Harding Lawson Associates

Transmittal/Memorandum

To: Alameda County Department of Health
80 Swan Way, Room 200
Oakland, California 94

Attention: Ms. Susan Hugo

From: Melissa L. Wann MLW
Date: January 31, 1992
Subject: Work Plan, 6121 Hollis Street
Job No.: 05525,124.02

Remarks:

Please find enclosed one copy of HLA's report entitled *Work Plan, 6121 Hollis Street, Emeryville, California,* dated January 29, 1992.

Also enclosed is a check for $670 for your review fees as per our discussion. It is HLAs' and the USPSs' understanding that this is for 10 hours of your review and funds not used will be refunded. Please send a receipt to my attention for accounting purposes.

If you have any questions, please call.

cc: MLW\USPS-1\10013

A Report Prepared for

United States Postal Service
San Bruno Facility Service Center
850 Cherry Street
San Bruno, California 94009

WORK PLAN
6121 HOLLIS STREET
EMERYVILLE, CALIFORNIA

HLA Job No. 05525,134.02

by

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Project Geologist

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January 30, 1992

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LIST OF ILLUSTRATIONS

1.0 INTRODUCTION

This Work Plan has been prepared by Harding Lawson Associates (HLA) for the United States Postal Service (USPS) to address further site characterization activities at the proposed USPS facility, 6121 Hollis Street, Emeryville, California (Plate 1). This document has been developed to present a scope of work to address soil and groundwater sampling activities prior to and during construction of the proposed USPS facility (Plate 2) to assess the need for remedial activities.

It describes the methodologies and procedures to be followed during soil and groundwater sample collection at the site. Previous site investigations have revealed the presence of polychlorinated biphenyls (PCBs) and total petroleum hydrocarbons (TPH) in subsurface soil samples (see Section 2.2).

The scope of work was presented to Ms. Susan Hugo of the Alameda County Department of Environmental Health (ACDEH) in a meeting on November 5, 1991, and to the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), in a meeting on December 3, 1991. This work plan proposes sampling activities agreed to by USPS, ACDEH, and RWQCB (*HLA, 1991*), to be implemented in two phases: preconstruction sampling and construction monitoring and sampling.

2.0 BACKGROUND INFORMATION

2.1 Site Description

The USPS property in Emeryville is situated east of Interstate 80/580, approximately 1 mile north of the Bay Bridge (Plate 1). The site is currently a vacant lot approximately 255 feet wide by 290 feet long. The northern property line is contiguous with 62nd Street. A Southern Pacific Railroad spur is adjacent to the western site boundary. PCB contamination south of the site on property owned by Westinghouse has been contained with a slurry wall and capped.

2.2 Site History

Several soil samples collected in the vicinity of the southern site boundary were analyzed for PCBs by the California Department of Health Services (DHS) in February 1981. These samples contained elevated PCB concentrations. This finding prompted ITT Grinnell Corporation, the former owner of the property, to retain CH2M Hill to conduct additional soil sampling and analysis. CH2M Hill's June 1981 report confirmed PCBs to be present in the shallow soil along the southwestern property boundary adjacent to a railroad spur. The sampling locations were not well documented in the DHS or CH2M Hill reports; therefore, the analytical results could not be used to characterize the site.

In 1985, the RWQCB, issued Cleanup and Abatement Order No. 85-006 for the Westinghouse property south of the site, asserting that Westinghouse took inadequate action to prevent the movement of PCBs soils from its property. Following negotiations with state and federal regulatory agencies, a continuous 35-foot-deep slurry wall surrounding the PCB-contaminated soils was constructed. Outside the wall, soil from certain areas along the northern and eastern boundaries of the site having significant

(greater than 50 parts per million [ppm]) PCB contamination was excavated and moved to within the wall. The soil was later covered with an engineered cap to reduce erosion and surface water infiltration.

In August 1990, HLA drilled 17 shallow soil borings at the USPS site using a hand auger. Eleven soil borings were drilled to a depth of 3.5 feet, five borings were drilled to a depth of 2 feet or less because rocky soil or concrete was encountered which prohibited further hand auguring. One boring was abandoned after drilling through asphalt into concrete.

Of the 41 soil samples analyzed for PCBs, only one sample collected from a depth between 1.2 and 2.0 feet contained PCBs at a concentration at or above 5,000 micrograms per kilogram (μg/kg) (5 ppm). This sample contained 52,000 μg/kg (52 ppm) PCB. It was requested that the laboratory confirm the concentration reported; and a second soil sample from the same sample tube was analyzed; detecting 17,000 μg/kg (17 ppm) PCBs. Although the concentrations were inconsistent, the two analyses indicate that PCBs are present.

Petroleum hydrocarbon odors were detected in three of the borings, and soil samples from these borings were analyzed for TPH. TPH as diesel was detected at a maximum concentration of 430 milligrams per kilogram (mg/kg, equivalent to ppm). TPH as gasoline (51 mg/kg) and as kerosene (260 mg/kg) were also detected. The results are presented in HLA's Shallow Soils Investigation Report dated September 20, 1990 (*HLA, 1990*).

3.0 SCOPE OF WORK

The following scope of work has been prepared to further characterize the lateral and vertical distribution of PCBs and TPH at the site prior to and during construction activities and to estimate volumes of soil for disposal, if necessary.

The site characterization activities will include:

- A review of environmental investigations for the adjacent Westinghouse property
- Drilling eight shallow exploratory borings to collect soil samples
- Drilling two exploratory borings to collect soil and groundwater samples
- Installation, development, and sampling of one groundwater monitoring well.

3.1 Data Review

HLA will review available information and reports describing environmental investigations at the adjacent Westinghouse property to assess groundwater flow direction hydraulic gradient, and groundwater quality.

3.2 Exploratory Boring Sampling

Eleven exploratory borings will be drilled, eight shallow borings and three deeper borings, to collect soil and groundwater samples. A groundwater monitoring well will be installed in one of the deeper borings. The locations of the proposed borings are shown on Plate 3.

The borings will be drilled using a truck-mounted drill rig equipped with 8-inch outside diameter (OD) hollow-stem augers. All borings will be logged by an HLA geologist in accordance with the Unified Soil Classification System (USCS). The boring logs will contain the following information

- Borehole designation and locations

- Sample depth
- Color of soil sample (Munsell Soil Color Index)
- Designation of soil type (USCS)
- Stiffness or density
- Moisture content (qualitative)
- Drive-sample blow count
- Descriptive comments
- Depth at which groundwater is first encountered

A sample boring log is included in Appendix A.

Upon completion of drilling and sampling activities, the boring not completed as a groundwater monitoring well will be backfilled to ground surface with a cement grout. The cuttings will be placed in drums and labeled pending analysis. If the cuttings contain concentrations of PCBs or TPH considered to be hazardous, USPS will arrange for the cuttings to be disposed of as hazardous waste.

3.2.1 Soil Sampling

Soil samples for lithologic description and chemical analysis will be collected at 3-foot intervals from the borings by advancing a modified California split-barrel sampler in front of the auger. The sampler will be lined with clean sample tubes for each sampling interval. The soil in all of the tubes will be used for lithologic description. One tube from each interval will be screened for the presence of volatile organic compounds (VOCs) using an organic vapor analyzer (OVA). OVA readings and field observations such as visible discoloration or staining, or the presence of hydrocarbon odors, will be recorded on the boring log.

If field reconnaissance screening (described above) does not reveal the presence of VOCs, two samples from each boring will be analyzed for PCBs using EPA Test

Method 8080. A minimum of 20 percent (or 5 samples) will also be analyzed for TPH as gasoline and diesel using EPA Test Method 8015 (modified) and for benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Test Method 8020. All soil samples submitted for analysis will be sealed with Teflon-lined plastic caps, labeled, and handled as described in Section 4.0.

3.2.2 Borehole Groundwater Samples

Grab groundwater samples will be collected from two borings in the locations shown on Plate 3. Initial groundwater samples will be bailed from the boreholes using a clean stainless steel or Teflon bailer. Prior to sampling, the boreholes will be purged to remove a minimum of three borehole volumes of groundwater. Purging will be accomplished with a bailer or small pump.

Grab groundwater samples will be analyzed for PCBs, TPH, and BTEX using the analytical methods described in Section 3.2.1. All samples will be labeled and handled as described in Section 4.0.

3.3 Monitoring Well Installation

One groundwater monitoring well will be installed to evaluate shallow groundwater quality beneath the site. The well will be installed in the location shown on Plate 3. The boring will penetrate a minimum of 10 feet, if appropriate, into the first water-bearing zone. The well will be screened a minimum of 3 feet above equilibrated water level to allow for seasonal groundwater fluctuations.

The well will be constructed through the hollow-stem augers using 2-inch-diameter, flush-threaded Schedule 40 PVC well casing, factory slotted well screen, and end cap. Prior to installation, all casings, screens, and caps will be inspected for damage and decontaminated (Section 5.0).

A sand filter pack will be installed around the screen, extending from the bottom of the borehole to a minimum of 1 foot and a maximum of 2 feet above the screen. Filter pack material will be commercially prepared, sized, and washed sand that is compatible with the well screen slot size and formation. The filter pack will be emplaced by carefully pouring it down the annulus between the hollow stem auger and the well casing to prevent bridging and damage to the well screen or casing.

A bentonite seal will be placed in the annular space above the filter pack to minimize the intrusion of grout into the gravel pack and to seal off the targeted monitoring zone. The bentonite seal will be a minimum of 2 feet thick and will be emplaced by allowing the pellets to free fall down the annulus. Clean water will be added if necessary to hydrate and expand the bentonite pellets to form a competent seal.

Once the bentonite has hydrated a minimum of at least 1 hour, the annular space above the seal will be filled with neat cement grout. The well will be completed abovegrade with a locking well cover and protective monument. The well construction materials and well dimensions will be recorded on a field well completion form (Appendix A).

3.3.1 Well Development

The newly installed monitoring well will be developed after the annular grout has been allowed to set for a minimum of 48 hours. It will be developed to remove drilling residuals (i.e., fine sediments) from the well and to establish hydraulic continuity between the filter pack and the formation. Development will be accomplished by raising and lowering a surgeblock apparatus and evacuating the water and sediment by bailing or pumping intermittently.

Groundwater quality parameters (temperature, pH, and electrical conductance) will be monitored during well purging and recorded on a groundwater sample form (Appendix A). Purging times and volumes removed as well as observed turbidity will also be recorded. Development will continue until the well is visibly free of sediment if feasible and appropriate. The adequacy of well development will be determined by the site geologist or engineer.

All development fluids will be contained in drums and stored onsite pending the results of the chemical analyses. Disposal methods will depend on analytical results and will be in accordance with all applicable laws and regulations.

3.3.2 Well Sampling

Groundwater samples will be collected from the monitoring well for chemical analysis. Prior to sample collection, the well will be purged either by bailing or pumping. Field parameters of temperature, pH, electrical conductance, and turbidity will be monitored during well purging and recorded on a groundwater sample form (Appendix A). Purging will be completed after field parameters have stabilized and a minimum of three well volumes have been removed. If the well is evacuated before three well volumes have been removed, the well will be allowed to recover for 5 minutes, bailed dry, and allowed to recover again before the groundwater sample is obtained. Groundwater samples will be collected using clean stainless steel or Teflon bailers and decanted into clean, laboratory provided containers.

The samples will be analyzed for PCBs, TPH as gasoline and diesel, and BTEX using the analytical methods described in Section 3.2.1.

3.4 Construction Monitoring and Sampling

Excavation and trenching activities during facility construction will be monitored, and soil samples will be collected for chemical analysis. Proposed trenches for underground utilities are shown on Plate 4.

One soil sample will be collected for every 20 linear feet of trenching and analyzed for PCBs. The trenches and samples will be screened for VOCs with an OVA. If VOCs are detected, the samples will also be analyzed for TPH as gasoline and diesel and BTEX. In areas where field screening indicates the presence of VOCs or elevated levels of PCBs, additional soil will be excavated. Samples will be collected to confirm removal of the PCB- and TPH-bearing soil, if appropriate.

Excavated soils containing elevated levels of PCBs or TPH will be properly disposed of offsite at a designated landfill.

3.5 Health and Safety Plan

The site-specific Health and Safety Plan (HSP) is presented in Appendix B. It describes the personal protective equipment to be used and safety procedures to be followed. All project staff will have participated in an OSHA-/EPA-approved 40-hour health and safety training course and will have read and signed a copy of the HSP prior to working at the site.

4.0 SAMPLE DOCUMENTATION AND HANDLING

The following information will be entered on a field investigation daily report form during drilling and on the groundwater sampling form during water sampling (see Appendix A) at the time of sample collection

- Sampler's name
- Time and date of sample collection
- Sample location
- Sample number
- Volume of each sample container
- Type of analysis
- Preservatives
- Unusual conditions (e.g., color, odor, solids)
- Field conditions (e.g., weather, air temperature)
- Sampling technique and equipment used
- Indicator parameter measurements (pH, temperature, specific conductivity).

Each sample will be labeled, sealed, and stored on ice immediately after collection. Sample identification documents will be carefully prepared so that identification and chain of custody records can be maintained and sample disposition can be controlled. Forms will be filled out with waterproof black ink. The following sample identification documents will be used (examples of these forms are presented in Appendix A)

- Sample labels
- Chain of custody forms

Labels will be used for identification of samples. Preprinted sample labels will be provided. Where necessary, the label will be protected from water and solvents with clear label-protection tape. Each label will contain the following information

- Name of collector
- Date and time of collection
- Place of collection
- Job number
- Sample number
- Filtered or nonfiltered.

A chain of custody form will be filled out and accompany every sample submitted to the analytical laboratory to document sample possession from the time of collection. When transferring samples, the individuals relinquishing and receiving the samples will sign, date, and note the time on the chain of custody form. The chain of custody form will contain the following information

- Sample or station number or sample I.D.
- Signature of collector, sampler, or recorder
- Date and time of collection
- Place of collection
- Sample type
- Signatures of persons involved in the chain of possession
- Inclusive dates of possession
- Analyses requested.

The laboratory portion of the form will be completed by laboratory personnel upon receipt of the samples and will contain the following information

- Name of person receiving the sample
- Laboratory sample number
- Date of sample receipt
- Analyses requested.

4.1 Analytical Procedures

All samples collected will be analyzed by a California state-certified analytical laboratory. EPA Test Method 8080 will be used for PCB analysis, EPA Method 8015 (modified) will be used for TPH as gasoline and diesel, and EPA Method 8020 will be used for BTEX.

Analytical QA/QC for the laboratory will be based on the laboratory's specific QA/QC procedures and EPA's method manuals. The method detection limits for each chemical analysis will be reported by the laboratory.

5.0 DECONTAMINATION PROCEDURES

All equipment that comes in contact with potentially contaminated soil or groundwater will be decontaminated prior to and after each use. Decontamination will consist of steam cleaning (high pressure hot water wash) or washing in a nonphosphate detergent with a deionized (DI) or freshwater rinse, as appropriate.

Drilling and sampling equipment will be decontaminated as follows

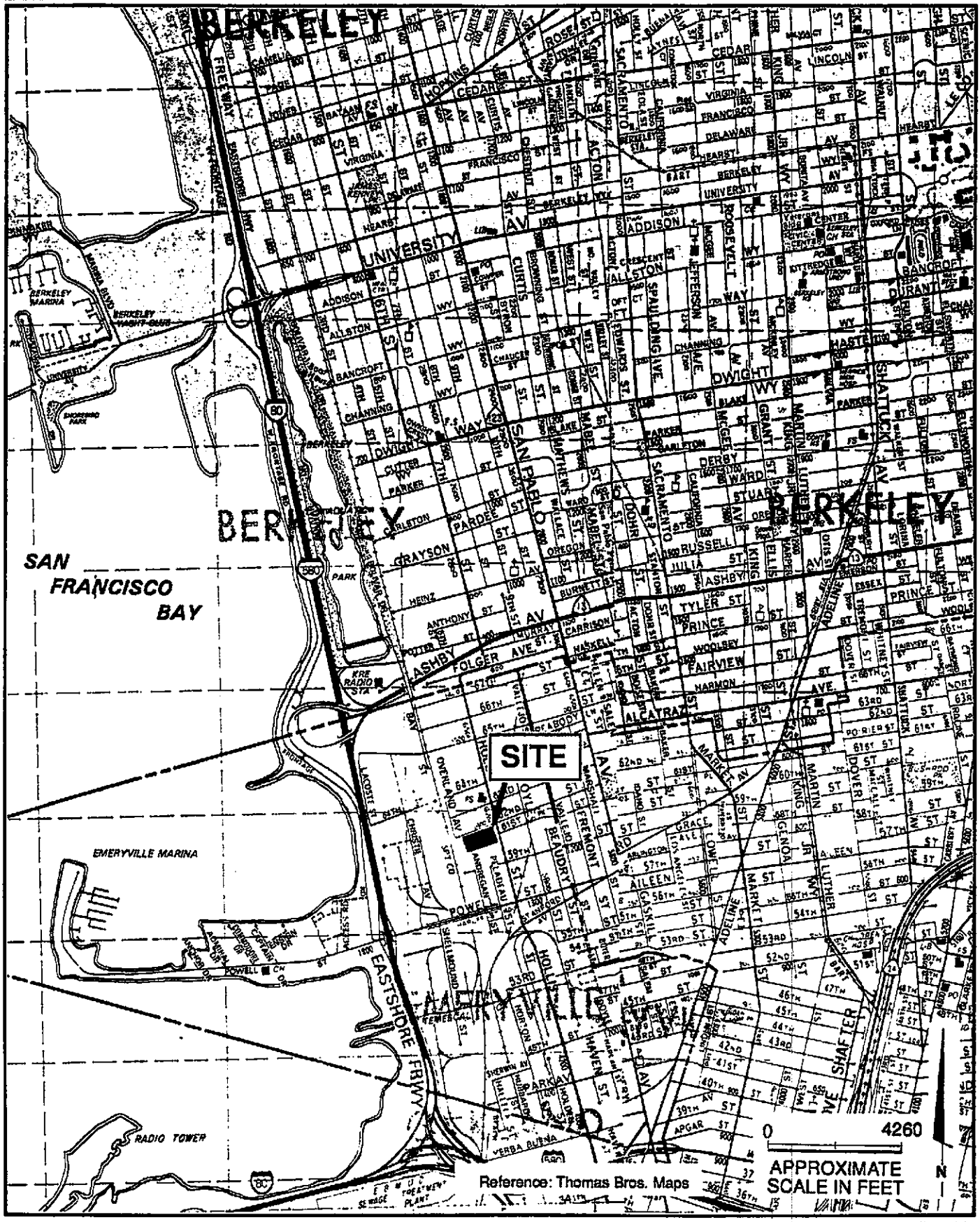
- Drill rig, augers, drill bits, and sampling rods will be steam cleaned prior to use and between borings. Visible soil will be removed at this time.
- Soil and groundwater sampling equipment will be steam cleaned prior to sampling each boring. Prior to individual sample collection, the sampler will also be cleaned with a nonphosphate detergent and rinsed in DI water or steam cleaned. Visible soil will be removed at this time. Wash solutions and rinse water will be replaced between each boring, at a minimum.
- Steel measuring tapes will be rinsed in DI water or cleaned in a nonphosphate detergent and rinsed once in clean water after each use. Generally, only the wetted end of these devices will require cleaning, provided the tape is washed and rinsed prior to being reeled onto the takeup spool.
- Sample containers will be cleaned and prepared by the analytical laboratory.

6.0 REFERENCES

Harding Lawson Associates (HLA), 1990. *Shallow Soils Investigation Report, 6121 Hollis Street, Emeryville, California.* September 20.

_____, 1991. *Letter to California Regional Water Quality Control Board*, December 11.

25046

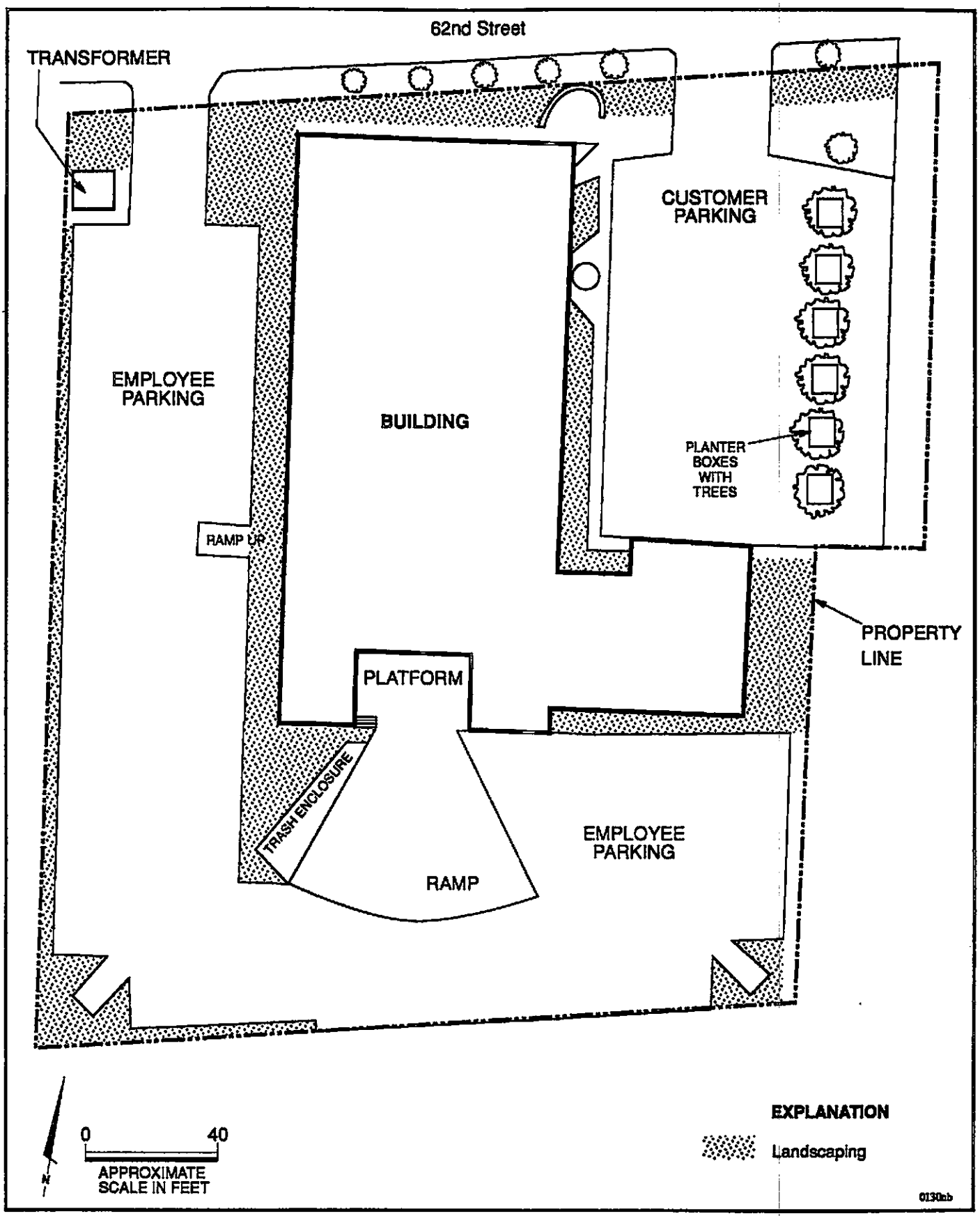


Harding Lawson Associates
Engineering and Environmental Services

Vicinity Map
Proposed USPS Facility
Emeryville, California

PLATE **1**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
NJB	5525,134.02	MKW	1/92	

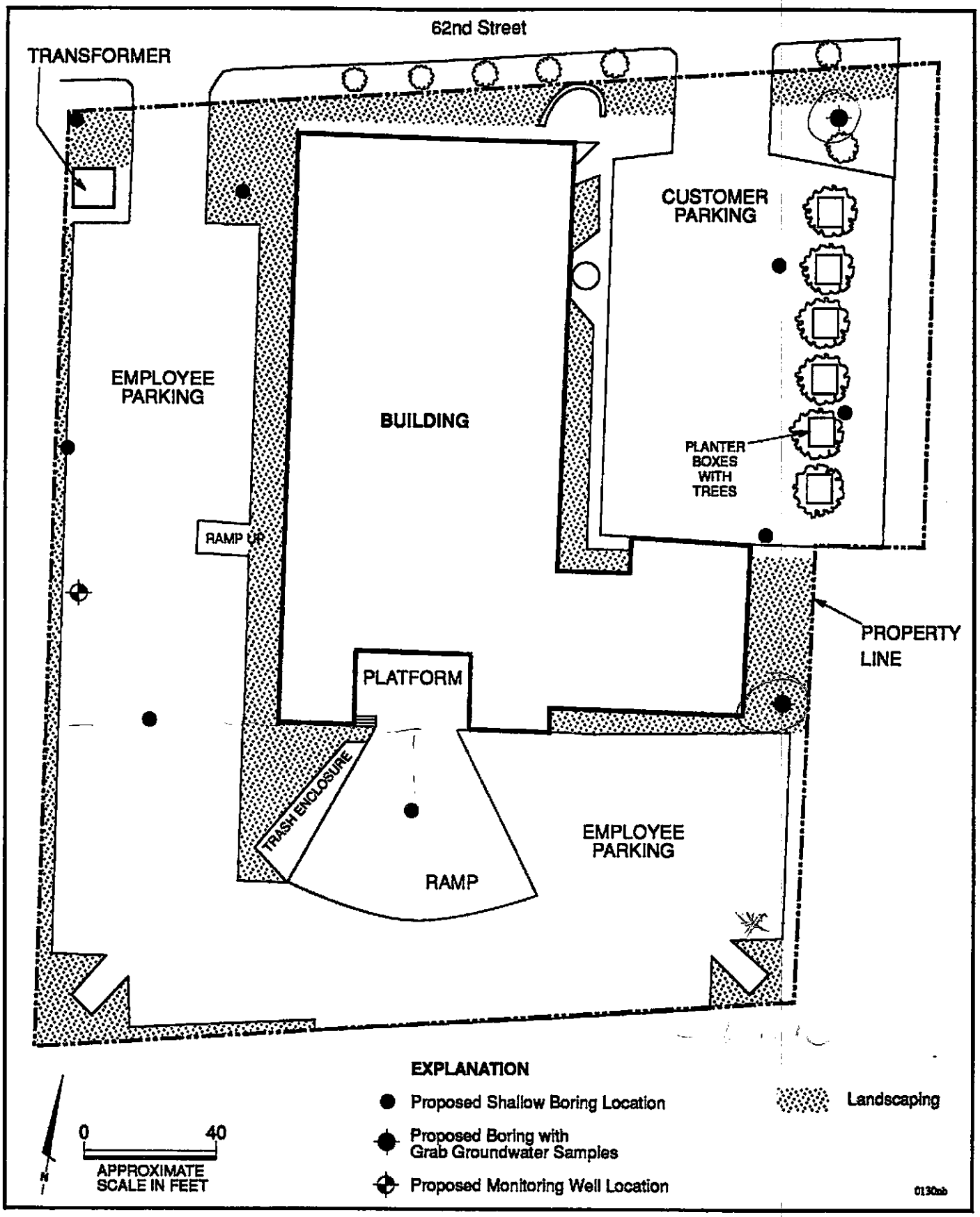


Harding Lawson Associates
Engineering and Environmental Services

Proposed Building Plan
Proposed USPS Facility
Emeryville, California

PLATE **2**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
NJBc	5525,134.02		1/92	

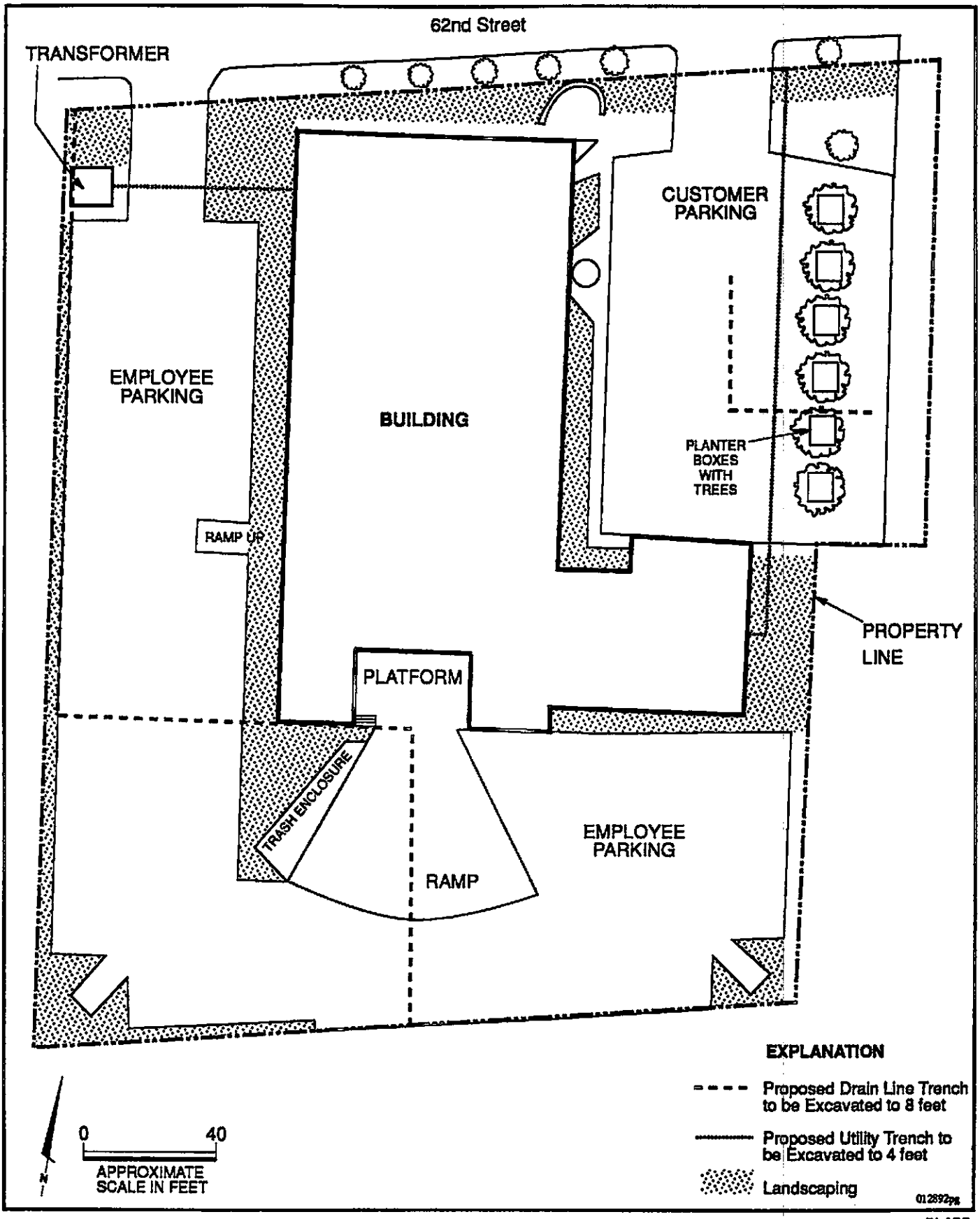


Harding Lawson Associates
Engineering and Environmental Services

Proposed Boring Location Map
Proposed USPS Facility
Emeryville, California

PLATE **3**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
NJBc	5525,134.02		1/92	



Harding Lawson Associates
Engineering and Environmental Services

Proposed Trench Location Map
Proposed USPS Facility
Emeryville, California

PLATE **4**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
NJBc	5525,134.02		1/92	

Appendix A

SAMPLE FORMS

Sheet _____ of _____

Project: _____ Job No.: _____

Subject: FIELD INVESTIGATION DAILY REPORT Date: _____

Equipment Rental: _____ Company: _____ To: _____

Equipment Hours: _____ F.E. Time from: _____ to: _____ By: _____

(outside service and expense record must be attached for any outside costs)

Attachments:

Initial

FIELD LOG OF BORING

SHEET _____ OF _____

LOCATION OF BORING:

PROJECT:	BORING NO.
	TOTAL DEPTH:
JOB NO.:	LOGGED BY:
PROJ. MGR.:	EDITED BY:
DRILLING CONTRACTOR:	
DRILL RIG TYPE:	
DRILLERS NAME:	
SAMPLING METHODS:	
HAMMER WT.:	DROP:
STARTED, TIME:	DATE:
COMPLETED, TIME:	DATE:

BORING DEPTH (ft.)			
CASING DEPTH (ft.)			
WATER DEPTH (ft.)			
TIME:			
DATE:			

BACKFILLED, TIME: DATE: BY:

SURFACE ELEV.: DATUM:

CONDITIONS:

SAMPLE DEPTH	SAMPLER TYPE	BLOWS/6-IN.	INCHES DRIVEN	INCHES RECOVERED	SAMPLE CONDITION	DRILLING RATE (min/ft)				DEPTH IN FEET	GRAPHIC LOG
										1	
										2	
										3	
										4	
										5	
										6	
										7	
										8	
										9	
										10	

HARDING LAWSON ASSOCIATES

FIELD LOG OF BORING (CONTINUED)

SHEET ____ OF ____

DEPTH	TYPE	BLOWS	DRIVEN	REC'V'D	COND	D.RATE				DEPTH	GRAPHIC LOG
										1	
										2	
										3	
										4	
										5	
										6	
										7	
										8	
										9	
										0	
										1	
										2	
										3	
										4	
										5	
										6	
										7	
										8	
										9	
										0	

PROJECT: | NO | BORING NO.

HARDING LAWSON ASSOCIATES

Harding Lawson Associates
Engineers and Geoscientists

GROUND-WATER SAMPLING FORM

Job Name _____
Job Number _____
Recorded by _____ (Signature)

Well No. _____
Well Type: ☐ Monitor ☐ Extraction ☐ Other _____
Well Material: ☐ PVC ☐ St. Steel ☐ Other _____
Date _____ Time _____
Sampled by _____ (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches):
☐ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other _____
Total Depth of Casing (TD in feet BTOC): _____
Water Level Depth (WL in feet BTOC): _____
Number of Well Volumes to be purged (# Vols)
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other _____

PURGE METHOD

☐ Bailer - Type: _____
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.: _____
☐ Other - Type: _____

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other _____
Depth in feet (BTOC): _____ Screen Interval in feet (BTOC): from _____ to _____

PURGE VOLUME CALCULATION

$$\left(\underset{\text{TD (feet)}}{\_\_\_\_} - \underset{\text{WL (feet)}}{\_\_\_\_}\right) \times \underset{\text{D (inches)}}{\_\_\_\_}^{2} \times \underset{\text{\# Vols}}{\_\_\_\_} \times 0.0408 = \underset{\text{Calculated Purge Volume}}{\_\_\_\_} \text{ gallons}$$

PURGE TIME

_____ Start _____ Stop _____ Elapsed

PURGE RATE

Initial _____ gpm Final _____ gpm

ACTUAL PURGE VOLUME

_____ gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (μmhos/cm)	T ☐ °C ☐ °F	Other

Minutes Since Pumping Began	pH	Cond. (μmhos/cm)	T ☐ °C ☐ °F	Other
Meter Nos.				

Observations During Purging (Well Condition, Turbidity, Color, Odor): _____
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☐ Other _____

WELL SAMPLING

SAMPLING METHOD

☐ Same As Above
☐ Bailer - Type: _____
☐ Grab - Type: _____
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.: _____
☐ Other - Type: _____

SAMPLE DISTRIBUTION

Sample Series: _____

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

200 Hush Landing Road
P.O. Box [redacted]
Novato, California 94948
415/892-0821
Telecopy: 415/892-1586

CHAIN OF CUSTODY FORM

Samplers: _____

Job Number: _____

Name/Location: _____

Project Manager: _____

Recorder: _____
(Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3				SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES

ANALYSIS REQUESTED	EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.										

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: *(Signature)*	RECEIVED BY: *(Signature)*	DATE/TIME
RELINQUISHED BY: *(Signature)*	RECEIVED BY: *(Signature)*	DATE/TIME
RELINQUISHED BY: *(Signature)*	RECEIVED BY: *(Signature)*	DATE/TIME
RELINQUISHED BY: *(Signature)*	RECEIVED BY: *(Signature)*	DATE/TIME
DISPATCHED BY: *(Signature)* DATE/TIME	RECEIVED FOR LAB BY: *(Signature)*	DATE/TIME
METHOD OF SHIPMENT		

Laboratory Copy White — Project Office Copy Yellow — Field or Office Copy Pink

6533

Harding Lawson Associates

Job Name _____

Job Number _____

Collector _____ Date _____
(Signature)

Time _____ Place _____

Sample No _____

Well/Boring No _____

Depth _____

Appendix B

HEALTH AND SAFETY PLAN (HSP)

Appendix B

HEALTH AND SAFETY PLAN

TABLE OF CONTENTS

LIST OF TABLES

1.0 INTRODUCTION

This Health and Safety Plan (HSP) has been prepared by Harding Lawson Associates (HLA) for the United States Postal Service to apply to work activities to be performed at the proposed USPS facility, Emeryville, California (Plate B1). The purpose of this document is to define safety and occupational health precautions required to be taken when performing site characterization activities.

2.0 FACILITY DESCRIPTION

See Section 2.0. of the Sampling Plan.

2.1 Climatic Conditions

The climate at the site is characterized by warm, dry summers and cool, wet winters. Mean High/low temperatures are as follows:

	January	April	July	October
Mean high temperature °F	60	70	75	70
Mean low temperature °F	50	55	55	55

The average wind speed at the site is 5 miles per hour, predominantly from the west.

2.2 Chemicals of Concern

The suspected chemical contaminants at the site are polychlorinated biphenyls (PCBs) and total petroleum hydrocarbons (TPH). Previous investigations performed at the site revealed the presence of PCBs and TPH in near-surface and subsurface soils at the site. Table B1 lists hazardous properties information for these compounds.

3.0 RISK ANALYSIS

The major tasks to be completed at the site consist of (1) drilling soil borings, (2) soil and groundwater sampling, (3) construction monitoring and sampling, and (4) equipment decontamination. Table B2 summarizes the risks associated with each of these four tasks. Risk analysis is divided into three areas: exposure, probability, and consequence, as presented in the columns in Table B2. The exposure column presents the expected frequency of exposure to a hazard. The probability column indicates the likelihood of an injury upon exposure to a hazard. The consequence column presents the probable degree of injury should an injury occur. An explanation of the letters denoting the degrees of exposure, probability, and consequence follows the table.

4.0 PROCEDURES TO MITIGATE HAZARDS

Operational hazards identified in Table B2 include mechanical, electrical, chemical, acoustical, biological, and temperature hazards.

4.1 Mechanical Hazards

The following procedures shall be followed on all tasks to reduce mechanical hazard risks:

1. Stay clear of drill rods and augers when they are being hoisted; keep clear of steel cables.
2. Stand out of reach of drill pipe, cables, etc.
3. Equipment maintenance schedules are the responsibility of each individual contractor. Equipment is checked daily. Equipment deemed unsafe by employees or contractors will be shut down until repairs are made.
4. Use personal protective equipment as specified for each task (see Section 5.0).

4.2 Electrical Hazards

The following procedures shall be followed on all tasks to reduce electrical hazard risks:

1. Locate and mark buried utilities before drilling.
2. Contact power company for minimum clearance from high-voltage power lines. Under no circumstances will any person, equipment, or operation come within 10 feet of overhead power lines.
3. If the work area is unavoidably close to buried or overhead power lines, ensure that power is turned off, with the circuit breaker locked and tagged.
4. Properly ground all electrical equipment.
5. Avoid standing in water when operating electrical equipment.
6. If equipment must be connected by splicing wires, first de-energize, lock-out, and tag equipment, then make sure all connections are taped.

7. Be familiar with specific operating instructions for each piece of equipment.

4.3 Chemical Hazards

To reduce the possibility of injury due to chemical hazards, personal protective equipment shall be worn for each task as specified in Section 5.0.

PCB and TPH concentrations that have been identified do not appear to warrant dividing work sites into exclusion, decontamination, and clean zones. If necessary, however, a 30-foot exclusion zone, delineated with hazard tape and cones, around the work site will be enforced. All personal protection clothing will be removed in an adjacent decontamination zone before entering the clean zone. No visitors will be allowed to approach the work site unless they are properly trained and under the supervision of a site geologist or engineer.

4.3.1 Air Monitoring Program

Air monitoring will be performed to measure the airborne levels of volatile hydrocarbons at the Breathing zone of the workers. If airborne concentrations exceed specific action levels, response actions will be taken to reduce exposure potential for the workers.

4.3.1.1 Monitoring Parameters

Monitoring will be conducted for a total petroleum hydrocarbons. Total petroleum hydrocarbons are representative of the total emissions potentially resulting from the contaminated soil and groundwater.

Because PCBs are not readily detected by commonly available field direct reading instruments dust emissions will be used to determine implementation of PPE. In general, visible dust emissions shall not be allowed. When site conditions prevent complete

suppression of visible emissions, workers shall upgrade to Level C protection with HEAP cartridge respirators.

4.3.2 Monitoring Methods and Equipment

4.3.2.1 Total Petroleum Hydrocarbons

Total petroleum hydrocarbons will be measured with a Foxboro Century Organic Vapor Analyzer (OVA). The OVA is a direct-reading flame ionization detector that provides real-time measurement of a wide variety of volatile hydrocarbon compounds.

Monitoring will be conducted on an hourly basis, or more frequently if conditions indicating a potential change in volatile emissions, such as increased odor, are encountered.

4.3.3 Action Levels

This section describes action levels that will trigger response actions to protect the workers. Response actions are described in detail in Section 5.0.

4.3.3.1 Total Hydrocarbons

The action level for total hydrocarbons that will trigger contingency response actions is 70 ppm, sustained for 30 seconds. This level was calculated by the California Department of Health Services to protect against potential throat and eye irritation from short-term exposure (*Community Safety/Contingency Response Plan, McColl Superfund Site, Fullerton, California, DHS, 1987*).

4.4 Acoustical Hazards

To prevent hearing impairment, use ear plugs or ear muffs when noise levels prevent conversation in a normal voice at a distance of 3 feet, or if noise levels are 85 dBA or higher (determined by a sound level meter on the A scale, at slow response) during an 8-hour period.

4.5 Biological Hazards

To reduce risk of biological hazards, personal protective equipment shall be used for each task as specified in Section 5.0. Personal protective equipment will be removed and hands washed prior to consumption of food, beverage, and tobacco products. Prior to leaving the site, personnel shall remove disposable personal protective equipment, place it in a sealed plastic bag, and dispose of it appropriately. Personal protective equipment to be laundered will be placed in a sealed plastic bag.

4.6 Temperature Hazards

The following procedures shall be followed to reduce the possibility of temperature hazards:

1. When the air temperature exceeds 70°F, take frequent breaks in a shaded area. Unzip or remove coveralls during breaks. Have water or electrolyte-replenishing solution available in squeeze bottles. Drink small amounts frequently to avoid dehydration. If pulse is above 110 beats per minute at the beginning of break, reduce length of work periods and increase frequency of breaks. Employees who have not determined their normal pulse range will do so before entering the field. This will be done on an individual basis or during the yearly stress testing required during physical examinations. Individuals are responsible for monitoring their own pulse rate during field work.

2. Avoid contact with drill pipes, equipment exhaust pipes, steam cleaner nozzles, and recently welded or cut casing.

5.0 PERSONAL PROTECTIVE EQUIPMENT

The personal protective equipment requirements for the head, eyes, hands, body, ears, and feet are specified below for each task identified in Section 3.0 of the Sampling Plan. Each task has been evaluated to determine the required personal protective equipment and the level of protection necessary on the job site. A minimum of Level D protection, as defined by EPA and outlined in Appendix B of 29 CFR 1910.120, OSHA's "Hazardous Waste Operations and Engineering Response," will be observed on the site for all tasks.

Personal protective equipment will be maintained by trained employees and will be inspected by the project manager or other employees under the direction of the Certified Industrial Hygienist.

5.1 Task: Drilling

Protection Level - Modified D
Head - hard hat
Eye - safety glasses (chemical resistant goggles where contaminated fluid splash hazard exists)
Hand (gloves) - Neoprene with latex underglove
Body - cloth coveralls. Tyvex suit as warranted (Saranax suit where contaminated fluid splash hazard exists)
Lung - none - half mask respirator assembled and within work area for Level C upgrade. Cartridge: organic vapor/acid gas/high efficiency particulate air combination filter
Ear - ear plugs or ear muffs as warranted
Feet - steel-toed boots with waterproof covers or steel-toed rubber boots
Special Equipment, Facilities, or Procedures - None

5.2 Task: Soil and Groundwater Sampling

Protection Level - Modified D
Head - hard hat
Eye - safety glasses (chemical resistant goggles where contaminated fluid splash hazard exists)
Hand (gloves) - Neoprene with latex underglove
Body - cloth coveralls. Tyvex suit as warranted (Saranax suit where contaminated fluid splash hazard exists)

Lung - none - half mask respirator assembled and within work area for Level C upgrade. Cartridge: organic vapor/acid gas/high efficiency particulate air combination filter
Ear - ear plugs or ear muffs as warranted
Feet - steel-toed boots with waterproof covers or steel-toed rubber boots
Special Equipment, Facilities, or Procedures - None

5.3 Task: Construction Monitoring and Sampling

Protection Level - D
Head - hard hat
Eye - safety glasses
Hand (gloves) - Neoprene with latex underglove
Body - cloth coveralls. Tyvex suit as warranted
Lung - none
Ear - ear plugs as warranted
Feet - steel-toed boots with waterproof covers or steel-toed rubber boots
Special Equipment, Facilities, or Procedures - None.

5.4 Task: Decontamination

Protection Level - Modified D
Head - hard hat
Eye - goggles or face shield as warranted
Hand (gloves) - Neoprene with latex underglove
Body - cloth coveralls. Tyvex suit as warranted (Saranax suit or rain suit where contaminated fluid splash hazard exists)
Lung - none - half mask respirator assembled and within work area for Level C upgrade. Cartridge: organic vapor/acid gas/high efficiency particulate air combination filter
Ear - ear plugs or ear muffs as warranted
Feet - steel-toed boots with waterproof covers or steel-toed rubber boots
Special Equipment, Facilities, or Procedures - None.

6.0 HAZARDOUS WASTE SAFETY TRAINING AND MEDICAL MONITORING

Any employee assigned to the USPS project will have completed a 40-hour, OSHA/EPA Hazardous Waste Site Investigation Health and Safety training course. Topics covered in the course include physical, chemical, and toxicological properties of hazardous materials; hazard evaluation and control; safe working practices; selection, care, and use of personal protective equipment (including fit testing); sampling and monitoring techniques and equipment; and site entrance and decontamination procedures. Supervisors will have completed an additional supervisor training course and all will have annual refresher training as needed.

Tailgate safety meetings will be held where safe working practices, emergency procedures, personal protective equipment, and other items in this HSP will be discussed before work begins. At the meetings, employees and contractors will also be informed of the location of services and the nearest telephone for use in emergency situations. The meeting participants, items discussed, locations, and dates will be recorded in a field log.

Each field employee performing work at the site will be responsible for complying with the procedures described in this HSP. The Project Manager will visit the site during the initial phase of the field investigation to perform a safety audit and evaluate the effectiveness of the program.

7.0 DECONTAMINATION AND MATERIAL DISPOSAL

Drilling equipment will be decontaminated by steam cleaning or high-pressure hot water wash. Sampling equipment will be decontaminated by steam cleaning, high-pressure hot water wash, or washed with a phosphate-free detergent solution. Neoprene gloves and Saranax suits or rain suits will be worn when using high pressure hot water wash equipment where contaminated fluid splash hazard exists. Nondisposable personal protective equipment will be decontaminated by laundering (coveralls); soap wash, water rinse, and sterilent wipe (respirators), or steam cleaning (boots and goggles). Coveralls will be laundered by a commercial laundry service that has been informed of the potential hazard. An employee decontamination area will be designated.

Disposable clothing will be bagged and stored on site. After the level of potential contamination is determined by analyzing soil and groundwater samples collected on site, the clothing will be disposed in an appropriate manner.

Materials derived from drilling and sampling will be wrapped in visqueen and stored onsite. Appropriate disposal procedures for these materials will be determined after the results of chemical analyses of samples have been received. All hazardous waste materials will be disposed in accordance with applicable local, state, and federal laws and regulations.

8.0 EMERGENCY PROCEDURES

The following procedure will be followed in the event of an emergency:

1. Administer first aid and, if appropriate, move person to an upwind location.

2. If an ambulance is required, call 911.

3. The injured person will be taken to Herrick Hospital, 2001 Dwight Road, at Shattuck, Berkeley, California.[1]

4. In the event of a fire or spill, the Contra Costa County Fire Department should be notified immediately.

Ambulance:		911
Police/Contra Costa County Sheriff:		911
Fire Department:		911
Hospital:	Herrick	(415) 540-4424
Client contact:	No onsite client contact available	
Harding Lawson Associates:		(415) 892-0821 (415) 899-8888 Emergency

1 The location of the nearest hospital is shown on Plate B1.

9.0 SITE INFORMATION

SITE: Proposed USPS Emeryville Facility

LOCATION: Emeryville, California

PLAN PREPARED: M. L. Wann DATE: 4/18/91

PLAN APPROVED: J. Hebert DATE: _____

PLAN REVISED: _____ DATE: _____

REVISION APPROVED: _____ DATE: _____

Employees

All project staff must sign below to show that they have read a copy of this HSP.

Name	Responsibility	Signature and Date

10.0 CERTIFICATION

I, JACQUES HEBERT, certify that this Health and Safety Plan is accurate and complies with applicable requirements and regulations to the best of my knowledge.

Jacques Hebert
Industrial Hygiene and Safety Specialist
Harding Lawson Associates

Table B1. Hazardous Property Information

Material	Water Solubility	Specific Gravity	Vapor Density	Flash Point °F	Vapor Pressure	LEL UEL	LD_{50} mg/kg	TLV-TWA	IDLH Level	Odor Threshold or Warning Concentration	Hazard Property	Dermal Toxicity	Acute Exposure Symptoms
PCBs	slightly	---	n/a	none	n/a	nonflammable	n/a	1.0ug/m^3	none specified	n/a	CG	n/a	CHLPQ
Diesel Fuel	insoluble	0.81-0.90	---	130	---	0.6-1.3 6-7.5	n/a	none established	none specified	0.08	BC	ABC	IN
Gasoline	insoluble	0.72-0.76	3-4	-45	variable	1.4% 7.6%	n/a	300ppm	none specified	0.005-10 x 0.25	CD	AB	IN

EXPLANATION FOR TABLE B1

HAZARDOUS PROPERTY INFORMATION EXPLANATIONS AND FOOTNOTES

a. Water solubility expressed as 0.2 g means 0.2 grams per 100 grams water at 20C.

b. Solubility of metals depends on the compound in which they are present.

c. Several chlorinated hydrocarbons exhibit no flash point in the conventional sense but will burn in the presence of a high-energy ignition source or will form explosive mixtures at temperatures above 200F.

d. Practically nonflammable under standard conditions.

e. Expressed as millimeters (mm) of mercury (Hg) under standard conditions.

f. Explosive concentrations of airborne dust can occur in confined areas.

g. Values of Threshold Limit Value - Time Weighted Average (TLV-TWA) are OSHA Permissible Exposure Limits as noted in h and i.

h. TLV-TWA adopted by the American Conference of Governmental Industrial Hygienists (ACGIH), which is lower than the OSHA Permissible Exposure Limit (PEL).

i. TLV-TWA recommended by the National Institute for Occupational Safety and Health (NIOSH). A TLV or PEL has not been adopted by ACGIH or OSHA.

j. Hazard properties

A - corrosive
B - flammable
C - toxic
D - volatile
E - reactive
F - radioactive
G - carcinogenic
H - infectious

k. Acute exposure symptoms

A - abdominal pain
B - central nervous system depression
C - comatose
D - convulsions
E - confusion
F - dizziness
G - diarrhea
H - drowsiness
I - eye irritation
J - fever
K - headache
L - nausea
M - respiratory system irritation
N - skin irritation
O - tremors
P - unconsciousness
Q - vomiting
R - weakness

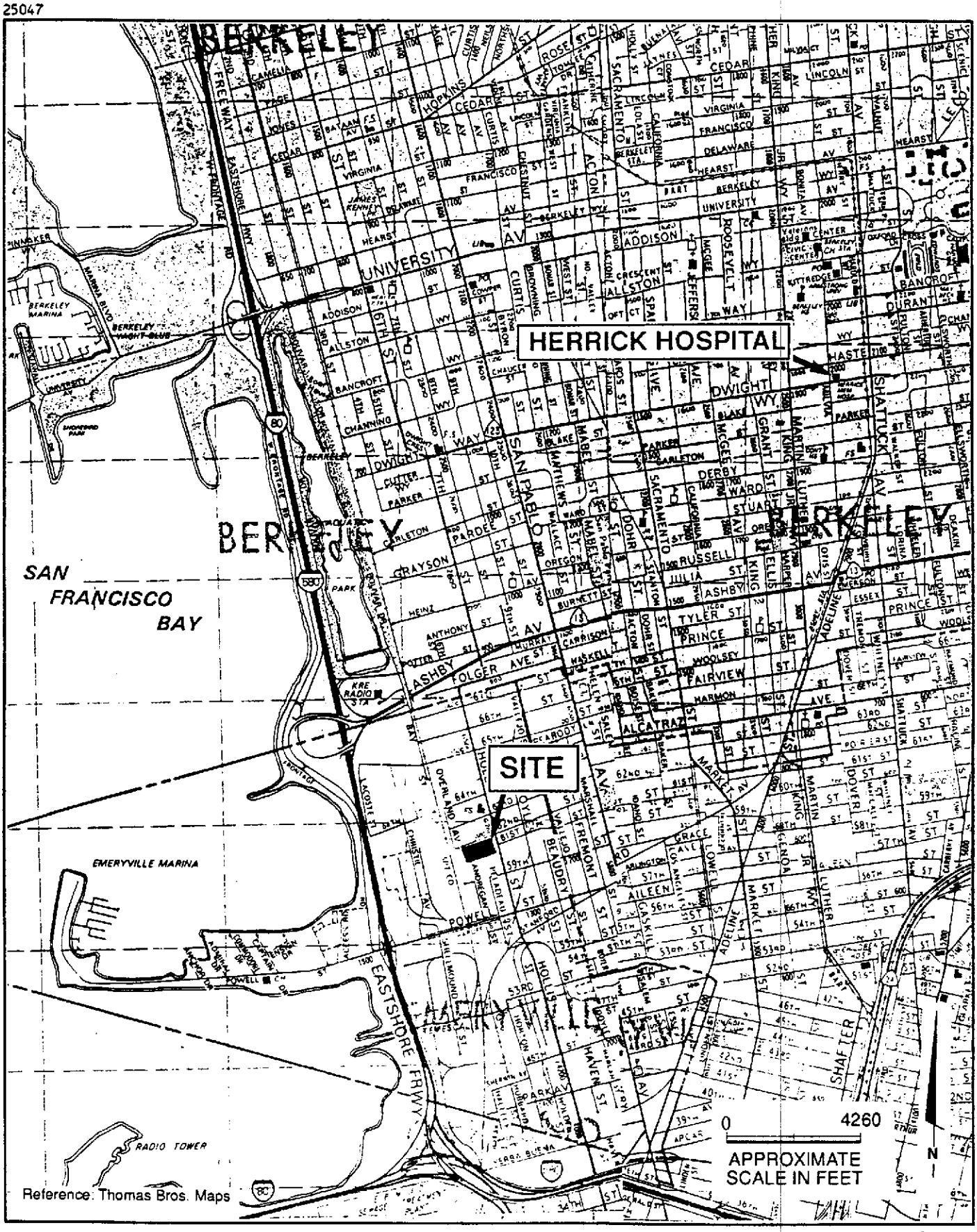
Table B2. Risk Analysis

Job Hazard	Exposure	Probability	Consequence
Drilling			
Drill rig - mechanical	a	c	a-d
Drill rig - noise	a	c	e
Buried utilities - electrical	c	c	a-d
Chemical exposure	a	b	a-e
Fire and explosion	d	d	a-d
Dust	b	b	e
Soil and Ground-Water Sampling			
Drill rig - mechanical	a	c	a-d
Drill rig - noise	a	c	e
Chemical exposure	a	b	a-e
Fire and explosion	d	d	a-d
Construction Monitoring and Sampling			
Backhoe - mechanical	a	c	a-d
Backhoe - noise	2	c	e
Decontamination			
Steam cleaner - mechanical	b	d	b-d
Steam cleaner - electrical	b	d	a-d
Generator - mechanical	b	d	c-d
Generator - electrical	b	d	a-d
Chemical exposure	b	c	a-e
Biological exposure	d	d	a-d

Explanation for Table B2

Exposure:	The frequency of exposure to the hazard event.
a.	Continuously - many times daily
b.	Frequently - once or twice per day
c.	Occasionally - once/week to once/month
d.	Seldom - once/month to once/year
Probability:	The likelihood that an injury will occur upon exposure to the hazard event.
a.	Certain or almost certain
b.	Likely, not unusual, 50/50 chance of occurring
c.	Unusual, would happen less often than 50 percent of the time
d.	Improbable, not likely to happen
Consequence:	The degree of injury resulting from exposure to the hazard event if an injury does occur.
a.	Fatality
b.	Serious injury, including chemical exposure, requiring hospitalization
c.	Moderate injury, including chemical exposure, requiring outpatient medical treatment
d.	Minor injury, including chemical exposure, requiring on-site first aid
e.	Chemical, acoustical, or other exposure above Threshold Limit Value (TLV) or other recommended standard that may not produce immediate acute effects (especially for chronic toxicants).

25047



Harding Lawson Associates
Engineering and Environmental Services

Vicinity Map
Proposed USPS Facility
Emeryville, California

PLATE
B1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
NJB	5525,134.02		1/92	

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QUALITY CONTROL REVIEWER

Steven W. H. Walker
Engineering Geologist - 1294

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