[redacted]

July 1994

TMC
Environmental, Inc.

"An Environmental Management Company"

WORK PLAN AMENDMENT
1700 Park Street
Alameda, California

For

CAVANAUGH MOTORS
1700 Park Street
Alameda, California 94501

Prepared By

TMC Environmental, Inc.
13908 San Pablo Avenue, Suite 101
San Pablo, California 94806 232-8366

Project Number: 101090

Michael Princevalle
Soil Scientist/Project Manager

Mark Youngkin
Engineering Geologist 1380

WORK PLAN AMENDMENT
1700 Park Street, Alameda ,California

1.0 INTRODUCTION

TMC ENVIRONMENTAL, Inc. (TMC) wrote this Work Plan Amendment, per the request of the Alameda County Department of Health Services (ACDHS) letter, dated April 6, 1994. The ACDHS letter requests soil sampling to verify gasoline remediation work in the vicinity of a former gasoline underground storage, and the construction of a ground water monitoring well down-gradient from that former tank and existing monitoring well MW-1. **TMC** is amending our ACOHS approved "Site Contamination Work Plan", dated April 15, 1991. The April 15, 1991, work plan presents the methods and procedures to perform subsurface soil sampling, ground water monitoring well construction and ground water sampling, and includes a Site Safety Plan. This work plan was approved by the ACDHS and was in force during all work performed at the site and will continue be in force for the additional work. This Work Plan Amendment also summarizes investigation and remediation work performed at the site.

2.0 SUMMARY OF FINDINGS

In December, 1989 and August, 1990, two underground storage tanks (one gasoline and one automotive waste oil) were removed from separate locations at the site. Soil samples recovered during the tank removal activities revealed the presence of petroleum materials. The soils found to be contaminated, and accessible, were excavated and stockpiled on site. Approximately 120 cubic yards of contaminated soil were removed and stockpiled on site. Site conditions prevented the complete removal of contaminated soils associated with the gasoline tank.

Subsequent to the tank removals and soil excavation, **TMC** performed a subsurface soils and ground water investigation at the site. As part of the investigation, six groundwater monitoring wells (MW-1, MW-2, MW-3, MW-4, MW-5 and MW-6; see Plate 1, Site Map) were installed. Ground water monitoring well MW-1 is located within the gasoline tank excavation. Monitoring well MW-2 is located up-gradient from the former gasoline tank and is near the southern limits of the site. Monitoring well MW-4 is located in the western portion of the site, in the vicinity of the former gasoline tank. Groundwater monitoring well MW-6 is located within the limits of the former waste oil tank excavation inside the existing auto repair shop. Monitoring Wells MW-3 and MW-5 are located in the down gradient direction from the former waste oil tank.

Detectable levels of gasoline were found in soils and groundwater in the vicinity of the former gasoline tank. Detectable levels of diesel/kerosene and dichlorobenzene were found in the vicinity of the former waste oil tank. Results of this work and subsequent quarterly monitoring indicate ground water contamination associated with the former tanks is localized.

Recent groundwater data indicates ground water flows in a north/northwest direction (North, 12° west), at an average horizontal gradient of 0.008 ft/ft. The eleven quarterly ground water measurement episodes indicate a range of flow direction from N31W to N20E and a range of horizontal gradient from 0.005 ft/ft to 0.014 ft/ft. Depth to ground water at the site varies from 6 to 9 feet during the year.

During the subsurface investigation work, four vapor extraction wells (VW-1, VW-2, VW-3 and VW-4) were installed at the site. The purpose of the extraction wells is to remediate the contaminated soils in the vicinity of the former gasoline tank. In February, 1993, **TMC** constructed a vapor extraction system. Initial pilot tests of the system revealed that elevated ground water levels at the site (due to high rainfall) hampered the effectiveness of the system. The system was then shut off. Once the groundwater levels dropped, the system was again started; July 7, 1993. Its operation continued until soil - vapor readings declined and stabilized to approximately 40 ppm. The system was shut down January 24, 1994. **TMC** calculates that approximately 1,000 pounds of hydrocarbons were removed from the soil.

3.0 PROPOSED SCOPE OF WORK

3.1 Verification Sampling

To verify remediation of gasoline-contaminated soils at the site (associated with a former gasoline tank), **TMC** will drill four (4) soil borings in the area of the former gasoline - contaminant plume; see Plate 2. Using a State-licensed C-57 contractor will be used to perform the drilling and sampling. **TMC** anticipates recovering two (2) relatively undisturbed soil samples from each boring Where applicable, soil samples will be recovered from soils that appear contaminated or at lithologic changes. The samples will subsequently be submitted for chemical analysis. Field work will be performed under the supervision of a State-certified Engineering geologist. Drilling, sampling, and sample handling details are presented in the April 15, 1991, **TMC** work plan.

TMC will use this data to determine if the soils were adequately remediated to less than 100 ppm TPH as gasoline. If data reveals that soils are sufficiently remediated, **TMC** will destroy the existing soil vapor extraction wells and dismantle the extraction system. If soil contaminant levels are still elevated, **TMC** will continue to operate the soil vapor extraction system.

3.2 Ground Water Monitoring Well Installation

Per the request of the ACDHS, **TMC** will install one ground water monitoring well down-gradient from the former gasoline storage tank and MW-1. The well, indicated as MW-1B on Plate ?, will be installed within 10 feet of the former tank excavation.

A State-licensed C-57 contractor will be used to drill the well bore and construct the well. Relatively undisturbed soil samples will be recovered from the well bore, in the manner described above and in the April, 15, 1991, work plan. The well bore will be advanced approximately 10 feet into the water-bearing materials, to a maximum depth of 20 feet.

A 2-inch ID, National Sanitation Foundation (NSF) specified, Schedule 40 PVC blank, well screen, and casing will be used. Sections will be flush-threaded and screwed together without the use of cement. A threaded end cap will be used at the bottom of the well. An optional one to five foot blank silt trap may optionally be placed at the bottom of the well screen. Prior to installation, all casing and screens will be decontaminated and observed for damage. Well construction details are presented in the April 15, 1991, work plan. Subsequent to the well construction, the well will be developed, purged and sampled as indicated in the April 15, 1991, work plan.

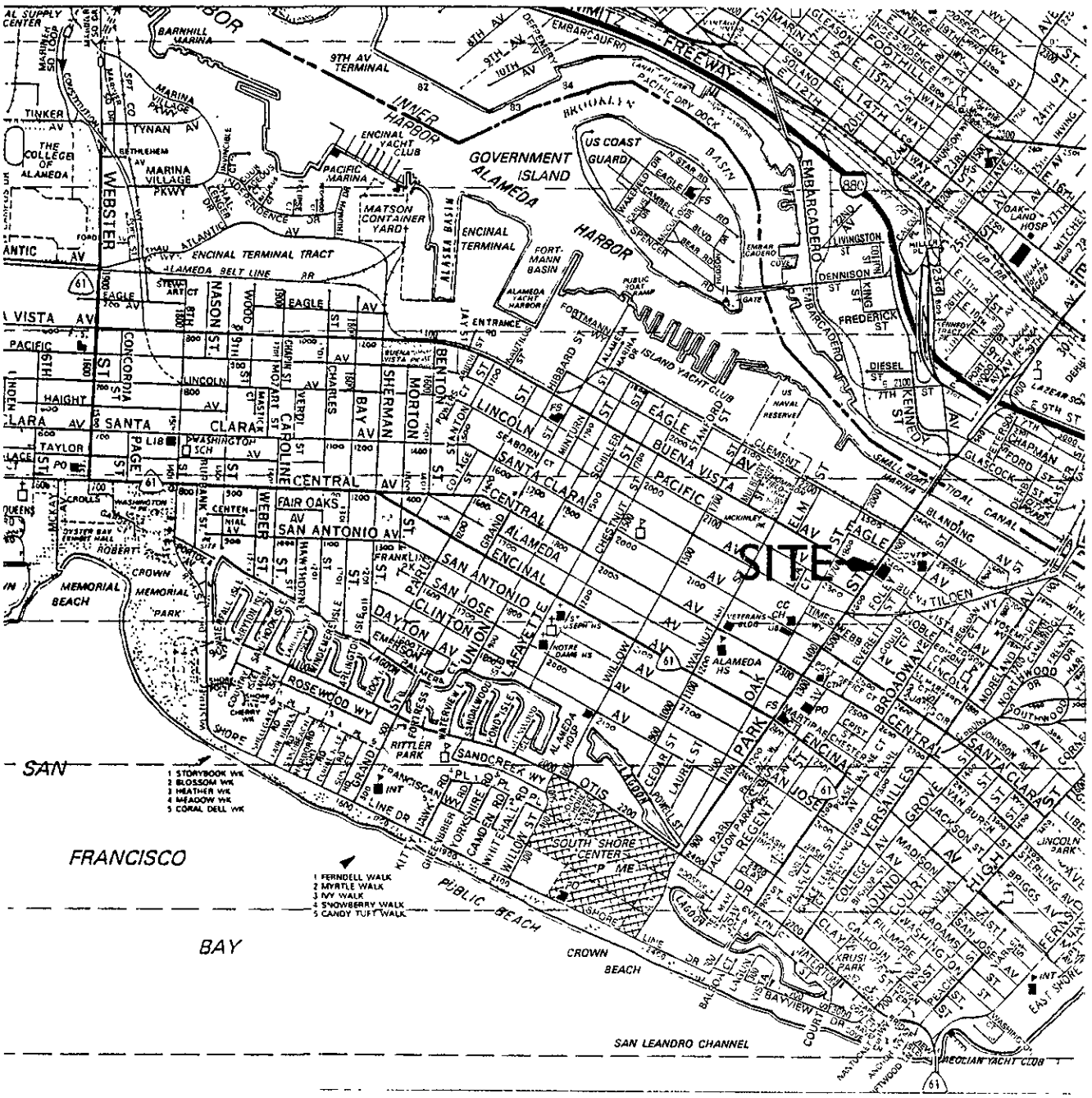
3.3 Destruction of Monitoring Well MW-1 and Vapor Extraction Wells

Monitoring well MW-1 is placed in the former gasoline tank pit. Once monitoring well MW-1B is installed, **TMC** will destroy MW-1. If the soil gasoline contamination is remediated, then **TMC** will destroy the vapor extraction wells. Destruction of the wells will be performed by a State-licensed C-57 driller. The well casing and bore will be drilled out using continuous flight auger. The resulting bore will then be tremied with Portland Type I-II cement, up to surface grade.

3.4 Laboratory Analysis

As indicated above, all samples (soil and ground water) will be submitted to a State-certified DOHS laboratory for chemical analysis. All samples will be chemically analyzed for total petroleum hydrocarbons as gasoline, with benzene, toluene, ethyl benzene, and xylene (BTEX) distinction (LUFT method 8015/8020).

Should you have any questions, please call Mark Youngkin or Michael Princevalle (Project Manager) at (510) 232-8366. Thank you.



Base Map from Thomas Bros. Maps, Alameda County California 1990 Scale 1" = 2200 feet

TMC
Environmental, Inc.

SITE VICINITY MAP

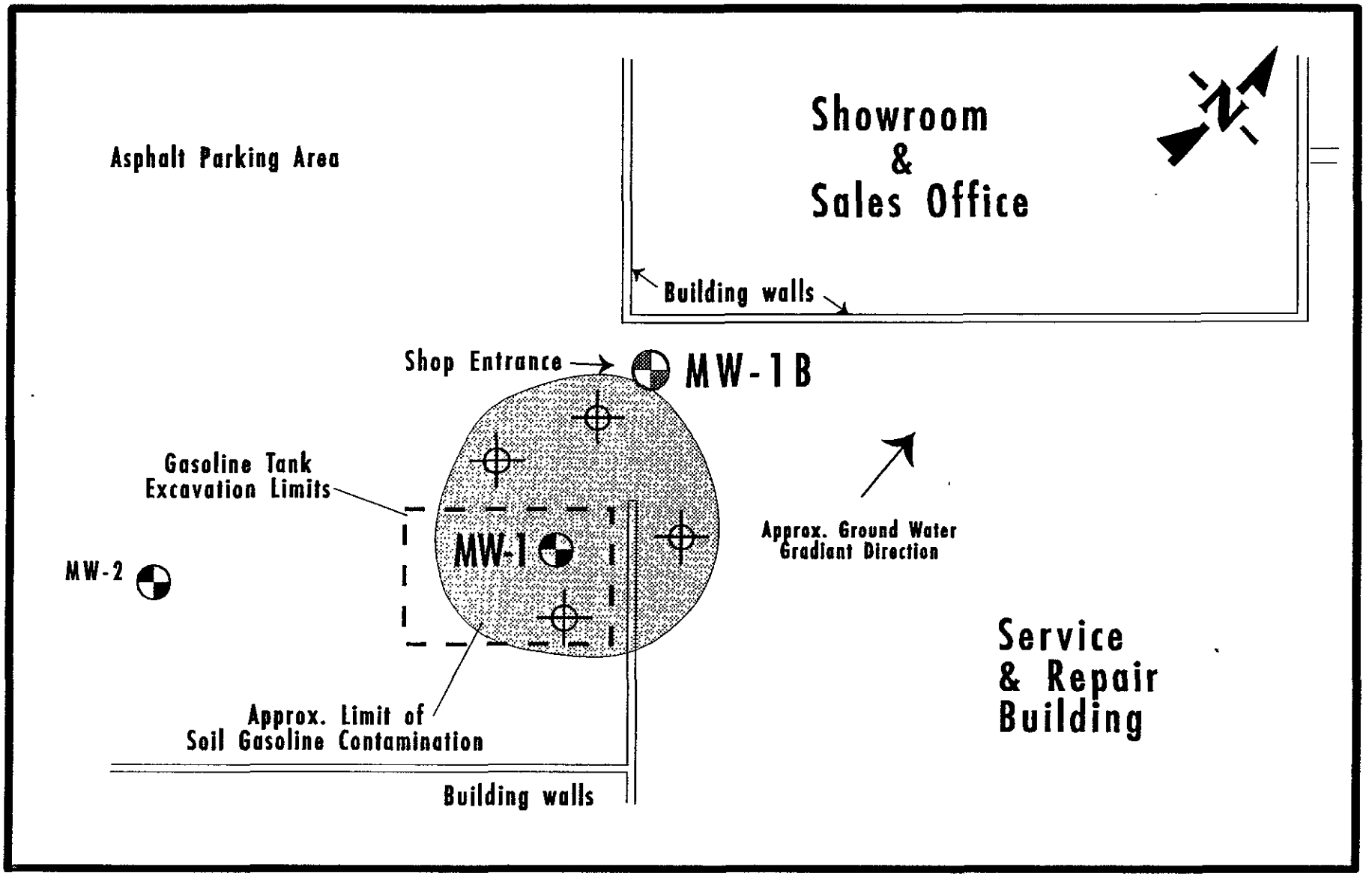
Cavanaugh Motors

1700 Park Street
Alameda, California

Project No. 109001 May 1992

PLATE

1



LEGEND

- Existing Monitoring Well
- Proposed Monitoring Well Location
- Proposed Verification Boring Location

Project No. 101090
May, 1994
Scale: 1 inch = 10 feet

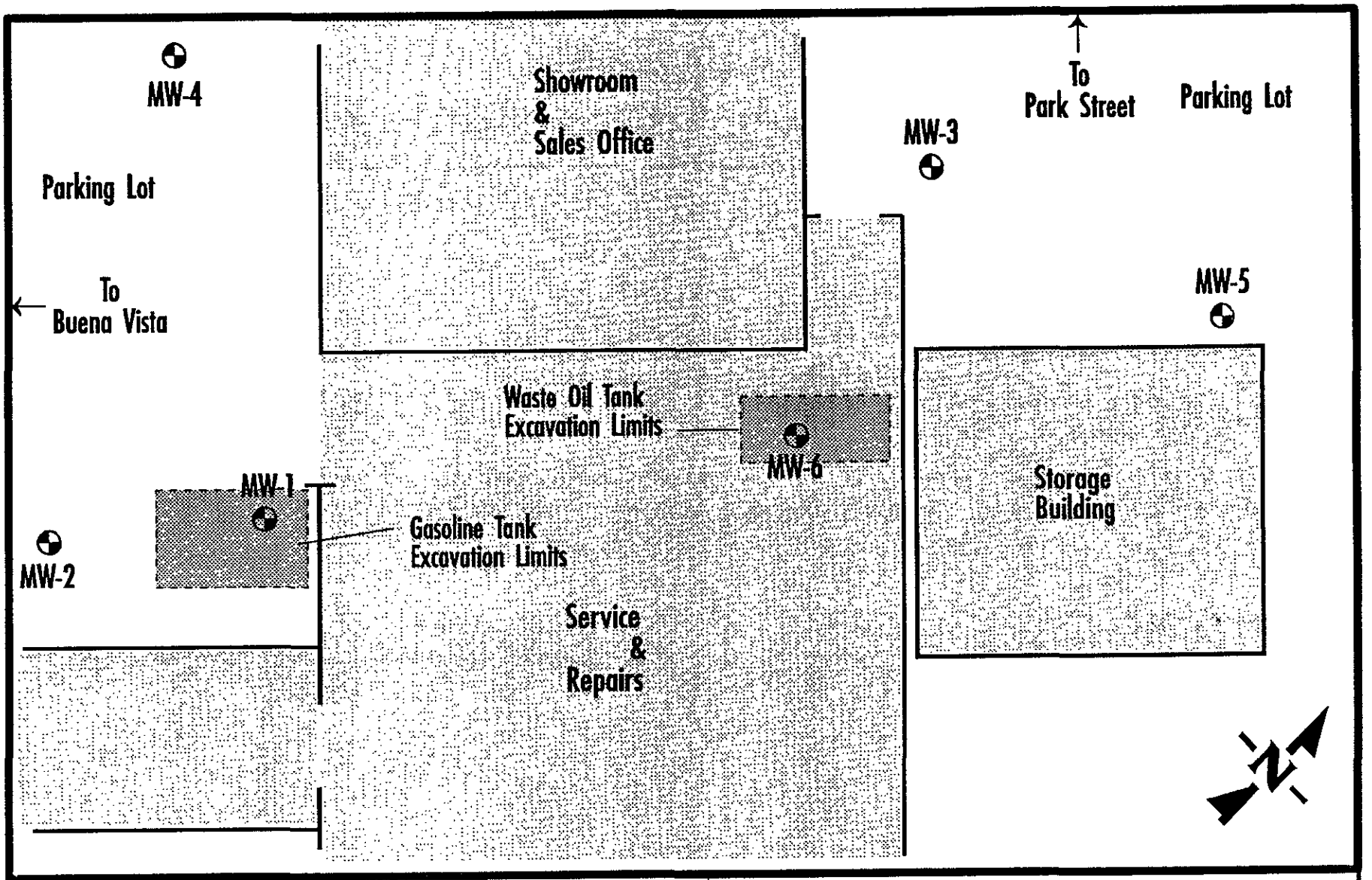
PROPOSED VERIFYING SOIL BORING AND MONITORING WELL LOCATIONS

Cavanaugh Motors

1700 Park Street, Alameda California

TMC ENVIRONMENTAL INC. SAN PABLO, CALIFORNIA

PLATE 2



LEGEND

MW-0
1.00 ft
Monitoring Well with elevation of groundwater in feet MSL.

Project No. 101090
June 27, 1994
Scale 1 inch = 20 feet

LOCATIONS OF MONITORING WELLS

Cavanaugh Motors

1700 Park Street, Alameda California

TMC ENVIRONMENTAL INC. SAN PABLO, CALIFORNIA

PLATE 3