Ground-Water Monitoring Plan
East Baybridge Center
Emeryville and Oakland, California

December 19, 1994
1649.02

Prepared for
Catellus Development Corporation
201 Mission Street, 30th Floor
San Francisco, California 94105

LEVINE·FRICKE

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ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

December 19, 1994 1649.02

Ms. Susan Hugo
Department of Environmental Health
Alameda County Health Care Services
1131 Harbor Bay Parkway, Second Floor
Alameda, California 94502

Subject: Ground-Water Monitoring Plan, East Baybridge Center, Emeryville and Oakland, California

Dear Ms. Hugo:

Enclosed is the subject monitoring plan, which describes the objectives, procedures (including analysis methods proposed), and reporting schedule for the ground-water monitoring program at the East Baybridge Center in Emeryville and Oakland, California.

If you have any questions or comments, please do not hesitate to call me or Jenifer Beatty.

Sincerely,

Ron Goloubow
Senior Project Geologist

Enclosure

cc: Mr. Sumadhu Arigala, RWQCB
Ms. Kimberly Brandt, Catellus Development Corporation

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GROUND-WATER MONITORING PLAN
EAST BAYBRIDGE CENTER
EMERYVILLE AND OAKLAND, CALIFORNIA

1.0 INTRODUCTION

Levine·Fricke has prepared this ground-water monitoring plan ("the Plan") on behalf of Catellus Development Corporation ("Catellus") to describe proposed monitoring activities that continue the ground-water monitoring program at the East Baybridge Center in Emeryville and Oakland, California ("the Site"; Figure 1). The Site covers approximately 51 acres and is currently under development. To aid in organizing previous investigations, the Site was divided into Areas A, B, and C (see Figure 2).

The Plan incorporates the activities recommended by Levine·Fricke and addresses the issues raised by the Alameda County Health Care Services Agency (ACHA) as outlined in the following documents:

- Levine·Fricke's "Work Plan for Site Characterization and Remediation Activities to be Conducted in Conjunction with Proposed Site Development, Yerba Buena/East Baybridge Project Site, Emeryville and Oakland, California," submitted to the ACHA on April 28, 1993. That work plan was approved by the ACHA in an August 4, 1993 letter from Ms. Susan Hugo of the ACHA to Ms. Jenifer Beatty of Levine·Fricke.

- June 10, 1994 letter from Ms. Susan Hugo of the ACHA to Catellus

- Levine·Fricke's "Soils Management Plan for Petroleum Hydrocarbon-Affected Soils, Yerba Buena/East Baybridge Center, Emeryville and Oakland, California," submitted to the ACHA on November 30, 1994.

This Plan proposes to continue the ground-water monitoring program in Areas A and B (east side of Hollis Street) with modifications to accommodate site development that was completed in these areas by mid-1994. Wells located in Area C (west of Hollis Street) were abandoned in preparation for site

development. Following completion of site development, selected wells will be replaced in Area C and monitored in accordance with this Plan. It is anticipated these wells will be replaced in mid to late 1995.

2.0 BACKGROUND

From the early 1900s to approximately 1990, the Site was used by a variety of industrial and commercial uses. These uses included warehouse storage of predominantly dry goods and limited quantities of hazardous materials (oxides and acids [a complete record of materials stored at the Site is not available]); metal foundries; truck maintenance and repair; an auto storage and wrecking yard; a construction yard; and several passenger and freight rail lines.

In preparation for site development, Levine·Fricke initiated environmental investigations at the Site on behalf of Catellus in September 1989. Site investigation and remediation activities continued for approximately five years. Results of the Phase I and Phase II Investigation indicated volatile organic compounds (VOCs) were present in shallow ground water beneath the Site. During site development activities, underground storage tanks (USTs) were excavated at several locations across the Site (see Figure 2). Ground-water monitoring wells were installed in the vicinity of those former UST locations to monitor ground-water quality in accordance with agency guidelines.

2.1 Areas A and B

As illustrated on Figure 2, Area A and a portion of Area B have been developed for commercial use, including a large retail store, several smaller retail stores, and two large parking areas. Areas north of the parking lots and west of Emery Street have not yet been developed.

A ground-water monitoring program was implemented at the Site in January 1992 to monitor VOC concentrations in ground water in Area A. To reduce the potential for off-site migration of shallow VOC-affected ground water, a ground-water extraction and treatment system was installed in Area A (see Figure 2). This extraction system began operation in August 1994. Details regarding the operation of the extraction and treatment system were presented in Levine·Fricke's October 31, 1994 "Quarterly Self-Monitoring Report, Ground-Water

Extraction and Treatment System, Catellus Development Corporation, East Baybridge Center, 3838 Hollis Street, Emeryville, California," which was submitted to the East Bay Municipal Utilities District.

Approximately 25,000 cubic yards of petroleum hydrocarbon-affected soil was excavated from Area B and contained beneath building pads in Areas A and B in accordance with the Levine·Fricke's March 10, 1992 "Containment Plan for Total Petroleum Hydrocarbon-Affected Soils, Yerba Buena Project Site, Emeryville and Oakland, California." Details regarding the removal of soil from this area of the Site were presented in Levine·Fricke's December 21, 1992 "Soil Remediation Activities Report, Former Ransome Property, Yerba Buena Project Site, Emeryville, California." To assess ground-water quality in Areas A and B, five monitoring wells were installed and sampled on a quarterly basis for over a year. Analytical results for this area indicate that ground water had not been affected by petroleum hydrocarbon-affected soil in this area.

During site development activities, all ground-water monitoring wells east of Hollis Street were destroyed in July 1993 as approved by the ACHA in an August 4, 1993 letter from Ms. Susan Hugo to Catellus. Following completion of site development activities in Area A and a portion of Area B, 17 replacement wells were installed in July 1994. Installation of those wells was described in Levine·Fricke's October 27, 1994 quarterly monitoring report ("Combined Well Replacement and Quarterly Monitoring Report for July 1 through September 30, 1994, Yerba Buena/East Baybridge Center, Emeryville and Oakland, California"). The replacement wells were installed so that the ground-water monitoring program for the Site could continue.

2.2 Area C

Area C (the area west of Hollis Street) is currently being developed for commercial use, including construction of two retail stores, one smaller retail stores, and large parking areas.

VOCs have been detected in ground-water samples collected in Area C of the Site. Based on the distribution of VOCs detected, it appears that the VOCs have migrated from an off-site source. The Regional Water Quality Control Board (RWQCB) concurs with this conclusion as demonstrated by the RWQCB's letter to Catellus and others dated May 11, 1994.

Several USTs were identified at various locations within Area C during environmental investigations and site grading activities. Ground-water monitoring wells were installed following the excavation of some of these USTs. Those wells (LF-31 and LF-32 installed at the former Bashland and Bay Area Warehouse properties, respectively) were monitored on a quarterly basis until they were destroyed during site development activities in June 1994 along with all other wells located west of Hollis Street (except well LF-13).

Replacement wells for those wells (MW-31R and MW-32R) will be installed following completion of site development in Area C. In addition, well MW-12R will be installed downgradient from (west of) USTs formerly located along Beach Street, to monitor ground-water quality in that area. Wells MW-10R and MW-24R will be installed in locations presented on Figure 2 to monitor possible on-site migration of VOCs from a known source located north of the property. Following installation, the wells will be monitored in accordance with the schedule for ground-water monitoring presented herein.

3.0 MONITORING OBJECTIVES

The Plan combines the ground-water monitoring plan presented in Levine·Fricke's April 28, 1993 Work Plan with the ground-water monitoring plan presented in Levine·Fricke's Soil Management Plan dated November 30, 1994, and incorporates ground-water monitoring wells to be installed in Area C following development in this area to be completed by mid-1995. The objectives of monitoring are as follows:

- Monitor and evaluate the lateral and vertical distribution of VOCs in ground water that are present at the Site.
- Monitor ground-water quality over time. Chemical concentrations detected in ground-water samples will be presented in a summary table. VOC concentrations will be evaluated for temporal trends or changes in ground-water quality.
- Evaluate changes and trends in the ground-water level elevations, hydraulic gradients, and flow directions using quarterly water level measurements.

- Provide data to obtain case closure for the ground-water monitoring that is being performed in conjunction with former USTs that were located at the Site (i.e., Bay Area Warehouse and Bashland properties).

- Provide data to assess the effectiveness of the ground-water extraction and treatment system. The area of ground-water capture created by the ground-water extraction wells and trench will be assessed from the ground-water elevation data.

- Provide data to evaluate the future ground-water monitoring schedule.

4.0 MONITORING SCHEDULE

The proposed ground-water monitoring program is designed to meet the objectives outlined in Section 3.0. Ground-water samples will be collected from selected monitoring wells on a quarterly and semiannual basis for chemical analyses. Table 1 summarizes the proposed schedule for ground-water sampling and chemical analyses. Figure 2 illustrates well locations.

Wells were selected for monitoring based on historical soil and ground-water quality data, ground-water flow direction, and former UST locations at the Site. Following one year of ground-water monitoring, the schedule of wells to be monitored will be reevaluated.

4.1 Ground-Water Elevation Measurements

Ground-water elevations will be measured in all accessible, shallow ground-water monitoring and extractions wells, and in deeper ground-water monitoring wells on a quarterly basis. Measurements will be made using an electric water-level sounder. Data collected will be used to plot ground-water elevation contours.

4.2 Shallow Ground Water in Areas A and B

The following shallow Area A and B replacement wells will be monitored: MW-1, MW-2, MW-3 MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, LF-22, LF-23, and extraction wells EX-3 and EX-4.

- Well MW-1, located in the vicinity of the former Ransome Company property, will be sampled quarterly for analysis of total petroleum hydrocarbons as diesel (TPHd), TPH as gasoline, TPH as oil (TPHo), and benzene, toluene, ethylbenzene, and total xylenes (BTEX).

- Well MW-2 will be sampled semiannually for analysis of TPHg, TPHd, and BTEX to assess whether TPHg- or BTEX-affected ground water is migrating onto the Site.

- Shallow wells MW-3, MW-5, MW-6, MW-7, MW-8, MW-9, LF-22, LF-23, EX-3, and EX-4 and deeper wells MW-6D, MW-7D, MW-9D, and MW-7Z will be sampled quarterly for analysis of VOCs.

- Wells MW-3, MW-4, MW-5, MW-6, MW-7, EX-3, and EX-4 will be sampled semiannually for analysis of TPHd and TPHo, as outlined in the Soils Management Plan.

4.3 Shallow Ground Water in Area C

Five shallow ground-water monitoring wells will be installed in Area C following completion of site development, in approximately mid-1995. After the wells have been installed (proposed wells MW-10R, MW-12R, MW-31R, MW-32R, and MW-34R), they and existing well LF-13 will be sampled semiannually for analysis of VOCs.

Proposed wells MW-31R and MW-32R will be sampled quarterly for analysis of TPHd and TPHo. Well MW-12R will be sampled quarterly for analysis of TPHg, BTEX, TPHd, and TPHo. Following one year of monitoring, data will be evaluated with regard to closure for the Site.

5.0 GROUND-WATER SAMPLE COLLECTION PROCEDURES

Before sample collection, depth to static water will be measured in each well and the volume of water in the well casing calculated. Three to five well casing volumes of ground-water will then be purged from each well using a centrifugal pump or a bailer until indicator parameter readings (pH, specific conductance, and temperature) have stabilized. Indicator parameters will be measured using portable field instruments and measurements will be recorded on water-quality sampling forms. Purging and sampling equipment will be steam cleaned before use at each well. Purged ground water will be pumped into the on-site treatment system.

After the well is purged, ground-water samples will be collected using a clean Teflon bailer. Samples will be collected in containers appropriate for the laboratory analysis to be performed. Samples for VOC analyses will be collected by pouring ground water directly from the bailer into laboratory-supplied, 40-milliliter volatile organic analysis (VOA) glass vials. Vials will be gently filled to overflowing, capped, and then inverted to check for trapped air. If an air bubble is observed, the vial will be discarded and a new vial filled. Samples will be immediately capped and placed in an ice-chilled cooler for transportation to the analytical laboratory.

Ground-water samples will be submitted to a state-certified laboratory, under strict chain-of-custody protocol. For quality assurance/quality control measures, a duplicate sample will be collected from 10% of the samples collected.

6.0 REPORTING SCHEDULE

Reports providing results of the periodic monitoring events will be submitted one month after the end of each quarter (i.e., April 30, July 31, October 31, and January 31). At a minimum, each report will include the following items: a summary of the water-level elevation (including a water-level elevation contour map) and analytical data, laboratory data sheets, water-quality sampling sheets, and a schedule of monitoring planned for the following monitoring period. A brief discussion of the analytical results and water-level data will be included and any unusual results will be evaluated.

TABLE 1

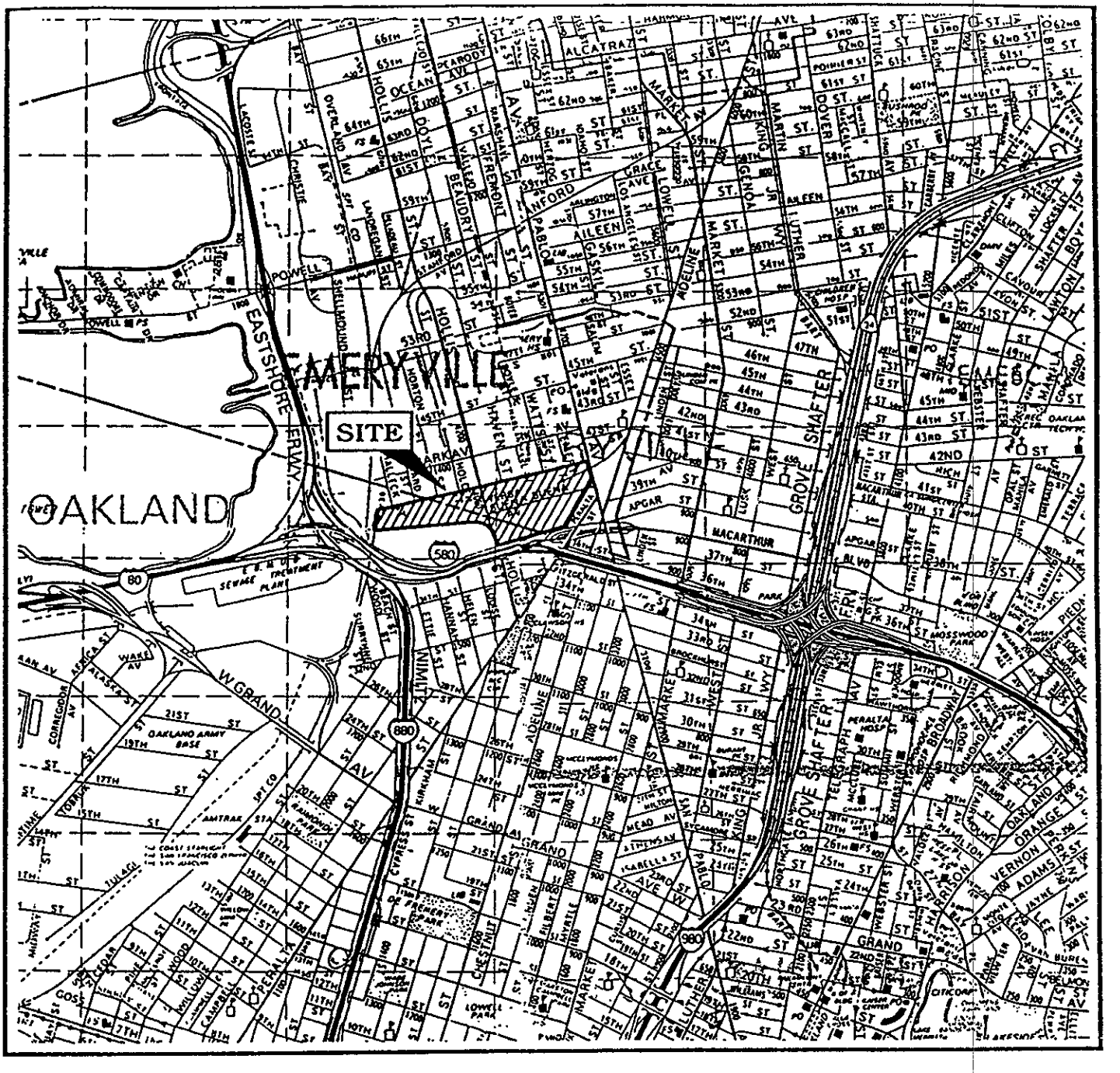
Ground-Water Monitoring Schedule
East Baybridge Center, Emeryville and Oakland, California

Period	Area	Well Depth	Well Identification	Analysis
JANUARY through MARCH	A	20' TO 25'	MW-3, MW-5, MW-6, MW-7, MW-8,	VOCs
			MW-9, LF-22, LF-23	VOCs
			EX-3 & EX-4	TPHd, TPHo, VOCs
		40' TO 45'	MW-6D, MW-7D, MW-9D	VOCs
		60'	MW-7Z	VOCs
	B	30'	MW-1	TPHg, BTEX, TPHd, TPHo
	C	20' TO 25'	MW-31R, MW-32R	TPHd, TPHo
APRIL through JUNE	A	20' TO 25'	MW-2	TPHg, TPHd, BTEX
			MW-3, MW-4, MW-5, MW-6, MW-7	TPHd, TPHo, VOCs
			MW-8, MW-9, LF-22, LF-23	VOCs
			EX-3 & EX-4	TPHd, TPHo, VOCs
		40' TO 45'	MW-6D, MW-7D, MW-9D	VOCs
		60'	MW-7Z	VOCs
	B	30'	MW-1	TPHg, BTEX, TPHd, TPHo
	C	20' TO 25'	MW-10R, LF-13, MW-34R	VOCs
			MW-12R, MW-31R, MW-32R	VOCs, TPHd, TPHo
JULY through SEPTEMBER	A	20' TO 25'	MW-3, MW-5, MW-6, MW-7, MW-8,	VOCs
			MW-9, LF-22, LF-23	VOCs
			EX-3 & EX-4	TPHd, TPHo, VOCs
		40' TO 45'	MW-6D, MW-7D, MW-9D	VOCs
		60'	MW-7Z	VOCs
	B	30'	MW-1	TPHg, BTEX, TPHd, TPHo
	C	20' TO 25'	MW-31R, MW-32R,	TPHd, TPHo
OCTOBER through DECEMBER	A	20' TO 25'	MW-2	TPHg, TPHd, BTEX
			MW-3, MW-4, MW-5, MW-6, MW-7	TPHd, TPHo, VOCs
			MW-8, MW-9, LF-22, LF-23	VOCs
			EX-3 & EX-4	TPHd, TPHo, VOCs
		40' TO 45'	MW-6D, MW-7D, MW-9D	VOCs
		60'	MW-7Z	VOCs
	B	30'	MW-1	TPHg, BTEX, TPHd, TPHo
	C	20' TO 25'	MW-10R, LF-13, MW-34R	VOCs
			MW-12R, MW-31R, MW-32R	VOCs, TPHd, TPHo

This schedule has been developed in accordance with Levine-Fricke's "Work Plan for Site Characterization To Be Conducted In Conjunction with Proposed Site Development, Yerba Buena/East Baybridge Center Site Emeryville and Oakland, California" dated April 28, 1993

TPHg using EPA Method 5030, BTEX using EPA Method 8020, TPHd and TPHo using EPA Method 3550, VOCs using EPA Method 8010

One duplicate sample, a trip blank, and baller rinsate blank will be analyzed for VOCs each period.



MAP SOURCE:
Alameda & Contra Costa Counties,
Thomas Bros. map, 1990 Edition

Figure 1 : SITE LOCATION MAP
YERBA BUENA PROJECT SITE

Project No. 1649

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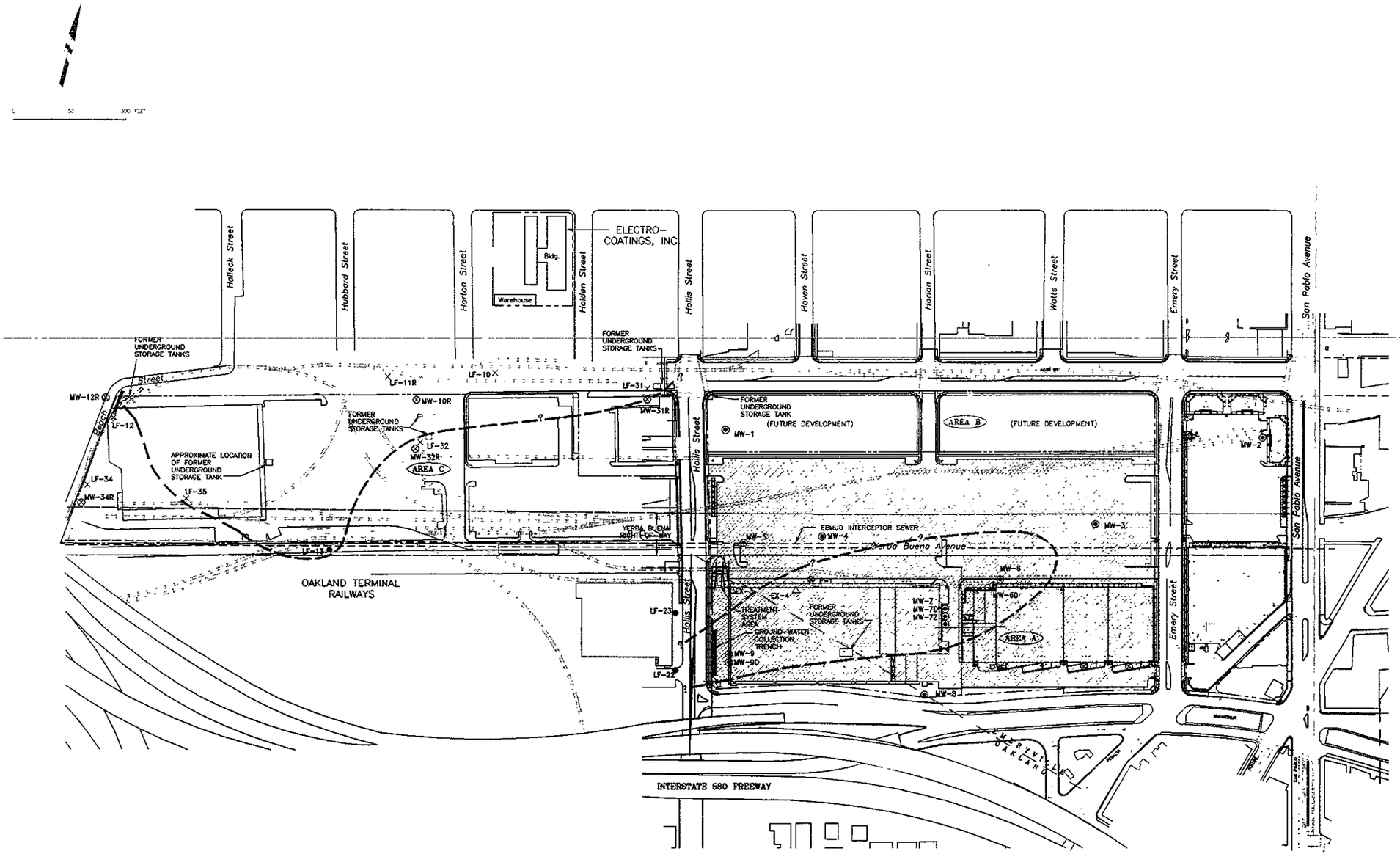

EXPLANATION

- MONITORING WELL LOCATION
- EXTRACTION WELL
- PROPOSED MONITORING WELL LOCATION
- ABANDONED GROUND WATER MONITORING WELL
- APPROXIMATE AREA OF VOC-AFFECTED GROUND WATER
- APPROXIMATE PROPERTY LINE
- APPROXIMATE LOCATION OF PETROLEUM-AFFECTED SOIL CONTAINED ON SITE

	REVISION	DESIGN	DRAWN	CHECKED	DATE

SCALE :
DESIGN :
DRAWN :
CHECKED :

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ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS
Emeryville, California

CATELLUS DEVELOPMENT CORPORATION

YERBA BUENA/EAST BAYBRIDGE DEVELOPMENT

Figure 2
SITE PLAN SHOWING LOCATIONS OF GROUND-WATER MONITORING WELLS AND UNDERGROUND STORAGE TANKS

Project No. 1649
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