.5	ug/L	10/27/2000 03:52	
Toluene	ND	0.5	ug/L	10/27/2000 03:52	
Ethyl benzene	ND	0.5	ug/L	10/27/2000 03:52	
Xylene(s)	ND	0.5	ug/L	10/27/2000 03:52	
Surrogate(s)					
Trifluorotoluene	80.0	58-124	%	10/27/2000 03:52	
4-Bromofluorobenzene-FID	79.8	50-150	%	10/27/2000 03:52	

To: **Hydro Analysis**

Attn.: Gary Aguiar

Test Method: 8015M
8020
8021B

Prep Method: 5030

Batch QC Report
Gas/BTEX

Method Blank | **Water** | **QC Batch # 2000/10/27-01.05**

MB: 2000/10/27-01.05-001

Date Extracted: 10/27/2000 05:12

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	10/27/2000 05:12	
Benzene	ND	0.5	ug/L	10/27/2000 05:12	
Toluene	ND	0.5	ug/L	10/27/2000 05:12	
Ethyl benzene	ND	0.5	ug/L	10/27/2000 05:12	
Xylene(s)	ND	0.5	ug/L	10/27/2000 05:12	
Surrogate(s)					
Trifluorotoluene	94.8	58-124	%	10/27/2000 05:12	
4-Bromofluorobenzene-FID	79.0	50-150	%	10/27/2000 05:12	

To: **Hydro Analysis**

Attn.: Gary Aguiar

Test Method: 8015M
8020
8021B

Prep Method: 5030

Batch QC Report
Gas/BTEX

Method Blank | **Water** | **QC Batch # 2000/10/31-01.02**

MB: 2000/10/31-01.02-001

Date Extracted: 10/31/2000 06:41

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	10/31/2000 06:41	
Benzene	ND	0.5	ug/L	10/31/2000 06:41	
Toluene	ND	0.5	ug/L	10/31/2000 06:41	
Ethyl benzene	ND	0.5	ug/L	10/31/2000 06:41	
Xylene(s)	ND	0.5	ug/L	10/31/2000 06:41	
Surrogate(s)					
Trifluorotoluene	79.8	58-124	%	10/31/2000 06:41	
4-Bromofluorobenzene-FID	80.8	50-150	%	10/31/2000 06:41	

To: **Hydro Analysis**

Attn: Gary Aguiar

Test Method: 8015M
8020
8021B

Prep Method: 5030

Batch QC Report

Gas/BTEX

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/10/27-01.02**

LCS: 2000/10/27-01.02-002 Extracted: 10/27/2000 04:23 Analyzed 10/27/2000 04:23

LCSD: 2000/10/27-01.02-003 Extracted: 10/27/2000 04:54 Analyzed 10/27/2000 04:54

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	522	513	500	500	104.4	102.6	1.7	75-125	20		
Benzene	111	104	100.0	100.0	111.0	104.0	6.5	77-123	20		
Toluene	107	98.8	100.0	100.0	107.0	98.8	8.0	78-122	20		
Ethyl benzene	98.6	92.5	100.0	100.0	98.6	92.5	6.4	70-130	20		
Xylene(s)	284	266	300	300	94.7	88.7	6.5	75-125	20		
Surrogate(s)											
Trifluorotoluene	473	427	500	500	94.6	85.4		58-124			
4-Bromofluorobenzene-FI	458	445	500	500	91.6	89.0		50-150			

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-10-0453

To: **Hydro Analysis**

Test Method: 8015M
8020
8021B

Attn: Gary Aguiar

Prep Method: 5030

Batch QC Report

Gas/BTEX

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/10/27-01.05**

LCS: 2000/10/27-01.05-002 Extracted: 10/27/2000 05:44 Analyzed 10/27/2000 05:44

LCSD: 2000/10/27-01.05-003 Extracted: 10/27/2000 06:17 Analyzed 10/27/2000 06:17

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	566	485	500	500	113.2	97.0	15.4	75-125	20		
Benzene	88.6	86.0	100.0	100.0	88.6	86.0	3.0	77-123	20		
Toluene	89.0	84.0	100.0	100.0	89.0	84.0	5.8	78-122	20		
Ethyl benzene	92.3	87.3	100.0	100.0	92.3	87.3	5.6	70-130	20		
Xylene(s)	253	243	300	300	84.3	81.0	4.0	75-125	20		
Surrogate(s)											
Trifluorotoluene	454	425	500	500	90.8	85.0		58-124			
4-Bromofluorobenzene-FI	452	404	500	500	90.4	80.8		50-150			

To: **Hydro Analysis**

Test Method: 8015M
8020
8021B

Attn: Gary Aguiar

Prep Method: 5030

Batch QC Report

Gas/BTEX

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/10/31-01.02**

LCS: 2000/10/31-01.02-002 Extracted: 10/31/2000 07:12 Analyzed 10/31/2000 07:12

LCSD: 2000/10/31-01.02-003 Extracted: 10/31/2000 07:43 Analyzed 10/31/2000 07:43

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	490	499	500	500	98.0	99.8	1.8	75-125	20		
Benzene	103	102	100.0	100.0	103.0	102.0	1.0	77-123	20		
Toluene	99.7	99.8	100.0	100.0	99.7	99.8	0.1	78-122	20		
Ethyl benzene	92.3	98.6	100.0	100.0	92.3	98.6	6.6	70-130	20		
Xylene(s)	268	287	300	300	89.3	95.7	6.9	75-125	20		
Surrogate(s)											
Trifluorotoluene	434	416	500	500	86.8	83.2		58-124			
4-Bromofluorobenzene-FI	445	457	500	500	89.0	91.4		50-150			

To: **Hydro Analysis**

Attn: Gary Aguiar

Test Method: 8015M
8020

Prep Method: 5030

Legend & Notes

Gas/BTEX

Analysis Flags

lm

Reporting limits raised due to high level of non-target analyte materials.

Analyte Flags

g

Hydrocarbon reported in the gasoline range does not match our gasoline standard.

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-10-0453

Diesel

Hydro Analysis

11100 San Pablo Ave. Suite 200-A
El Cerrito, CA 94530

Attn: Gary Aguiar

Phone: (510) 620-0891 Fax: (510) 620-0894

Project #:

Project: GGP-23RD

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-2	Water	10/18/2000 16:40	2
MW-3	Water	10/18/2000 15:45	3
MW-4	Water	10/18/2000 15:08	4
MW-5	Water	10/18/2000 10:22	5
MW-6	Water	10/18/2000 11:26	6
MW-7	Water	10/18/2000 12:14	7

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-10-0453

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8015M
Prep Method: 3510/8015M

Diesel

Sample ID:	**MW-2**	Lab Sample ID:	**2000-10-0453-002**
Project:	GGP-23RD	Received:	10/20/2000 17:36
		Extracted:	10/24/2000 07:04
Sampled:	10/18/2000 16:40	QC-Batch:	2000/10/24-02.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	510	50	ug/L	1.00	10/25/2000 02:05	ndp
Surrogate(s)						
o-Terphenyl	125.4	60-130	%	1.00	10/25/2000 02:05	

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8015M
Prep Method: 3510/8015M

Diesel

Sample ID:	**MW-3**	Lab Sample ID:	**2000-10-0453-003**
Project:	GGP-23RD	Received:	10/20/2000 17:36
		Extracted:	10/24/2000 07:04
Sampled:	10/18/2000 15:45	QC-Batch:	2000/10/24-02.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	58	50	ug/L	1.00	10/25/2000 02:52	ndp
Surrogate(s)						
o-Terphenyl	106.9	60-130	%	1.00	10/25/2000 02:52	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-10-0453

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8015M
Prep Method: 3510/8015M

Diesel

Sample ID:	**MW-4**	Lab Sample ID:	**2000-10-0453-004**
Project:	GGP-23RD	Received:	10/20/2000 17:36
		Extracted:	10/24/2000 07:04
Sampled:	10/18/2000 15:08	QC-Batch:	2000/10/24-02.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	10/25/2000 03:38	
Surrogate(s)						
o-Terphenyl	113.2	60-130	%	1.00	10/25/2000 03:38	

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8015M
Prep Method: 3510/8015M

Diesel

Sample ID:	**MW-5**	Lab Sample ID:	**2000-10-0453-005**
Project:	GGP-23RD	Received:	10/20/2000 17:36
		Extracted:	10/24/2000 07:04
Sampled:	10/18/2000 10:22	QC-Batch:	2000/10/24-02.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	83	50	ug/L	1.00	10/25/2000 04:24	ndp
Surrogate(s)						
o-Terphenyl	128.5	60-130	%	1.00	10/25/2000 04:24	

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8015M
Prep Method: 3510/8015M

Diesel

Sample ID:	**MW-6**	Lab Sample ID:	**2000-10-0453-006**
Project:	GGP-23RD	Received:	10/20/2000 17:36
		Extracted:	10/24/2000 07:04
Sampled:	10/18/2000 11:26	QC-Batch:	2000/10/24-02.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	62	50	ug/L	1.00	10/25/2000 05:10	ndp
Surrogate(s)						
o-Terphenyl	126.4	60-130	%	1.00	10/25/2000 05:10	

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8015M
Prep Method: 3510/8015M

Diesel

Sample ID:	**MW-7**	Lab Sample ID:	**2000-10-0453-007**
Project:	GGP-23RD	Received:	10/20/2000 17:36
		Extracted:	10/24/2000 07:04
Sampled:	10/18/2000 12:14	QC-Batch:	2000/10/24-02.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	10/25/2000 05:57	
Surrogate(s)						
o-Terphenyl	118.5	60-130	%	1.00	10/25/2000 05:57	

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8015M
Prep Method: 3510/8015M

Batch QC Report
Diesel

Method Blank | **Water** | **QC Batch # 2000/10/24-02.10**

MB: 2000/10/24-02.10-001 | Date Extracted: 10/24/2000 07:04

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Diesel	ND	50	ug/L	10/25/2000 04:46	
Surrogate(s)					
o-Terphenyl	100.5	60-130	%	10/25/2000 04:46	

To: **Hydro Analysis**
Attn: Gary Aguiar

Test Method: 8015M
Prep Method: 3510/8015M

Batch QC Report

Diesel

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/10/24-02.10**

LCS: 2000/10/24-02.10-002 Extracted: 10/24/2000 07:04 Analyzed 10/25/2000 05:24
LCSD: 2000/10/24-02.10-003 Extracted: 10/24/2000 07:04 Analyzed 10/25/2000 06:03

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Diesel	1140	1130	1250	1250	91.2	90.4	0.9	60-130	25		
Surrogate(s)											
o-Terphenyl	25.2	25.0	20.0	20.0	126.0	125.0		60-130			

To: **Hydro Analysis**
Attn: Gary Aguiar

Test Method: 8015M
Prep Method: 3510/8015M

Legend & Notes

Diesel

Analyte Flags

ndp

Hydrocarbon reported does not match the pattern of our Diesel standard

CHROMALAB, INC.
Environmental Services (SDB)

Submission #: 2000-10-0453

Diesel

Hydro Analysis
11100 San Pablo Ave. Suite 200-A
El Cerrito, CA 94530
Attn: Gary Aguiar
Phone: (510) 620-0891 Fax: (510) 620-0894
Project #:
Project: GGP-23RD

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	10/18/2000 13:18	1

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-10-0453

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8015M
Prep Method: 3510/8015M

Diesel

Sample ID:	**MW-1**	Lab Sample ID:	**2000-10-0453-001**
Project:	GGP-23RD	Received:	10/20/2000 17:36
		Extracted:	10/24/2000 07:04
Sampled:	10/18/2000 13:18	QC-Batch:	2000/10/24-02.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	10/25/2000 15:07	
Surrogate(s)						
o-Terphenyl	97.8	60-130	%	1.00	10/25/2000 15:07	

To: **Hydro Analysis**
Attn.: Gary Aguiar

Test Method: 8015M
Prep Method: 3510/8015M

Batch QC Report
Diesel

Method Blank | **Water** | **QC Batch # 2000/10/24-02.10**

MB: 2000/10/24-02.10-001 | Date Extracted: 10/24/2000 07:04

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Diesel	ND	50	ug/L	10/25/2000 04:46	
Surrogate(s)					
o-Terphenyl	100.5	60-130	%	10/25/2000 04:46	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-10-0453

To: **Hydro Analysis**
Attn: Gary Aguiar

Test Method: 8015M
Prep Method: 3510/8015M

Batch QC Report

Diesel

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/10/24-02.10**

LCS: 2000/10/24-02.10-002 Extracted: 10/24/2000 07:04 Analyzed 10/25/2000 05:24
LCSD: 2000/10/24-02.10-003 Extracted: 10/24/2000 07:04 Analyzed 10/25/2000 06:03

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Diesel	1140	1130	1250	1250	91.2	90.4	0.9	60-130	25		
Surrogate(s)											
o-Terphenyl	25.2	25.0	20.0	20.0	126.0	125.0		60-130			

CHAIN OF CUSTODY RECORD

2000-10-0453

55280

PROJECT NAME AND ADDRESS:
GGP-23rd
Golden Gate Petroleum - 23rd Ave

SAMPLER: (Signature)
Randal Wilson

HYDRO ANALYSIS, INC.
11100 San Pablo Ave., Suite 200-A
El Cerrito, CA 94530
(510)620-0891 (510)620-0894 (FAX)

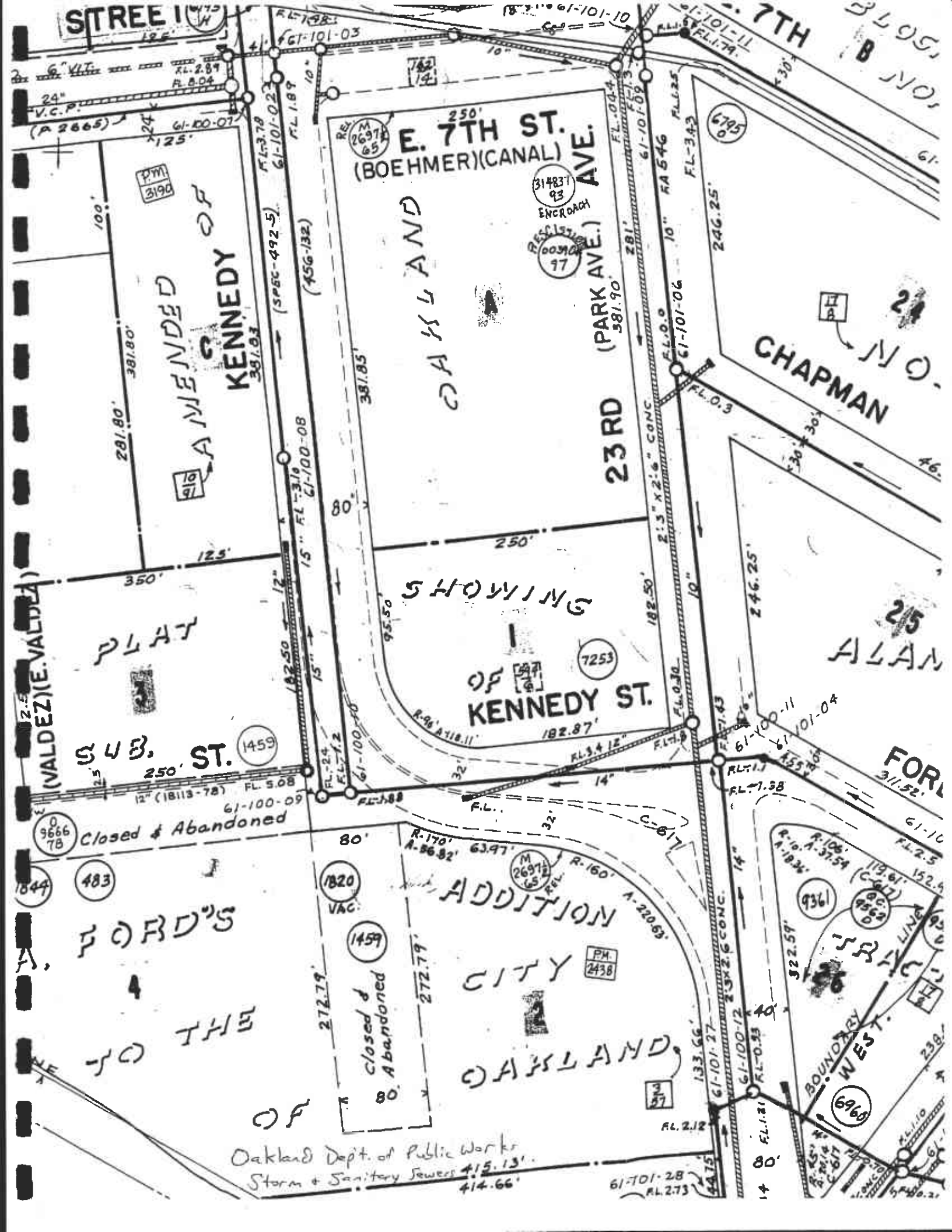
ANALYSIS REQUESTED

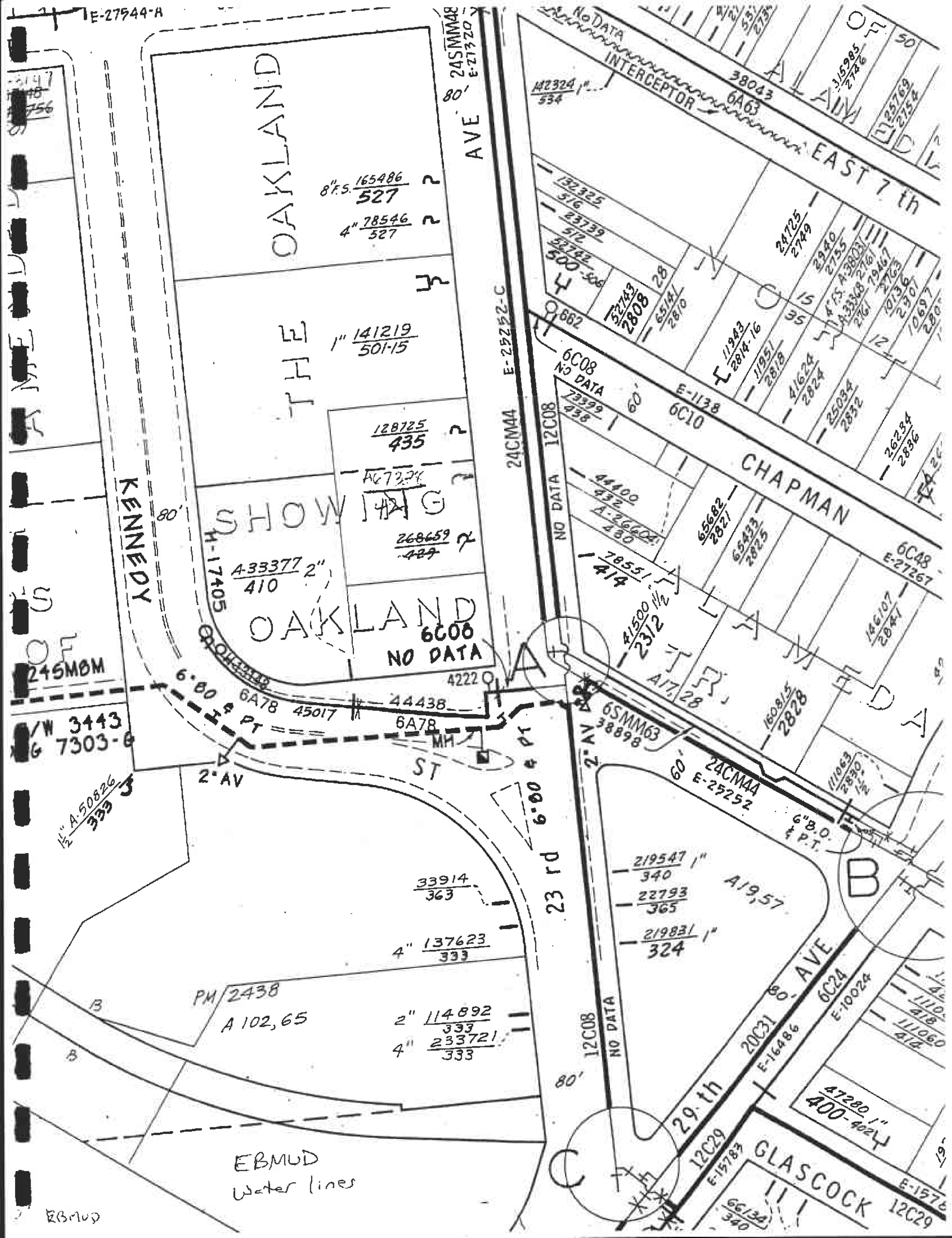
CROSS REFERENCE NUMBER	DATE	TIME	SOIL	WATER	SAMPLE LOCATION	TPH-Gas+BTEX	MtBE by 8260	TPH-Diesel					REMARKS
MW-1	10/18/00	13:18		X	Monitor Well # MW-1	X	X	X					
MW-2	10/18/00	16:40		X	" " # MW-2	X	X	X					
MW-3	10/18/00	15:45		X	" " # MW-3	X	X	X					
MW-4	10/18/00	15:08		X	" " # MW-4	X	X	X					
MW-5	10/18/00	10:22		X	" " # MW-5	X	X	X					
MW-6	10/18/00	11:26		X	" " # MW-6	X	X	X					
MW-7	10/18/00	12:14		X	" " # MW-7	X	X	X					
													Normal T.A.T.
													3.2°C

RELINQUISHED BY: (Signature) Randal Wilson	DATE 10/20/00 TIME 17:36	RECEIVED BY: (Signature)	DATE TIME
RELINQUISHED BY: (Signature)	DATE TIME	RECEIVED BY: (Signature)	DATE TIME
RELINQUISHED BY: (Signature)	DATE TIME	RECEIVED BY: (Signature)	DATE TIME
RELINQUISHED BY: (Signature)	DATE TIME	RECEIVED FOR LABORATORY BY: (Signature) Denise Harrington / Chromalab	DATE 10/20/00 TIME 1736

ATTACHMENT D

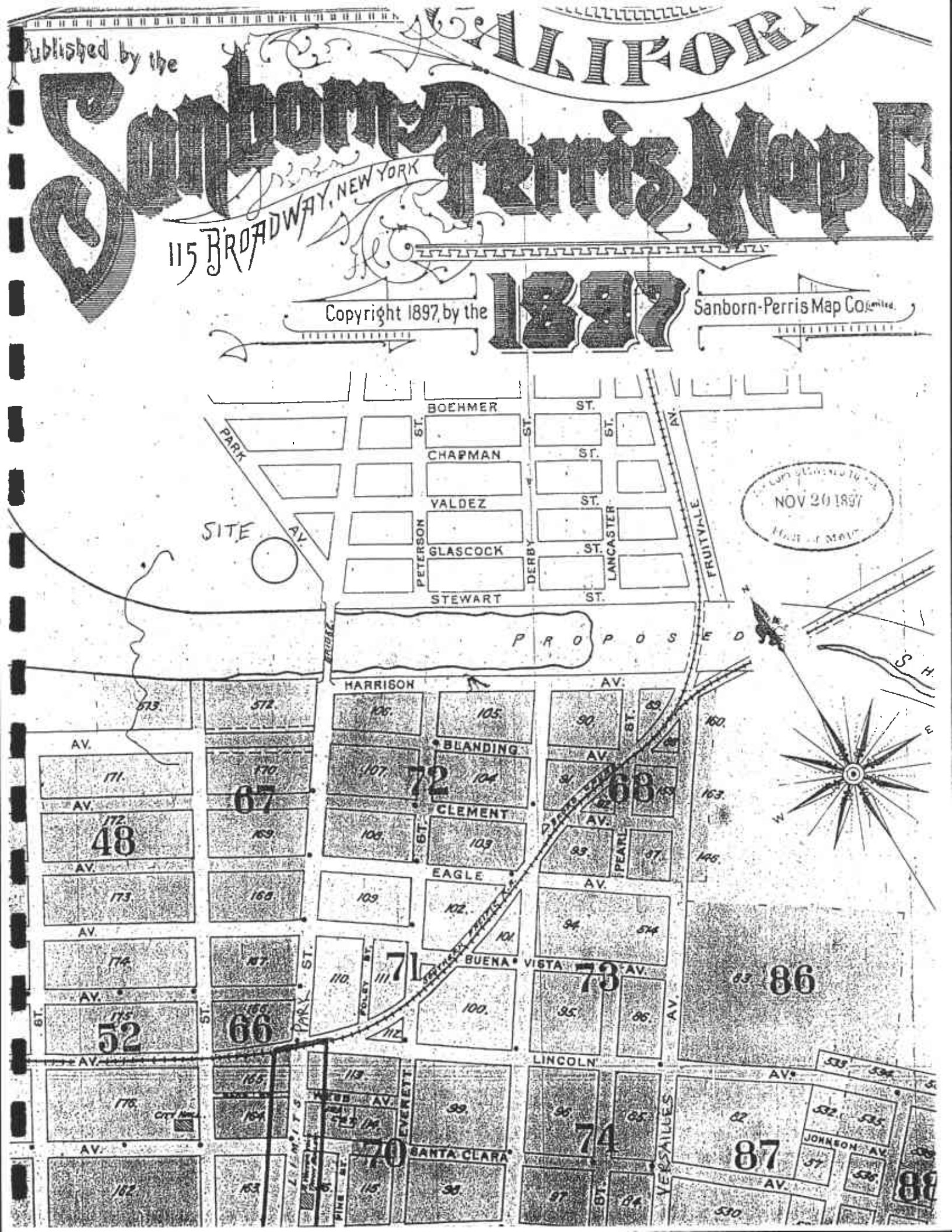
Subsurface Utility Maps

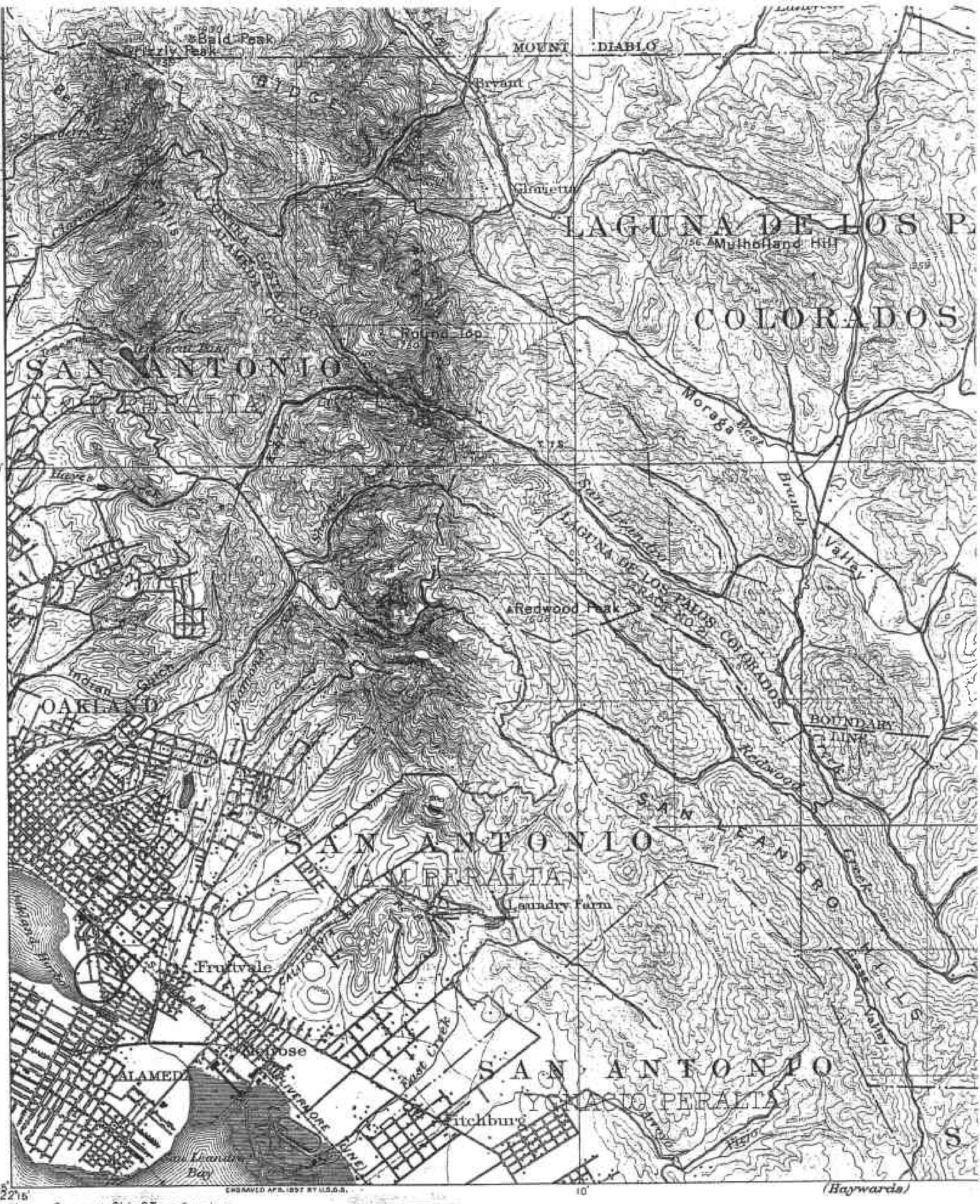

E. 7TH ST.
(BOEHMER)(CANAL)
(PARK AVE.)
23RD
KENNEDY
ANNEXED TO
OAKLAND
CHAPMAN
PLAT OF
SUB.
(VALDEZ)(E.VALDEZ)
ST.
KENNEDY ST.
ADDITION
CITY
OAKLAND
FORD'S
TO THE
OF
Closed & Abandoned
Closed & Abandoned
Oakland Dept. of Public Works
Storm & Sanitary Sewers
415.13'
414.66'
ENCROACH
VAC.
BOUNDARY
WEST.


E-27544-A
24SMM48
E-27320
AVE
80'
OAKLAND
THE
SHOWING
OAKLAND
8" F.S. 165486 / 527
4" 78546 / 527
1" 141219 / 501-15
128725 / 435
268659 / 429
A-33377 2" / 410
6C08
NO DATA
H-17405
KENNEDY
80'
245MBM
R/W 3443
7303-G
4222
6A78
45017
44438
6A78
MH
ST
2" AV
A-50826 / 333
6" B0 & PT
E-25252-C
24CM44
12C08
NO DATA
NO DATA
INTERCEPTOR
38043
6A63
EAST 7th
M2324 1" / 534
132325 / 516
23739 / 512
52743 / 2808
6514 / 2810
24725 / 2749
11943 / 2814-16
11951 / 2818
41624 / 2824
25034 / 2832
26234 / 2836
6C08
NO DATA
73399 / 438
60'
E-1138
6C10
CHAPMAN
44400 / 432
A-26604 / 480
65682 / 2821
65433 / 2825
78551 / 414
41500 1½ / 2312
A/7,28
160815 / 2828
146107 / 2841
6C48
E-27267
6SMM63
38898
2" AV
60'
24CM44
E-25252
111063 / 2890
6" B.O. & P.T.
6" B0 & PT
23 rd
219547 1" / 340
22793 / 365
219831 1" / 324
A/9,57
33914 / 363
4" 137623 / 333
PM 2438
A 102,65
2" 114892 / 333
4" 233721 / 333
80'
12C08
NO DATA
80'
AVE
6C24
E-10024
20C31
E-16486
29 th
12C29
E-15783
GLASCOCK
12C29
47280 1" / 400-402
111060 / 414
66134 / 340
A
B
C
EBMUD
Water lines
EBMUD

ATTACHMENT E

Historical Maps


ALIFOR
Published by the
Sanborn Perris Maps
115 BROADWAY, NEW YORK
Copyright 1897, by the
1897
Sanborn-Perris Map Co. Limited.
BOEHMER ST.
CHAPMAN ST.
VALDEZ ST.
GLASCOCK ST.
STEWART ST.
PARK AV.
PETERSON ST.
DERBY ST.
LANCASTER ST.
FRUITVALE AV.
SITE
PROPOSED
HARRISON AV.
BLANDING AV.
CLEMENT AV.
EAGLE AV.
BUENA VISTA AV.
LINCOLN AV.
SANTA CLARA AV.
JOHNSON AV.
PEARL ST.
PARK ST.
FOLEY ST.
EVERETT ST.
VERSAILLES AV.
CITY LIMITS
NOV 20 1897
67
72
68
48
66
71
73
86
52
74
70
87



Henry Gannett, Chief Topographer.
R.U. Goode, Geographer in charge.
Triangulation by U.S. Coast and Geodetic Survey.
Topography by W.D. Johnson and W.H. Otis.
Surveyed in 1893-94

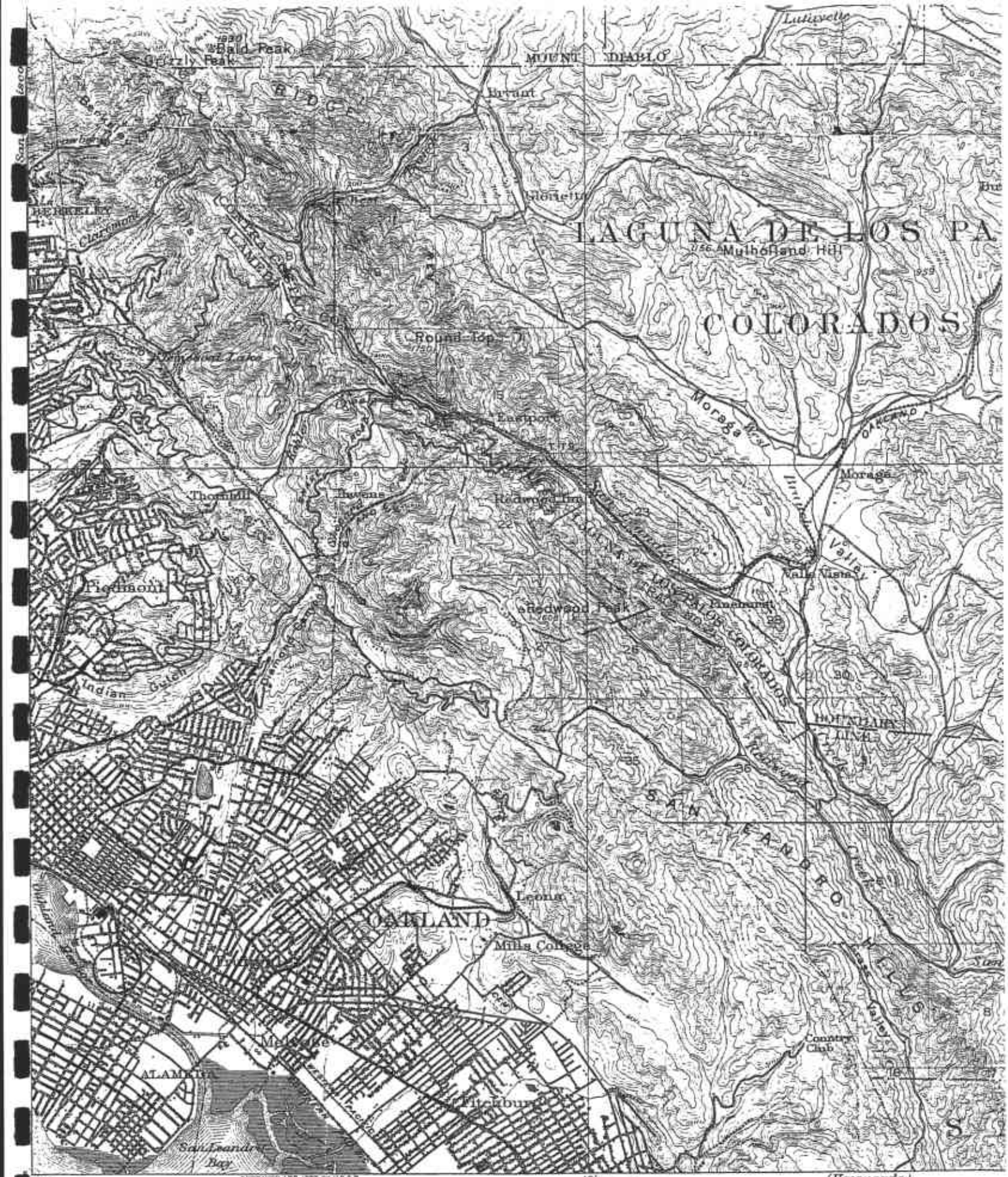
Otis
Johnson

Scale $\frac{1}{62500}$

Contour interval 25 feet.
Datum is mean sea level.

M (276) 54
Un3t

U. S. Geological Survey
Topographic map
Concord 15 min / 1897



2'15

Henry Gannett, Chief Topographer.
R.U.Goode, Geographer in charge.
Triangulation by U.S.Coast and Geodetic Survey.
Topography by W.D.Johnson and W.H.Otis.
Surveyed in 1893-94
Culture revised in part in 1913-14.
R.B.Marshall, Chief Geographer.

ENGRAVED APR. 1897 BY U.S.G.S.

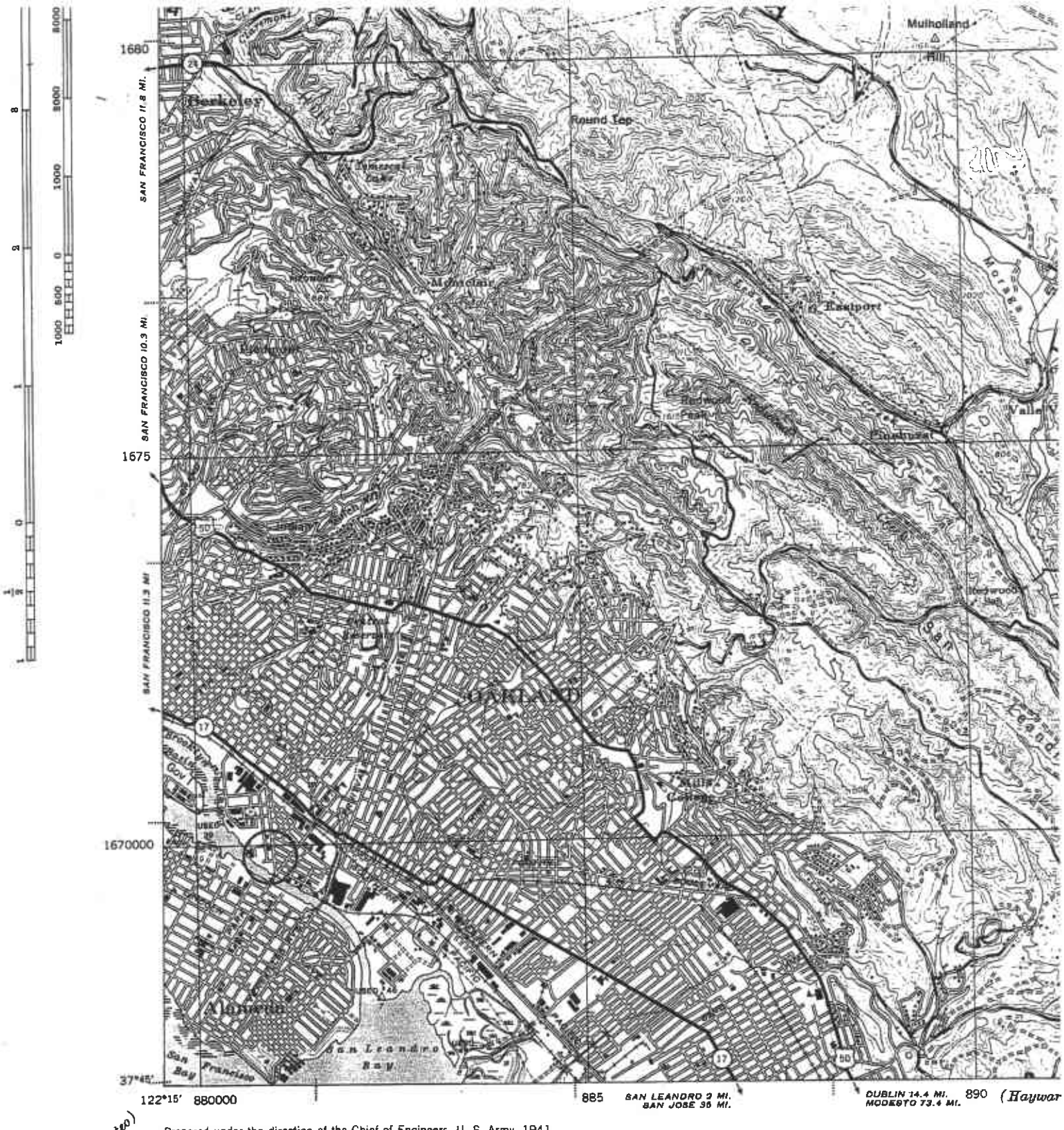
10'

Scale 1/62500

Contour interval 25 feet.

Datum is mean sea level.

1915
USGS Concord Sheets



(San Mateo)

Prepared under the direction of the Chief of Engineers, U. S. Army, 1941.
Horizontal control by U. S. Coast and Geodetic Survey, 1939 and U. S. Geological Survey, 1929 and 29th Engineers, U. S. Army, 1940.
Vertical control by U. S. Coast and Geodetic Survey, 1934-1939 and U. S. Geological Survey, 1929 and 29th Engineers, U. S. Army, 1940.
Topography by 29th Engineers, U. S. Army, utilizing multiplex aero-projectors from K-38 (single lens) aerial photographs.
Photography by 82nd Observation Squadron, Air Corps, U. S. Army, 1939.
Polyconic Projection, North American 1927 Datum.

ROAD CLASSIFICATIONS

Dependable hard surface, heavy duty road.
Loose surface graded, dry weather road.
U. S. Route (50)
Secondary, hard surface, all weather road.
Unimproved road.
State Route (21)
More than two lanes indicated by note with tick at point of change. 2 LANE | 4 LANE

Road Data 1942

Scale 1/62

Contour interv

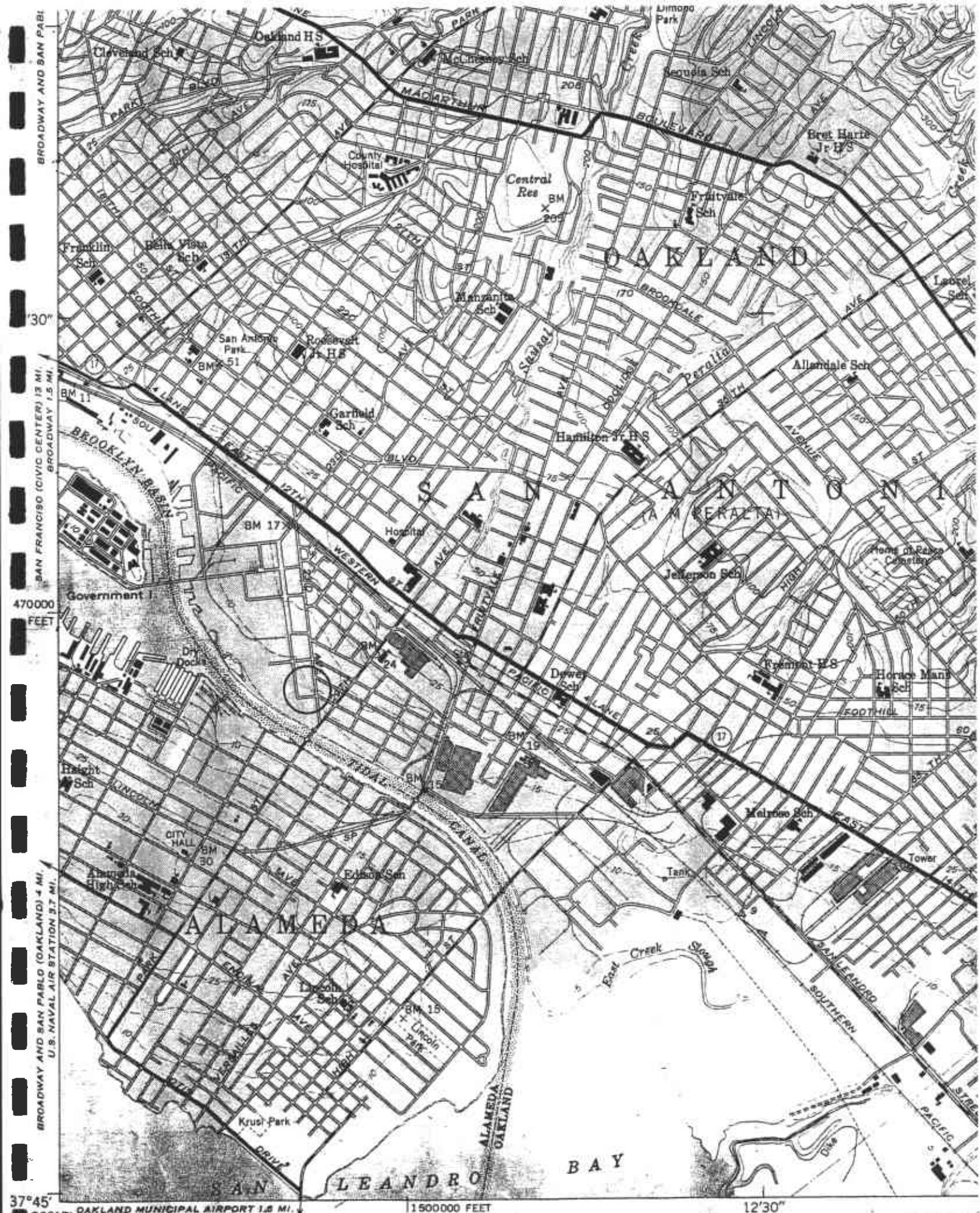
Datum is mean sea le

FIVE THOUSAND YARD GRID COMPUTED FROM " IN THE U. S." ZONE G, U. S. C. & G. S. S (THE LAST THREE DIGITS OF THE GRI

NOTE: OFFICERS USING THIS MAP WILL HAVE REASON TO THEIR ATTENTION AND MAIL DIRECT TO "THE CHI

276)54

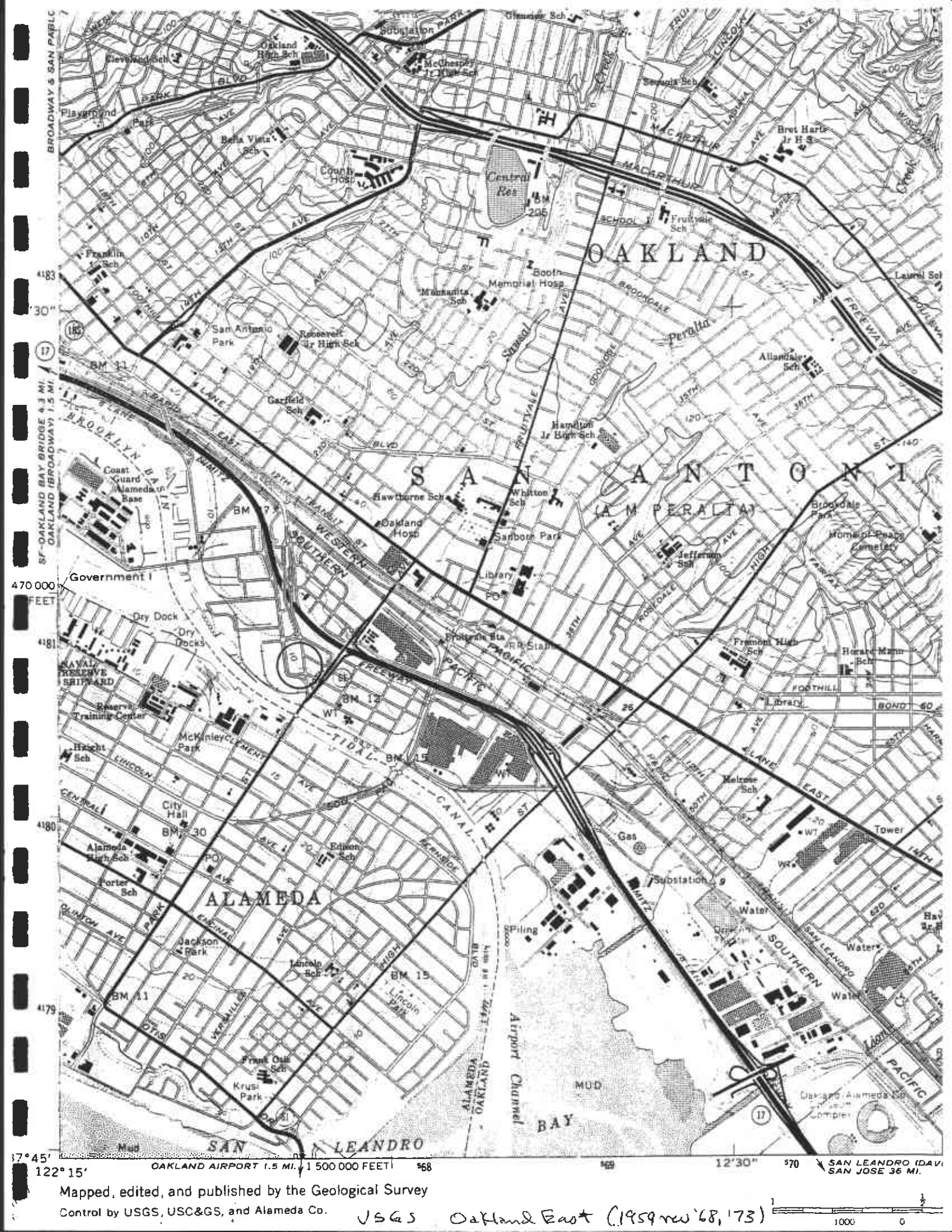
USGS 1943 Concord 15 min



Mapped, edited, and published by the Geological Survey

Control by USGS USC&GS and US Army

1949 Oakland East Quad

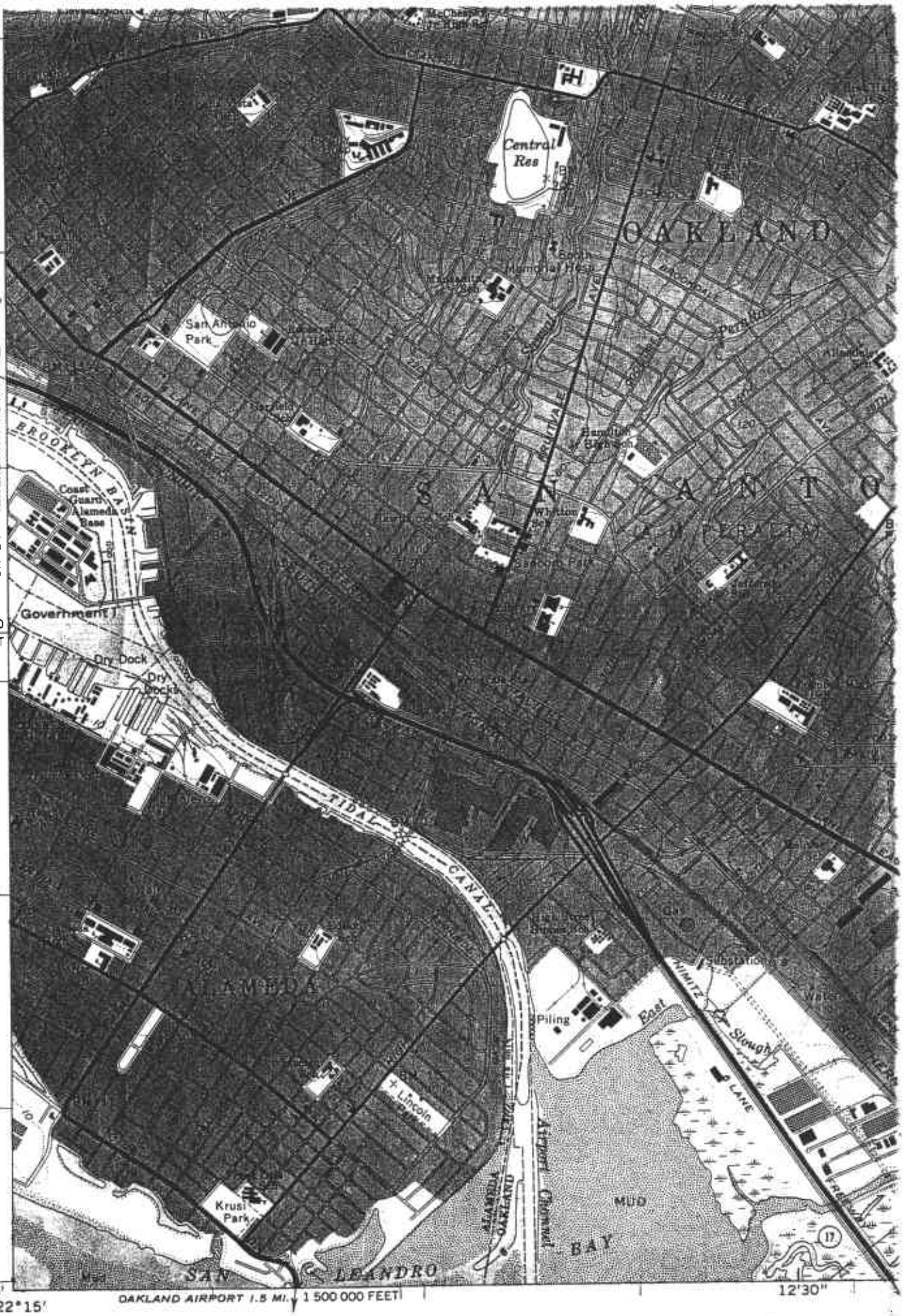


Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and Alameda Co.

USGS Oakland East (1959 rev '68, '73)

1 0 1000



Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and Alameda Co.

Topography from aerial photographs by photogrammetric methods and by planetable surveys 1947. Revised from aerial photographs taken 1958. Field check 1959