727 PINE ST
OAKLAND

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SITE REMEDIATION WOKPLAN
CALTRANS CYPRESS "B" RECONSTRUCTION
FIRE STATION, 727 PINE STREET
OAKLAND, CALIFORNIA

OGISO REPORT E-95130CT/WP6.1

June 15, 1995

For

Contract 04-192214
Caltrans District 4
1545 Willow Street
Oakland, CA 94607

SITE REMEDIATION WORKPLAN
CALTRANS CYPRESS "B" RECONSTRUCTION
FIRE STATION, 727 PINE STREET
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OGISO REPORT E-95130 CT/WP6.1

PREPARED FOR

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CALTRANS CYPRESS "B" CONTRACT 04-192214
FIRE STATION, 727 PINE STREET
OAKLAND, CALIFORNIA

1 BACKGROUND INFORMATION

The objective of the project covered by this Workplan is to delineate and remove the asbestos-containing material in the fire station building, remove the fire station structure and the adjacent 1,000-gallon underground storage tank (UST), investigate and characterize the entire site, and remediate the contaminated areas underlying the tank and the fire station building. The fire station site is located at 727 Pine Street at the intersection of Pine and Goss in Oakland and lies within the Cypress "B" alignment. This area is detailed on sheet C-13 of the Project Plans and is reproduced here as Figure 1.

A soil and groundwater remedial investigation was conducted by Geo/Resources Consultants (GRC) for this site, under Caltrans Contract 53P614, Task Order Number 04-19221-01. The remedial investigation report dated August 28, 1992, is summarized in Appendix A. The site investigation by GRC did not detect diesel petroleum hydrocarbons (TPHD) in the soil and the groundwater samples collected at depths varying from 10 to 20 ft below ground surface (bgs). The contents and status of the tank are unclear, however, and it may have leaked since August 1992.

An asbestos survey was conducted by Berg C.I.H. Inc. on June 27, 1995 and involved sampling and analysis of bulk samples collected from suspect areas on the floor, walls and roof of the fire station building. The survey revealed presence of asbestos containing material in the floor tiles (1%) and mastic (2%) throughout the building. Asbestos was also detected in the joint

compound used in filling the seams along the edges of adjoining sheetrocks (1%) throughout the building walls. Asbestos was further detected on the roof of the structure in the sealant used around the vents and other protrusions in the roof (5%). The asbestos survey report in included in Appendix A.

The tasks in this project are to remove the asbestos-containing material from the fire station building, demolish and remove the fire station building, exhume the 1,000-gallon UST in the northeast corner of the building, investigate the entire site underlying the UST and the fire station structure, and remediate any contaminated soil to levels determined by Caltrans and Department of Toxic Substance Control (DTSC). The remediation process will include excavation, loading, transporting, and disposal of soils contaminated above the preliminary remedial goals (PRGs) established by Caltrans and the DTSC. PRGs established are summarized in Table 1, below (adapted from the Special Provisions, Section 10-1.29B). Initial depths of excavation will be guided by the outcome of the site investigation and the need to excavate all soil contaminated above PRGs. Following the initial remedial effort, confirmatory samples will then be taken and additional excavation made if contaminant levels exceed the PRGs.

The work breakout, schedules, and milestones are discussed in the following sections.

2 PROJECT PERSONNEL

This section presents the key project personnel.

2.1 Project Manager

The Project Manager is Dr. Clement I. Okoh.

2.2 Key Project Personnel

NAME	LEVEL	JOB TITLE
Dr. Clement I. Okoh	Principal Engineer	Project Manager
Dr. Hamid Moshtaghi	Sr. Project Engineer	Site/Engineering Manager
Dr. Ola Balogun, P.E.	Sr. Project Engineer	Civil Engineer
Ms. Barbara Cohrssen	Industrial Hygienist	Certified Industrial Hygienist
Mr. Mike Hodges	Project Engineer	SSO/Supervisor
Mr. Jeff Roca	Site Supervisor	Site Supervisor/Operator
Mr. Marvin Niccum	Sr. Geologist/Geohydrologist	Geologist

Other staff will be assigned as required.

3 TECHNICAL APPROACH - SITE CLEANUP

This section presents the technical approach proposed for demolition and remediation of the fire station and the UST.

3.1 Objectives

The principal tasks and objectives in removal and remediation of the fire station site are to:

- Remove and dispose of the asbestos-contaminated tile floor inside the fire station
- Demolish and remove the fire station structure and the underlying concrete floor
- Collect soil and groundwater samples beneath the fire station floor area and analyze for contaminants-specifically lead and petroleum hydrocarbons
- Determine extent of remedial measures based on the level and delineation of the contaminants in the soil and groundwater
- Continue remediating soil and groundwater to PRG levels as necessary until the site is considered clean

The principal tasks and objectives in removal and remediation of the adjacent UST site are to:

- Test, remove, and dispose of content of the UST
- Render the UST safe for removal and handling after removing contents of the by UST, purging the tank with dry CO_2, and triple rinsing the tank. Remove and dispose of rinsate
- Excavate the soil from around the UST
- Sample and analyze the soil stockpile for suspected contaminants

- Excavate and dispose of soil exceeding PRGs levels
- Exhume and dispose of the UST
- Collect and analyze soil and groundwater samples from the UST excavation
- Determine extent of remedial measures based on the level and delineation of the contaminants in the soil and groundwater
- Continue with soil and groundwater remedial measures as necessary until any soil contamination is below PRGs

3.2 Remediation Levels

If the soil is contaminated by the UST, soil remediation will be based on the PRGs established by DTSC for the Cypress "B" project. These PRGs are reproduced in Table 1, from Section 10-1.29B of Caltrans Special Provisions for Contract No. 04-192214.

Groundwater remediation levels will be determined based on the nature of groundwater reuse following extraction. Groundwater to be used for dust control will be treated to meet NPDES Permit CA0029980 Discharge Requirements. Other extracted groundwater will be discharged into East Bay Municipal Utilities District's (EBMUD's) system. Table 2 shows NPDES and EBMUD discharge limits established for the Cypress project.

TABLE 1

Caltrans Preliminary Remedial Goals for Soil

FIRE STATION, 727 PINE STREET

Contaminants	mg/kg	Contaminants	mg/kg
Carcinogens		**Metals**	
Benz[a]anthracene	0.037 - 0.33	Antimony	67
Benzo[b]fluoranthene	0.037 - 0.33	Arsenic	4.6 - 0.51
Benzo[k]fluoranthene	0.037 - 0.33	Barium	12,000
Benz[a]pyrene	0.037 - 0.33	Beryllium	1.8 - 0.2
Chrysene	0.037 - 0.33	Cadmium	24 - 2.7
Dibenz[ah]anthracene	0.037 - 0.33	Chromium (III)	170,000
Indeno[1,2,3-cd]pyrene	0.037 - 0.33	Chromium (VI)	0.68 - 0.076
Benzene	3.5 - 31	Copper	5,000
Tetrachloroethylene	10 - 92	Fluorine	10,000
Trichloroethylene	27 - 250	Lead	340
Vinyl chloride	0.1 - 0.94	Mercury	45
Chloroform	12 - 110	Molybdenum	830
1,1-Dichloroethylene	0.42 - 3.8	Nickel	400 - 44
1,4-Chlorobenzene	13 -120	Selenium	830
		Silver	830
Noncarcinogens		Thallium	14
Fluoranthene	2300	Vanadium	1,200
Pyrene	1700	Zinc	50,000
Ethylbenzene	74		
Toluene	280		
Xylene	99		
1,1-Dichloroethane	380		
1,1,1-Trichloroethane	470		
Chlorobenzene	160		
1,2- Dichlorobenzene	360		
Naphthalene	82		

TPH ?

TABLE 2

Cypress "B" Water Quality Standards

NPDES/EBMUD

Groundwater Discharge Requirements

Constituent	NPDES Discharge Limits (µg/L)	EBMUD Discharge Limits (µg/L)
Arsenic	20	1.3
Cadmium	10	4.7
Chromium (VI), Total	11	43
Copper	20	128
Cyanide	20	8.1
Iron		2708
Lead	5.6	28
Mercury	1.0	0.8
Nickel	7.1	34
Selenium	5.0	
Silver	2.3	12
Zinc	58	288
Un-ionized Ammonia	400	
PH	6.5 to 8.5	5.5
Purgeable Halocarbons	5.0	
Purgeable Aromatics/Volatile Organics	5.0	
Total Petroleum Hydrocarbons	50.0	
Polynuclear Aromatic Hydrocarbons	15.0	
Ethylene Dibromide	5.0	
Base Neutral, Acid & Pesticides/Semivolatiles	5.0	
Dissolved Oxygen	5000, min	
Temperature		150°F

3.3 Asbestos Removal

The interior of the fire station building contains asbestos tiles on the floor as described in Contract Special Provisions Section 10-1.19. The Asbestos Survey of June 27, 1995 also revealed asbestos in joint compounds and sealant throughout the building. As part of the building demolition, the asbestos-containing tiles, sealant and joint compounds will be removed. The procedure for asbestos removal will depend on conditions found on the site. Some guidelines for asbestos removal at Fire Station No. 3 are provided below, and these will be modified onsite as required.

Establish Safety Zone

In removing asbestos and demolishing the fire station building it is necessary that a safety zone be established around the perimeter of the structure. The safety zone will consist of a wire fence extending 20 ft beyond the perimeter of the fire station structure in all directions. Signs will be posted on the fence around the perimeter warning public of the nature of the operation. The signs will be visible from a minimum distance of 20 ft. The fence will mark the boundary between the support zone (SZ) and the contamination reduction zone (CRZ). Both the exclusion zone (EZ) and the CRZ will lie within the fenced area. A decontamination area will be established within the CRZ where employees will decontaminate and remove any contaminated protective clothing. The contaminated items will be contained for proper disposal.

Remove Asbestos-Containing Material

The asbestos-containing material is wet thoroughly using water amended with a wetting agent to enhance penetration. The asbestos containing material is then removed in small sections and

promptly placed in 6-mil polyethylene plastic bags or containers for disposal.
Tools and removal procedures causing a minimum breakup of asbestos tiles will be employed.
A negative pressure system (vacuum) equipped with HEPA filters will be employed directly over the point of asbestos removal to minimize asbestos fibers from spreading in the area.
Gross asbestos removal is considered complete when no visible clumps of asbestos-containing materials (tiles) remain on the subfloor. The subfloor is then thoroughly vacuumed to remove any residual asbestos.

Respiratory Equipment and Protective Clothing

Workers working in the regulated area where contamination is likely to exceed the asbestos action level (0.1 f/cm^3) are required to wear a suitable HEPA filtered respirator, a one-piece disposable suit that contains head and foot covers, and cotton gloves at all times. Following completion of asbestos cleanup, the contaminated clothing and tools are vacuumed with a HEPA filter vacuum and then the workers proceed to a decontamination zone where protective clothing is further vacuumed, removed and placed in bags for disposal.

Area Air Monitoring, Personnel Air Monitoring

Area air monitoring will involve collecting air samples in the work area (regulated area), outside of the decontamination zone, and outside of the building to determine the level of airborne asbestos fibers. Air sampling will include operating a high-volume air pump connected to an inlet cup fitted with a cassette and placed at the top of an extension post, approximately 2 to 4 ft off the floor. The pump's flow rate will be adjusted, and air samples will be collected for a maximum combined sampling time of 8 hours per day. Air sampling will start upon initial entry into the regulated area and continue through the duration of exposure. Collected air samples will later be delivered to a laboratory for asbestos fiber count.

Personnel air monitoring will involve attaching a portable, battery operated air sampler to one or

more representative personnel working in the regulated area. The sampler will consist of a battery operated air pump and an air inlet cup fitted with a cassette attached to the personnel at the breathing zone level. The air sampling equipment will remain operational throughout the time personnel remain in the regulated area.

Asbestos Waste Disposal

Following asbestos removal, all asbestos-containing materials including disposable clothing will be loaded onto trucks for disposal. The packaging, loading, and disposal of the asbestos waste will depend on the nature of the asbestos-containing floor tiles. If the waste consists of material containing friable asbestos, it will be placed in sealed, impermeable 6-mil polyethylene bags for disposal. The bags will be labeled with information that clearly identifies the waste as asbestos and will be transported to a landfill by a licensed hazardous waste transporter. In the case of non-friable, asbestos-containing materials, such as vinyl asbestos tile, the waste may be bulk-loaded onto á truck for disposal.

3.4 Demolition of the Fire Station

Prior to demolishing the fire station building, salvageable parts of the building (rollup doors, aluminum windows, etc.) will be scavenged and recycled. The fire station building will be demolished, and the concrete floor and foundation excavated. A backhoe and excavator will be used to demolish the building in a sequence and manner least disturbing to the surrounding neighborhood. The debris will promptly be loaded onto trucks for hauling and disposal in a Class III landfill. Following demolition of the structure, the concrete floor and foundation will be excavated and broken up into manageable sizes, loaded, and transported to a concrete recycling yard.

3.5 Fire Station Building Site Investigation

Following removal of the fire station concrete floor and foundation, soil samples will be collected from the floor area at depths corresponding to the bottom of the UST located in the northeast corner of the building. The floor area of the building is 5,776 ft^2. One soil sample will be collected for every 20-ft x 20-ft (400 ft^2) area. This will result in collection of 15 soil samples from the fire station floor area. In the event groundwater is reached when accessing the sampling depth, groundwater samples will also be collected and analyzed for suspected contaminants' lead and petroleum hydrocarbons. These samples will serve as confirmation for the GRC remedial investigation.

Soil and Groundwater Analysis

Soil and groundwater samples will be analyzed for lead, total petroleum hydrocarbons as gasoline (TPHG), and diesel (TPHD), and benzene, toluene, ethylbenzene, and xylenes (BTEX). Results of the sample analysis will determine presence of contaminants from the UST and the need for further site investigation and cleanup if the soil contamination exceeds the PRGs of Table 1.

3.6 Fire Station Building Site Remediation

Caltrans effectively requires all soil contaminated above (PRGs) to be excavated for offsite treatment and/or disposal. The proposed target cleanup levels are listed in Table 1. If any soil contamination is found and remediation is required, the work crew will obtain confirmatory samples as the work progresses to determine the required volume of excavation. Excavated soil with contaminant levels above the PRGs will be immediately loaded onto trucks and transported to the ECDC loading area for shipment to the ECDC landfill in Utah. Soil with contaminant levels below the PRGs will be left in place.

In the unlikely event a stockpile with contaminants in excess of the PRGs needs to be stored on site for an extended period of time, the stockpile will be covered with a tarp or other covering with no head space where vapors may accumulate.

Groundwater Remediation

Due to existence of shallow groundwater in this area, groundwater may be encountered during soil excavation. In such an event groundwater samples will be collected and analyzed for lead, TPHG, TPHD, and BTEX to determine the scope of groundwater contamination. Upon discovery of groundwater contamination, remedial measures will be devised and put into practice. The primary choices are (i) pump and treat systems and (ii) in situ systems. The current scope of work does not call for groundwater treatment if groundwater contamination is found. OGISO will characterize and delineate the contaminant plume and present Caltrans with remedial alternatives if extraction and treatment is the preferred approach.

3.7 Removal of the Underground Storage Tank

The August 1992 remedial investigation report by GRC identifies the onsite UST as a diesel tank, although the Special Provisions denote a gasoline tank (it is unlikely that the only tank at a fire station with diesel-engine trucks would contain gasoline). The GRC report did not detect petroleum hydrocarbons in the soil or groundwater. The findings of the GRC report will be confirmed during UST removal. The following describes guidelines for removal of the 1,000-gallon gasoline/diesel UST located in the northeast corner of the fire station building.

Obtain UST Removal Permit

Notify and/or obtain permits from the Bay Area Air Quality Management District (BAAQMD), the Fire Department, OSHA, and other relevant agencies prior to UST excavation and removal.

Site Preparation

Fence the work area around the UST and establish work zones, post warning signs, establish traffic control, assign locations for soil stockpiling and loading operations, and establish wind direction indicators. Due to close proximity of the UST to the fire station building, both the UST and the building will be included in one work area.

Remove UST Associated Piping

Drain product piping into the tank, being careful to avoid any spillage, and remove product piping. Remove the fill pipe, gauge pipe, vapor recovery line, and other tank fixtures. Temporarily plug all tank openings so that all vapors will exit through the vent line during the vapor-freeing process.

Remove Tank Content

Remove residues and liquids from the tank and dispose of in accordance with all applicable Federal, State, and local regulations . UST contents will be removed by vacuum truck and recycled at Evergreen treatment, storage, and disposal facility (TSDF), Newark, California. All waste residues from within the tanks shall be tested in accordance with 40 CFR 261 and Title 22 CCR, Articles 2 and 3 to evaluate whether the residue is a hazardous waste because of its characteristics. All residues shall be tested for the characteristic of ignitability (40 CFR 261.21, Title 22 CCR, Article 3, Section 66261.20).

Purge UST

Use a PID vapor detector to determine concentration of the gasoline/diesel vapors in the tank. Vent all vapors from the tank at a minimum height of 12 ft above grade and 3 ft above any adjacent roof lines until the tank is purged of flammable vapors. Flammable and combustible vapors will be purged with carbon dioxide (CO_2). The vapors in the tank will be displaced by adding solid carbon dioxide (dry ice) to the tank in the amount of at least 1.5 lb per 100 gallons of tank capacity. (A 1,000 gallon tank will require a minimum of 15 lb of dry ice). The dry ice

shall be crushed and distributed evenly over the greatest possible area in the tank to promote rapid evaporation. As the dry ice vaporizes, flammable vapors will flow out of the tank and may surround the area. Therefore, where practical, plug all tank openings except the vent after introducing the solid CO_2 and continue to observe all normal safety precautions regarding flammable or combustible vapors. Make sure all of the dry ice has evaporated before proceeding.

Following purging of the UST use a PID vapor detector to ensure explosive gases are purged to a safe working level. The tank vapor space will be tested by placing the PID into the fill opening. Readings shall be taken at the bottom, middle, and upper parts of the tank, and the instrument shall be cleared after each reading. Readings of 20% or less of the lower flammable limit must be obtained before the tank is considered safe.

Rinse UST

Following purging of the explosive gases in the UST, the UST will be triple rinsed with water. Between rinsing events, the rinsate will be pumped out of the UST into a vacuum truck.

Excavate and Transport UST

Excavate to the top of the UST and around the tank to uncover it for removal. Remove the tank from the excavation and place it on a level surface. Use wood blocks to prevent movement of the tank after removal and prior to loading on a truck for transportation to a disposal or recycling facility. Puncture the tank in several places to render it unusable as a storage medium. The tank may also be crushed/flattened for ease of handling and transportation. Label the tank after removal from the excavation. The label shall contain a warning against reuse and present vapor state of the tank.

Tanks shall be removed from the site as promptly as possible after vapor-freeing and rinsing

procedures have been completed, preferably on the day of tank removal from the excavation. Before the tank is removed from the site, the tank atmosphere shall be checked with a combustible gas indicator (PID) to ensure that it does not exceed the 20% lower flammable limit. The tank shall be secured on a truck for transportation to the disposal site with the vent hole located at the uppermost point on the tank. The UST shall be properly manifested for transportation to Schnitzer Steel in Oakland for recycling.

Air Monitoring

A PID vapor detector will be used to monitor the level of petroleum hydrocarbon vapors in the excavation and around the work perimeter during excavation and loading operations. In the unlikely event the PID registers vapor levels at or above the potential exposure limit (PEL) workers on the site will be required to wear Level C protective clothing with respirators. Under such circumstances the excavation will be backfilled and vapor extraction employed to lower gas vapor levels. Signs will also be immediately posted around the job perimeter warning of high levels of petroleum hydrocarbon vapors.

Confirmatory Sampling

Confirmatory soil samples will be collected from the sides and bottom of the UST excavation and analyzed for TPHG, TPHD and BTEX in an onsite mobile laboratory. The analysis results will determine the extent of the remedial measures required until the PRG levels are achieved.

3.8 UST Soil Remediation

Soil remediation will be conducted as discussed in Section 3.6.

3.9 Site Security

The site is located in an area where equipment may be vandalized. All equipment and tools will be kept inside the fenced active work area.

3.10 Equipment Decontamination

All equipment and tools contaminated with soil and/or groundwater during remedial operation of the fire station building and the UST sites will be decontaminated through rinsing, pressure cleaning, brushing, and scraping of contaminated material from the tools and equipment. Decontamination rinsate and debris will be added to the contaminated soil for disposal.

4 PROJECT TASKS AND SCHEDULE

This section discusses the major tasks of the project and presents a schedule for conducting the work. The work is divided into 18 tasks as follows:

Task 1	Site-Specific Workplan
Task 2	Site-Specific Health & Safety Plan
Task 3	Permitting
Task 4	Site Preparation, Move-In
Task 5	Asbestos Removal, Fire Station Demolition, UST Removal
Task 6	Transportation and Disposal
Task 7	Confirmatory Sampling
Task 8	Site Characterization and Remediation
Task 9	Groundwater Extraction
Task 10	Groundwater Analysis
Task 11	Groundwater Treatment
Task 12	Report Preparation
Task 13	Management Task
Task 14	Well Destruction
Task 15	Monitoring Well Installation
Task 16	Quarterly Well Monitoring
Task 17	Implementation Report
Task 18	Site Mitigation Report

4.1 Scope of Work

Task 1: Alterations of the Site-Specific Workplan

Deliverables: Site-Specific Workplan

Task 1 will involve any alterations to this Workplan. Due to uncertainties in site characteristics and contamination profile, OGISO anticipates some changes will be made to this Workplan during project execution.

Task 2: Alterations of the Site-Specific Health & Safety Plan

Deliverables: Site-Specific Health & Safety Plan

Task 2 will involve all changes or addenda to the site-specific Health & Safety Plan. Due to uncertainties in site characteristics, depth and lateral extent of possible contamination, and other unforeseen site specific conditions, there may be a need to alter and/or modify the Health & Safety Plan.

Task 3: Permitting

Deliverables: Permits/Notifications

This task involves obtaining the regulatory permits and other documents for the project. Specifically:

- Excavation permits/notifications (there will be no confined space entry into excavation)
- UST removal permit/notification, BAAQMD, OSHA, Fire Department, City of Oakland
- Asbestos-removal permit/notification, BAAQMD

- Groundwater treatment system permit to operate
- Groundwater discharge clearance from Caltrans per NPDES/EBMUD permits

Task 4: Site Preparation, Move-In

Deliverables: Site Preparation

Task 4 involves site preparation for building demolition, excavation, loading, and possible stockpiling. This includes establishment of work zones (exclusion zone, contamination reduction zone, and support zone), establishment of decontamination area, establishment of air monitoring location and wind direction indicator, and initial safety meeting. These issues are discussed in Section 3.

Task 5: Asbestos Removal, Fire Station Demolition, UST Removal

Deliverables: Removal of Fire Station and UST

Task 5 involves delineation of the asbestos-contaminated area in the fire station building, asbestos removal, and air monitoring. This task also includes demolition of the fire station building and hauling and disposal of demolition material. UST removal will include removal of waste from the tank, tank purging, tank rinsing, tank excavation, tank demolition, and tank disposal.

Task 6: Transportation and Disposal

Deliverables: Disposal Certificates (Weight Certificates, etc.)

This Task involves the transportation and disposal of building demolition debris, asbestos-containing materials, and excavated soils exceeding the PRGs. The Cal-hazardous soils and most of the contaminated soils are expected to be shipped via rail to the ECDC landfill in Utah.

The water treatment sludge, if hazardous and non-RCRA, will also be shipped to Utah. Any RCRA wastes will be trucked to ChemWaste or Kettleman. Wastes with low levels of contamination (above PRGs, but below TTLC and STLC, and acceptable to area landfills) will be trucked to Forward Landfill, Manteca, BFI-Livermore, or other properly licensed landfills.

Task 7: Confirmatory Sampling

Deliverables: Analytical Results and Excavation Decisions

Confirmatory samples will be taken after excavation of contaminated and hazardous materials. The samples will be analyzed for the contaminants of concern, and the analytical results will be compared to the PRGs discussed in Section 3. If the concentrations remain higher than the PRGs, a decision will be made to excavate further. This procedure will be repeated until all contaminant concentrations fall below the PRGs.

Task 8: Site Characterization and Remediation

Deliverables: Site Characterization; Excavated soil at TSDF Loading Facility, Volumes Data to Caltrans

Site characterization involves investigation of soil (and possibly groundwater) at the fire station and the UST sites. This will include collection and analysis of soil (and possibly groundwater) samples and vertical and horizontal delineation of possible contaminants. Site remediation will include excavation, segregation, and disposal of contaminated soil and extraction and remediation of groundwater.

Task 9: Groundwater Extraction

Deliverables: Lower groundwater enough to enable excavation;Extracted water in tanks per specs

This Task involves dewatering to enable excavation below groundwater levels. If dewatering is needed, OGISO will dewater via a system similar to Figure 2. Changes will be made to the dewatering system as required. As discussed in Section 3, the Special Provisions Section 10-1.29 will be employed to guide dewatering activities. OGISO will monitor dewatering levels and placement of dewatering equipment to prevent damage to adjacent structures, works, and utilities and to optimize drawdown. The dewatering provisions are attached as Figure 3.

Task 10: Groundwater Analysis

Deliverable: Analytical Results; Decision on Need for Treatment

OGISO will analyze extracted groundwater containerized in 20,000-gallon Baker tanks. One composite sample will be obtained per tank, with a second backup composite. If the water contamination exceeds the NPDES (or EBMUD) permit levels of Table 2, a decision will be made to treat the water before using it for dust control (or discharging into East Bay Municipal Utilities District sewers). Both the analyticals and treatment decision will be communicated to Caltrans.

Task 11: Groundwater Treatment

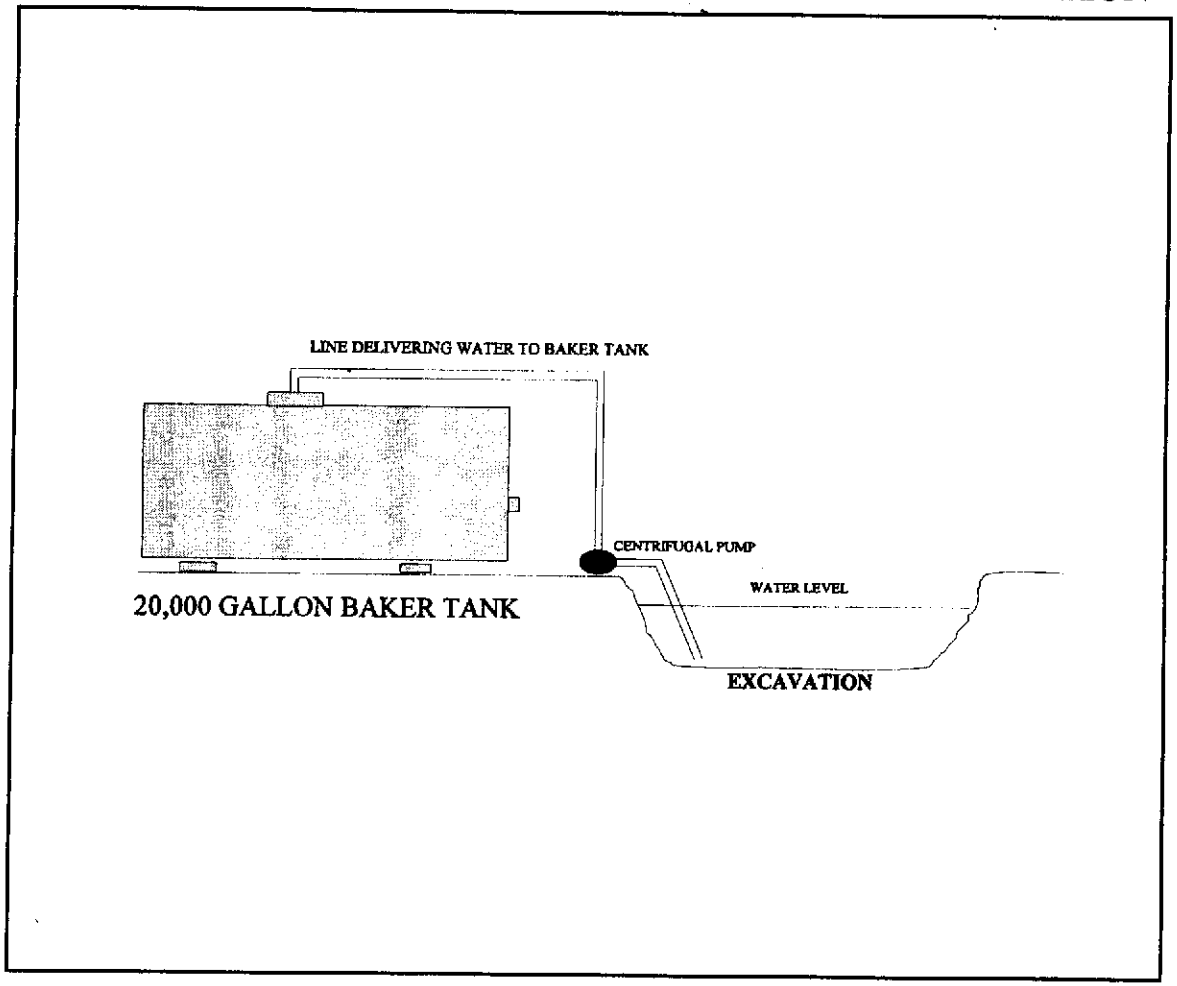
Deliverable: Treated water that meets NPDES and/or EBMUD discharge requirements

If Task 10 indicates the need for water treatment, the extracted groundwater will be remediated under this task. The Task will include all system design, integration and construction, treatability tests, manpower, supplies, equipment and incidentals required for water treatment, as well as confirmatory samples required to certify the water clean.

Task 12: Interim Reports

Deliverables: Interim Reports

FIGURE 2: INITIAL DEWATERING SYSTEM CONFIGURATION



This Task involves the preparation of all interim reports during the life of the project. The reports will include soil excavation reports, soil volumes, groundwater extraction rates, groundwater volumes, site decisions, and any reports, other than the final site closure report. Any periodic reports will also be written under this Task.

Task 13: Management Tasks

This Task includes all management and overhead functions, such as meetings with Caltrans, Regulators, and other parties required for successful completion of the project. Several meetings are anticipated during the life of this project.

Task 14: Well Destruction

Deliverables: Permit, Well Destruction, and Report

This Task will cover the destruction/abandonment of any monitoring wells. All labor, material and equipment will be included in the Task, as will all decontamination and disposal of well construction materials.

Task 15: Monitoring Well Installation

Deliverables: Permit, Well Installation, and Report

This Task will cover the installation of any required monitoring wells on the site, after backfilling and compaction. All required work, including subsurface modeling, any additional soil sampling, as well as the actual boring and installation of the monitoring well and any extraction pumps, will be included in the Task.

Task 16: Quarterly Well Monitoring

Deliverables: Quarterly Monitoring Report

This Task will cover all quarterly well monitoring activities, including well sampling, chemical analysis, and report preparation after reinstallation of the replacement wells in Task 15.

Task 17: Implementation Report

Deliverables: Implementation Report

This Task will include the preparation of a report documenting the implementation of the Site-Specific Health & Safety Plan and the Workplan, to be submitted within 20 working days of completion of field activities. As required, the Implementation Report will be signed by a civil engineer and a toxicologist possessing a doctoral or master's degree in toxicology, biochemistry, pharmacology, or closely related field.

Task 18: Report Preparation

Deliverables: Final Site Mitigation/Closure Report

This Task involves the preparation of the final project report. This Site Mitigation/Closure Report will document all the excavation, dewatering, water treatment and discharge activities and show that remediation has met regulatory goals (PRG for soil and NPDES or EBMUD permit limits for groundwater). This report will be the "as-built." Most of the final report will be included in the Implementation Report, but since the latter is due within 20 days of completion of field activities, some items will remain for inclusion in the final report.

5 PROJECT SCHEDULE

This section presents the schedules and milestones for the proposed project.

Task 1	Site-Specific Workplan
Task 2	Site-Specific Health & Safety Plan
Task 3	Permitting
Task 4	Site Preparation, Move-In
Task 5	Asbestos Removal, Fire Station Demolition, UST Removal
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Task 16	Quarterly Well Monitoring
Task 17	Implementation Report
Task 18	Site Mitigation Report

5.1 Milestones

The project milestones are summarized below:

WORKING DAYS (After Start)	ANTICIPATED MILESTONE
2-5	Submit Workplan and Health and Safety Plan
2	Submit Permit Applications
5-10	Obtain Workplan/Safety Plan Approval
5-10	Obtain Permits
5	Move In
10	Commence Asbestos Cleanup
13-16	Commence Fire Station Building Demolition
16-20	Commence Fire Station Site Characterization
30	Conclude Fire Station Site Cleanup
15	Commence UST Removal
20-25	Commence UST Site Characterization
30-45	Conclude UST Site Cleanup
50-55	Implementation Report
60-65	Final Site Mitigation Report

TASK NO.	TASK DESCRIPTION	PROJECT TIME FRAME IN DAYS AFTER COMMENCEMENT
Task 1	Site-specific Workplan	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 2	Site-specific Health & Safety Plan	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 3	Permitting	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 4	Site Preparation, Move-in	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 5	Asbestos Removal, Fire Station Demolition, UST Removal	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 6	Transportation & Disposal	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 7	Cofirmatory Sampling	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 8	Additional Excavation	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 9	Water Extraction	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 10	Water Analysis	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 11	Water Treatment	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 12	Reports - Dewatering/Excavation	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 13	Management Tasks	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 14	Well Destruction *	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 15	Monitoring Well Installation *	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 16	Quarterly Well Monitoring *	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 17	Implementation Report	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Task 18	Site Mitigation Report	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85

*May not be needed.

PROJECT SCHEDULE FOR FIRE STATION NO. 3, 727 PINE STREET

A = Start Date

B = Early Completion Date

C = Late Completion Date

B and C differ due to site uncertainties.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	32.8/34.2	50	608

Jane W. Ross 5-4-93
REGISTERED CIVIL ENGINEER

6-6-94
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER J. W. Ross No. 10697 Exp. 12-31-96 CIVIL STATE OF CALIFORNIA

SITE REMEDIATION EXCAVATION

PARCEL NUMBER (APN)	BUSINESS NAME	AREA	AVERAGE DEPTH OF EXCAVATION CONT OR HAZ (ft)	CONTAMINATED	HAZARDOUS
6-45-21	WILFRED'S WRECKING		3'bgs	HC(4620)	Pb(374)<6.6>
6-45-34			6'bgs	HC(138000)	Pb(3160)<132>
6-45-3	B & A AUTO DISMANTLERS		4'bgs	HC(6350)	Pb(161)<7.7>
6-37-18	CHURCH'S FRIED CHICKEN	O	10'bgs	VOC, GASOLINE(5000)	Pb(110)<73>
		P	8'bgs	VOC, GASOLINE(2800)	Pb(1700)
		Q	7'bgs	HC(1500)	Pb(1500)
6-45-1	PHOENIX IRON WORKS 766 CEDAR STREET	R	3'bgs		Pb(3600)<8>
6-45-19		S	4'bgs		Pb(4200)<31>

FOR NOTES, ABBREVIATIONS &/OR LEGEND, SEE SHEET C-10

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3

USERNAME => lenard
DGN FILE => /usr/lenard/PI/41922lg13.dg

CU 04195

EA 192211

CONSTRUCTION DETAILS
LOCATION OF CONTAMINATED MATERIAL
SCALE: 1" = 50'

C-13

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT

PROJECT ENGINEER WILFREDO M. SULAY

CALCULATED/ DESIGNED BY | CHECKED BY

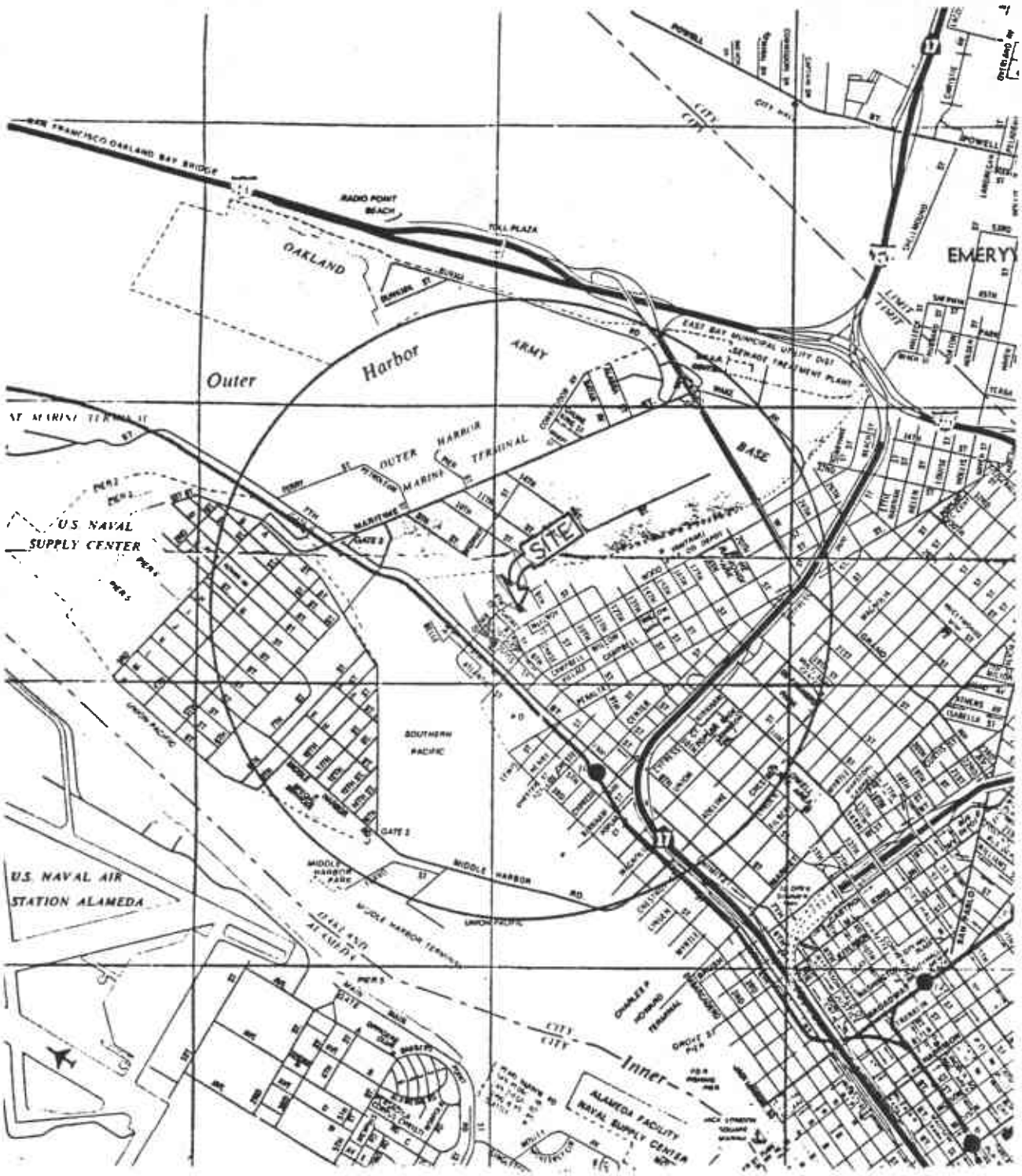
DATE | REVISED BY | DATE REVISED

PROJECT ENGINEER WILFREDO M. SULAY

CALCULATED/ DESIGNED BY | CHECKED BY

DATE | REVISED BY | DATE REVISED

Caltrans PROJECT DEVELOPMENT



BASE MAP REFERENCE

CALIFORNIA STATE AAA,
OAKLAND BERKLEY ALAMEDA MAP,
REVISED 1-85.

SCALE
0 0.25 0.5
MILES

ON-SITE TECHNOLOGIES

REVISED	
4/93	
A	357-7.1
JA	

SITE LOCATION & VICINITY MAP
PHOENIX 800 (APN 06-47-1)
800 CEDAR STREET
OAKLAND, CALIFORNIA

FIGURE 2.1.10
PROJECT No. 357-7.1