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

RAFAT A. SHAHID, Assistant Agency Director

DEPARTMENT OF ENVIRONMENTAL HEALTH
Hazardous Materials Division
80 Swan Way, Rm. 200
Oakland, CA 94621
(510) 271-4320

3810

June 2, 1992

Mr. Peter J. DeSantis
BP Oil Company
2868 Prospect Park Drive
Rancho Cordova, CA 95670

Subject: BP Service Station No 11132,, 3201 35th. Ave., Oakland, CA

Dear Mr. DeSantis,

This office has received and reviewed the "Interim Remedial Action Plan", dated March 20, 1992, and submitted by Hydro Environmental Technologies(HET), your consultant of record. Thank you for the prompt attention given to this site.

Upon review of the document, this office concurs with the plan as submitted, with the following clarifications:

1) Submit all copies of the requisite permits to this office as required by other concerned agencies, especially the City of Oakland Fire Department in regards to the use of above-ground tanks for the purpose of containing possible "Free-product".

2) Provide an adequate Quality Control Plan for the pumped water to be discharged into the sanitary sewer system.

3) Give this office at least forty-eight (48) hours notice prior to the commencement of any work contemplated at the site

4) Please remit all copies of future correspondence concerning this site to Rich Hiett, SFBRWQCB.

If you should have any questions concerning this site, please do not hesitate to call this office. The number is (510) 271-4320.

Sincerely,

Brian P Oliva

Brian P. Oliva, REHS
Hazardous Materials Specialist

cc: Mark Thomson, Alameda Co. District Attorney's Office
Fred Moss, Hydro Environmental Technologies Inc.
Rich Hiett, SFBRWQCB

E.C.

HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

April 1, 1992

INTERIM REMEDIAL ACTION PLAN

BP Service Station No 11132
3201 35th. Avenue
Oakland, California

Prepared for
BP Oil Company
2868 Prospect Park Drive, Suite # 360
Rancho Cordova, CA 95670

Prepared by:
HYDRO- ENVIRONMENTAL
TECHNOLOGIES, INC.
2363 Mariner Square Drive, Suite # 243
Alameda, CA 94501
Tel: (510) 521-2684

March 20, 1992

Project No: 9 - 037

HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

CERTIFICATION

This report was prepared under the supervision of a registered professional engineer. All statements, conclusions and recommendations are based solely upon field observations and analytical test results related to the work performed by Hydro-Environmental Technologies, Inc.

Site conditions are subject to change with time; therefore, our conclusions result only from the interpretation of the present conditions and available site information. This report was prepared in accordance with accepted professional standards and technical procedures as certified below.

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

Prepared by:

Markus B. Niebanck
Western Regional Manager

Reviewed by:

Frederick G. Moss, P.E.
Senior Engineer

HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

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1.0 INTRODUCTION

1.1 Purpose

An environmental investigation was initiated by BP Oil Company (BP) in January, 1990. The purpose of this investigation has been to provide information to BP regarding the distribution of hydrocarbon compounds in soil and ground water beneath their facility (# 11132) at 3201 35th. Avenue, Oakland, California (Figure 1). The assessment has been carried out in several phases, the most recent of which involved the installation of three off site monitoring wells, the collection of ground water samples, and the completion of an aquifer pumping test. The following report summarizes activities conducted to date and presents conclusions and recommendations for interim remedial action.

1.2 Project History

Mobil Oil Corporation (Mobil), the former site operator, contracted Kaprealian Engineering, Inc. (KEI) to install three ground water monitoring wells in 1986. BP acquired the subject property in the fall of 1989, and retained Alton Geoscience (Alton) to evaluate subsurface conditions. Over the course of the environmental assessment, Alton installed seven additional monitoring wells, drilled several test borings, and installed a six-inch diameter recovery well down gradient of the underground storage tank (UST) area. Figure 2 shows the location of investigative wells and site features.

Floating hydrocarbons have been detected periodically in monitoring wells MW-1 and MW-2, and in recovery well RW-1. Alton routinely removed this floating layer by hand bailing. While no cumulative record of recovered product was maintained, based on data presented in Alton quarterly reports it is estimated that 20 to 30 gallons have been removed to date (approximately 5 gallons per quarterly visit). Analytical data has been regularly presented in Alton quarterly reports. A comprehensive account of the phases of site investigation is presented in the Alton Supplemental Site Investigation Report (September, 1990) and in the Alton Phase 3 Supplemental Site Investigation Study (August, 1991). Figures 3 and 4 present the ground water gradient map and the hydrocarbon plume map generated from data collected during the September, 1991 Alton quarterly visit.

2.0 INTERIM REMEDIAL ACTION PLAN

2.1 Summary of Proposed Activity

In order to begin to recover the hydrocarbons floating on ground water and accelerate site remediation, the installation of an interim ground water/product recovery system is recommended. While the rapid deployment of this system is recommended, system components should be designed and installed such that they will be instrumental in the long term, comprehensive remedial approach. The interim system should be monitored for two to three months following installation and start-up. Data collected during this period would be combined with investigative information and a plan for complete remedial action prepared.

2.1 Ground Water/Hydrocarbon Extraction

The existing recovery well will be used as a point for ground water and floating hydrocarbon recovery. Results of the Alton aquifer test indicate that the recovery well can yield approximately 1 gallon per minute (gpm) with a corresponding 5.5 foot drop in water level in the well. Water extracted at 1 gpm during the aquifer test resulted in a measurable drawdown in all monitored wells, with the most significant cone of depression measured in the vicinity of the pumping well.

A Grundfos Model 5E5 electric submersible ground water extraction pump will be set two feet above the bottom of the recovery well. This pump is capable of producing between 0.8 and 7.0 gpm at 100 feet of total dynamic head. Valves on the influent line will be set such that the pump produces between 0.9 and 1.2 gpm without cycling. An electric product recovery pump will be set near the top of the stabilized cone of depression. While the pump motor will be set at approximately 10 feet below static water table elevation (pre-pumping), the inlet will float on the surface of the water such that it will always be in a position to recover hydrocarbons as they collect. A probe to measure the water level in the recovery well will be set just above the motor of the product pump. The probe will be connected to the system control panel, which will be programmed to shut the ground water extraction pump down in the event of a lowering of the water level to that of the sensor probe. This will prevent free-phase hydrocarbons from ever coming in contact with the ground water pump and carbon treatment system. Recovered free-phase hydrocarbons will be transferred through underground piping to a double walled fiberglass above ground storage tank (estimated 500 gallon capacity).

2.2 Ground Water Treatment

Given the needs for flexibility inherent in this interim plan, granular activated carbon will be selected as the means for removing dissolved hydrocarbons from recovered ground water. This carbon will be utilized for the first two to four months of ground water treatment. During this time period influent concentrations will be measured and a determination made relative to the most

appropriate form of long term treatment. Extracted ground water will be temporarily stored in a Baker tank during the first two days of system operation to enable a measurement of influent hydrocarbon concentration and a determination of the optimal carbon unit sizing. Given the moderate concentration of hydrocarbons anticipated in extracted ground water and expected low total flow, it is anticipated that two 1,200 pound carbon cannisters, connected in series to prevent the release of hydrocarbons in a breakthrough event, would be sufficient. Figure 5 diagrams treatment system details.

2.3 Piping and Instrumentation

The extracted ground water will be transferred from the recovery well to the treatment compound within 2-inch diameter schedule 80 PVC piping. Sample ports will be installed in-line upstream and downstream of the carbon cannisters to enable the evaluation of the treatment process. Free-phase hydrocarbons will be transferred from the recovery well to the product storage tank within 2-inch diameter double walled fiberglass piping (for secondary containment). Electricity for pump power and probes will be run within galvanized steel piping, sealed per local fire department code. An empty 2-inch diameter schedule 80 PVC chase will also be installed in the trench running from the recovery well to the treatment compound to enable the addition of a soil vapor extraction system at a later date, if necessary. All piping will be placed 4 inches above the bottom of a 2-foot deep trench on a bed of pea gravel ballast. Figure 6 diagrams piping and trench construction detail. The remainder of the trench will be backfilled to 3 inches below grade and sealed with hot patch asphaltic concrete.

Recovered free-phase hydrocarbons will be stored in the double walled fiberglass above ground storage tank for disposal/recycling by a licensed waste hauler. Ground water extracted from the recovery well will be directed to the carbon cannisters for treatment (Figure 7). A pressure switch will be installed in-line upstream of the cannisters to detect significant increases in system pressure. If the pre-determined pressure level is detected (indicating a clogged treatment system or effluent trouble) the system will be automatically shut down. If shut down occurs in the system a green light mounted on a post of the treatment compound will be illuminated. Service station personnel will telephone HETI to inform them in the event of a "green light condition".

2.4 Effluent Disposal

Numerous alternatives exist for the disposal of ground water treated during typical remediation processes. These alternatives include the utilization of the sanitary sewer/POTW, discharge to a surface water body via a storm sewer, and reinfiltration on site. Given the need to implement remedial actions in an expedited manner, discharge to surface water or on site reinfiltration (both requiring a potentially lengthy permitting process) is not feasible. It is therefore recommended that discharge from this interim remedial system be routed to the City of Oakland

sanitary sewer system (East Bay Municipal Utility District - EBMUD) for disposal. The discharge will have to meet or exceed the criteria established by EBMUD for acceptable levels of gasoline constituents. Compounds regulated by the EBMUD are as follows: TPH - no set limit, benzene - 5 ppb, toluene - 15 ppb, ethylbenzene - 5 ppb, and xylene - 14 ppb.

A sewer lateral currently exists beneath the BP site. The effluent line from the remediation system will be coupled to this lateral as shown on Figure 8 to eliminate the need to excavate beyond the borders of the facility to tie into a sewer line. In order to ensure that the long term remediation plan utilizes the most cost-effective means for discharge possible, both surface water discharge and on site reinfiltration will be considered during the two to four months the interim system is in operation.

2.5 Permitting

The interim system will need to satisfy the same permitting requirements as a longer term, comprehensive system. HETI has reviewed procedures with the appropriate local agencies, and has established time frames and monetary requirements of this particular remedial approach. Involved agencies (permitting or simple oversight) are listed below:

City of Oakland Building Department

City of Oakland Planning Department (possible involvement)

City of Oakland Fire Prevention

Alameda County Department of Environmental Health (ACDEH)

Regional Water Quality Control Board (RWQCB)

East Bay Municipal Utility Department (EBMUD)

HETI will submit this plan for action to the appropriate agencies following written receipt of approval from the ACDEH.

2.6 Monitoring and Maintenance, Reporting

The schedule of monitoring and maintenance will be determined following the completion system installation, testing and modification. Reports will be submitted

at the completion of milestone events in the process. It is estimated that letter reports of progress will be forwarded to the ACDEH and the Regional Board as scheduled below:

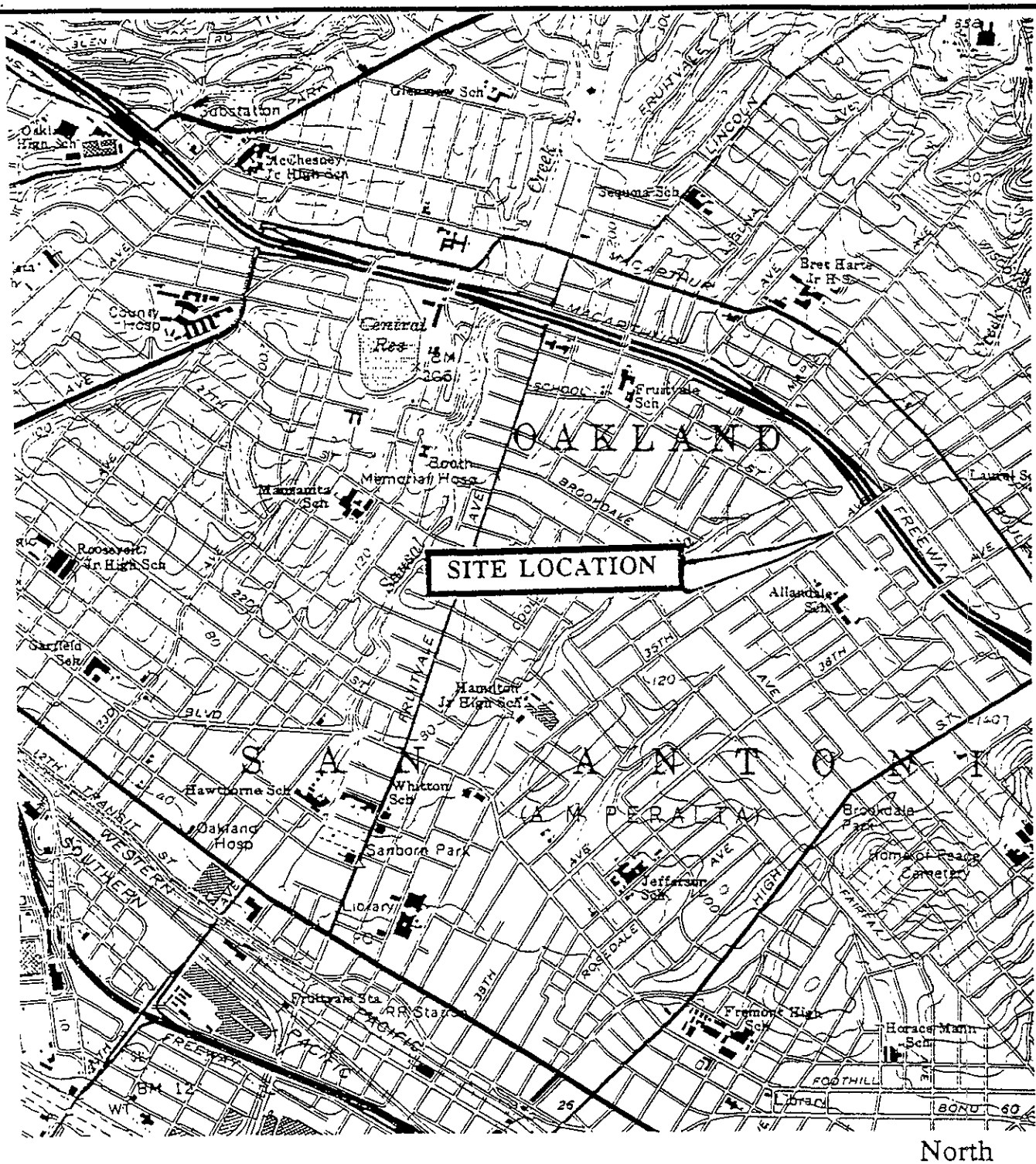
Following the completion of groundwater extraction testing. Influent concentrations will be reported and a final design document submitted (if system modifications are deemed necessary). The appropriate monitoring schedule will be included in this report.

Quarterly monitoring/sampling of investigative wells will continue as normal. Specific progress-related details will likely also be included in these documents.

3.0 SUMMARY AND CONCLUSIONS

In order to facilitate the removal of free and dissolved phase hydrocarbons from the ground water at this BP site, interim remedial action will be implemented. While this system will not be designed to address the off-site portion of the hydrocarbon plume, it will provide data necessary to plan the most cost effective long term remedial solution. This comprehensive remedial plan will likely include the already installed components of the interim system, and will be presented approximately 4 months following interim remedial action system start up.

The hydrocarbon concentrations detected in samples collected from the investigative wells on and off site show a clear attenuation of hydrocarbon concentration with distance from the BP site. Given that the residential areas in the vicinity of the study area are very closely developed, and that the downgradient extent of the hydrocarbon plume can be roughly estimated utilizing current data, an additional downgradient monitoring well may not be necessary. The dimensions of the hydrocarbon plume should be monitored during the operation of the interim remedial system and a determination relative to additional sampling points made towards the end of this time period.



Source: U.S.Geological Survey
7.5 Minute Topographic Maps
Entitled: "Oakland, East",
California. Photorevised 1980

Scale 1:24000

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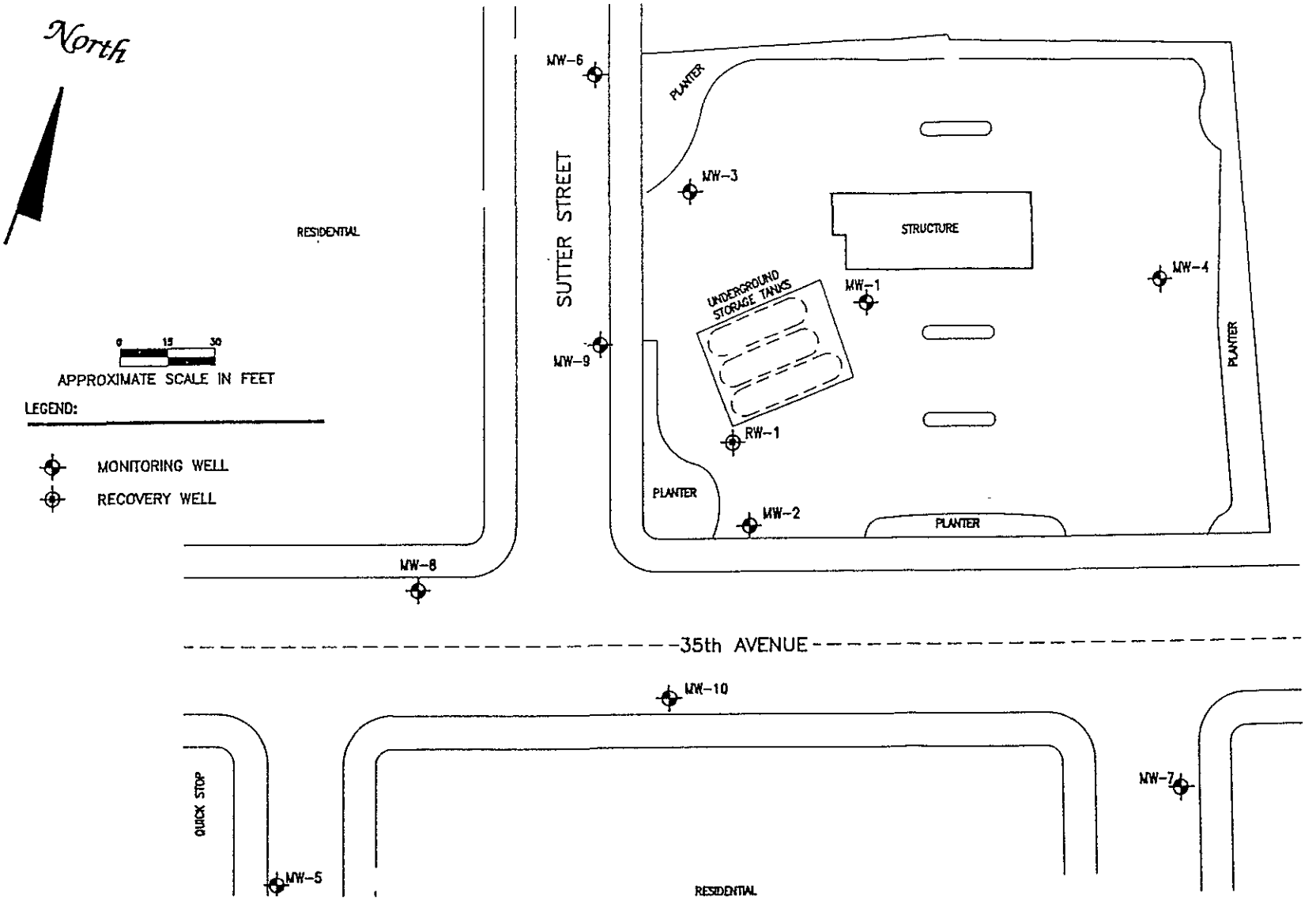
SITE LOCATION MAP
BP SERVICE STATION NO. 11132
3201 35th. Avenue
Oakland, California

Figure 1
9-037

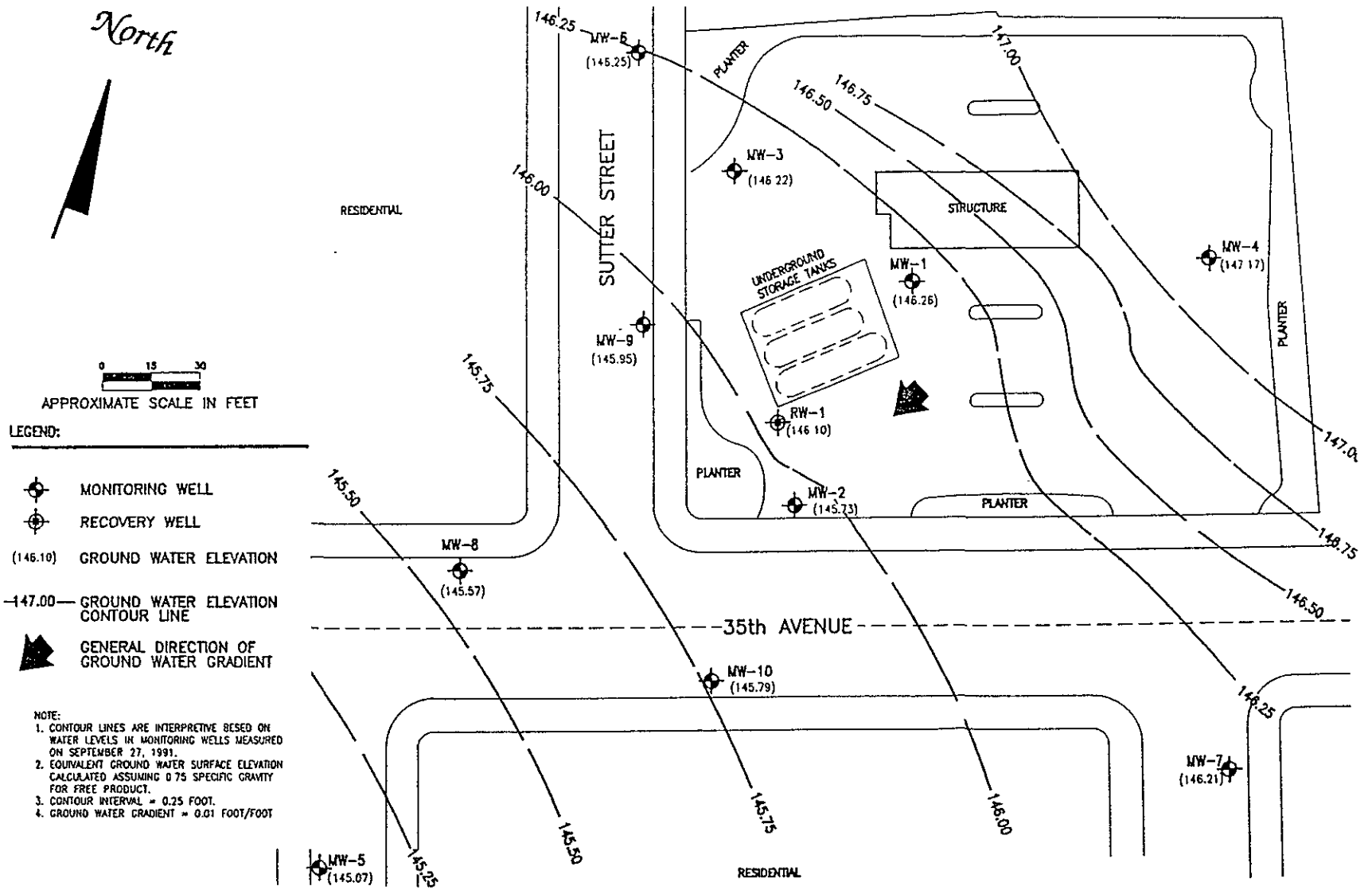


From Alton Quarterly Monitoring Report, January 31, 1992

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

SITE PLAN
BP SERVICE STATION NO. 11132
3201 35th. Avenue
Oakland, California

Figure 2
9-037



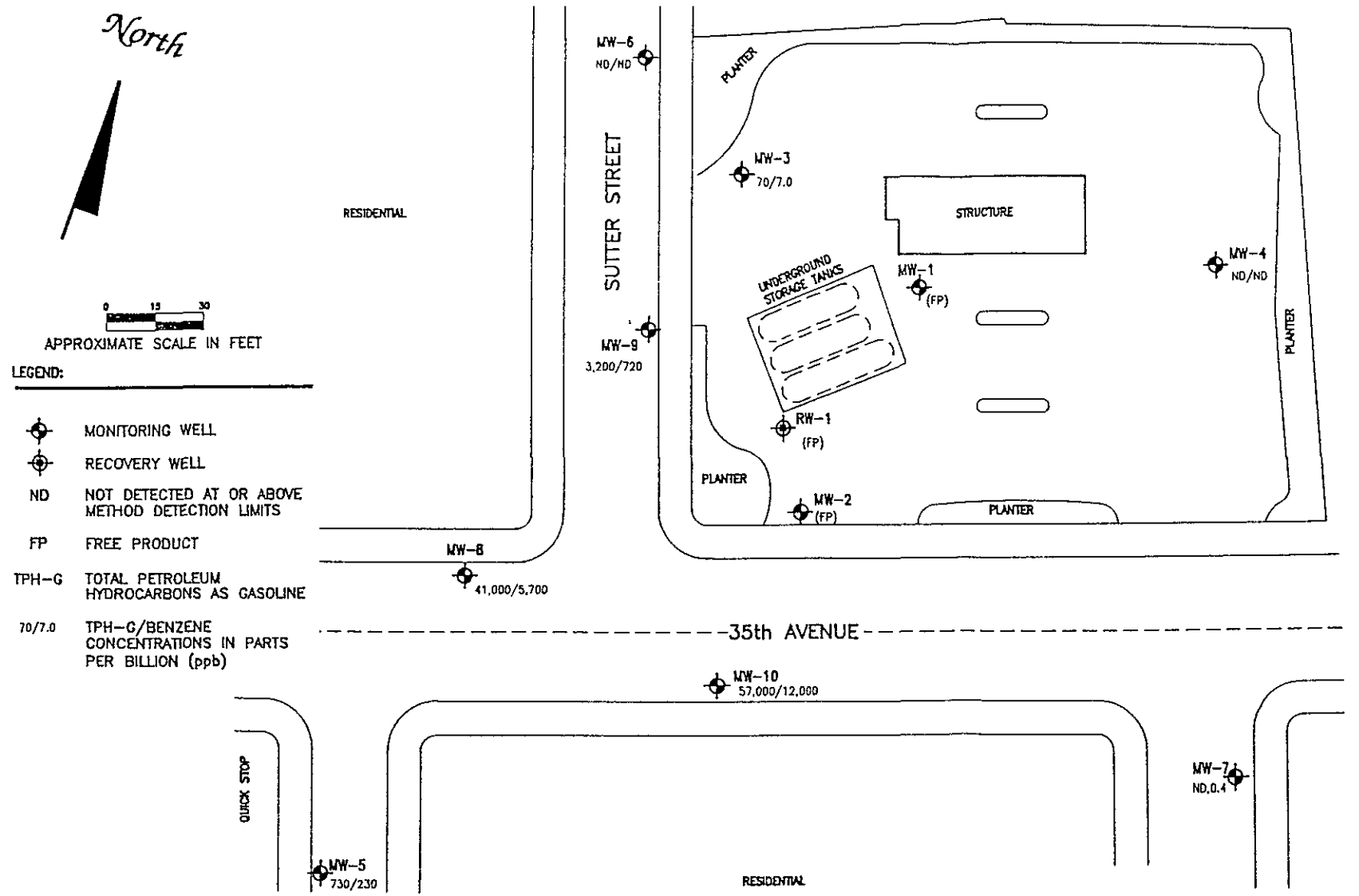
From Alton Quarterly Monitoring Report, January 31, 1992

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

GROUND WATER GRADIENT MAP

BP SERVICE STATION NO. 11132
3201 35th. Avenue
Oakland, California

Figure 3
9-037



From Alton Quarterly Monitoring Report, January 31, 1992

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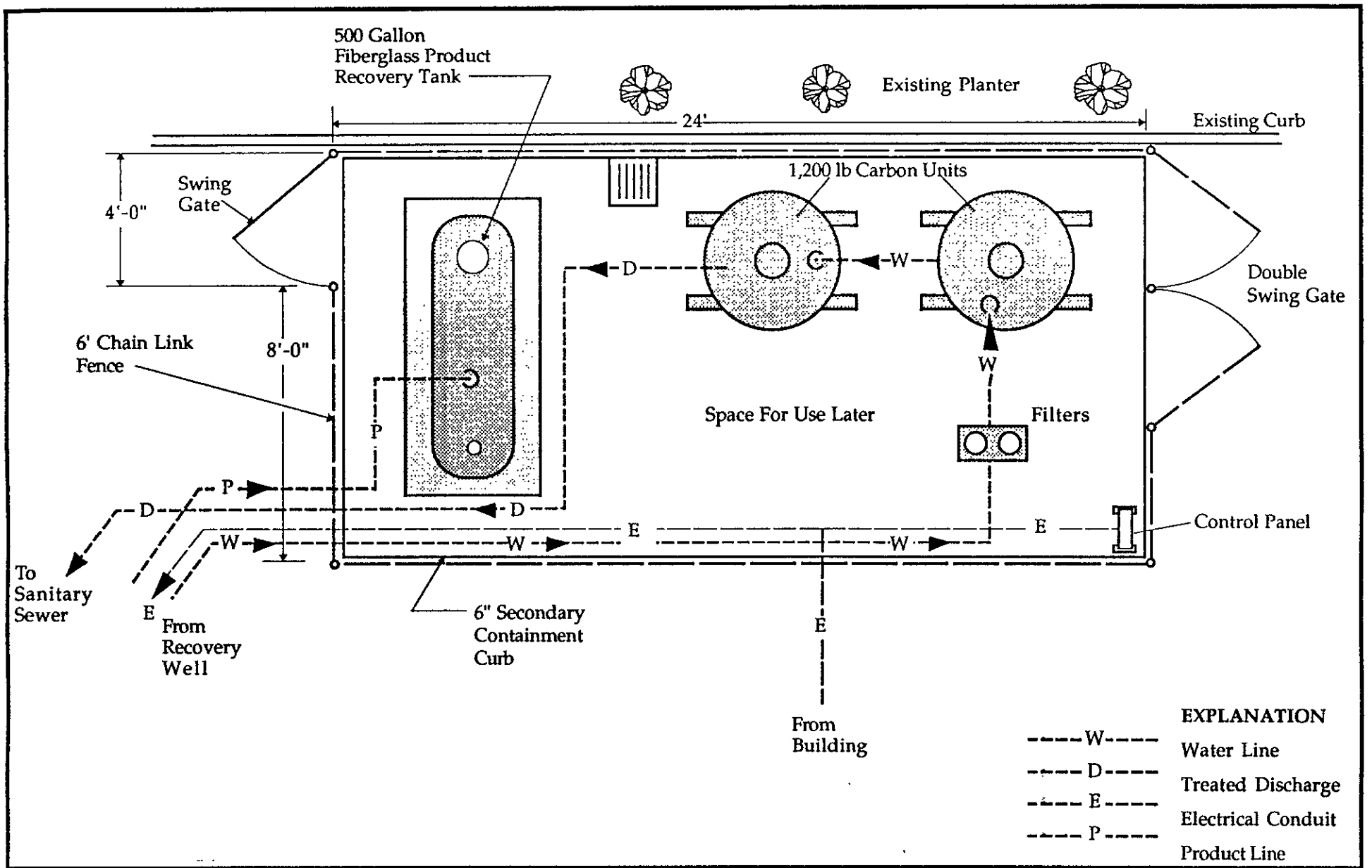
HYDROCARBON DISTRIBUTION MAP

BP SERVICE STATION NO. 11132
3201 35th. Avenue
Oakland, California

Figure 4
9-037



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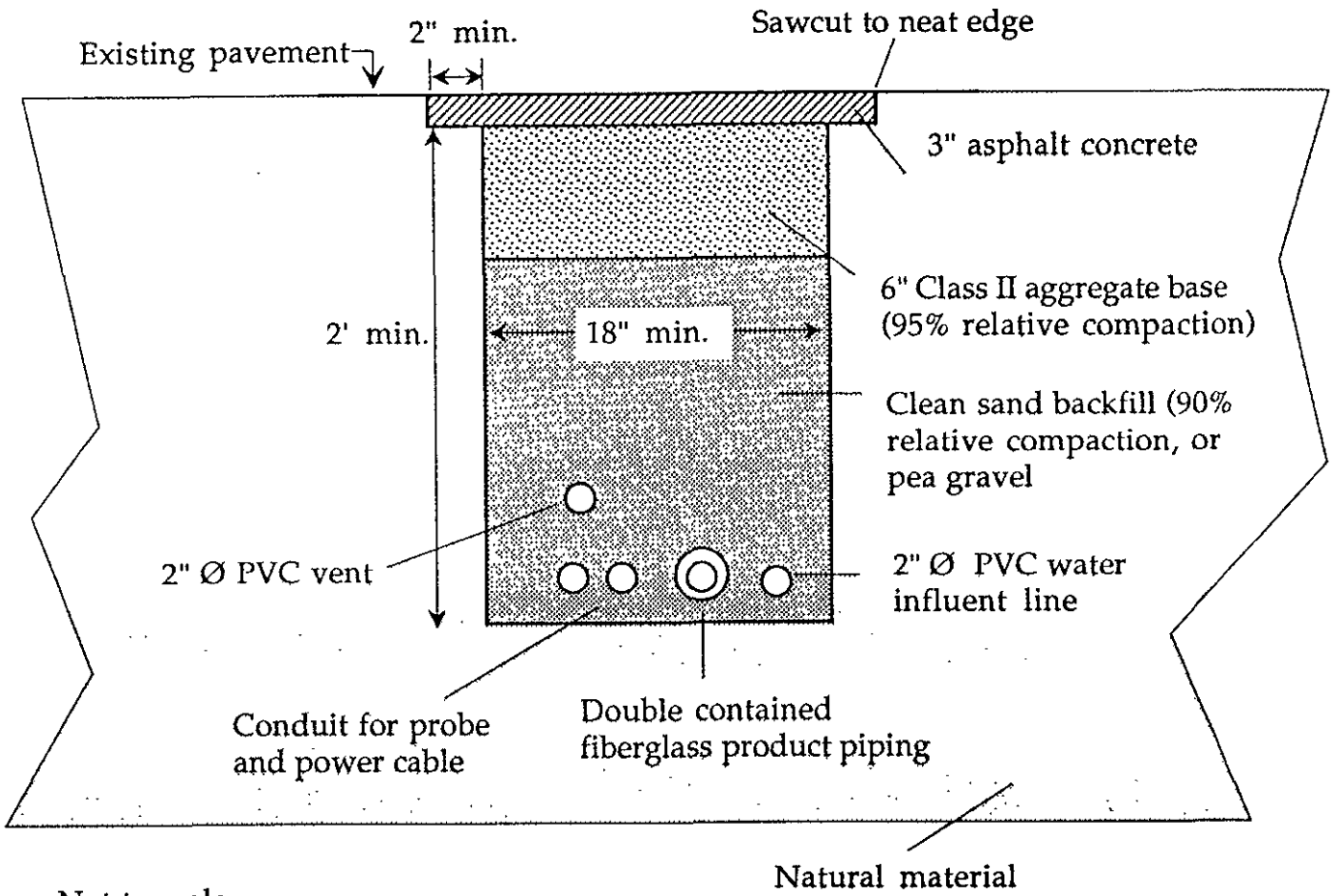
ENVIRONMENTAL
TECHNOLOGIES, INC.

TREATMENT SYSTEM LAYOUT

BP SERVICE STATION NO. 11132
3201 35th. Avenue
Oakland, California

Figure 5
9-037



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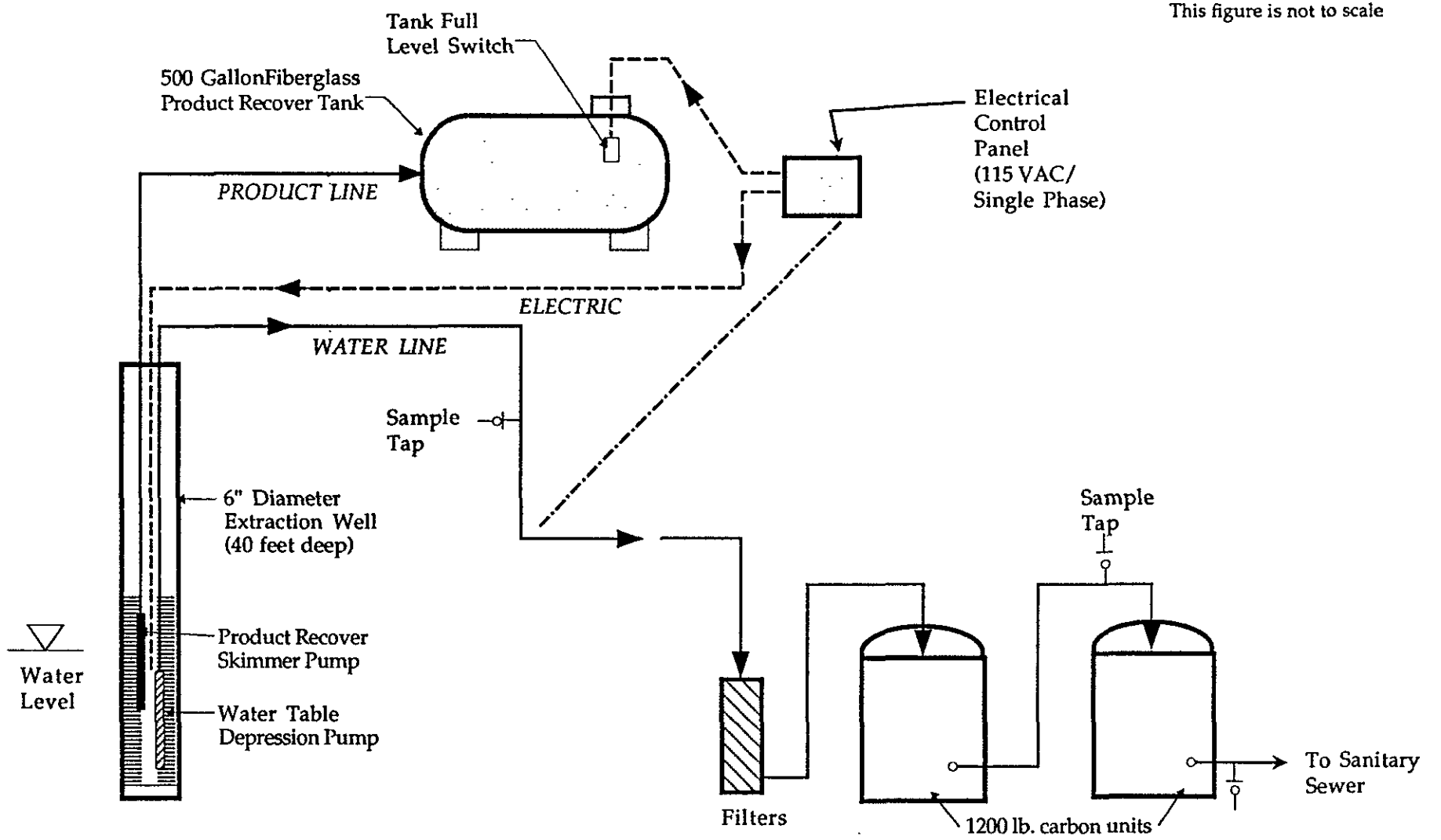
TRENCH DETAIL
BP SERVICE STATION NO. 11132
3201 35th. Avenue
Oakland, California

Figure 6
9-037



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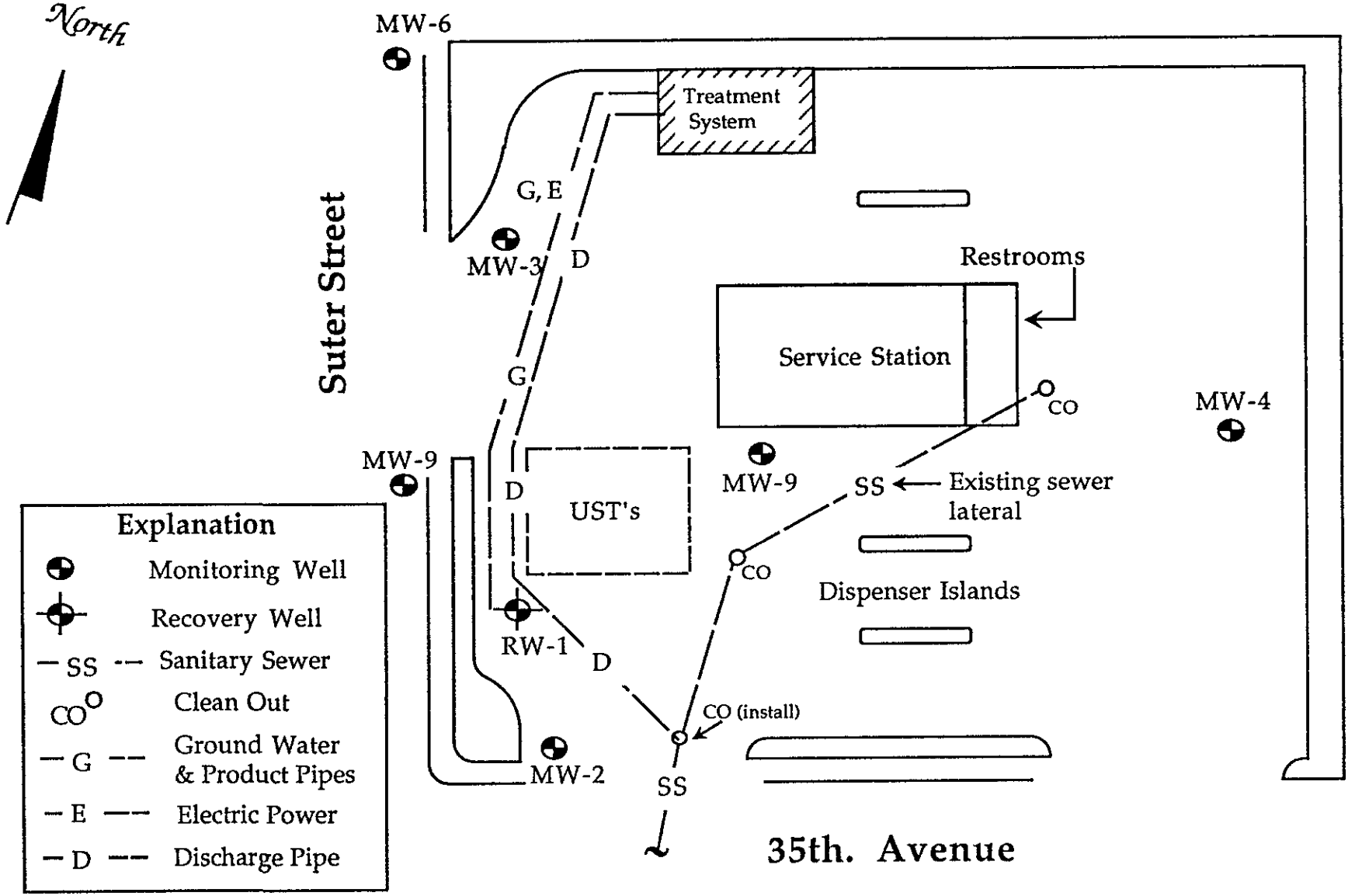
REMEDIAL SYSTEM SCHEMATIC DIAGRAM

BP SERVICE STATION NO. 11132
3201 35th. Avenue
Oakland, California

Figure 7
9-037



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PIPING AND SITE LAYOUT
BP SERVICE STATION NO. 11132
3201 35th. Avenue
Oakland, California

Figure 8
9-037