GEMS

General Environmental Management Services

November 19, 1994

Mr. Mark Kemp
CalTec Environmental, Inc.
1100 Lincoln Avenue, Suite 108
Napa, California 94558

Subject: Interim Remedial Action Work Plan for EBMUD Facility
located at 1200 21st Street, Oakland, CA

Dear Mr. Kemp:

The attached Interim Remedial Action Work Plan has been prepared for the subject property to provide a summary of the history of the site activities (including the tank removal activities) and to describe the proposed interim remedial excavation activities which have been selected for the site.

The interim remedial action objectives are to provide further source reduction by the removal of the remaining underground tanks and by excavating the petroleum impacted soils (with the possibility of gasoline, diesel fuel, and waste oils being present) which remain in place and to provide positive beneficial influence on the underlying ground water resources.

This remedial effort is being performed to effect site closure through the Alameda County Department of Environmental Health and the State of California Regional Water Quality Control Board. Copies of the attached Work Plan should be submitted to:

Alameda County Health Care Services Department of Environmental Health 1131 Harbor Bay Parkway, 2nd Floor Alameda, CA 94502	Regional Water Quality Control Board San Francisco Bay Region 2101 Webster Street, Room 500 Oakland, CA 94612

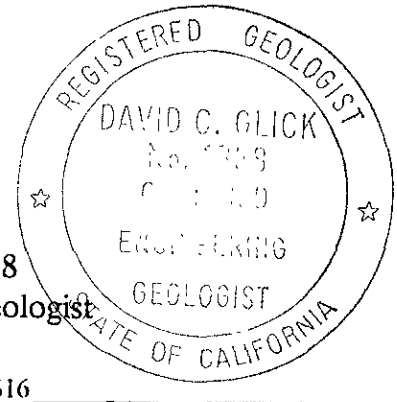
It has been a pleasure to be of service to you on this project. Questions or comments regarding the attached Work Plan should be addressed to the undersigned.

Respectfully submitted,

General Environmental Management Services

Richard Camacho,
General Manager
GEMS

David C. Glick, CEG 1338
Certified Engineering Geologist
Geo Plexus, Inc.



P.O Box 8282, Pittsburg, CA 94565 (510) 427-4616

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General Environmental Management Services

INTERIM REMEDIAL ACTION WORK PLAN

for

EAST BAY MUNICIPAL UTILITY DISTRICT

1200 21st STREET

OAKLAND, CALIFORNIA

prepared for:

CalTec Environmental, Inc.
1100 Lincoln Avenue, Suite 108
Napa, California 94558

November 19, 1994

P.O. Box 8282, Pittsburg, CA 94565 (510) 427-4616

INTERIM REMEDIAL ACTION WORK PLAN
for
EAST BAY MUNICIPAL UTILITY DISTRICT
1200 21st STREET
OAKLAND, CALIFORNIA

INTRODUCTION

The project site is located at 1200 21st Street (southwest corner of the intersection of West Grand Avenue and Adeline Street) in the City of Oakland, Alameda County, California as indicated on Figure 1. The property is owned and occupied by East Bay Municipal Utility District (EBMUD). A portion of the property (herein referred to as the "Project Site") has been used for vehicle/equipment fuel storage and distribution.

BACKGROUND

The project site has been used for vehicle maintenance and fuel storage/distribution for EBMUD vehicles and equipment and has consisted of several underground storage tanks, fuel dispensing pumps, vehicle work bays and an office area.

One 4,000 gallon and one 6,000 gallon underground gasoline storage tank (see Figure 2) were excavated and removed from the property on November 18, 1994 by CalTec Environmental, Inc. under direct observation of Alameda County Department of Environmental Health personnel. Both tanks consisted of single-wall fiberglas tanks and were reportedly to be less than 10-years of age (installed as replacement tanks).

The gravel backfill material surrounding the 6,000 gallon tank exhibited minor gasoline vapors as the tank was removed and ground water was observed at the base of the excavation. The backfill material has not been excavated and required soil samples have not been obtained at this time.

The gravel backfill material surrounding the 4,000 gallon tank exhibited strong gasoline vapors as the tank was removed and ground water was observed at the base of the excavation. Free gasoline product was observed seeping from the soils in the excavation walls and was floating on the ground water. The backfill material has not been excavated and required soil samples have not been obtained at this time.

During the excavation of the 4,000 gallon tank a small concrete tank/sump was encountered at the north end of the excavation (see Figure 3). The tank/sump is believed to be a waste oil tank and was filled with an oily fluid. The fluid has not been pumped out and the tank remains in place at this time.

An additional underground tank was also detected (see Figure 3) which is suggested to be a 5,000 gallon tank however this has not been confirmed. This tank is also full of fluid (appears to be water) and remains in place at this time.

PROPOSED INTERIM REMEDIAL ACTION

Objective

The objectives of the proposed interim remedial action are: (1) to remove the remaining underground storage tanks and/or sumps; (2) to excavate and remove the fuel impacted soil material as required to assure that the remaining in-place native soil materials do not contain petroleum related compounds; and (3) to characterize the site conditions through the remedial action process.

It is anticipated that the additional source removal activities will provide immediate beneficial effects for the underlying ground water resources.

Tank Removal

The existing waste oil tank/sump and the observed underground storage tank will be purged of fluids, inerted, excavated and removed under the existing tank removal permits and in a manner consistent with the previous tank removals. The tank removal will be coordinated directly with Alameda County Department of Environmental Health personnel.

The tanks/sumps will be transported by a licensed waste hauler and disposed of in a manner consistent with the previous tank removals.

Regulatory Soil Sampling

Soil samples will be obtained from beneath the former and existing tanks as directed by Alameda County Department of Environmental Health personnel as required by the State of California Regional Water Quality Control Board.

For personnel safety reasons, the required soil samples would be obtained remotely through the use of a backhoe or excavator. The backhoe will be used to collect bulk soil samples of native soil material from each end of the tanks. The soil samples collected for analytical testing would be obtained from the backhoe bucket by advancing a pre-cleaned 2 inch I.D. brass liner into the undisturbed soil contained in the backhoe bucket.

The soil samples would be immediately sealed in the liners using aluminum foil and plastic caps and properly labeled including: the date, time, sample location, and project number. The samples would be immediately placed on ice for transport to the laboratory under chain-of-custody documentation.

The soil samples would be submitted to and tested by McCampbell Analytical, a State of California, Department of Health Services certified testing laboratory. Analytical testing would be scheduled and performed in accordance with the State of California, Regional Water Quality Control Board Recommendations for Initial Evaluation and Investigation of Underground Tanks (RWQCB, 1988) and Alameda County Department of Environmental Health guidelines.

The soil samples would be tested as directed by Alameda County Department of Environmental Health personnel. Testing could include: Total Petroleum Hydrocarbons as gasoline by Method GCFID 5030/8015, Total Petroleum Hydrocarbons as diesel by Method GCFID 3550/8015, Oil & Grease by EPA Method 5520, and/or Volatile Aromatics (BTXE) by EPA Method 8020.

Excavation Techniques

The vertical and lateral extent of the hydrocarbon impacted soils at the site have not been delineated at this time. The excavation process will be documented by a Certified Engineering Geologist in a fashion which will result in characterization (logging and sampling) being performed as the excavation proceeds.

It is anticipated that the excavation will proceed in a fashion which will allow for the separation of any clean overburden soils from the underlying petroleum impacted soils. Figure 4 illustrates the approximate boundary of the area anticipated to be excavated.

Field screening of the excavated soils will be performed on-site through the use of an Organic Vapor Analyzer (OVA) or Organic Vapor Meter (OVM) as the excavation proceeds. Soils exhibiting visible evidence of petroleum contamination (e.g., visible staining, visible sheen and/or product, noticeable gas and/or diesel odors, etc.) will be segregated as contaminated soils. Soils exhibiting gas vapors greater than 10 parts per million (ppm) will also be considered as contaminated soils. Interim analytical testing of soil samples will be performed to correlate the OVA/OVM readings with petroleum concentrations in the excavated soil material.

It is anticipated that soils which do not exhibit detectable gas vapors and have OVM readings less than 1 ppm will be segregated and stockpiled as clean soil materials. Interim analytical testing of soil samples will be performed to verify the field results.

The excavation will proceed laterally until non-detectable limits are achieved for Total Petroleum Hydrocarbons as gasoline and Volatile Aromatic Compounds or until functional excavation limits are encountered (i.e., encroachment of structure foundations, public property, etc.). The excavation will progress vertically using the same criteria to an anticipated depth of 15 feet below grade.

Excavation and Temporary Shoring Requirements

The remedial activities (excavation, shoring, and backfilling) are to be performed by CalTec Environmental, Inc. personnel under the oversight of a Certified Engineering Geologist.

It is anticipated that the sidewalls of the excavation will be sloped at a ratio of 1 1/2:1 (vertical to horizontal) or as required to assure worker safety. The excavation will be observed on a daily basis by CalTec Environmental, Inc. personnel as described in the Health and Safety Plan to monitor the stability of the excavation.

Temporary shoring (sheet-pile walls, braces, utility supports, etc.) will be designed and installed as required by CalTec Environmental Inc. personnel.

Excavated Soil Treatment/Disposal

The excavated soil material will be placed on a visqueen lining for storage and characterization for treatment and/or disposal. Following placement of the soil, the stockpiled material will be covered with visqueen to maintain soil moisture and reduce the potential for the contaminated soil to become airborne (particulate and/or vapor phase) and to limit physical contact with the material.

Excavation Verification Sampling

Final verification that the excavation activity will be accomplished through analytical testing of samples of the native soil material (excavation sidewalls and bottom) to document the concentrations for Total Petroleum Hydrocarbons as gasoline, Total Petroleum Hydrocarbons as diesel, Oil & Grease Compounds, and Volatile Aromatic Compounds (Benzene, Toluene, Ethyl Benzene, or Xylenes).

The soil samples would be obtained from the excavation sidewalls and excavation bottom by advancing a pre-cleaned 2 inch I.D. brass liner into the undisturbed soil. Should the excavated area to be sampled not be directly accessible for personnel for safety reasons, the samples would be obtained remotely through the use of a backhoe or excavator.

The soil samples would be immediately sealed in the liners using aluminum foil and plastic caps and properly labeled including: the date, time, sample location, and project number. The samples would be immediately placed on ice for transport to the laboratory under chain-of-custody documentation.

The soil samples would be submitted to and tested by McCampbell Analytical, a State of California, Department of Health Services certified testing laboratory. Analytical testing would be scheduled and performed in accordance with the State of California, Regional Water Quality Control Board Recommendations for Initial Evaluation and Investigation of Underground Tanks (RWQCB, 1988) and Alameda County Department of Environmental Health guidelines.

The soil samples would be tested for Total Petroleum Hydrocarbons as gasoline by Method GCFID 5030/8015, Total Petroleum Hydrocarbons as diesel by Method GCFID 3550/8015, Oil & Grease by EPA Method 5520, and Volatile Aromatics (BTXE) by EPA Method 8020.

Ground Water Sampling

Ground water "grab" samples are anticipated to be collected during the excavation activities. The ground water sample will be collected in accordance with Alameda County Department of Environmental Health and State of California Regional Water Quality Control Board guidelines.

The water samples would be submitted to and tested by McCampbell Analytical, a State of California, Department of Health Services certified testing laboratory and would be tested for Total Petroleum Hydrocarbons as gasoline by Method GCFID 5030/8015, Total Petroleum Hydrocarbons as diesel by Method GCFID 3550/8015, Oil & Grease by EPA Method 5520, and Volatile Aromatics (BTXE) by EPA Method 8020.

Excavation Backfill

The excavations are anticipated to be backfilled and compacted with imported soil materials in combination with any clean excavated overburden materials. It is anticipated that the clean excavated soil will be used for the initial backfill material. Analytical testing will be performed on any native soil material intended to be used for backfill at a statistical sampling ratio of 1-test per 20 yards of soil. Testing will include Total Petroleum Hydrocarbons as gasoline and diesel and Volatile Aromatic Compounds.

AGENCY COORDINATION

Alameda County Department of Environmental Health and State of California Regional Water Quality Control Board personnel will be notified prior to proceeding with the remedial activities addressed in this Work Plan.

PROFESSIONAL OVERSIGHT

The excavation activities will be performed under the direct observation of a Certified Engineering Geologist from Geo Plexus, Incorporated and/or a Professional Geotechnical Engineer through General Environmental Management Services to assure that the remedial activities are accomplished in accordance with this Work Plan.

POST-REMEDIAL ACTION GROUND WATER MONITORING

It is anticipated that ground water monitoring wells will be required and that monitoring would extend for a minimum of one-year (4-consecutive quarterly events) to establish the ground water conditions/quality and to document beneficial conditions necessary to achieve site closure.

CONTRACT AWARD AND SCHEDULE

It is anticipated that the remedial activities would be initiated within one day following issuance of the notice to proceed.

It is anticipated that the excavation and sorting activities will require 2-4 days to be accomplished. The backfilling of the excavation with the clean overburden material will proceed upon verification that the excavation objectives have been achieved.

The tentative project schedule is as follows:

November 21, 1994	Estimated Project Start Date Excavation and Sorting
November 30, 1994	Estimated Completion of Excavation and Sample Verification
November 30, 1994	Estimated Backfilling Start Date Backfill with Clean Overburden Soil
December 2, 1995	Estimated Completion of Backfilling

REPORTS

An Interim Remedial Action Summary Report would be prepared and submitted to EBMUD within 45 days of completion of the remedial activities.

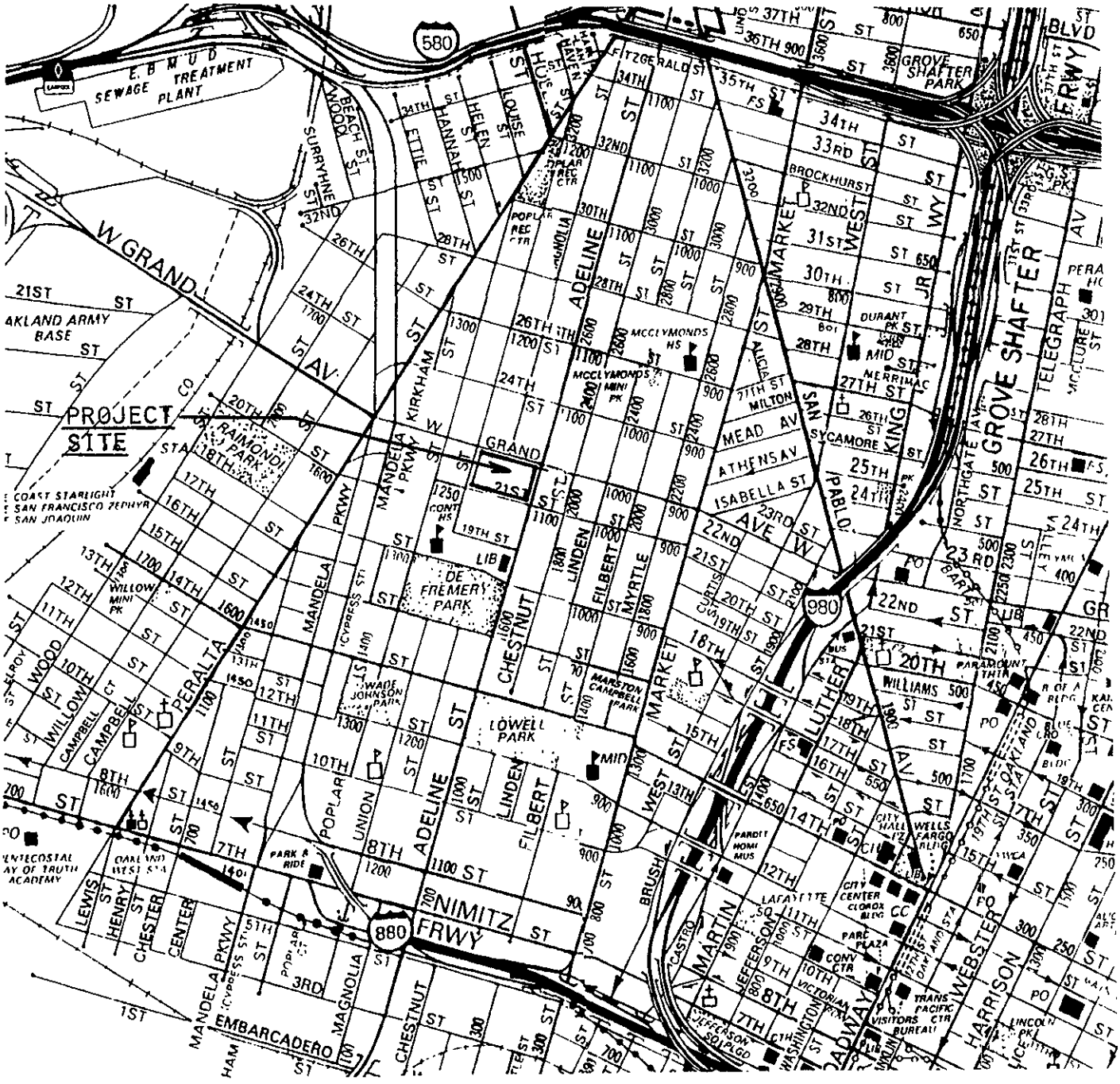
HEALTH AND SAFETY PLAN

All remedial action activities associated with this Work Plan will be performed under a detailed Health and Safety Plan prepared by CalTec Environmental, Inc. and incorporated herein by reference.

KEY PERSONNEL

The personnel associated with this project are listed below:

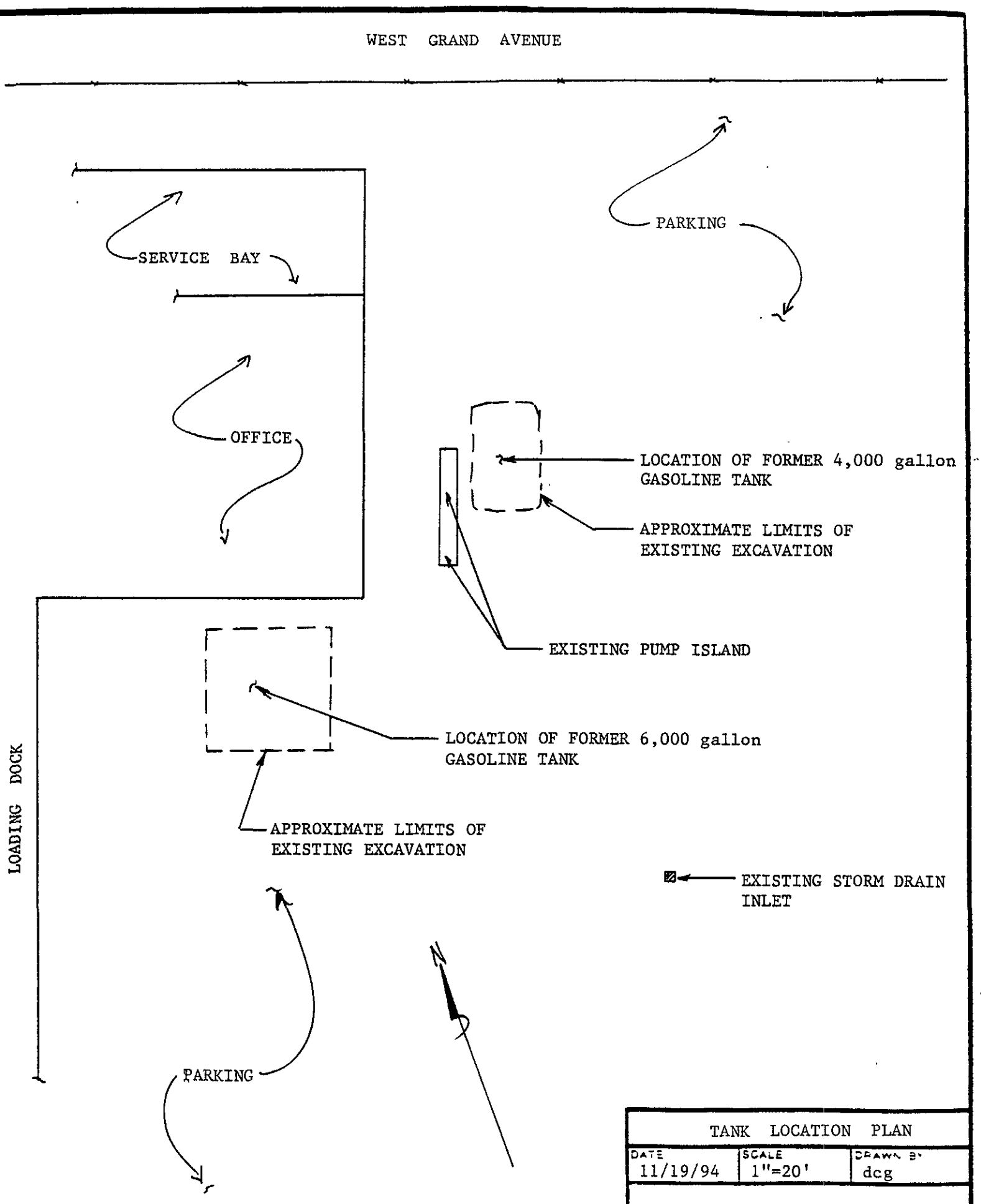
Prime Contractor	CalTec Environmental, Inc. 1100 Lincoln Avenue, Suite 108 Napa, CA 94558 (707) 257-3564
Subcontractor	General Environmental Management Services P.O. Box 8282 Pittsburgh, California 94565 (510) 427-4616
Geologic Services	Geo Plexus, Inc. 1900 Wyatt Drive, Suite 1 Santa Clara, CA 95054 (408) 987-0210
Analytical Lab	McCampbell Analytical 110 2nd Avenue South, # D7 Pacheco, CA 94553 (510) 798-1620



Source: Thomas Brothers Maps

EAST BAY MUD FACILITY		
DATE 11/19/94	SCALE n/a	DRAWN BY dcg
LOCATION PLAN		
	Figure 1	

GeoPlexus, Inc.



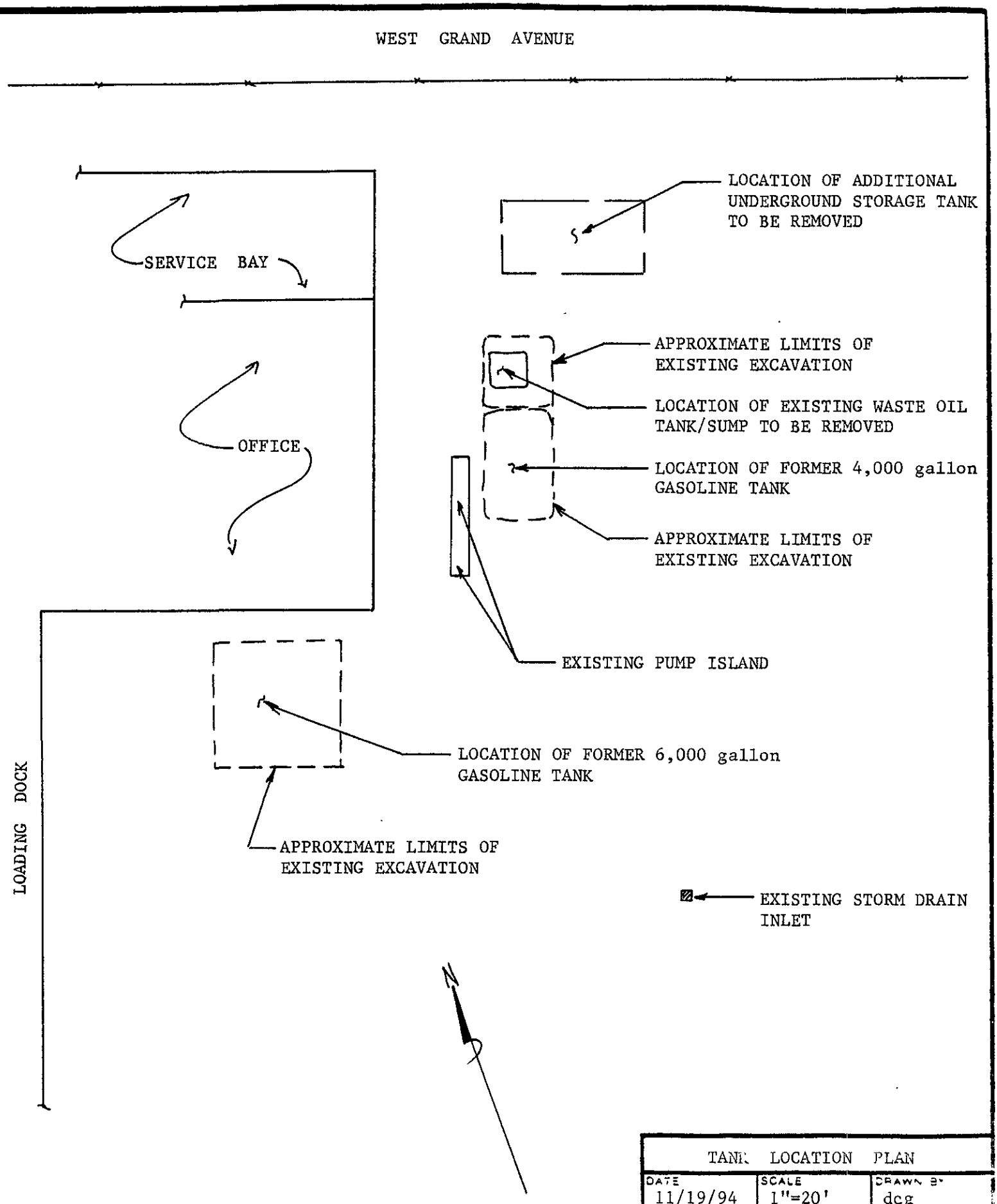
TANK LOCATION PLAN

DATE	SCALE	DRAWN BY
11/19/94	1"=20'	dcg

EAST BAY MUD FACILITY

Figure 2

GeoPlexus, Inc.



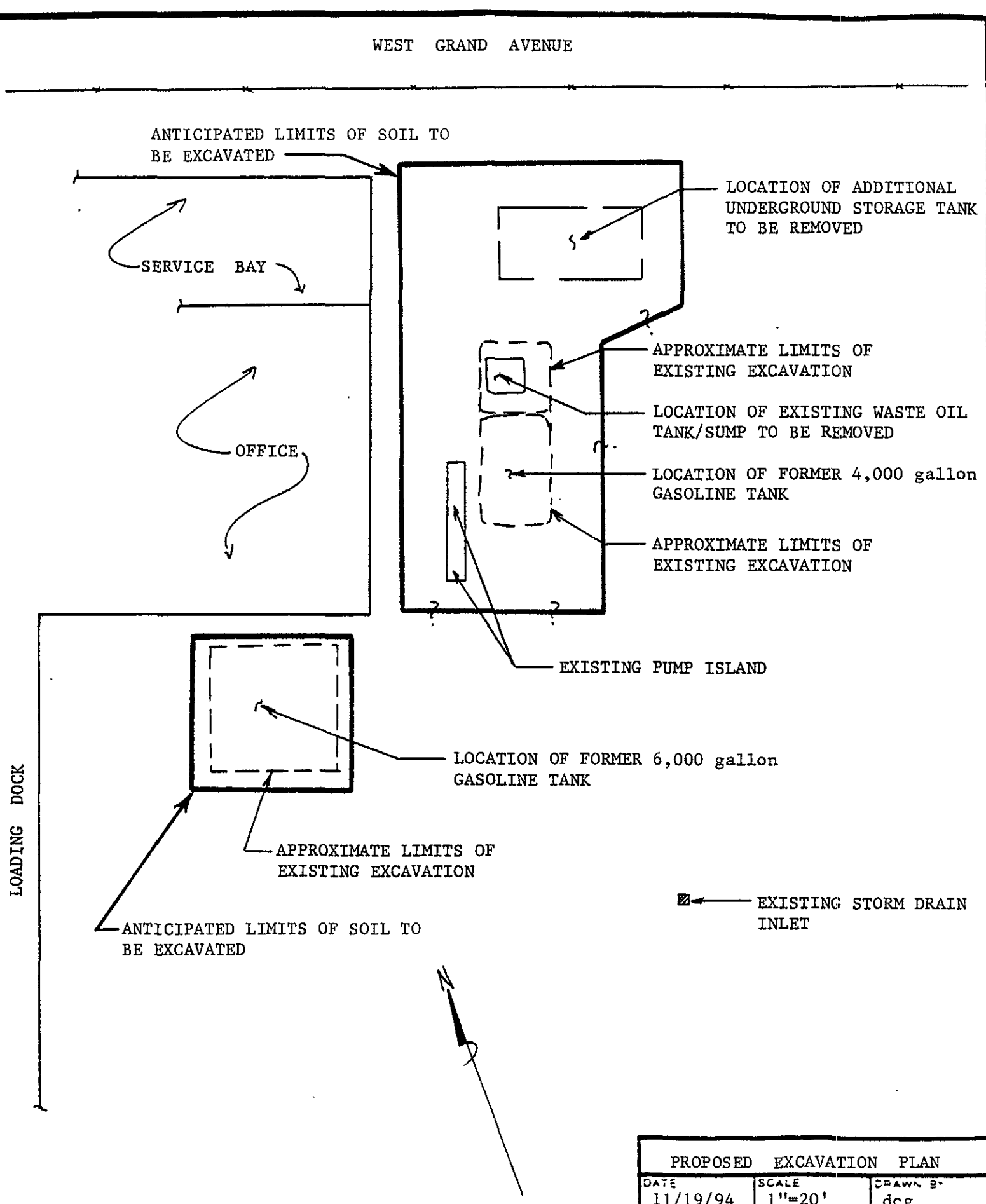
TANK LOCATION PLAN

DATE	SCALE	DRAWN BY
11/19/94	1"=20'	dcg

EAST BAY MUD FACILITY

Figure 3

GeoPlexus, Inc.



PROPOSED EXCAVATION PLAN

DATE	SCALE	DRAWN BY
11/19/94	1"=20'	dcg

EAST BAY MUD FACILITY

Figure 4

GeoPlexus, Inc.