Versar INC. SACRAMENTO

December 30, 1992

ST 10 1420

Mr. Barney Chan
Hazardous Materials Specialist
Hazardous Materials Division
Department of Environmental Health
Alameda County Health Care Services Agency
80 Swan Way
Oakland, California 94621

Reference: Addendum to Phase II Site Investigation Work Plan, Pacific Dry Dock Yard I, 1441 Embarcadero, Oakland, California; Versar Project No. 1457-027

Dear Mr. Chan:

This letter is intended to inform you of recent changes to the proposed work schedule at Pacific Dry Dock Yard I, 1441 Embarcadero, Oakland, California. This letter is also intended to serve as an Addendum to the Phase II Site Investigation Work Plan (Phase II work plan). Following your letter of September 28, 1992 and due to possible delays or changes in the proposed uses of the property, Crowley Marine Services has determined that the proposed interim remediation will not be conducted as described in the Addendum to the Phase II Work Plan submitted to you on September 18, 1992. We have determined that the most prudent and cost-effective way to approach the problems at the site is to continue with the site investigation described in the Phase II Site Investigation Work Plan (as modified below). The following work plan addendum is designed to more fully characterize the site and to obtain information necessary to produce a Problem Assessment Report (PAR). All work and sampling described in this letter is proposed by Versar, Inc. (Versar) on behalf of Crowley Marine Services, Inc. (Crowley) and is subject to Versar's standard disclaimer, included as Exhibit A.

Site History

Pacific Dry Dock and Repair Yard I (PDDI) was previously divided into a western section and an eastern section for the purpose of the preliminary environmental investigation. As stated in the September 18, 1992 addendum, the east and west portions of PDDI will be addressed as a single site for the purpose of further investigation and remedial activities. This addendum proposes additional work necessary to complete the site investigation of both portions of the site.

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PDDI, which is located at 1441 Embarcadero in Oakland, California, has been used as a boat repair facility by Crowley and other companies since 1935. PDDI is currently operating on a limited basis. The area surrounding PDDI is occupied by light industrial and commercial facilities. Figures 1 and 2, Attachment I, show the site location and site layout, respectively.

The results of the preliminary investigation of the western portion of the site are presented in the Preliminary Investigation and Evaluation Report dated May 6, 1992. The investigation identified soil and ground-water contamination consisting of gasoline, diesel, and benzene, toluene, ethylbenzene, and xylenes (BTEX). The areas of contamination are near a previously removed underground gasoline storage tank, the recently removed office building, and the above-ground storage tanks near the water's edge.

The results of the investigation of the eastern portion of the site are presented in the Addendum to Phase II Site Investigation Work Plan dated September 18, 1992. Prior investigations of the eastern section identified minor areas of subsurface contamination primarily near Marine Railway No. 2. The contamination consisted primarily of petroleum hydrocarbons as gasoline, diesel, and oil and grease, with lesser concentrations of BTEX. Isolated samples were found to contain traces of polynuclear aromatic hydrocarbons and lead. Sampling of the contents of an underground storage tank (UST) at the site identified water containing gasoline, diesel, and BTEX.

Monitoring Well Installation

To determine the extent and concentration of contaminants in the ground water beneath the site, five two-inch inside diameter ground-water monitoring wells will be installed. The monitoring wells will be installed as described in section four of the Phase II Work Plan. However, the well locations will be different from those proposed in the work plan. The revised proposed locations are presented in Figure 3, Attachment I. As shown in Figure 3, the location of the offsite well has been moved to the opposite side of the Embarcadero. The remaining wells are located along the north and west property boundaries (near the location of the

previously removed gasoline UST) and near the former location of the waste oil tank. The encroachment permit previously acquired for the Embarcadero well is being resubmitted with the new well location. Excavation and well installation permits will be acquired prior to drilling.

During the drilling, soil samples will be collected at minimum five-foot intervals beginning at the ground surface as described in Section 4.1 of the Phase II work plan. Up to two soil samples from each boring will be selected for laboratory analysis. For risk assessment purposes, the sample collected from within two feet of the ground surface will be one of those submitted for laboratory analysis. Selection of the other sample will be based on field screening data. Each of the soil samples will be analyzed by a California-certified laboratory for Total Petroleum Hydrocarbons as diesel (TPH-D) and gasoline (TPH-G) using the DHS Method (LUFT Field Manual); for BTEX by EPA Method 8020; and for Total Oil and Grease (TOG) using EPA Method 5520 C+F.

Additional analyses will be conducted on up to two of the soil samples for SVOCs using EPA Method 8270; pesticides and PCBs using EPA Method 8080; California Assessment Manual metals (CAM17); phenols by EPA Method 420.1; and organotins.

Following monitoring well installation and development, a ground-water sample will be collected from each of the monitoring wells for laboratory analysis. Protocol for ground-water sampling is described in the Phase II work plan. Each of the ground-water samples will be analyzed for TPH-D, TPH-G, BTEX, and TOG as previously described.

As requested in your letter of March 16, 1992, at least one soil and one water sample from near the former waste oil tank (proposed location MW3) will be analyzed for chlorinated hydrocarbons by EPA Method 8010 or 8240, and semi-volatile organic compounds (SVOCs) by EPA Method 8270. At least one of the ground-water samples will be analyzed for total dissolved solids to establish the current water quality.

Following installation, each of the monitoring wells will be surveyed to a point of known elevation. Ground-water gradient information will be determined following analysis of the water-table elevation information collected during the sampling.

Soil Coring

Following installation of the monitoring wells, approximately 16 boreholes will be cored at the site. The proposed coring locations are shown in Figure 4, Attachment I. Thirteen of the borehole locations are in the Embarcadero, just north of the sidewalk. The remaining four proposed locations are along the north edge of the site, at or near the former location of the office. The proposed locations are subject to change, however, based on the results of the monitoring well investigation and access restrictions due to subsurface utilities. An excavation permit will be acquired prior to initiation of coring activities.

Soil samples will be collected from the corings at minimum five-foot intervals beginning at the soil surface. Decontamination and sampling protocol will be conducted as described in Section 4.1 of the Phase II work plan. Based on the results of field screening, up to 16 soil samples will be submitted for laboratory analysis. All of the soil samples submitted will be analyzed for TPH-D, TPH-G, BTEX, and TOG as previously described. Soil samples found to contain total metal concentrations exceeding ten times the applicable Soluble Metal Threshold Limit Concentrations will be analyzed for soluble metals using the Waste Extraction Test (WET).

Ground-water grab samples will be collected from temporary piezometers installed in up to six of the boreholes. These samples will be used to assist in the characterization of the ground-water contamination identified beneath the site. Ground-water samples will be analyzed for TPH-D, TPH-G, BTEX, and TOG if sufficient sample can be collected.

All of the borings will be backfilled with cement grout following ground-water sample collection and removal of the piezometer. Borings in the street will be surfaced with asphalt patch.

Additional Site Characterization

Based on the results of the investigation, additional site characterization may be deemed necessary prior to submission of the PAR. If additional work is deemed necessary, Alameda County Department of Environmental Health, Hazardous Materials Division, will be informed of the investigation results and of additional investigations to be conducted at the site.

If you have any questions or comments about the contents of this work plan addendum, or require further information, please do not hesitate to contact our Fair Oaks office at (916) 962-1612.

Sincerely,

Michael D. Holley
Engineering Program Manager

Lawrence Kleinecke
Hydrogeologist/Chemist

cc: Mr. Stephen Wilson, Crowley
Mr. Dan Schoenholz, Port of Oakland
Ms Beth Hamilton, Pillsbury, Madison & Sutro

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EXHIBIT A

DISCLAIMER

The purpose of this work plan addendum is only to inform the client of the environmental conditions as they currently exist at the subject site and the methodology to correct the identified environmental impairment. Versar, Inc. (Versar) does not assume responsibility for the discovery and elimination of hazards that could possibly cause accidents, injuries, or damage. Compliance with submitted recommendations and/or suggestions in no way assures elimination of hazards or the fulfillment of a client's obligation under any local, or federal laws or any modifications or changes thereto. In many cases, federal, or local codes require the prompt reporting to relevant authorities if a release occurs. It is the responsibility of the client to comply with requirements to notify authorities of any conditions that are in violation of the current legal standards.

Factual information regarding operations, conditions, and test data was obtained, in part, from the client and have been assumed by Versar to be correct and complete. Since the facts stated in this work plan addendum are subject to professional interpretation, they could result in differing conclusions. In addition, the findings and conclusions contained in this work plan addendum are based on various quantitative and qualitative factors as they existed on or near the date of the investigation. Therefore, if the recommendations made in this work plan addendum are not implemented within a reasonable period of time, there can be no assurances that intervening factors will not arise that will affect the conclusions reached herein.

Versar has prepared this work plan addendum at the request of its client. Versar is responsible for the accuracy of the work plan addendum's contents, subject to what is stated elsewhere in this Disclaimer, but recommends the work plan addendum be used only for the purposes intended by the client and Versar when the work plan addendum was prepared. Versar makes no warranty and assumes no liability with respect to the use of information contained in this work plan addendum. The work plan addendum may be unsuitable for other uses, and Versar assumes no liability for such uses. No changes to its form or content may be made without Versar's express written approval.

This work plan addendum reflects conditions, operations, and practices as observed during the investigation. Changes or modifications to procedures and/or facilities made after the site visit are not included.

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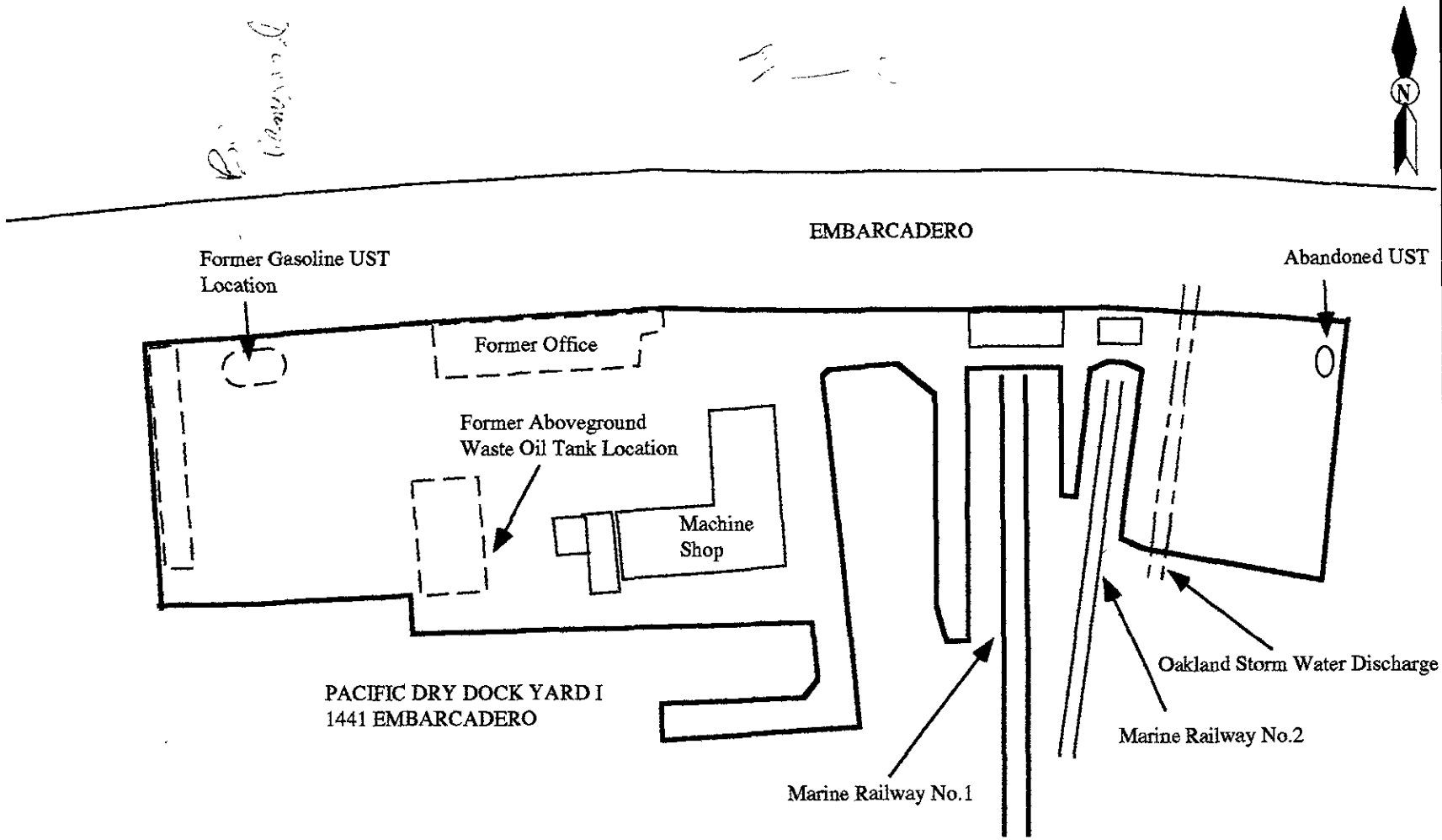
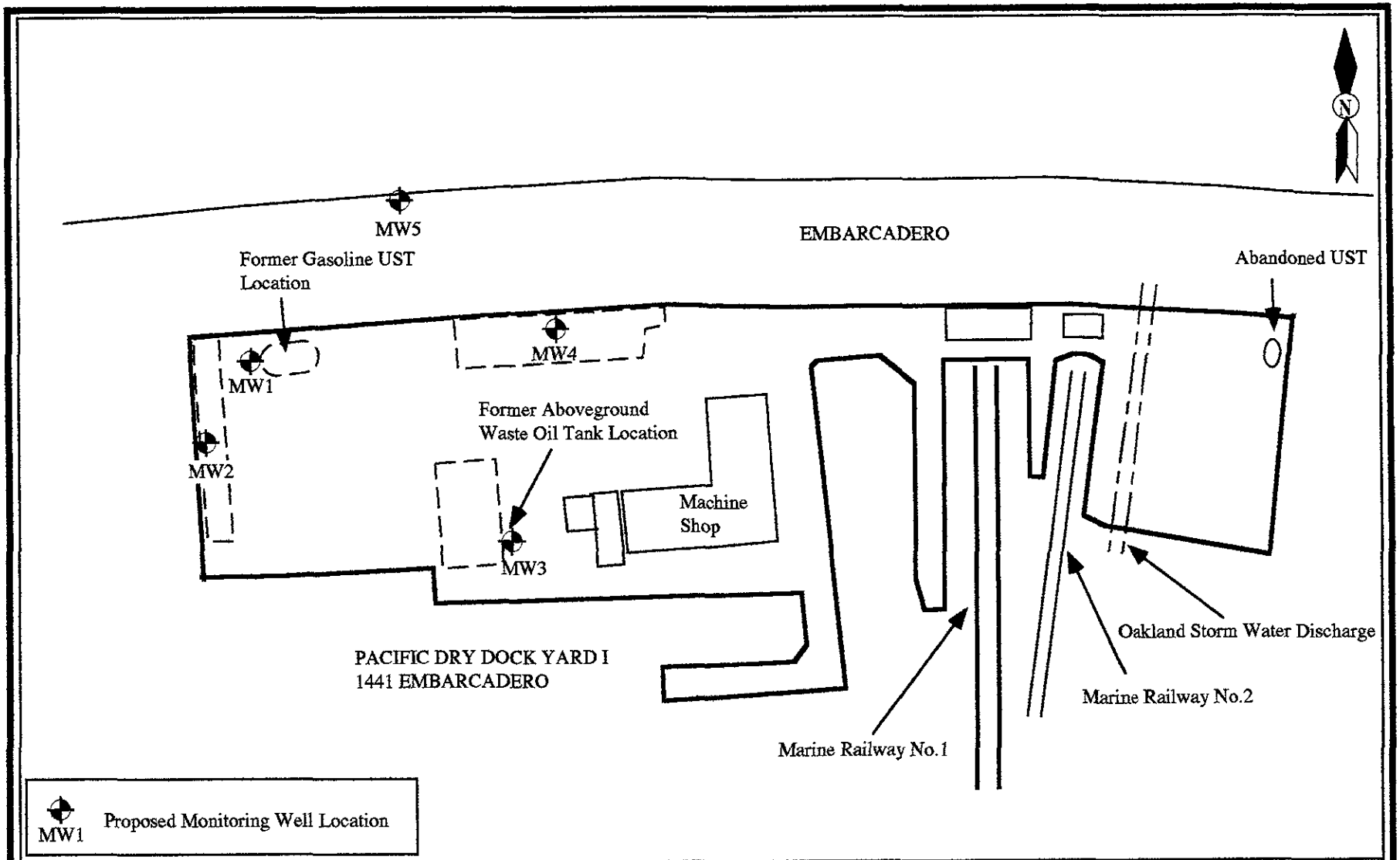
ATTACHMENT I

Scale (miles) 0 0.25 0.50	Site Location	Figure 1
Project No. 1457-027	Pacific Dry Dock Yard I Oakland, California	Versar Inc.



Scale (feet) 0 50 100	Site Layout	Figure 2
Project No. 1457-027	Pacific Dry Dock Yard I Oakland, California	Versar Inc.



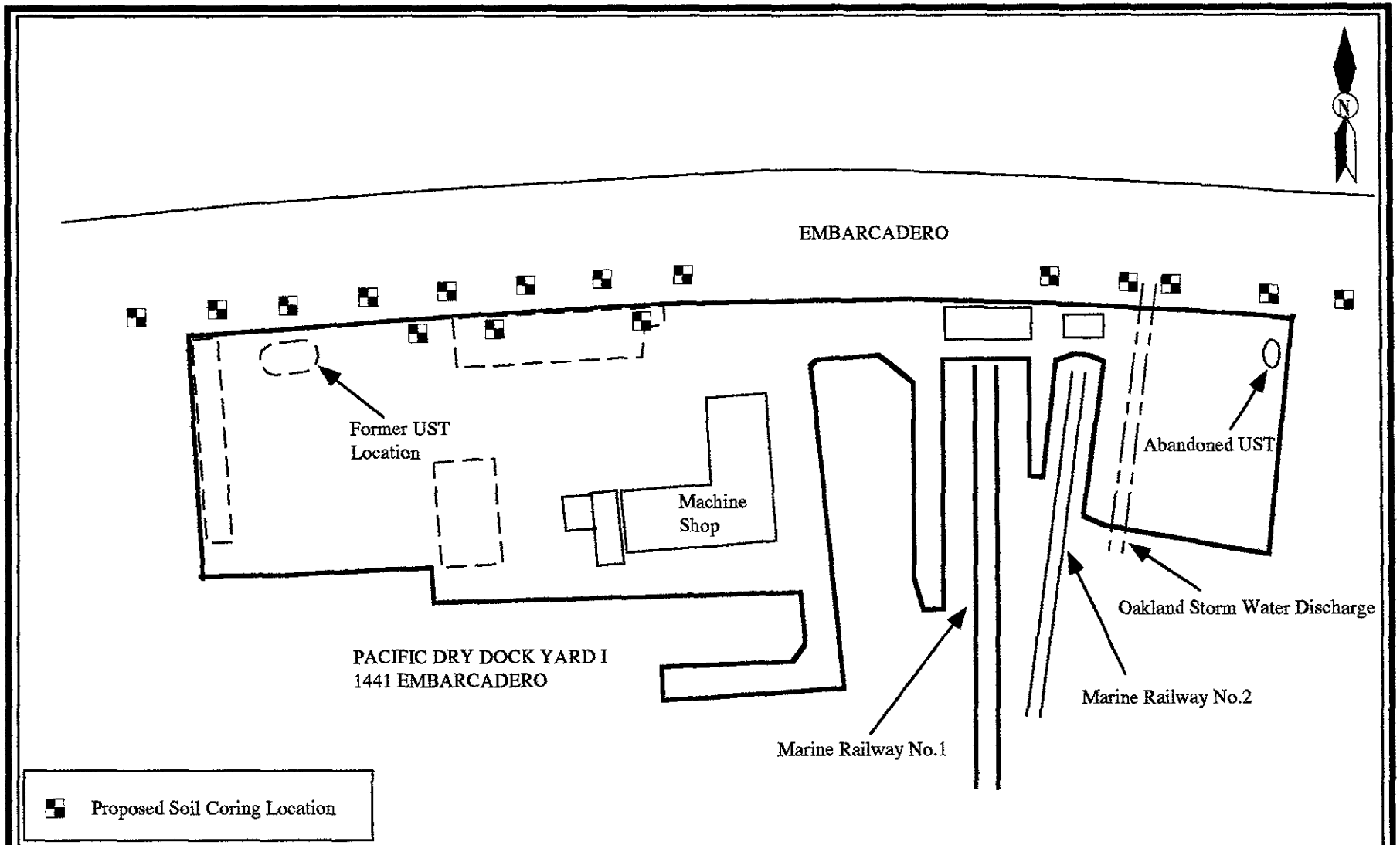
Proposed Ground-Water Monitoring Well Locations

Figure 3

Project No. 1457-027

Pacific Dry Dock Yard I
Oakland, California

Versar Inc.



Scale (feet)

0 50 100

Proposed Soil Coring Locations

Figure 4

Project No. 1457-027

Pacific Dry Dock Yard I
Oakland, California

Versar Inc.