

REMEDIAL ACTION COMPLETION REPORT

BARBARY COAST STEEL SITE

EMERYVILLE, CALIFORNIA

Prepared for

Barbary Coast Steel Corporation

April 2, 1997

Prepared by

EMCON

1921 Ringwood Avenue
San Jose, California 95131

Project 20G01-001.011



Cal/EPA

Department of
Toxic Substances
Control

700 Heinz Avenue
Suite 200
Berkeley, CA
94710-2737

April 10, 1997



Pete Wilson
Governor

James M. Siroc
Secretary for
Environmental
Protection

Barton D. Kale
Barbary Coast Steel Corporation
2424 S.W. Andover Street
Seattle, Washington 98106-1100

Dear Mr. Kale:

**REMEDIAL ACTION COMPLETION REPORT
BARBARY COAST STEEL, EMERYVILLE, CALIFORNIA**

The Department of Toxic Substances Control (Department) has reviewed the Remedial Action Completion Report which describes capping the site and installing additional groundwater monitoring wells. Based on our review, the activities summarized in this report were performed in accordance with procedures outlined in the Remedial Design and Implementation Plan (RDIP) - Phase II, which was approved on November 12, 1996. Therefore, the Department hereby approves the Remedial Action Completion Report, dated April 2, 1997.

If you have any questions, Please call Ted Park of my staff at (510) 540-3805.

Sincerely,

Barbara J. Cook, P.E., Chief
Northern California - Coastal
Cleanup Operations Branch

cc: Mark Smolley
EMCON
1921 Ringwood Avenue
San Jose, California 95131



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**Remedial Action Completion Report
Barbary Coast Steel Site
Emeryville, California**

The material and data in this report were prepared under the supervision and direction of the undersigned. This report was prepared consistent with current and generally accepted geologic and environmental consulting principles and practices that are within the limitations provided herein..

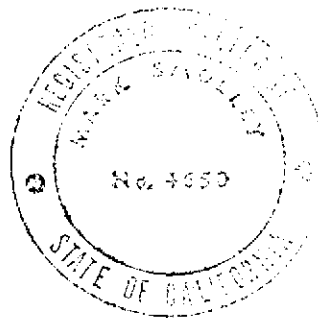
EMCON



Peter T. Christianson
Project Geologist



Mark Smolley, RG 4650
Project Manager



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1 INTRODUCTION

On behalf of Barbary Coast Steel Corporation (BCS), EMCON has prepared this Remedial Action Completion Report for the former BCS facility at 4300 East Shore Highway, Emeryville, California (the Site, Figure 1). The activities described in this report consist of capping exposed soil at the Site and installing additional groundwater monitoring wells.

The remedial action at the BCS site was divided into two phases. Phase I consisted of excavation of approximately 5,170 cubic yards of impacted soil and the decommissioning of wells. Phase I activities were completed between July and October 1996 and are documented in the *Removal Action Report* (EMCON, February 5, 1997). The Phase II activities consisted of placing an asphalt cap on unpaved areas at the Site and installing additional groundwater monitoring wells. The capping and well installation activities were performed in accordance with the procedures described in the *Remedial Design and Implementation Plan - Phase II* (EMCON, November 5, 1996). The Phase II field work was conducted between November 1996 and March 1997.

An unpaved portion of the southeast corner has not been capped and is presently being used by Caltrans. This portion of the Site will be capped after the Caltrans easement agreement expires in December 1998.

EMCON has prepared this report for submittal to the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), as required by Provision 15.4.2 of the March 22, 1993, Consent Order issued by DTSC to BCS (the Consent Order; Docket No. I&SE 92/93-013). Except for capping the portion of the Site used by Caltrans, this Remedial Action Completion Report documents the completion of remediation at the BCS site.

2 FIELD ACTIVITIES

This section describes the methods and procedures used for capping the site and installing the additional groundwater monitoring wells.

2.1 Prefield Activities

A health and safety plan (HSP) was prepared for remediation activities at the BCS site. The HSP was submitted with the *Remedial Design and Implementation Plan (RDIP) - Phase I* (EMCON, June 25, 1996). Prior to the implementation of the Phase I excavation activities, the HSP was reviewed in detail with the construction contractor responsible for the excavation and capping activities. These procedures were re-emphasized with the construction contractor prior to the implementation of Phase II capping activities. In particular, the procedures for controlling dust emissions were discussed.

Three groundwater monitoring wells were installed in January 1997. Prior to installing the wells, EMCON obtained a well installation permit from the Alameda County Flood Control District (ACFCD - Zone 7). A copy of the well permit is presented in Appendix A. The health and safety measures detailed in the DTSC approved *Workplan for Remedial Investigation and Feasibility Study, Barbary Coast Steel Corporation, Emeryville, California* (EMCON, June 1993) were followed during the drilling of soil borings; and the installation and development of groundwater monitoring wells.

2.2 Site Preparation and Grading

Prior to capping the site, the construction contractor prepared the unpaved areas so that the asphalt cap could be placed over a uniform surface. The following activities were conducted as part of these preparation activities:

- Determined the approximate slope and flow-lines of unpaved areas to identify areas requiring grading or filling.
- Removed existing rebar and concrete structures that protruded above the ground surface. This material was recycled when possible or disposed as necessary.

- Located and marked existing storm drains and monitoring wells so that these site features would not be covered by the asphalt cap.
- Removed soil from existing pavement or concrete surfaces. When possible, the soil removed from these areas was placed in unpaved areas to obtain the necessary grades. Approximately 10 tons of soil was disposed as non-RCRA hazardous waste at the Chemical Waste Management facility in Kettleman Hills, California.
- Used motorized equipment to sweep existing paved areas of the Site.
- Watered areas as necessary to suppress dust emissions.
- Placed hay bales along a portion of the western property boundary to control erosion.
- Graded the unpaved areas to allow surface runoff to flow to existing drains.
- Placed gravel baserock in selected areas to facilitate placement of asphalt within these areas.
- Areas to be paved were watered and then rolled with heavy equipment to compact loose soil. Areas that required more than 8 inches of fill were compacted to at least 90 percent relative compaction according to ASTM 1557. Compaction was achieved using a vibratory smooth-drummed compactor. EMCON verified the compaction in the field by using a nuclear density gauge. The locations of the compaction tests are shown on Figure 2 and the compaction test results are presented in Appendix B.
- After areas were compacted, the relative elevations of the unpaved areas were checked using the elevations of the existing asphalt and concrete as control points for setting grades. This method allowed the desired topography to be achieved during the grading of the Site.

The activities described above were monitored by EMCON during periodic visits conducted during the site preparation process. As necessary, EMCON instructed the construction contractor to modify procedures to adapt to changes in conditions at the site.

The unpaved areas of the Site were graded to allow future surface water runoff to flow to generally in a southwest direction so that water is intercepted by existing drains located on the southern and western portions of the property. The necessary Site topography was achieved during the grading as evidenced by the fact that ponded water did not develop on the unpaved areas during the heavy rains that occurred in January 1997. However, ponded water did occur in two limited areas on the existing concrete slab. The ponded

water did not present difficulties for paving the Site. The water eventually evaporated after the winter rains ceased. It is anticipated that imported fill will be placed on the existing concrete slab during future Site development and that these two areas will be filled and recontoured.

2.3 Capping the Site

After the unpaved areas were prepared and graded as described in Section 2.2, the Site was paved with approximately 1.5 to 2.0 inches of asphalt. Approximately 4.6 acres within the City of Emeryville and 2.4 acres within the City of Oakland were capped with asphalt as shown on Figure 2. The following describes the process for asphaltting at the Site:

- Prior to paving the Site, survey markers were placed at approximate 50-foot-intervals in the scrap yard and other large unpaved areas. The tops of the survey markers were placed at a height of at least 2 inches above the soil. The survey markers allowed the paving equipment operators to confirm that a sufficient thickness of asphalt was placed in these areas.
- Bottom-dump trucks delivered the asphalt directly to unpaved areas. The asphalt was then immediately spread with a grader.
- The grader spread the asphalt at an approximate 2-inch thickness across the large unpaved areas. After the grader completed spreading asphalt in an area, a depth-measuring-device was used to confirm that at least 2 inches of asphalt was placed in each area.
- Hand shovels were used to place asphalt in the small unpaved areas. Depths of asphalt were also measured in these areas after the asphalt was spread.
- A roller was then used to compact the asphalt.

The activities described above were monitored by EMCON during periodic visits conducted during the paving process. As necessary, EMCON instructed the construction contractor to modify procedures to adapt to changes in conditions at the Site. When the construction contractor completed the asphalt paving, EMCON inspected the asphalt for thickness and integrity. Most areas inspected contained between 1.5 and 2.0 inches of asphalt, and some areas had more than 2.0 inches. However, some limited areas contained less than 1.5 inches and these areas were reviewed with the construction contractor. The contractor placed additional asphalt in these areas so that they contained between 1.5 and 2.0 inches of asphalt.

During construction of the 40th Street Overpass, the City of Emeryville placed a soil berm along the western side of the Site. In the unpaved areas on the Site adjacent to this soil berm, a drainage swale was constructed so that surface water runoff is channeled away from the City of Emeryville soil berm. In areas where the existing concrete slab is adjacent to the City of Emeryville soil berm it was not possible to construct a drainage swale. In these areas where erosion was a concern, asphalt was placed on the soil berm approximately 12 inches above the concrete slab to prevent erosion of the soil berm.

Figure 2 shows the location of a weigh-scale in the scrap yard at the Site. This scale is concrete-lined and was used during steel-manufacturing operations. The scale was not capped with asphalt and was left in place to provide a future property owner with the option of using the scale.

The unpaved portion of the southeast corner of the Site, which is between the City of Emeryville and State of California Department of Transportation (Caltrans) properties was not capped during the period between November 1996 and March 1997. This area is being used by Caltrans under an easement agreement that expires December 31, 1998. The area will be capped with 1½ to 2 inches of asphalt after the Caltrans easement agreement expires, or earlier if the area is released sooner by Caltrans.

2.4 Installation of Monitoring Wells

EMCON installed three, 2-inch-diameter monitoring wells, MW-19, MW-20, and MW-21, in January 1997 at the locations shown in Figure 2. These new wells and existing wells MW-8, MW-9, and MW-11 will be used to monitor groundwater flow and chemistry at the Site boundaries.

The wells were drilled using 8-inch-diameter hollow-stem auger drilling equipment and were completed to depths of approximately 15 feet BGS. The wells were constructed with 2-inch-diameter polyvinyl chloride (PVC) casing and screen. A sand pack was placed in the annular space around the PVC screen, followed by approximately 0.75 foot of bentonite. A cement grout seal was placed above the bentonite to approximately 1 foot BGS and a traffic-rated vault box was concreted in place at the surface. A locking cap was added at the top of the casing.

During drilling, soil samples were collected from each well boring at approximate 5-foot intervals to describe the sediments encountered. Boring logs and well construction details are presented in Appendix A.

The new and existing wells were surveyed for location and top-of-casing elevation. The existing wells were re-surveyed because well boxes on wells MW-8 and MW-9 were disturbed during grading activities and had to be repaired. The new survey data is

presented in Table 1. If future Site development requires that the surface elevation be raised, the wells will be raised to a similar elevation.

3 SUMMARY

Remediation at the Barbary Coast Steel site was completed in March 1997. The remediation was completed in two phases. Phase I consisted of the excavation of approximately 5,170 cubic yards of soil and the decommissioning of wells that were no longer needed. These activities were completed between July and October 1996. Phase II activities (described in this report) consisted of capping the unpaved areas of the Site with asphalt and installing three monitoring wells. These activities were completed between November 1996 and March 1997. The southeast corner of the Site has not been capped. This area will be paved after the Caltrans easement expires, or earlier if the area is released sooner by Caltrans.

Based on the information presented in this report, the remediation requirements described in the *Remedial Design Implementation Plan - Phase II* have been achieved. Therefore, except for the southeast corner of the Site, remediation at the Barbary Coast Steel site has been completed.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

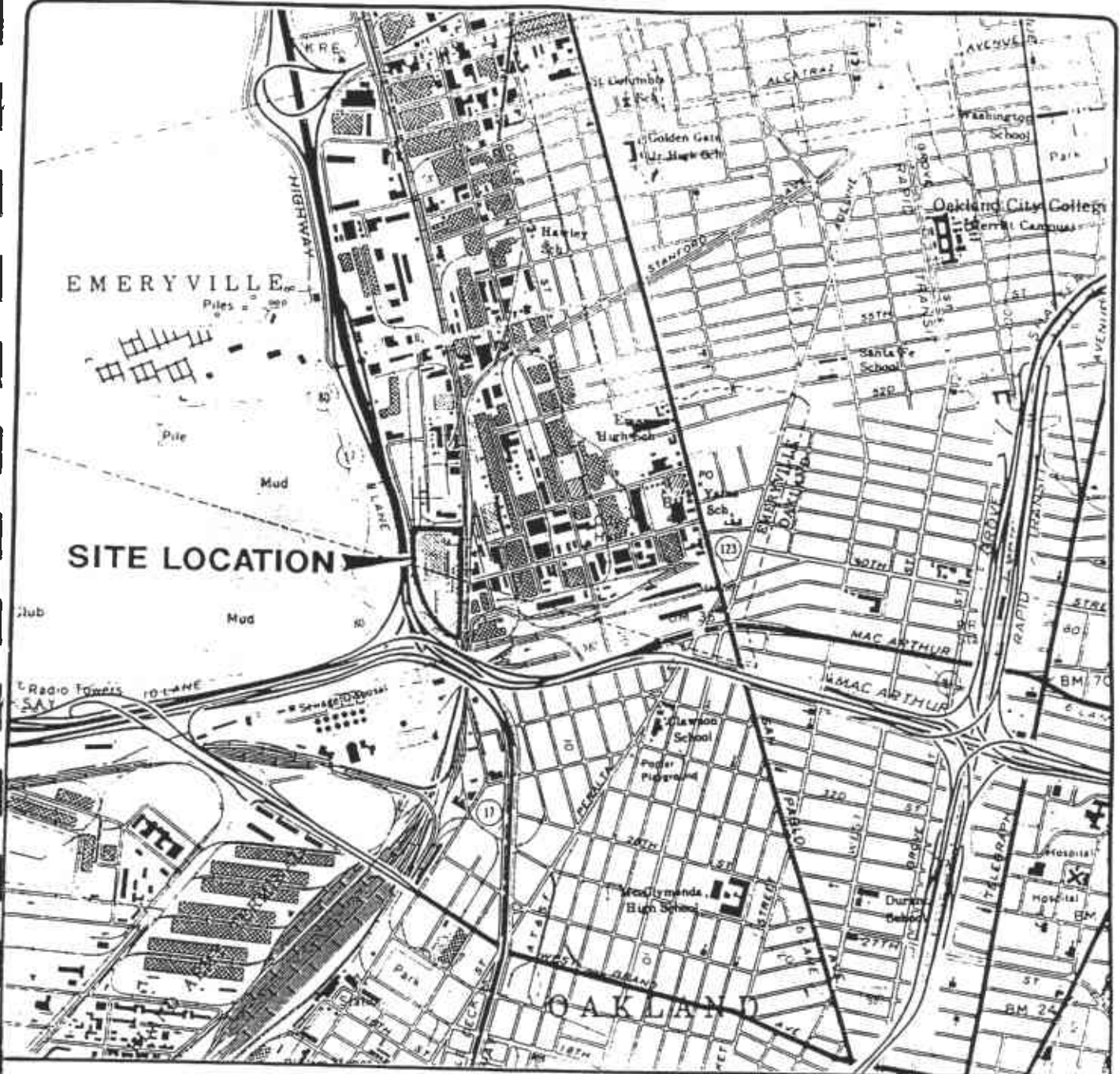
Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

Table 1

Barbary Coast Steel Well Survey

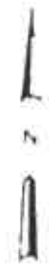
Well No.	Northing*	Easting*	Top-of-Casing Elevation	Box Elevation	Ground Elevation
MW-8	7,605.72	10,124.40	8.64	NA	8.93
MW-9	6,933.56	10,107.07	8.88	9.54	9.44
MW-11	6,384.55	10,095.80	6.61	7.01	6.99
MW-19	7,375.11	9,668.78	6.71	7.25	7.21
MW-20	6,942.77	9,682.30	6.59	7.16	7.11
MW-21	6,488.89	9,761.23	6.74	7.44	7.36

* northings and eastings given for top-of-casing locations



Base map from USGS 7.5' Quad Map
Oakland West, California (Photorevised 1980)

Scale 0 2000 4000 Feet



EMCON

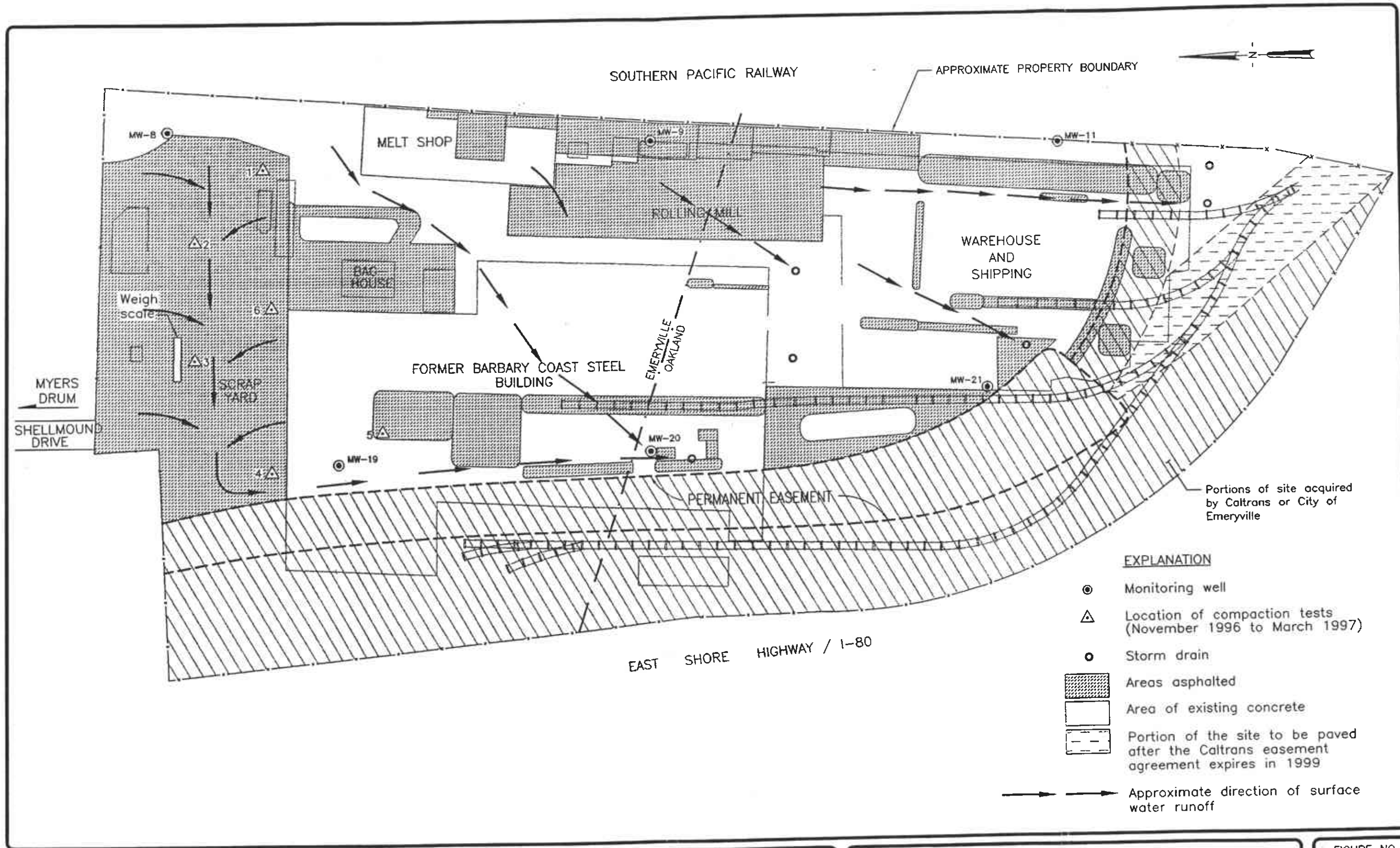
BARBARY COAST STEEL CORPORATION
4300 EAST SHORE HIGHWAY
EMERYVILLE, CALIFORNIA

SITE LOCATION

FIGURE

1

PROJECT NO
G01-0111



SCALE: 0 125 250 FEET

BARBARY COAST STEEL CORPORATION
 4300 EAST SHORE HIGHWAY
 EMERYVILLE, CALIFORNIA
 AREAS ASPHALTED

FIGURE NO.
2
 PROJECT NO.
 G01-01.16

G01-01.16
 REVISION 03/99
 2 KI

APPENDIX A

**WELL INSTALLATION PERMIT, EXPLORATORY BORING LOGS
AND WELL COMPLETION DETAILS**



ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588

VOICE (510) 464-2600
FAX (510) 462-3074

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 4300 EAST SHORE HWY, EMERYVILLE

PERMIT NUMBER 97027
LOCATION NUMBER _____

CLIENT Name BIRMINGHAM STEEL CORP.
Address 2424 SW ANDOVER Voice 206-933-2200
City SEATTLE, WA Zip 98116

PERMIT CONDITIONS

Circled Permit Requirements Apply

APPLICANT Name EMCON Fax 408-437-9576
Address 1921 RINGWOOD AVE Voice 408-453-7300
City SAN JOSE, CA Zip 95131

A. GENERAL

1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permit work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

TYPE OF PROJECT

Well Construction	_____	Geotechnical Investigation	_____
Cathodic Protection	_____	General	_____
Water Supply	_____	Contamination	_____
Monitoring	<u>X</u>	Well Destruction	_____

B. WATER WELLS, INCLUDING PIEZOMETERS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

PROPOSED WATER SUPPLY WELL USE
Domestic _____ Industrial _____ Other _____
Municipal _____ Irrigation _____

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

DRILLING METHOD:
Mud Rotary _____ Air Rotary _____ Auger X
Cable _____ Other _____

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

DRILLER'S LICENSE NO. 72040328

E. WELL DESTRUCTION. See attached.

WELL PROJECTS

Drill Hole Diameter	<u>8</u> in.	Maximum	
Casing Diameter	<u>2</u> in.	Depth	<u>20</u> ft.
Surface Seal Depth	<u>6</u> ft.	Number	<u>3</u>

GEOTECHNICAL PROJECTS

Number of Borings	_____	Maximum	
Hole Diameter	_____ in.	Depth	_____ ft.

ESTIMATED STARTING DATE 01/19/96
ESTIMATED COMPLETION DATE 01/20/96

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-63.

Approved Wyman Hong Date 9 Jan 97
Wyman Hong

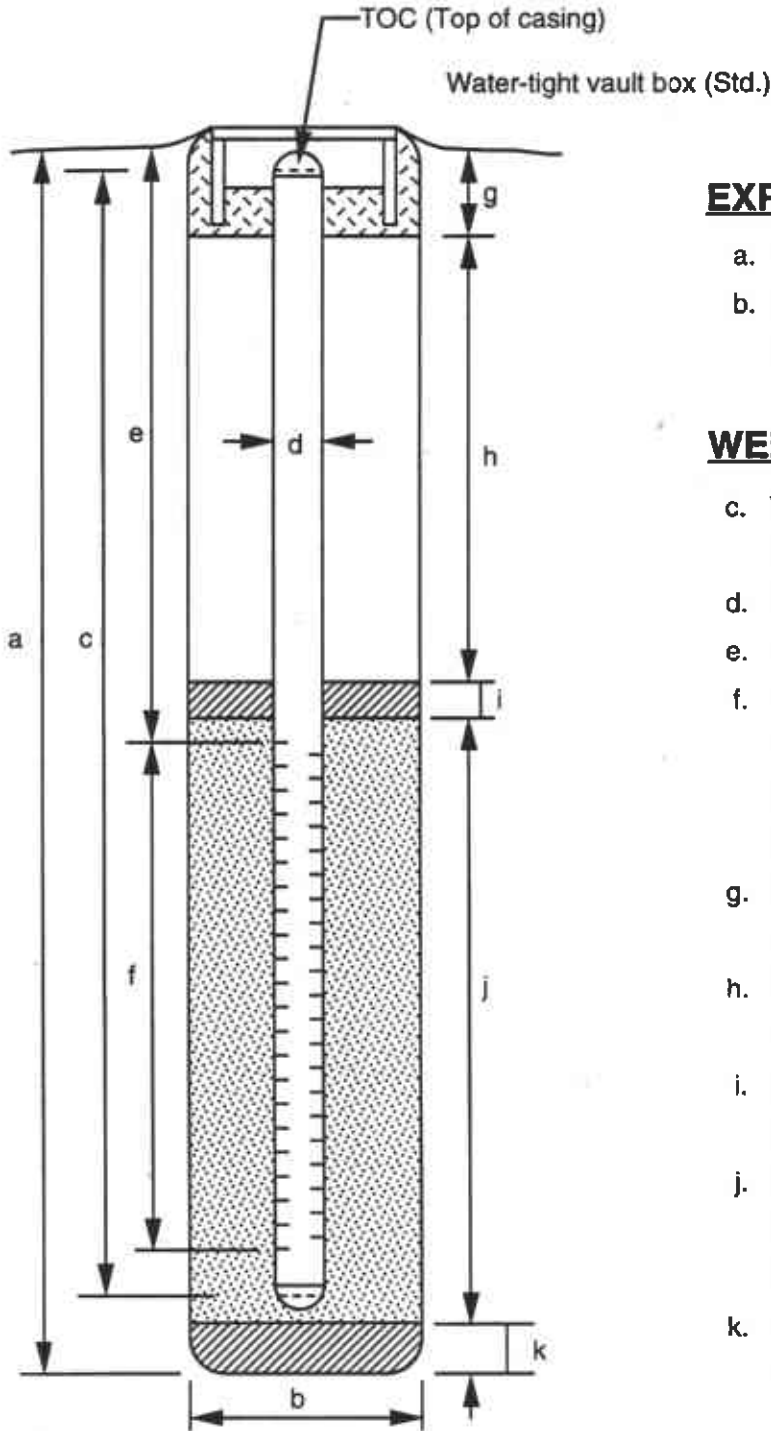
APPLICANT'S SIGNATURE [Signature] Date 12/20/96

WELL DETAILS



EMCON
ASSOCIATES

PROJECT NUMBER 20G01-001.016 BORING / WELL NO. MW-19
 PROJECT NAME Barbary Coast Steel TOP OF CASING ELEV. 6.71
 LOCATION Emeryville, CA GROUND SURFACE ELEV. 7.25
 WELL PERMIT NO. 97027 (ACWD) DATUM M.S.L.
 INSTALLATION DATE 1/27/97



EXPLORATORY BORING

a. Total depth 15.0 ft.
 b. Diameter 8.0 in.
 Drilling method Hollow Stem Auger

WELL CONSTRUCTION

c. Total casing length 15.0 ft.
 Material Schedule 40 PVC
 d. Diameter 2.0 in.
 e. Depth to top perforations 3.0 ft.
 f. Perforated length 12.0 ft.
 Perforated interval from 3.0 to 15.0 ft.
 Perforation type Machine Slotted
 Perforation size 0.010 inch
 g. Surface seal 1.0 ft.
 Material Concrete
 h. Backfill 1.0 ft.
 Material Cement
 i. Seal 0.75 ft.
 Material Bentonite Pellets
 j. Gravel pack 12.25 ft.
 Gravel pack interval from 2.75 to 15.0 ft.
 Material 2/12 Sand
 k. Bottom seal/fill NA ft.
 Material _____

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 0601-001.018

BORING NO.: MW-19









PROJECT NAME: Barbary Coast Steel

PAGE: 1 of 1

BY: P. Christianson

DATE: 1/27/97

SURFACE ELEVATION: 7.21

RECOVERY (ft/ft)	POCKET PENETROMETER (tsf)	PENETRATION (blows/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
0.5/1.5	---	5 10 12	▽ 7.21	5		 	Concrete. FILL MATERIAL: gravel, slag and brick. @3.5' wet.	
1.0/1.5	0.75	1 2 4		10			CLAY (CL), black (10YR, 2/1); medium- to high-plasticity fines; trace fine sand; firm; wet.	
1.0/1.5	0.2	5 5 5		15		 	SANDY CLAY (CL), black (10YR, 2/1); 75% medium-plasticity fines; 20% fine to coarse sand, (2:1:1); 5% fine to coarse gravel; stiff; wet. CLAY (CL), dark gray (5Y, 4/1); high-plasticity; stiff; moist. BORING TERMINATED AT 15 FEET, SAMPLED TO 15.5 FEET.	
				20				



REMARKS

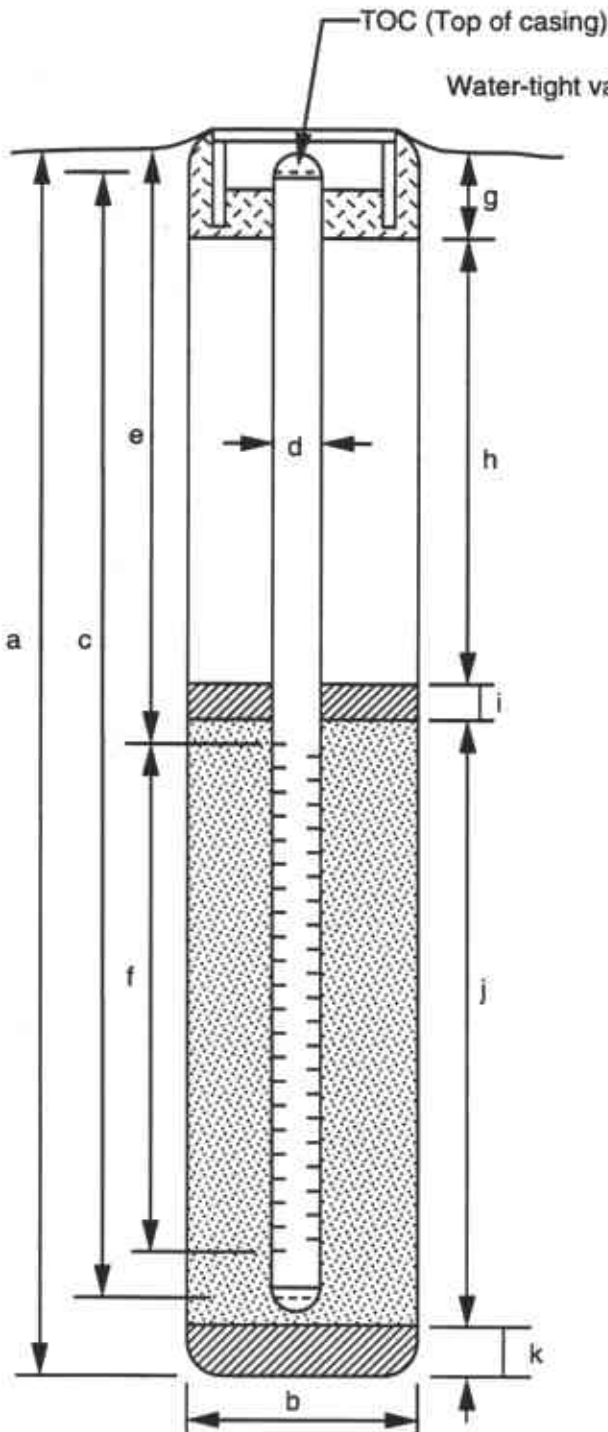
Boring was drilled with 8-inch-diameter hollow-stem augers. Samples were collected using a modified California split spoon sampler. Boring converted into a 2-inch diameter PVC monitoring well. See explanation sheet for definition of symbols used in well detail and sample columns.

WELL DETAILS



EMCON
ASSOCIATES

PROJECT NUMBER 20G01-001.016 BORING / WELL NO. MW-20
 PROJECT NAME Barbary Coast Steel TOP OF CASING ELEV. 6.59
 LOCATION Emeryville, CA GROUND SURFACE ELEV. 7.16
 WELL PERMIT NO. 97027 (ACWD) DATUM M.S.L.
 INSTALLATION DATE 1/27/97



EXPLORATORY BORING

a. Total depth 15.0 ft.
 b. Diameter 8.0 in.
 Drilling method Hollow Stem Auger

WELL CONSTRUCTION

c. Total casing length 15.0 ft.
 Material Schedule 40 PVC
 d. Diameter 2.0 in.
 e. Depth to top perforations 3.0 ft.
 f. Perforated length 12.0 ft.
 Perforated interval from 3.0 to 15.0 ft.
 Perforation type Machine Slotted
 Perforation size 0.010 inch
 g. Surface seal 1.0 ft.
 Material Concrete
 h. Backfill 1.0 ft.
 Material Cement
 i. Seal 0.75 ft.
 Material Bentonite Pellets
 j. Gravel pack 12.25 ft.
 Gravel pack interval from 2.75 to 15.0 ft.
 Material 2/12 Sand
 k. Bottom seal/fill NA ft.
 Material _____

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 0601-001.018

BORING NO.: MW-20

PROJECT NAME: Barbary Coast Steel

PAGE: 1 of 1

BY: P. Christianson

DATE: 1/27/97

SURFACE ELEVATION: 7.11 ft.

RECOVERY (ft/ft)	POCKET PENETROMETER (tsf)	PENETRATION (blows/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
0.3/1.5	--	8 8 11	▽ 7.11 1/27/97	5	1	●●●●	Concrete. FILL MATERIAL: slag, sand. @3.5' wet.	●●●●
1.0/1.5	0.75	3 3 5		10	2	▨▨▨▨	CLAY (CL) black (10YR, 2/1); medium- to high-plasticity fines; trace sand; firm; wet; black hydrocarbon sheen and odor.	▨▨▨▨
1.0/1.5	4.5	10 18 25		15	3	▨▨▨▨	SILTY SAND (SM), black (10YR, 2/1); 15% non-plastic fines; 85% fine to medium sand, (5:1); dense; wet; black hydrocarbon sheen. GRAVELLY CLAY (CL), olive gray (10YR, 4/2) mottled with gray (2.5Y, 5/1); 50% medium-plasticity fines; 20% fine to coarse sand, (2:1:1); 30% fine to coarse gravel; hard; moist. BORING TERMINATED AT 15 FEET, SAMPLED TO 15.5 FEET.	▨▨▨▨
				20				

REMARKS

Boring was drilled with 8-inch-diameter hollow-stem augers. Samples were collected using a modified California split spoon sampler. Boring converted into a 2-inch diameter PVC monitoring well. See explanation sheet for definition of symbols used in well detail and sample columns.



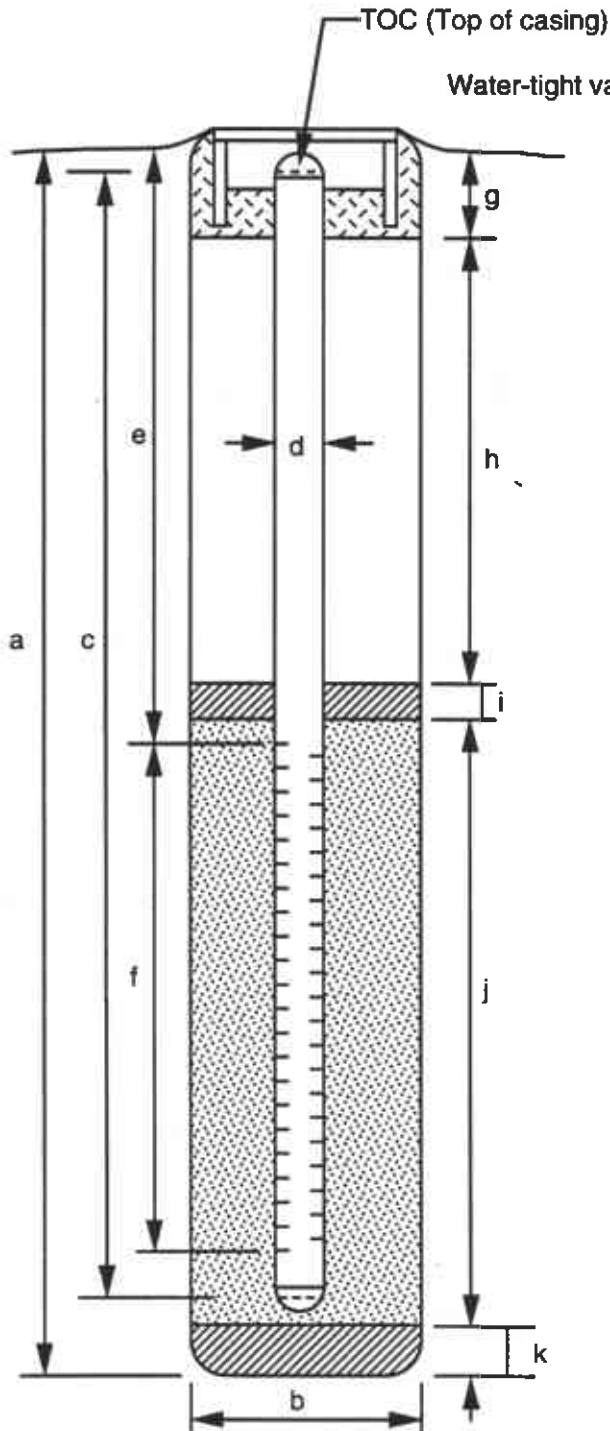
EMCON

WELL DETAILS



EMCON
ASSOCIATES

PROJECT NUMBER 20G01-001.016 BORING / WELL NO. MW-21
 PROJECT NAME Barbary Coast Steel TOP OF CASING ELEV. 6.74
 LOCATION Emeryville, CA GROUND SURFACE ELEV. 7.44
 WELL PERMIT NO. 97027 (ACWD) DATUM M.S.L.
 INSTALLATION DATE 1/27/97



EXPLORATORY BORING

a. Total depth 15.0 ft.
 b. Diameter 8.0 in.
 Drilling method Hollow Stem Auger

WELL CONSTRUCTION

c. Total casing length 15.0 ft.
 Material Schedule 40 PVC
 d. Diameter 2.0 in.
 e. Depth to top perforations 3.0 ft.
 f. Perforated length 12.0 ft.
 Perforated interval from 3.0 to 15.0 ft.
 Perforation type Machine Slotted
 Perforation size 0.010 inch
 g. Surface seal 1.0 ft.
 Material Concrete
 h. Backfill 1.0 ft.
 Material Cement
 i. Seal 0.75 ft.
 Material Bentonite Pellets
 j. Gravel pack 12.25 ft.
 Gravel pack interval from 2.75 to 15.0 ft.
 Material 2/12 Sand
 k. Bottom seal/fill NA ft.
 Material _____

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 0G01-001.018

BORING NO.: MW-21

PROJECT NAME: Barbary Coast Steel

PAGE: 1 of 1

BY: P. Christianson

DATE: 1/27/97

SURFACE ELEVATION: 7.38 ft.

RECOVERY (ft./ft)	POCKET PENETROMETER (tsf)	PENETRATION (blows/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
0.1/1.5		5 5 3	▽ 1/27/97	5	5	●●●●	Concrete. Asphalt. SLAG FILL MATERIAL. @3.5': wet.	●●●●
0.8/1.5	0.5	3 2 2		10	10	▨	CLAY (CL) black (10YR, 2/1); medium-plasticity fines; trace sand; rootlets; hydrocarbon odor; firm; wet.	▨
1.0/1.5	3.75	5 6 12		15	15	▨	@14.0': dark gray (5Y, 4/1); 95% medium-plasticity fines; 5% fine sand; trace clay nodules; very stiff; moist. BORING TERMINATED AT 15 FEET, SAMPLED TO 15.5 FEET.	▨
				20				



REMARKS
 Boring was drilled with 8-inch-diameter hollow-stem augers. Samples were collected using a modified California split spoon sampler. Boring converted into a 2-inch diameter PVC monitoring well. See explanation sheet for definition of symbols used in well detail and sample columns.

APPENDIX B
COMPACTION TEST RESULTS



COMPACTION TEST

ASTM D698 ASTM D1557

Checked By: DGC

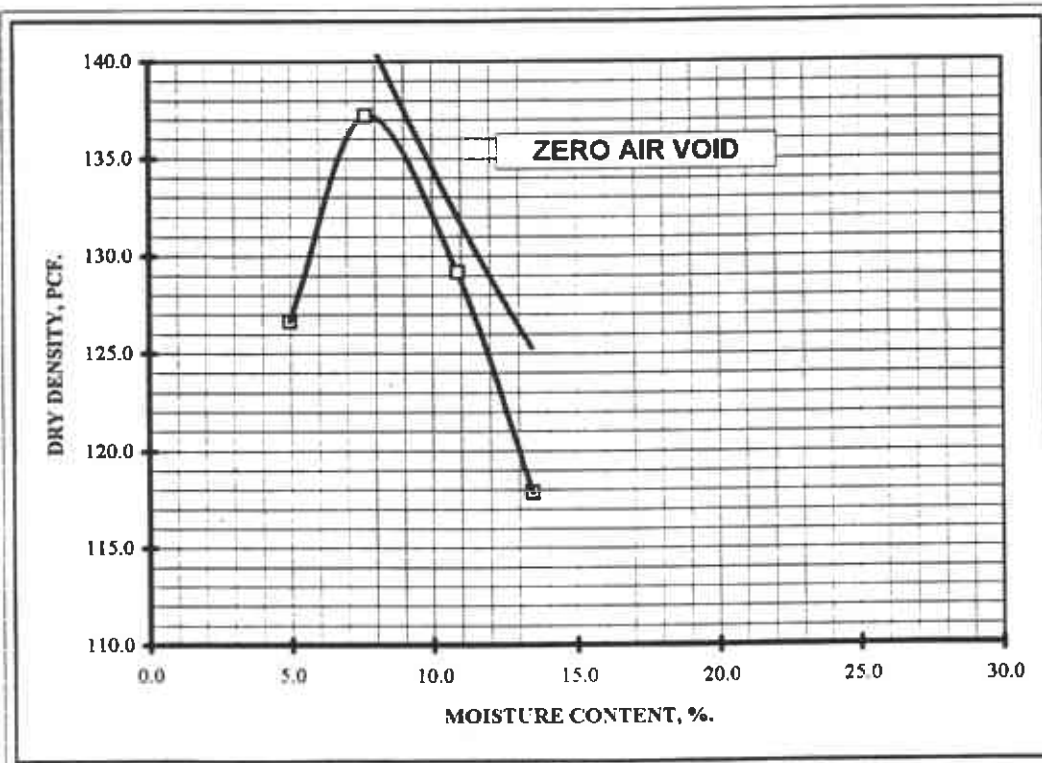
Project Name: BARBARY COAST Proj. No.: 20G01-001.016
 Sample No.: TF-1 Depth, ft.: BULK
 Description: CLAYEY GRAVEL, GRAY BROWN WITH SAND.

Lab. No.: 96-184
 Tested By: DP
 Date: 11/14/96

Vol., Mold, cf.: 0.07502 Hammer Weight,: 10.0 lbs. Hammer Drop: 18"
 No. of Layers: 5 Blows/Layer: 56 ASTM Designation:
 Method: "C"

Trial Number		1	3	6	8
Container Number		#93	#43	#94	#2000
Wet Soil + Container	(gms.)	1193.50	1568.90	1536.70	1304.20
Dry Soil + Container	(gms.)	1145.40	1469.90	1403.10	1170.70
Container Weight	(gms.)	176.20	176.40	176.20	177.60
Weight of Water	(gms.)	48.10	99.00	133.60	133.50
Weight of Dry Soil	(gms.)	969.20	1293.50	1226.90	993.10
Moisture Content	(%)	5.0	7.7	10.9	13.4
Wet Soil + Mold	(gms.)	7338	7841	7688	7365
Weight of Mold	(gms.)	2815	2815	2815	2815
Wet Weight of Soil	(lbs.)	9.97	11.08	10.74	10.03
Wet Unit Weight	(pcf.)	132.9	147.7	143.2	133.7
Dry Unit Weight	(pcf.)	126.6	137.2	129.1	117.9

Maximum Dry Density, pcf.:	137.2
Optimum Moisture Content:	7.8
Est. Specific Gravity:	2.75



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FIELD REPORT



PROJECT NO. 20601-001.016

DATE 11/15/96

CLIENT BARBARY COAST STEEL

DAY OF WEEK FRIDAY

LOCATION EMERYVILLE

WEATHER COOL, PARTLY CLOUDY

CLASSIFICATION OF DISPOSAL SITE _____

PROJECT MANAGER MARK SMOLLEY

SERVICES RENDERED:

- INSPECTION - Earthwork Drainage and Subdrainage Waste Disposal
- MANAGEMENT - Waste Disposal Operations
- MONITORING - Installation of Devices Sampling and Observation
- OTHER FIELD DENSITY TESTING

CONTRACTOR'S EQUIPMENT: _____

REMARKS

JIM (CONTRACTOR FOREMAN) MET ME WHEN I ARRIVED AT THE SITE. HE TOLD ME THAT THEY WERE HOPING TO PAVE ON MONDAY BUT IT DEPENDS ON THE WEATHER. CONSTRUCTION EQUIPMENT WAS MOVING ON THE EAST AND SOUTH PORTIONS OF THE SITE. THE PART TO THE NORTHEAST (SCRAP YARD AREA) HAD BEEN COMPACTED, GRADED, AND STAKED WITH SURVEYOR'S STAKES. EARTHFILL APPEARED UNFINISHED ON THE SOUTH SIDE.

I PERFORMED SIX TESTS IN THE SCRAP YARD AREA (SEE ATTACHED LOCATION MAP. ALL TESTS WERE PASSING, MOST ABOVE 95% RELATIVE COMPACTION. MOISTURE CONTENTS RANGED FROM 6.0 TO 9.2% (SEE ATTACHED DATA SHEET).

EARTH MOVING EQUIPMENT CONSISTED OF:

- 146 MOTOR GRADERS (CAT), 2
- A WATER TRUCK
- A DYNAPAC VIBRATORY SMOOTH-DRUMMED COMPACTOR

I INFORMED JIM THAT THE TESTS PASSED BEFORE I LEFT.

TIME ARRIVED 11:15 TIME DEPARTED 12:27
 TRAVEL TIME TO 1 HR FROM 1 HR

SIGNATURE [Signature]



EMCON ASSOCIATED

FIELD

MOISTURE-DENSITY TEST SHEET

PROJECT NUMBER 20501-021.016

PROJECT NAME BARBARA COAST STEEL

WORK AREA cover

TESTED BY L. Haley

GAUGE NO. TRX 5116533

CURVE NO.	SOIL DESCRIPTION	MAX. DRY DENSITY PCF	OPTIMUM MOIST. %
1	Clayey Gravel	131.2	7.8

TEST NO.	DATE	TEST COORDINATES	ELEV. (FT.)	STD. COUNT		MODE AND DEPTH	DENSITY COUNT	DENSITY COUNT RATIO	WET DENSITY PCF	MOISTURE COUNT	MOISTURE COUNT RATIO	MOISTURE COUNT PCF	MOISTURE CONTENT %	DRY DENSITY PCF	REL. COMP. %	SOIL TYPE AND REMARKS
				DENS.	MOIST											
1	11/15/66	SEE PLAN	2.0	2912	599	15 sec 6"			135.9				9.2	124.5	90.7	1)
2			2.1						138.1				6.0	130.3	75.0	
3			2.1						141.9				6.5	133.5	77.0	1)
4			2.2						138.2				8.6	127.2	92.7	
5			2.1						146.4				8.5	134.9	98.4	1)
6			2.2						144.0				6.5	135.2	98.2	1)
TEST NO.	DATE	TEST COORDINATES	ELEV. (FT.)	INITIAL SAND	FINAL SAND	SAND USED	CONE SAND	TEST HOLE SAND	WET SOIL + PAN	WET SOIL - PAN	MOISTURE DRY WT.	MOISTURE CONTENT %	DRY DENSITY PCF	REL. COMP. %	SOIL TYPE AND REMARKS	