Erler &
Kalinowski, Inc.

Work Plan for Soil and Groundwater Investigations at 6601 and 6603 Bay Street

Emeryville, California

18 March 1996
(EKI 950074.01)

Erler & Kalinowski, Inc.
Consulting Engineers and Scientists
1730 So. Amphlett Blvd., Suite 320
San Mateo, California 94402
(415) 578-1172
Fax (415) 578-9131

18 March 1996

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

Subject: Submittal of Work Plan for Soil and Groundwater Investigations at 6601 and 6603 Bay Street Emeryville, California (EKI 950074.01)

Dear Ms. Hugo:

On behalf of Sybase, Inc., Erler & Kalinowski, Inc. ("EKI") is pleased to submit to the Alameda County Department of Environmental Health the attached work plan entitled "Work Plan for Soil and Groundwater Investigations at 6601 and 6603 Bay Street, Emeryville, California", dated 18 March 1996 ("the Work Plan"). The work plan is related to the former underground storage tanks located at 6601 and 6603 Bay Street.

Prior to commencing the work, representatives from EKI and Sybase would like to meet with you to discuss any comments that you may have on the Work Plan.

If you have any questions regarding this matter, please do not hesitate to call.

Very truly yours,

ERLER & KALINOWSKI, INC.

Michelle Kriegman King, Ph.D.
Project Manager

Theodore G. Erler, P.E.
President

Attachment

cc: John Bruno, Sybase, Inc.
Dave Tricaso, Sybase, Inc.

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

Alameda County CC4580
Environmental Health Services
1131 Harbor Bay Pkwy., #250
Alameda CA 94502-6577
(510)567-6700 FAX(510)337-9335

May 21, 1996

Mr. John Bruno
Sybase, Inc.
6475 Christie Avenue
Emeryville, California 94608

RE: Work Plan for Soil and Groundwater Investigation at 6601 Bay Street (STID# 3696) & 6603 Bay Street (STID# 3710) Emeryville, California 94608

Dear Mr. Bruno:

The Alameda County Department of Environmental Health, Environmental Protection Division has completed review of the Work Plan for Soil and Groundwater Investigations dated March 18, 1996, prepared and submitted by Erler & Kalinowski, Inc. for the above referenced site.

The work plan is acceptable provided the following issues are addressed:

1) Additional sampling point north of the former tank excavation is necessary to completely characterize the extent of the hydrocarbon plume. One of the proposed borings (SB-5 or SB-6) may be placed to north of the former tank area if possible.

2) Methyl tertiary butyl ether (MTBE) must be included as one of the target analytes in soil and groundwater samples. In addition, polynuclear aromatic hydrocarbons (PNAs) must be analyzed in soil and groundwater samples if TPH diesel is present.

3) Monitoring wells MW-5 and MW-7 must be sampled and included in this phase of the investigation.

4) A site health and safety plan must be submitted prior to work plan implementation.

5) Please notify this office 72 hours in advance of any field activities at the site.

FAXED

COPY

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DATE: 14 June 96 TIME: 11 AM

FROM: Michelle King PAGES (including cover sheet): 3

PROJECT: Sybase-Hood/Hobbs PROJECT #: 95074L.SD

TO THE FOLLOWING:

NAME: Susan Hugo
COMPANY: ACDEH
FAX NO.: 510-337-9335

NAME: Dave Tracsal/John Bruno
COMPANY: Sybase
FAX NO.: 510-922-4505

NAME:
COMPANY:
FAX NO.:

NAME:
COMPANY:
FAX NO.:

NAME:
COMPANY:
FAX NO.:

NAME:
COMPANY:
FAX NO.:

☐ REPORT ☐ AS REQUESTED

☒ LETTER/MEMORANDUM ☐ FOR APPROVAL

☐ SPECIFICATIONS: ☐ FOR REVIEW & COMMENTS

☐ OTHER: ☐ FOR INFORMATION & COORDINATION

MESSAGE: Response to your comments on the Work Plan. A hard copy of the letter will follow.

Michelle

FOR VOICE CONTACT CALL: (415) 578-1172
FOR RETURN FACSIMILE: (415) 578-9131

Erler & Kalinowski, Inc.

Consulting Engineers and Scientists

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14 June 1996

Ms. Susan Hugo
Alameda County Department of
Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94501-6577

Subject: Letter Regarding Work Plan for Soil and Groundwater Investigation at 6601 and 6603 Bay Street, Emeryville, California (EKI 950074.00)

Dear Ms. Hugo:

On behalf of Sybase, Inc. ("Sybase"), Erler & Kalinowski, Inc. ("EKI") is responding to a letter from the Alameda County Department of Environmental Health ("ACDEH"), dated 21 May 1996, which comments on the *Work Plan for Soil and Groundwater Investigation at 6601 and 6603 Bay Street*, dated 18 March 1996 (the "Work Plan"). This letter summarizes the issues raised in your letter and our response, as discussed during our phone conversation on 11 June 1996.

Comment 1: An additional sampling point north of the former tank excavation, which could be accommodated by relocating proposed borings SB-5 or SB-6, was requested to completely characterize the extent of the hydrocarbon plume.

Response: Boring SB-5 will be relocated north of the former tank excavation. Soil and groundwater sampling and analysis will be the same as that proposed in the Work Plan and as revised herein.

Comment 2: Methyl tertiary butyl ether ("MTBE") must be included as a target analyte and polynuclear aromatic hydrocarbons ("PNAs") must also be included if total petroleum hydrocarbons quantified as diesel ("TPH-D") is detected.

Response: MTBE will be included as an analyte for all soil and groundwater sampling and analysis. As we discussed on the phone, the soil samples from borings SB-3 and SB-4 will be analyzed for PNAs because these borings are located adjacent to the former tank excavation and are most likely to contain PNAs, if present. Additional soil and groundwater samples will be analyzed for PNAs if (1) PNAs

are detected in the soil samples from borings SB-3 and SB-4 and (2) diesel is detected.

As discussed, all samples will be analyzed on a standard two-week turnaround time. If samples other than from borings SB-3 and SB-4 require analysis for PNAs, such samples will be analyzed after the two-week holding time for PNA analysis. However, given that PNAs are not particularly volatile, the PNA concentrations in soil and groundwater should not be significantly different if the samples are analyzed shortly after the two-week holding time.

Comment 3: Monitoring wells MW-5 and MW-7 must be sampled and included in this phase of the investigation.

Response: Groundwater samples will be collected from wells MW-5 and MW-7. Samples will be analyzed for TPH-D, TPH quantified as gasoline, benzene, toluene, ethylbenzene, xylenes, and MTBE.

Comment 4: A site health and safety plan must be submitted prior to work plan implementation.

Response: A site health and safety plan, dated 31 May 1996, was submitted to the ACDEH on 7 June 1996.

Comment 5: Notify the ACDEH 72 hours in advance of field activities.

Response: As discussed previously, the field activities are scheduled to commence on Saturday, 15 June 1996.

We hope this letter addresses your concerns regarding the planned field activities. If you have any questions, please do not hesitate to call me or Dave Tricaso at Sybase.

Very truly yours,

ERLER & KALINOWSKI, INC.

Michelle Kriegman King, Ph.D.
Project Manager

cc: Dave Tricaso, Sybase, Inc.
John Bruno, Sybase, Inc.

P.01

TRANSACTION REPORT

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		TOTAL				3M 57S PAGES: 6		

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MULTIPLE FAX TRANSMISSION COVER SHEET

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DATE: 14 June 96 TIME: 11 AM

FROM: Michelle King PAGES (including cover sheet): 3

PROJECT: Sybase-6600/6603 PROJECT #: 950714.02

TO THE FOLLOWING:

NAME: Susan Higo NAME: Dave Tricase/John Bruno
COMPANY: ACCENT COMPANY: Sybase
FAX NO.: 510-337-9335 FAX NO.: 510-922-4505

NAME: NAME:

Work Plan for Soil and Groundwater Investigations
at 6601 and 6603 Bay Street
Emeryville, California

18 March 1996

Sybase Inc., Emeryville, California
(EKI 950074.01)

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18 March 1996

Sybase Inc., Emeryville, California
(EKI 950074.01)

1.0 INTRODUCTION

At the request of Sybase, Inc., Erler & Kalinowski, Inc. ("EKI") has prepared this work plan for soil and groundwater investigations on the properties at 6601 and 6603 Bay Street ("the Site") in Emeryville, California (Figure 1).

Three underground storage tanks ("USTs") were removed from the Site in 1989. At a meeting held on 8 November 1995, the Alameda County Department of Environmental Health ("ACDEH") requested that soil samples be collected adjacent to the former USTs to confirm that there is not an ongoing source of petroleum hydrocarbons to groundwater at the Site. If the investigation confirms this conclusion, ACDEH staff indicated that they would consider closing the former UST site.

This work plan first presents background information, followed by a work plan for soil and groundwater sampling. The background information includes the following:

- a summary of previous soil and groundwater sampling for chemicals of concern at the Site,
- an assessment of historic uses of the Site and its vicinity, and
- a review of adjacent properties with documented chemical releases.

The objectives of this soil and groundwater investigation and the subsequent data report are as follows:

- to evaluate the concentration and lateral extent of hydrocarbons in soil and groundwater;
- to confirm that hydrocarbon concentrations in groundwater are not suggestive of free-phase hydrocarbons; and

- to show, based on evaluation of existing monitoring well data, that hydrocarbon concentrations in groundwater are either stable or decreasing (i.e., the plume is either stable or shrinking).

2.0 SETTING

The Site is located on Bay Street between 66th Street and 67th Street in Emeryville, California. The northern portion of the Site is occupied by two concrete tiltup warehouse buildings that are used by Sybase, Inc. as office space for software engineers (Figure 2). The Site is bounded on the west by Bayshore Highway and on the east by Bay Street.

3.0 BACKGROUND

Previous investigations on the Site indicate that petroleum hydrocarbons and benzene, toluene, ethylbenzene, and xylenes ("BTEX") compounds have been detected in soil and groundwater in the vicinity of the former USTs. An assessment of historic uses of the Site was performed to identify potential on-site sources, other than the former USTs, for the hydrocarbons detected in the soil and groundwater on the Site. A review of regulatory agency records was performed to identify potential off-site sources for hydrocarbons present in the soil and groundwater on the Site. The following is a discussion of each of the above evaluations.

3.1 PREVIOUS SOIL AND GROUNDWATER INVESTIGATIONS ON THE SITE

Three underground fuel storage tanks were removed from the Site in 1989 (Figure 2). A report prepared by William Dubovsky Environmental, dated July 1990 (Dubovsky, 1990) summarized the history and removal of the USTs and soil and groundwater sampling performed at that time. The three tanks were reportedly installed in 1973. The 6,000 gallon UST was used to store diesel, the 2,000 gallon UST was used to store gasoline, and the 7,500 gallon UST was used to store gasoline (Dubovsky, 1990).

Prior to removal of the tanks, all three tanks were inspected and no obvious holes, perforations, or corrosion were noted (Dubovsky, 1990). During excavation of the tanks, however, black petroleum product reportedly flowed from the south wall into the excavation beside the diesel

tank. The product that accumulated in the excavation was removed by a hazardous waste hauler. In total, an estimated 2,000 gallons of petroleum product were removed from the excavations (Dubovsky, 1990).

Analytical results for soil and groundwater samples collected from the excavation sidewalls and excavation pit, respectively, indicated the presence of total petroleum hydrocarbons ("TPH") quantified as diesel, TPH quantified as gasoline, oil and grease, and BTEX in both soil and groundwater. Compounds detected in soil samples and their maximum concentrations were as follows (Dubovsky, 1990):

Compound	Maximum Concentration (mg/kg)
Benzene	0.76
Toluene	1.20
Ethylbenzene	0.48
Total Xylenes	21
TPH as Diesel	2,700
TPH as Gasoline	270
Oil & Grease	3,400

Grab groundwater samples were collected from the hydrocarbon/water mixture that accumulated in the excavation. Compounds detected in the grab groundwater samples and their maximum concentrations were as follows (Dubovsky, 1990):

Compound	Maximum Concentration (ug/L)
Benzene	400
Toluene	180
Ethylbenzene	38
Total Xylenes	290
TPH as Diesel	520
TPH as Gasoline	6,300

The analytical results for soil and groundwater samples collected from the excavation are shown in Tables 1 and 2, respectively.

Appendix A contains a figure depicting the groundwater potentiometric surface in the vicinity of the Site. These data were collected as part of investigations on properties adjacent to the Site (Subsurface Consultants, December 1995; PES, December 1995). Since 1989, groundwater samples have been collected from the two monitoring wells (MW-5 and MW-7), located off site and downgradient of the former tanks, and analyzed for TPH quantified as gasoline and BTEX

(Figure 2). This groundwater monitoring has been performed on behalf of the Martin Group who owns the downgradient, adjacent property, located at 1650 65th Street, Emeryville, California (PES, December 1995). Although these wells are located off-site, they are both less than 75 feet downgradient of the former USTs. The concentrations measured during the last sampling round in November 1995 were as follows (PES, December 1995):

Compound	MW-5 Concentration (ug/L)	MW-7 Concentration (ug/L)
Benzene	48	3
Toluene	0.7	<0.5
Ethylbenzene	<0.5	<0.5
Total Xylenes	<2	<2
TPH as Gasoline	300	90

The analytical results for all groundwater samples collected from the two downgradient monitoring wells are shown in Table 3. A plot of benzene concentrations measured in the downgradient wells over the past six years is shown on Figure 3. As Figure 3 shows, benzene concentrations measured downgradient of the former USTs have gradually decreased since 1989.

3.2 SITE LAND USE HISTORY

Information on the land use history of the Site was obtained from a review of Sanborn fire insurance maps, historical aerial photographs, and a 21 December 1993 technical briefing prepared by Weiss Associates (Weiss Associates, December 1993). According to Weiss' technical briefing and aerial photographs, the subject property was part of the San Francisco Bay until the 1930's. From the 1930's until the early 1950's, the Site was used by the City of Emeryville for disposal of municipal waste (Weiss Associates, December 1993). As indicated by an aerial photograph of the Site from 7 July 1959, the currently existing buildings were constructed by 1959. In the same aerial photograph, a possible tank pad is visible south of the buildings on the Site. The two buildings on the Site were reportedly used for warehouse activities (Dubovosky, 1990). A 1967 Sanborn Map shows the buildings were used as a sugar warehouse and a liquor warehouse. In 1973, the two gasoline tanks and the diesel tank were reportedly installed in the approximate location of the suspected tank pad (Weiss Associates, December 1993).

3.3 SUMMARY OF ENVIRONMENTAL REVIEW OF ADJACENT PROPERTIES

A regulatory agency records search revealed three reported chemical release sites within several hundred feet of the Site (Figure 4):

- Emery Bay Plaza/Bayfront
  1650 65th Street

- Nady Systems, Inc.
  6707 Bay Street

- Clearprint Paper Company
  1482 67th Street

Chemicals released to groundwater at two these sites may have impacted the subject property. These sites are discussed below.

Emery Bay Plaza/Bayfront

The Emery Bay Plaza/Bayfront site ("Emery Bay Site") borders the Site to the south, lying immediately downgradient of the Site (Figure 4). ACDEH files indicate that a 2,000-gallon UST was used at various times during the 1960's to store gasoline and waste oil. In April 1987, hydrocarbons were detected in the soil underlying the UST. In July 1987, the UST was excavated. Six monitoring wells and one extraction well were installed between September 1989 and March 1990. Two of these are wells MW-5 and MW-7, located downgradient of the former USTs on the 6601/6603 Bay Street Site (Figure 2). Concentrations of total BTEX up to 31,200 ug/L and concentrations of TPH-G up to 100,000 ug/L were detected in groundwater samples collected from the Emery Bay Site wells in the vicinity of the former 2000-gallon UST.

Quarterly groundwater samples taken from these wells between March 1990 and December 1995 indicate that concentrations of TPH quantified as gasoline ("TPH-G"), TPH quantified as diesel ("TPH-D"), and BTEX are either declining or remaining stable at all monitoring well locations on the Emery Bay Site (PES, December 1995). Because the groundwater flow direction on the Emery Bay Site is to the south, it is unlikely that chemicals from the former UST on the Emery Bay Site have impacted the 6601/6603 Bay Street Site.

Nady Systems, Inc.

The Nady Systems, Inc. property ("Nady Site") is located immediately north of the Site (Figure 4). ACDEH files indicate that one 2,000-gallon UST, one 1,650-gallon UST, and one 3,200-gallon UST were removed from the Nady Site in October 1989. Analytical results of soil samples collected following tank removal indicate that soils in the former UST area contained elevated concentrations of benzene, xylenes, dichlorobenzene, and 4-methyl-2-pentanone ("MIBK"). Ethylbenzene, toluene, semi-volatile organics, total extractable hydrocarbons, and total volatile hydrocarbons were also detected in soil samples collected from the excavation area. Maximum concentrations of chemicals detected in the soil samples collected in October 1989 are as follows (Subsurface Consultants, May 1994):

Compound	Maximum Concentration (mg/kg)
Total Extractable Hydrocarbons	0.7
Total Volatile Hydrocarbons	0.46
Acetone	0.04
Benzene	4.6
Ethylbenzene	0.11
Toluene	0.06
Total Xylenes	7.5
MIBK	5,000
1,2-Dichlorobenzene	0.07
1,3-Dichlorobenzene	2
1,4-Dichlorobenzene	2.5
Trichlorofluoromethane	0.009
1,1,1-Trichloroethane	0.006
Freon 113	0.006

Analytical results from periodic sampling of groundwater wells at the Nady Site between 1989 and 1995 indicates that concentrations of most of the above chemicals have gradually decreased following the removal of the USTs and the operation of a soil vapor extraction system in 1990 and 1991 (Subsurface Consultants, December 1995). The groundwater flow direction in the immediate vicinity of the tanks on the Nady Site (i.e., near wells MW-1, MW-8, and MW-9 on the Nady Site) appears to be to the west/northwest (Appendix A). Most recent groundwater monitoring data indicates that MIBK and benzene concentrations in the immediate vicinity of the former Nady tanks are as high as 85,000 ug/L and 63 ug/L, respectively. These compounds were not detected in samples collected from wells located 20 to 30 feet west/northwest of the former Nady tanks. If there is a significant component

of groundwater flow onto the 6601/6603 Site, then the former Nady tanks may be a source of hydrocarbons in groundwater on the Site.

Clearprint Paper Company

The Clearprint Paper Company Site ("Clearprint Site") is located approximately 500 feet northeast of the Site on the north side of 67th Street (Figure 4). According to ACDEH files, four USTs (two 10,000-gallon tanks, one 8,000-gallon tank, and one 1,000-gallon tank) were removed from the Clearprint Site in September and October 1994. The tanks reportedly contained solvents and mineral oil. Some of these solvents contained low percentages of benzene, toluene, and xylene (Environmental Strategies, December 1995). Soil samples collected from the sidewalls and bottoms of the tank excavations contained elevated levels of oil and grease, TPH-G, TPH-D, and BTEX. Oil and grease up to 930 mg/kg, TPH-G up to 610 mg/kg, TPH-D up to 340 mg/kg, benzene up to 14 mg/kg, toluene up to 320 mg/kg, ethylbenzene up to 210 mg/kg, and xylenes up to 58 mg/kg were detected in confirmation soil samples collected during the tank excavation. Grab groundwater samples from the excavation contained up 19,000 ug/L of TPH-D and 12,000 ug/L TPH-G (Environmental Strategies, December 1995).

A supplemental investigation was conducted in December 1995 to better characterize the extent of hydrocarbons in groundwater at the Clearprint site. In a 14 December 1995 report, Environmental Strategies Corporation reported a large plume of TPH-G, TPH-D, and BTEX on the Clearprint Site. Maximum concentrations of hydrocarbons detected in groundwater monitoring well samples collected from the Clearprint Site were as follows (Environmental Strategies, December 1995):

Compound	Maximum Concentration (ug/L)
Benzene	730
Toluene	2,100
Ethylbenzene	270
Total Xylenes	1,400
TPH as Diesel	650
TPH as Gasoline	8,600

Although the maximum concentrations of some of the compounds were detected in the well located upgradient of the Clearprint Site, former USTs at the Clearprint Site or an upgradient site may be a source of hydrocarbons and BTEX compounds on the 6601/6603 Bay Street Site.

4.0 WORK PLAN

As stated above, the objectives of this work plan and the subsequent data report are as follows:

- to evaluate the concentration and lateral extent of hydrocarbons in soil and groundwater;
- to confirm that hydrocarbon concentrations in groundwater are not suggestive of free-phase hydrocarbons; and
- to show, based on evaluation of existing groundwater monitoring data, that hydrocarbon concentrations in groundwater are either stable or decreasing (i.e., the plume is either stable or shrinking).

A total of six soil borings will be completed to collect soil and groundwater samples (Figure 5). The locations of borings B-3 and B-4 were chosen to confirm the results of soil and groundwater sampling performed during the tank excavation. Analysis of samples from borings B-1, B-2, B-5, and B-6 will allow us evaluation of (1) the lateral extent of hydrocarbons in soil and groundwater, and (2) background conditions for this part of Emeryville. Six soil samples and six grab groundwater samples will be collected from the Site and analyzed for TPH-G, TPH-D, and BTEX. Soil and grab groundwater sampling will be conducted in accordance with the scope of work described below.

4.1 TASK 1 - ACQUIRE PERMITS, PERFORM UNDERGROUND UTILITY SURVEY, AND PREPARE SITE HEALTH AND SAFETY PLAN

Prior to the initiation of the field work, all applicable permits to collect grab groundwater samples will be obtained from the Alameda County Flood Control and Water Conservation District, Zone 7. All drilling locations will be cleared through contact with Underground Services Alert ("USA") and a private utility locating company.

Specific health and safety procedures will be defined in a project-specific Health and Safety Plan which will be prepared by EKI prior to the initiation of field work. We have assumed that work on the Site can be conducted using EPA Level D protection (e.g., coveralls, hard hat, and steel-toed boots). Air quality within the breathing zone

will be monitored with an Organic Vapor Meter ("OVM") while work is in progress.

4.2 TASK 2 - SOIL AND GRAB GROUNDWATER SAMPLING

A total of six borings will be constructed for the collection of soil and grab groundwater samples (Figure 5). The borings will be constructed with a hollow stem auger drill rig. Soil samples will be collected by driving a split-spoon sampler into the undisturbed soil ahead of the augers. The split spoon sampler will be fitted with precleaned brass or stainless steel tubes to retain soil samples. Soil samples will be collected from the six borings at a depth between 4 and 5.5 feet below ground surface ("bgs"). The 6-inch long liner will be covered with Teflon® sheets and capped with plastic end caps. The liners will be labeled, placed in a cooler, and transported to the laboratory for chemical analysis with a chain-of-custody record. Each boring will be completed to a depth of approximately 10 feet bgs, or one to two feet below first-encountered groundwater.

After the boring is completed, a clean Teflon® or disposable bailer with disposable nylon string will be lowered down either the center of the auger or the open borehole. A grab groundwater sample will be collected in the bailer. The groundwater will then be transferred into the appropriate sample containers, which will be labeled, placed on ice in a cooler, and transported to the laboratory for chemical analysis with a chain-of-custody record. Groundwater samples will be collected from all six borings to identify the presence of a hydrocarbon sheen, if any, and to measure dissolved oxygen concentrations. Groundwater samples from each of the borings will also be submitted for laboratory analysis.

A geologist or engineer will be present during drilling and sampling activities to document encountered lithology, perform field screening, and prepare selected soil samples for chemical analysis. Upon completion of sampling activities, each boring will be backfilled to the surface using a cement and bentonite grout mixture. A licensed land surveyor will measure the horizontal and vertical coordinates of the borings relative to a nearby benchmark or building corner.

4.3 TASK 3 - LABORATORY ANALYSIS

The six soil samples from borings B-1 through B-6 will be analyzed for the following chemical constituents:

- TPH-D (EPA Method 8015) and
- TPH-G/BTEX (EPA Methods 8015 and 8020).

Grab groundwater samples from each of the borings will be analyzed in the field for dissolved oxygen and the presence of a hydrocarbon sheen. The six grab groundwater samples from borings B-1 through B-6 will be analyzed in the laboratory for the following chemical constituents:

- TPH-D (EPA Method 8015) and
- TPH-G/BTEX (EPA Methods 8015 and 8020).

A travel blank will also be analyzed for the following chemical constituents:

- TPH-G/BTEX (EPA Methods 8015 and 8020).

4.4 TASK 4 - EVALUATE SITE DATA AND PREPARE REPORT

Following completion of the above tasks, a written report will be prepared by EKI. The report will present the results of the soil and groundwater sampling as outlined in Tasks 1 through 3 above. The report will summarize the history of the Site and former tanks, field procedures, analytical procedures, and analytical results. As appropriate, the report will address closure of the former tank sites, including an evaluation of the extent of petroleum hydrocarbons in soil and groundwater and a statistical evaluation of the downgradient groundwater monitoring data.

5.0 REFERENCES

Engineering-Science, June 1990, Evaluation of Groundwater Remediation Alternatives and Remedial Action Plan, 1650 65th Street Property, Emeryville, California.

Environmental Strategies Corporation, 14 December 1995, Supplemental Investigation of the Former Underground Storage Tank Area, Clearprint Paper Company, Emeryville, California

PES Environmental , Inc., 29 December 1995, Year End Summary Report Bioremediation Pilot Study and Quarterly Groundwater Monitoring, November 1995 Sampling Event, Emery Bay Plaza, 1650 65th Street, Emeryville, California.

Subsurface Consultants, Inc., 23 May 1994, Summary of Environmental Investigation/Remediation, 6707 Bay Street, Emeryville, California.

Subsurface Consultants, Inc., 15 December 1995, Groundwater Monitoring, November 1995 Event, 6707 Bay Street, Emeryville, California.

William Dubovsky Environmental, July 1990, Environmental Report, 6601 and 6603 Bay Street, Emeryville, California.

Weiss Associates, 21 December 1993, Technical Briefing for Sybase Regarding Environmental Assessment of 6601 and 6603 Bay Street, Emeryville, California.

Table 1
Analytical Results for Soil Samples Collected from the
Underground Storage Tank Excavations at 6601 and 6603 Bay Street (a)
Sybase, Inc.
Emeryville, California
(EKI 950074.01)

Sample Location (b)	Sample Date	Sample Depth (feet bgs) (c)	Chemical Concentration(mg/kg) (d)					
			TPH-G	TPH-D	Benzene	Toluene	Ethyl-benzene	Total Xylenes
Tank 1 North Wall (e)	12 Sep 89	7.5 (f)	NA (g)	1400	<0.02 (h)	<0.02	<0.02	<0.02
Tank 1 East Wall	12 Sep 89	7.5	NA	1500	<0.02	<0.02	<0.02	<0.02
Tank 1 South Wall	12 Sep 89	7.5	NA	300	<0.02	<0.02	<0.02	<0.02
Tank 2 North Wall	10 Oct 89	7.5	270	NA	0.76	1.2	0.48	1.9
Tank 2 South Wall	10 Oct 89	7.5	<1	NA	0.18	0.007	<0.005	0.013
Tank 3 West Wall	10 Oct 89	7.5	2.5	NA	0.64	<0.01	<0.01	21

Notes:
(a) Data from William Dubovsky Environmental, July 1990
(b) Tank 1 was the 6,000-gallon diesel tank.
Tank 2 was the 7,500-gallon gasoline tank.
Tank 3 was the 2,000-gallon gasoline tank.
(c) feet bgs = feet below ground surface
(d) TPH-G = Total Petroleum Hydrocarbons quantified as Gasoline
TPH-D = Total Petroleum Hydrocarbons quantified as Diesel
(e) The Tank 1 pit was overexcavated on 31 August 1989. On 17 September 1989, the pit filled with water and free product. Therefore, the additional soil samples collected by Dubovsky after 17 September 1989 are not likely to be representative of actual chemical conditions. These results are not shown in the Table.
(f) The depth to groundwater fluctuates seasonally between approximately 6 and 8 feet below ground surface. As a result, hydrocarbon concentrations in soil samples collected at 7.5 below ground surface may be influenced by groundwater containing dissolved and/or free-phase hydrocarbons.
(g) NA = Not Analyzed
(h) Less than symbol ("<") indicates that the compound was not present above the detection limit indicated.

Table 2
Analytical Results for Groundwater Samples Collected from the Underground Storage Tank Excavations at 6601 and 6603 Bay Street (a)
Sybase, Inc.
Emeryville, California
(EKI 950074.01)

Sample Location (b)	Sample Date	TPH-G	Chemical Concentration (ug/L) (c)				
			TPH-D	Benzene	Toluene	Ethyl-benzene	Total Xylenes
Tank 1 Pit	12 Sep 89	1400	NA (d)	8	<0.5 (e)	<0.5	6
Tank 2 Pit	25 Jan 90	NA	520	<5	<5	<5	<5
Tank 3 Pit	10 Oct 89	6300	NA	400	180	38	290

Notes:
(a) Data from William Dubovsky Environmental, July 1990
(b) Tank 1 was the 6,000-gallon diesel tank.
Tank 2 was the 7,500-gallon gasoline tank.
Tank 3 was the 2,000-gallon gasoline tank.
(c) TPH-G = Total Petroleum Hydrocarbons quantified as Gasoline
TPH-D = Total Petroleum Hydrocarbons quantified as Diesel
(d) NA = Not Analyzed
(e) Less than symbol ("<") indicates that the compound was not present above the detection limit indicated.

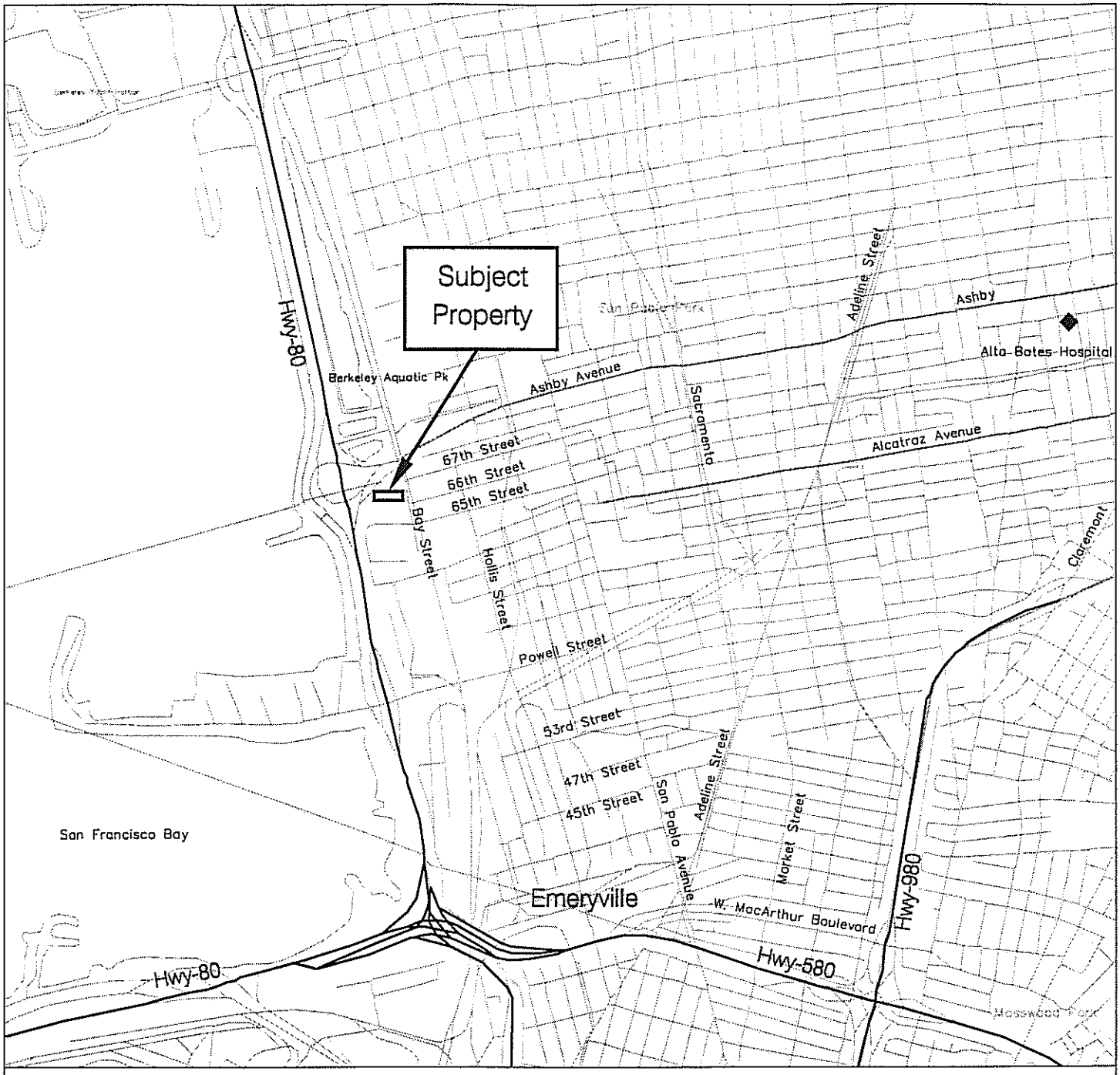
Table 3
Analytical Results for Groundwater Samples Collected Downgradient of the Former Underground Storage Tanks at 6601 and 6603 Bay Street (a)
Sybase, Inc.
Emeryville, California
(EKI 950074.01)

Well Number	Sample Date	Chemical Concentration (ug/L) (b)					
		TPH-G	TPH-D	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW-5	Nov 89	ND (c)	NA (d)	74	ND	ND	4.2
	Feb 90	ND	NA	200	ND	ND	ND
	May 90	ND	ND	110	ND	ND	ND
	Aug 90	ND	700	66	2.2	ND	3.8
	Nov 90	600	900	69	ND	ND	ND
	Mar 91	ND	1100	66	2.3	ND	ND
	May 91	ND	ND	110	ND	ND	ND
	Aug 91	ND	ND	78	2.1	ND	ND
	29 Jan 92	190	NA	90	0.5	<0.3 (e)	0.6
	28 Feb 92	230	NA	110	0.9	<0.3	0.5
	28 May 92	130	NA	100	<0.5	<0.5	<0.5
	27 Aug 92	520	NA	83	2	<0.5	<0.5
	10 Nov 92	240	<100	74	1	<0.3	<0.6
	18 Feb 93	190	NA	56	0.6	<0.5	<0.5
	20 May 93	<200	NA	56	<2	<2	<2
	19 Aug 93	170	NA	50	0.7	<0.5	<0.5
	15 Nov 93	220	NA	49	1	<1	<1
	14 Feb 94	140	NA	62	<0.5	<0.5	<0.5
	16 May 94	310	NA	140	3	<3	<3
	12 Aug 94	500	NA	95	34	4	14
	3 Nov 94	400	NA	79	0.6	<0.5	<2
	9 Feb 95	300	NA	74	0.8	<0.5	<.2
	9 May 95	200	NA	47	0.5	<0.5	<2
	10 Aug 95	200	NA	46	0.5	<0.5	<2
	13 Nov 95	300	NA	48	0.7	<0.5	<2
MW-7	May 90	NA	600	240	ND	ND	ND
	Aug 90	ND	ND	81	1.8	ND	ND
	Nov 90	ND	800	54	ND	ND	ND
	Mar 91	ND	ND	100	3.6	ND	ND
	May 91	ND	ND	120	2.7	ND	ND
	Aug 91	ND	ND	74	3.3	ND	ND
	29 Jan 92	270	NA	25	0.5	<0.3	0.8
	28 Feb 92	100	NA	33	0.7	<0.3	0.7
	28 May 92	150	NA	21	<0.5	<0.5	<0.5
	27 Aug 92	440	NA	11	1	<0.5	<0.5
	10 Nov 92	370	<100	31	1.2	<0.3	1.2
	18 Feb 93	270	NA	77	1.3	<0.5	1.4
	20 May 93	300	NA	150	3	<2	3
	19 Aug 93	110	NA	40	1	<0.5	1.1
	15 Nov 93	120	NA	15	0.6	<0.5	2.3

Table 3
Analytical Results for Groundwater Samples Collected Downgradient of the Former Underground Storage Tanks at 6601 and 6603 Bay Street (a)
Sybase, Inc.
Emeryville, California
(EKI 950074.01)

Well Number	Sample Date	Chemical Concentration (ug/L) (b)					
		TPH-G	TPH-D	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW-7 (cont.)	14 Feb 94	120	NA	38	<0.5	<0.5	<0.5
	17 May 94	<300	NA	61	<3	<3	<3
	10 Aug 94	100	NA	9	<0.5	<0.5	<2
	3 Nov 94	100	NA	3	<0.5	<0.5	<2
	9 Feb 95	200	NA	50	0.6	<0.5	<2
	9 May 95	300	NA	120	1	<0.5	<2
	10 Aug 95	<50	NA	7	<0.5	<0.5	<2
	13 Nov 95	90	NA	3	<0.5	<0.5	<2

Notes:
(a) Data from PES Environmental, Inc., December 1995. Samples prior to 1992 were collected by Engineering-Science.
(b) TPH-G = Total Petroleum Hydrocarbons quantified as Gasoline
TPH-D = Total Petroleum Hydrocarbons quantified as Diesel
(c) ND = Not Detected
Note that detection limits were not available in the summary tables in PES, December 1995.
(d) NA = Not Analyzed
(e) Less than symbol ("<") indicated that the compound was not present above the detection limit indicated.



0 2500 5000

(Approximate Scale in Feet)

N

Erler & Kalinowski, Inc.

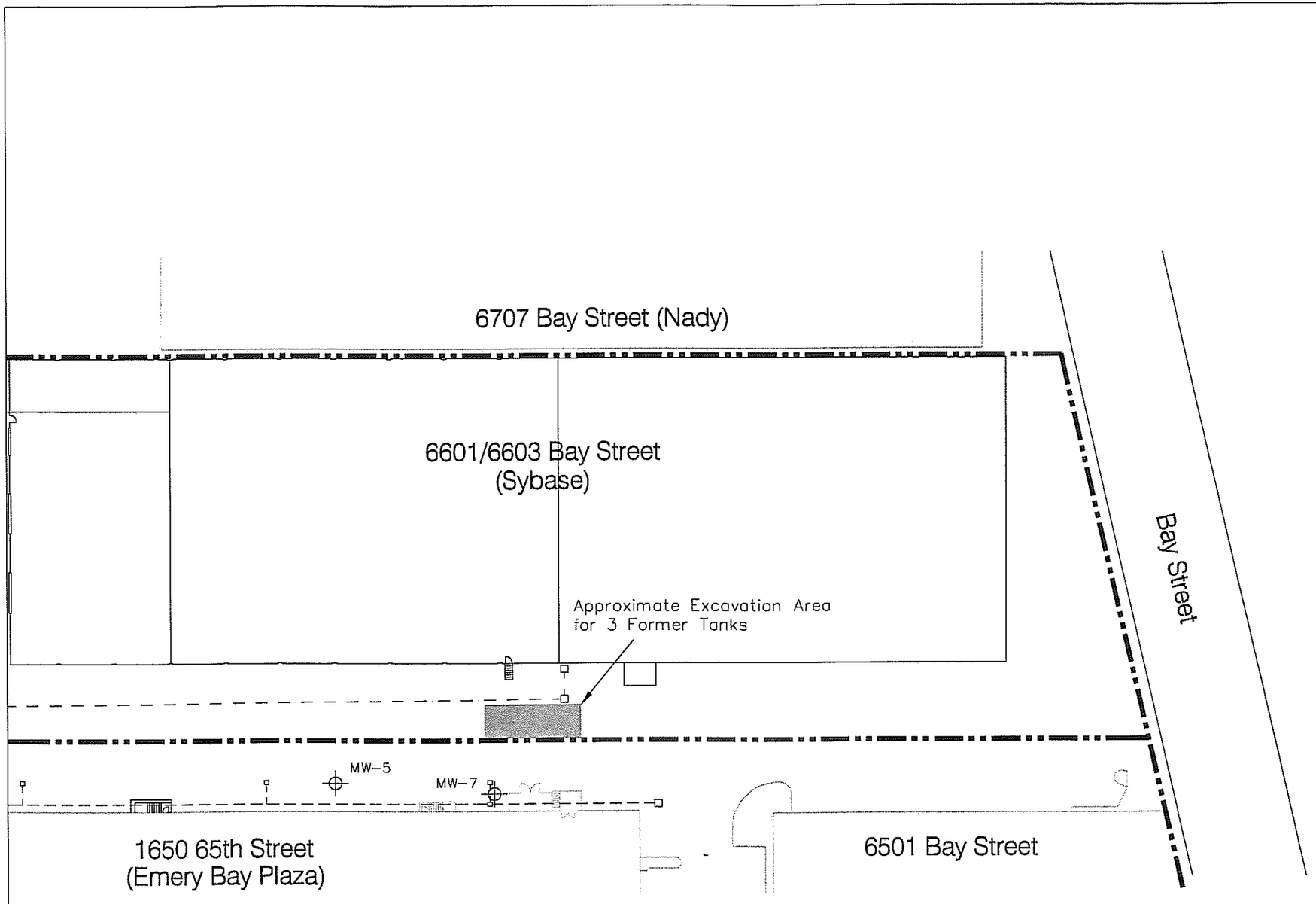
Site Location

6601/6603 Bay Street
Emeryville, CA
February 1996
EKI 950074.01

Figure 1

Notes:

1. All locations are approximate.



N

0 50 100

(Approximate Scale in Feet)

LEGEND

- Property Boundary
- Sanitary Sewer Line
- Storm Drain Line
- Off-Site Monitoring Well Location
- Approximate Excavation Area

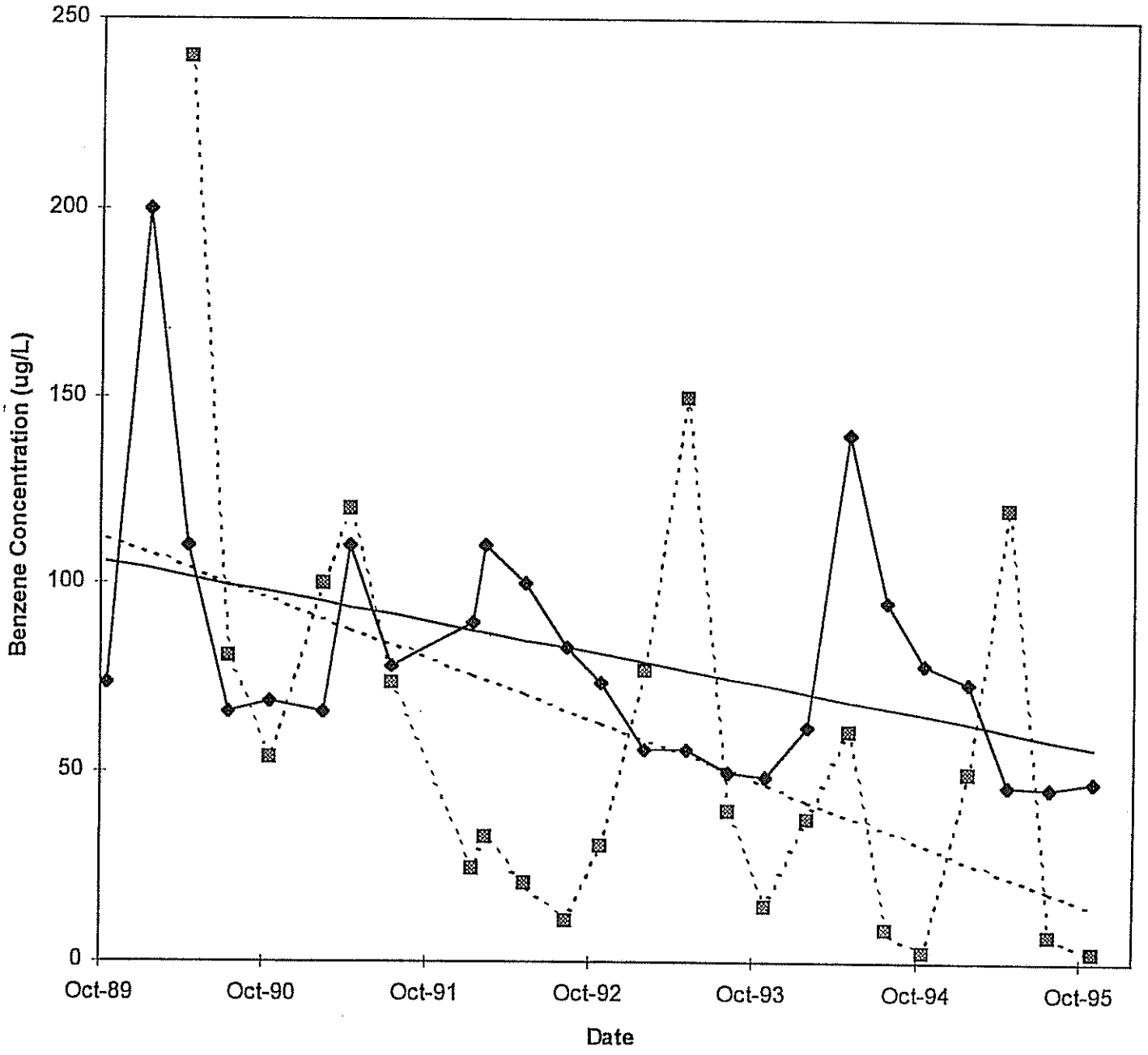
Notes:

1. All locations are approximate.
2. Base map digitized from Alta Land Survey Title Map.

Erler & Kalinowski, Inc.

Site Plan

6601/6603 Bay Street
Emeryville, CA
February 1996
EKI 950074.01
Figure 2



LEGEND

- MW-5
- MW-7
- MW-5 Regression
- MW-7 Regression

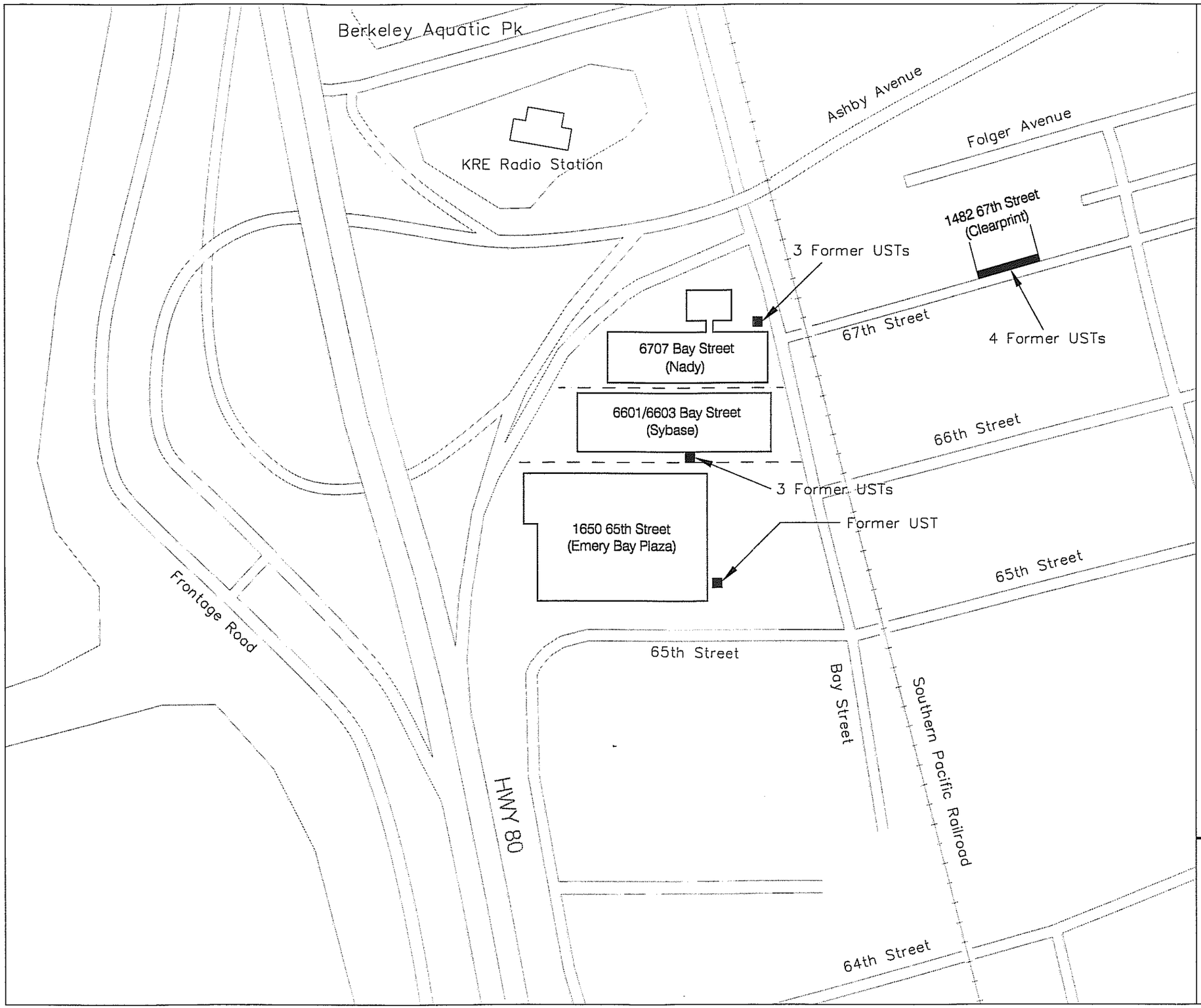
Notes:

1. Data from PES Environmental Inc., December 1995. Samples collected prior to 1992 were collected by Engineering Science.

Erler & Kalinowski, Inc.

Benzene Concentrations of Groundwater Samples Collected Downgradient of Former USTs

6601/6603 Bay Street
Emeryville, California
February 1996
EKI 950074.01
Figure 3



N

0 250 500

(Approximate Scale in Feet)

LEGEND

■ Former Underground Storage Tank (UST) Location

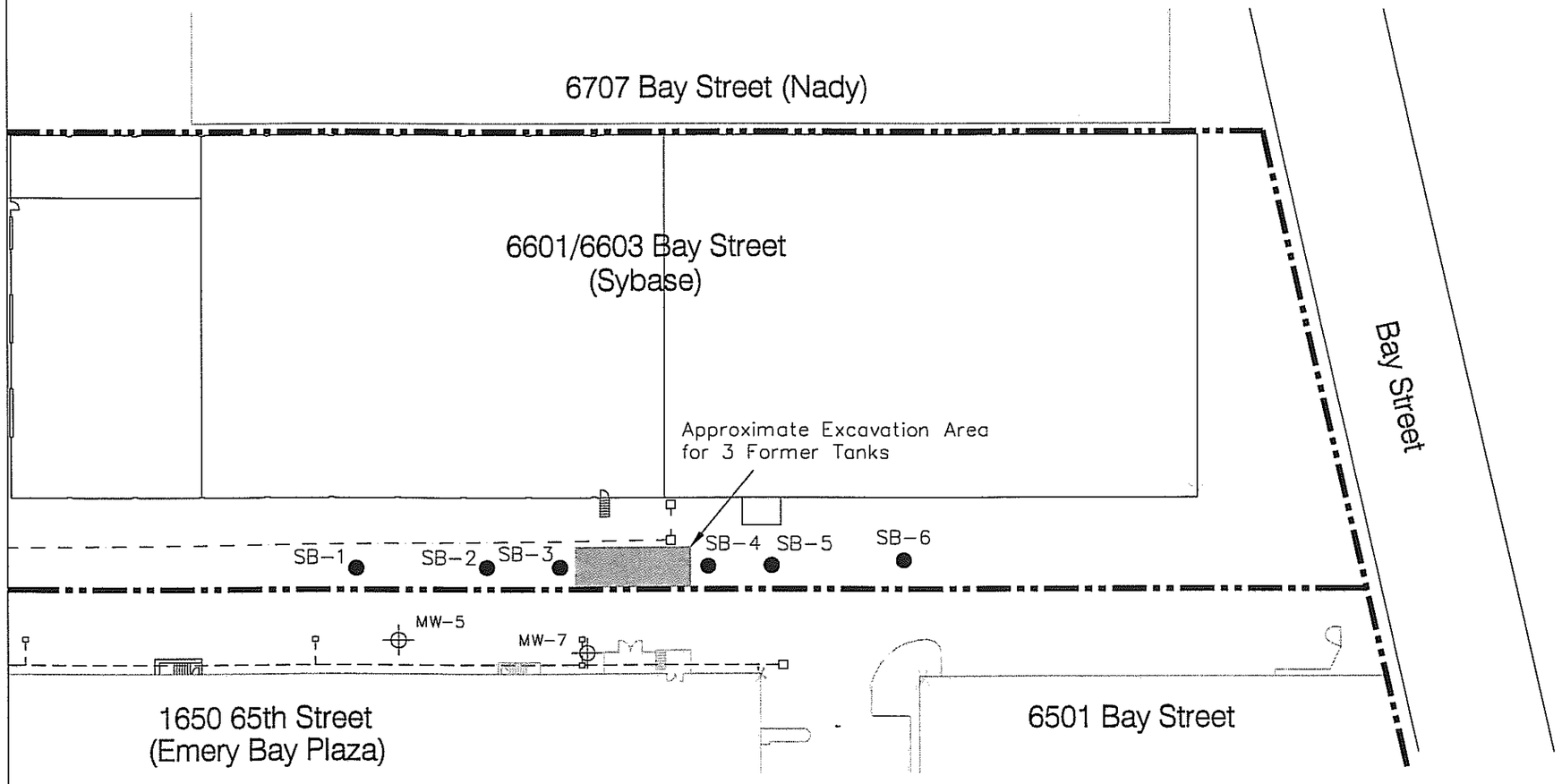
Notes:

1. All locations are approximate.

Erler & Kalinowski, Inc.

Locations of Nearby Chemical Release Sites

6601/6603 Bay Street
Emeryville, CA
February 1996
EKI 950074.01
Figure 4



N

0 50 100

(Approximate Scale in Feet)

LEGEND

- Property Boundary
- Sanitary Sewer Line
- Storm Drain Line
- Off-Site Monitoring Well Location
- Approximate Excavation Area
- Proposed Soil Boring Location

Notes:

1. All locations are approximate.
2. Base map digitized from Alta Land Survey Title Map.

Erler & Kalinowski, Inc.

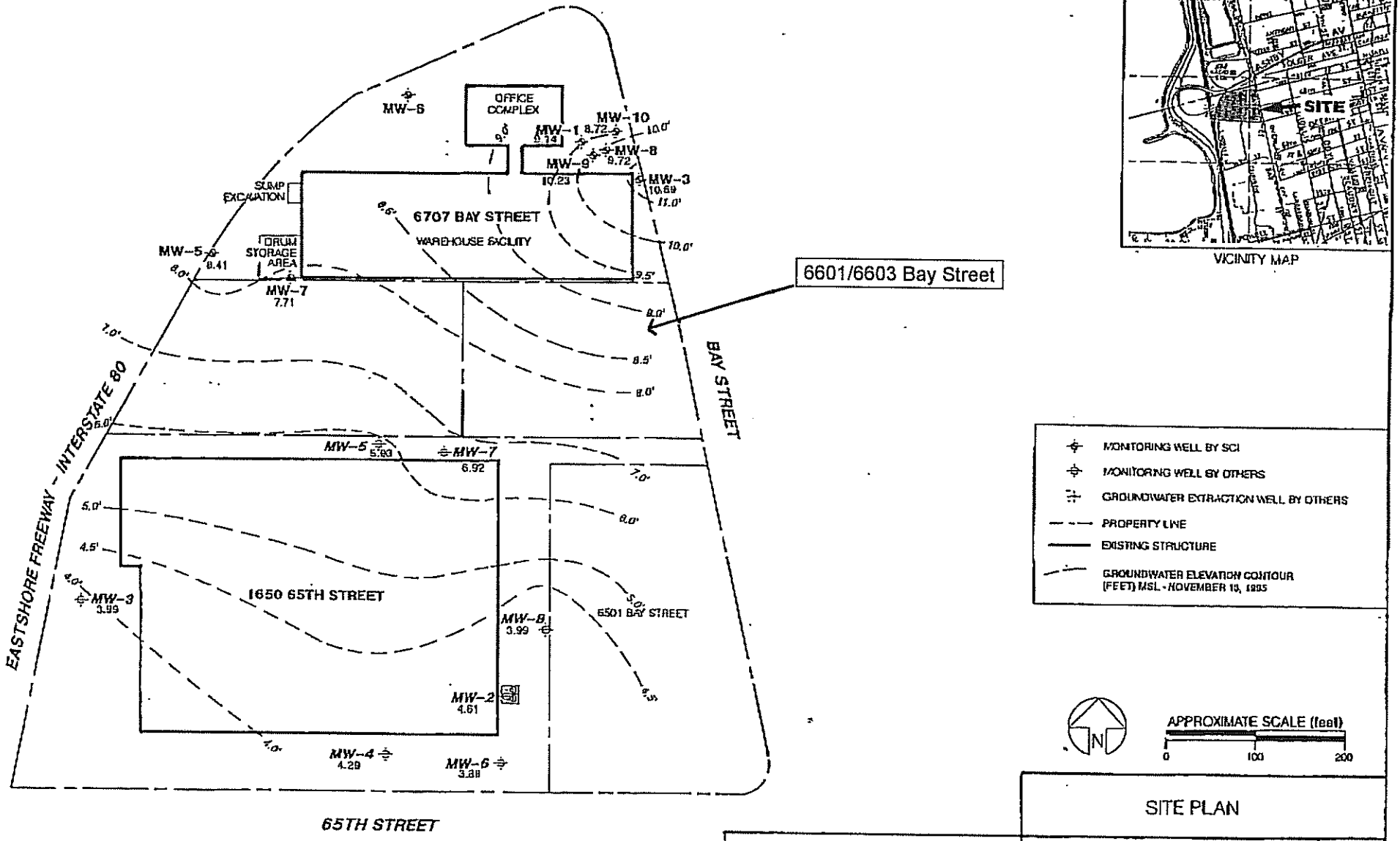
Proposed Soil Boring Locations

6601/6603 Bay Street
Emeryville, CA
February 1996
EKI 950074.01
Figure 5

APPENDIX A

Groundwater Potentiometric Surface in the Vicinity of
6601/6603 Bay Street

Obtained from Subsurface Consultants, Inc.,
Groundwater Monitoring, November 1995 Event,
dated 15 December 1995



SITE PLAN

Subsurface Consultants

6707 BAY STREET – EMERYVILLE, CA

JOB NUMBER	DATE	APPROVED	PLATE
620.001	12/6/95		1