90P0321/PRP

Woodward-Clyde Consultants

PROPOSAL FOR

SITE CHARACTERIZATION STUDY

187 NORTH L STREET

LIVERMORE, CALIFORNIA

Submitted to:

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PROPOSAL FOR SITE CHARACTERIZATION STUDY
187 NORTH L STREET, LIVERMORE, CALIFORNIA

INTRODUCTION

The site at 187 North L Street is currently used by Arrow Rentals for an equipment rental business. This site was a Mobile Gas Station for many years prior to 1972 when Arrow Rentals purchased the property. In 1972 there were five underground fuel storage tanks remaining from the previous gas station operation. Three of the tanks were removed because they failed leak detection tests. The two remaining tanks, a 6,000 gallon and a 4,000 gallon tank, remained in use until they were removed in 1984. A new 1,000 gallon underground tank was installed, under permit from the Livermore Fire Department, in 1984. That tank is currently in use for storage of gasoline for the Arrow Rentals operations. Several years ago about 600 gallons of gasoline was poured down a vapor monitoring well next to the 1,000 gallon tank by the operator of the fuel delivery truck.

The City of Livermore Redevelopment Agency performed soil and groundwater exploration and testing for evidence of contamination on this property as part of the process of purchase of the entire block for redevelopment. Those studies detected petroleum contamination in soil and groundwater under the site. That information was reported to Arrow Rentals and to the Alameda County Department of Environmental Health. The Redevelopment Agency has requested that Arrow Rentals perform additional site characterization, as requested by Alameda County, prior to purchase of the site. Arrow Rentals wishes to retain a consultant to perform the site characterization studies, with an added scope of work directed towards identifying the source and approximate time of release of fuel so that the responsible party(ies) can be identified. The scope of work is intended to address the issue of identifying the responsible party(ies), and characterizing the site.

WOODWARD-CLYDE EXPERIENCE AND QUALIFICATIONS

Woodward-Clyde Consultants has over 40 years experience providing engineering consultation in the San Francisco Bay Area. For the past 20 years WCC has provided environmental consultation ranging from Environmental Impact Reports to soil and groundwater contamination studies. These studies have included hundreds of sites with petroleum contamination similar to that at this site. As part of a Bay Area wide project WCC has performed site exploration, contamination characterization, and development and/or implementation of site remediation for numerous of gas station sites. In addition WCC has performed extensive site characterization studies of several major oil refineries in the Bay Area, resulting in installation of groundwater remediation systems.

Staff available from our Oakland office include more than 200 professionals. These include geotechnical, civil, chemical, and environmental engineers, hydrologists, engineering geologists, biologists, ecologists, air quality scientists, and groundwater scientists. These professionals are experienced in developing remediation plans, constructing remediation facilities, and obtaining permits for air, and water discharge from the regulatory agencies. The project personnel have been selected to meet the anticipated needs of this project.

PROJECT PERSONNEL

The proposed project organization is shown in Figure 1. The experience and qualifications of those project personnel are described below.

Responsible Professional, Patrick C. Lucia, Ph.D., P.E., G.E. A Principal in the Oakland office of WCC, Dr. Lucia is registered as both a Civil and Geotechnical Engineer in California. Dr. Lucia has extensive experience in directing site contamination characterization studies. As the manager of the Waste Management Group in the Oakland office, he is responsible for the

technical and professional aspects of the services of waste management, site remediation, and permitting, provided by the Group. Dr. Lucia will be responsible for the overall technical quality of the work performed, and for seeing that the project is performed within the project schedule and budget.

Project Manager, Albert P. Ridley, C.E.G. Mr. Albert P. Ridley will be the project manager for this project. Mr. Ridley is a Certified Engineering Geologist in California with more than 20 years experience performing multidisciplinary investigations in the San Francisco Bay Area. He has directed soil and groundwater contamination investigation studies at a major refinery in the Bay Area. He has directed soil and groundwater studies of former gas station sites that have resulted in site remediation. His experience also includes directing closure of hazardous waste impoundments, and remedial activities at a former pipe galvanizing mill. Most of these studies involved permitting and response to regulatory requirements and to orders from regulatory staff. Mr. Ridley has direct experience at the site and has also met with the Alameda County Health Department Staff regarding this site.

Site Exploration Task Leader, John McMillan, Ph.D., P.E. Dr. McMillan will be Site Exploration Task Leader. Dr. McMillan is a Registered Civil Engineer in California with seven years experience directing soil and groundwater contamination studies. He has been responsible for characterization of a fuel tank leak at the Liberty Union High School, in Brentwood, California. He was responsible for the design and installation of a groundwater extraction and treatment system. That system is currently in operation and is effectively extracting petroleum contamination from the groundwater under the site. He also has designed groundwater extraction and treatment system for gas station sites in the San Francisco Bay Area.

Petroleum Source Task Leader, Brian Andresen, Ph.D. Dr. Brian Andresen will be the task Leader for evaluation of the source(s) of petroleum contamination at the site. He will be responsible for selection of the appropriate laboratory tests of soil, water and fuel sources. Dr. Andresen is a chemist with extensive experience with mass spectrometry, and gas chromatography. He is currently a chemist at Lawrence Livermore Laboratory. However, he provides consultation in the fields of chemistry and petroleum contamination. He has extensive consulting experience in the field of petroleum contamination with expertise in fuel fingerprinting and characterization. Dr. Andresen has presented training seminars in Underground Storage Tanks to the Association of Bay Area Governments, and to the State Water Resources Control Board at three California locations.

Technical Staff WCC staff available in our Oakland office include chemical, sanitary, geotechnical, and civil engineers, geologists, hydrologists and chemists. These might include Ms. Lois Gruenberg, staff engineer who is highly experienced in monitoring well installation and groundwater sampling. Mr. Daniel Baden, assistant project geologist, will also be available to assist with coordination of field exploration and site sampling.

As noted above, we propose to retain Dr. Brain Andresen as a subconsultant for this project. At the recommendation of Dr. Andresen we propose to utilize the laboratory services of TMA/Norcal, in Richmond, California. Dr. Andresen has utilized the services of TMA/Norcal for fuel fingerprinting and petroleum analyses for a number of past projects. TMA/Norcal is a State of California approved commercial analytical laboratory with full GC/MS capabilities.

Tracer Research corporation will perform the soil gas survey at the site. Tracer Research will provide a portable field laboratory to perform analyses of collected gases on-site. The results of soil gas analyses will be presented in drawings showing contours of concentration.

An independent drilling contractor will be hired to perform the drilling and well installation. We anticipate subcontracting the drilling work to either DATUM drilling company, Pittsburg, California, or Kvilhaug Drilling Company, Concord, California. Each of these drilling contractors is a licensed well drilling contractor. Both of these contractors have provided exploration services to WCC over a period of several years.

SCOPE OF WORK

WCC proposes to perform the work in accordance with the Site Characterization Work Plan attached to the clients Request For Quotation dated April 27, 1990. The detailed description of requested supplemental work is described below.

Health and Safety Plan. Prior to beginning field exploration at this site a Health and Safety plan will be prepared. The Health and Safety Plan will describe the potential health risks to workers performing the planned tasks at the site. It will describe the required training and protective equipment and clothing needed to perform work at the site. Field safety monitoring equipment, such as an organic vapor analyser, will be used during field operations to detect organic vapors during drilling, and water sampling. An existing Health and Safety Plan is available from the previous site exploration. That plan will be modified based upon the planned off-site work that is planned, and the soil gas survey work planned at the site. WCC field personnel that will perform site sampling or exploration work will be required to have completed the required 40 hours of OSHA training for hazardous waste work. The certificates of personnel that are likely to work in the field are enclosed in Appendix B. WCC has established a program of Health and Safety Training under the direction of Mr. Eric Masamori, our Industrial Hygienist. Mr. Masamori routinely presents the 40 hour training programs for WCC personnel as part of our in-house program of Health and Safety Training. The documentation of this training for each proposed site worker will be provided to Arrow Rentals prior to beginning this project, along with a copy of the Health and Safety Plan.

Quality Assurance/Quality Control Plan. A quality assurance/quality control plan will be prepared and submitted to Arrow Rentals for review by their consultant, SAIC, prior to beginning this work. The objective of the plan is to provide data of sufficient quality to evaluate the results of laboratory tests of samples from the Arrow Rentals property. The sample collection methods will be consistent with regulatory approved sample collection methods. The WCC staff will consist of personnel experienced in sampling of petroleum contaminated soil and water. The subcontracted laboratory will be selected based on their experience in performance of the required analytical methods.

A brief description of the QC procedures to be followed by field personnel and office staff are described below.

1) Precision. Sampling precision for liquid samples (groundwater, and stored fuel) will be assessed through the use of field duplicates. Considering that about 8 groundwater monitoring wells will be sampled, at least one field duplicate will be collected for each type of laboratory analysis. The duplicate will be submitted to the laboratory unidentified as a duplicate (blind duplicate). Sampling precision for soil samples will be assessed through the analysis of split samples. Two soil cores will be selected from one drive for analysis. Duplicates will be selected at a ratio of about one per 10 soil samples.

2) Contamination. The degree of contamination for water samples will be assessed through the use of blanks. Blanks will consist of reagent grade water which will be treated as a sample. At least one field blank will be prepared by transfer of the reagent grade water from a bailer to the sample container in the field to measure equipment contamination, method contamination, and handling. At least one trip blank will be prepared in the laboratory and will travel to the site with the sample containers.

3) Analytical Laboratory. The analytical laboratory selected will be required to provide method-specific QC documentation to assess data accuracy, precision, completeness, and freedom from interference. TMA/Norcal has been selected to perform this laboratory work based upon their ability to perform the testing and our experience with their QC procedures.

4) Packaging and Handling. Packaging and handling procedures will include careful labeling and wrapping of the samples and placing them on ice in an ice chest to provide for arrival of the samples at the laboratory in suitable condition. Chain-of-Custody procedures will be used to document the transport of samples to the laboratory.

5) Data Review. Laboratory data will be reviewed along with QC documents from the laboratory. This information will be reviewed to assess the overall quality of the data.

Decontamination Methods. Prior to drilling each well the augers and sampling rods and equipment will be steam cleaned to reduce the potential for cross contamination. Prior to collecting each soil sample the drive sampler and brass liners will be washed in a solution of water and Alconox detergent. The sampler will then be washed with clean tap water, and then washed with deionized water. This washing procedure will also be used for the bailer used to sample water from the wells, or used to bail water during well development. If a small pump is used to develop the wells it will also be washed prior to use in each well. Sampling of the fuel from the existing storage tank will not required special equipment. Fuel will be pumped through the fill nozzle into a suitable sample container from the laboratory. The sample will be placed on ice in an ice chest for transport to the laboratory.

Task 1 - Alternate Source Evaluation

The work will be performed in accordance with the work plan. Where deviations from the plan or details of the proposed work are needed they are described below.

Subtask 1a - The location of existing underground fuel piping will be investigated using a portable pipe locator. The pipe location will be marked on the pavement with small paint marks. The pipe will be exposed using either a small backhoe or portable jackhammer to cut through the pavement. Hand tools will be used near the pipe to reduce the potential for damage to the pipe. A trench will be excavated about 2 feet wide following the pipeline. Soil samples will be collected in clean brass liners. The ends of the liners will be sealed with teflon sheets and plastic end caps, and will be labeled and placed in an ice chest. An organic vapor analyser will be used to test the exposed soil in the trench for the presence of organic vapors. Possible leaks will be noted and the condition of the pipe will be photographed. The trench will be backfilled with clean gravel and will be properly compacted. The surface of the trench will be paved with 6 inches of concrete, or with asphaltic concrete. If excavated soil from the trench is contaminated with gasoline, the soil will be aerated on-site, then removed to a Class III Landfill. Up to 6 cubic yards of gasoline contaminated soil will be removed. The removed pipeline will be stored at the WCC laboratory

Subtask 1b - The precision integrity test will not be performed, since it has recently been performed for Arrow Rentals and the information is available.

Subtask 1c - The soil vapor study will be performed by Tracer Research Corporation. Tracer Research will bring a portable laboratory to the site and perform about two days of laboratory testing of soil gas. A grid of small diameter pipes will be driven into the soil to a depth of about 5 to

10 feet. A small hole will need to be drilled with a portable jack hammer or concrete drill at these locations. Soil gas will be extracted with a portable vacuum pump and will be contained in Tedlar bags for analysis in the laboratory. Tracer Research will provide contour maps of the concentrations of detected contaminants, along with laboratory test results. The locations of grid points will be discussed with Arrow Rentals, and will be removed after the sampling is complete. The grid points will cover the existing tank, the former tanks, and the former pump island, and as much adjacent area as possible within the restraints.

Task 2 - Exploratory Borings and Groundwater Monitoring Wells

Based upon the site visit it appears that the two downgradient wells will need to be located off the railroad property, since it is not likely that the railroad will grant permission to drill on their property within the project schedule. North M Street is a possible location for one of these wells (W-E). It may be possible to drill the second downgradient well (W-D) on the downgradient side of the railroad property, in the back yard of one of the adjacent residences. Every effort should be made to locate W-D within several hundred feet downgradient of W-B. Considering the importance of the upgradient groundwater quality, every effort will also be made to locate well W-C directly upgradient of the existing 1,000 gallon tank. The upgradient well might be located in the pavement of North L Street. Every effort will be made to minimize the impact of drilling on the operations of Arrow Rentals.

Task 3 Groundwater Sampling

Groundwater sampling will be performed in accordance with the work plan. Decontamination methods have been described above. As noted at the pre-bid meeting the groundwater sampling will include each new well and each existing well.

Task 4 - Laboratory Analysis

Laboratory analyses will be performed by TMA/Norcal as directed by Dr. Andresen. The number of tests of soil samples will be approximately as outlined in the work plan. However, we anticipate performing several additional fuel fingerprint tests on soil from under the fuel lines if leaks are detected. In addition, since this is essentially a site exploration project it will be difficult to predict what will be found. Therefore, soil samples not tested should be held at the laboratory for the allowable holding time to provide for possible additional supplemental testing. Field exploration results may also suggest that some additional tests be performed to evaluate organic vapors detected during drilling.

Article XI of the agreement is superceded by this work scope. These samples collected during this study will be retained by WCC for 1 year. These samples will not be disposed of by WCC before that time unless mutually agreed upon in writing.

Task 5 Aquifer tests

The method of performing slug tests in wells at the site will be selected after well development. Wells that do not recover quickly from bailing may not be suitable for removing a volume of water, but would be better suited for addition of a volume of water.

Task 6 - Analysis and Report Preparation

Fifteen copies of the report will be submitted to Arrow Rentals. A draft of the report will first be submitted for review by SAIC, the consultant to Arrow Rentals.

PROJECT SCHEDULE

We estimate that this project can be completed within three months. If desired, the time required to complete this project could be reduced. Laboratory testing could be performed on a rapid turnaround basis at an increased cost, which would result in a reduction of several weeks in project time.

INSURANCE

WCC maintains insurance coverage sufficient for performance of this type of work. General liability, and professional liability coverage with a limit of $1,000,000 is maintained. Automobile, and worker compensation insurance coverage is also maintained. Certificates of insurance will be provided to the client prior to beginning work at the site.

ESTIMATED COSTS

We estimate that the proposed scope of work can be completed at a cost of about $44,596. The detailed cost estimate showing the estimated personnel hours and subcontractor costs are shown in Table 1. In response to item 4 of the supplement to the work plan, the project costs can be reduced by about $2,400 if the outside contractor costs are paid directly by the client. The 10 percent mark up shown in Table 1 would then be subtracted from the project budget.

All charges will be in accordance with our current schedule of charges, Attachment 1. The total project cost will not be exceeded without your written authorization. Additional authorized work will be based upon hourly rates and unit costs. Modification and substitution of work items can be made, if mutually agreed upon in writing.

AUTHORIZATION

If you are in agreement with this proposal and wish WCC to proceed, please return one signed copy of the agreement with initialled pages. Please initial the appropriate line on Table 1 to indicate if you wish to either; pay outside costs directly, or include the outside costs in the WCC charges.

Table 1
ESTIMATED PROJECT COSTS
SITE CHARACTERIZATION
187 NORTH L STREET
Livermore, California

Woodward-Clyde Consultants

TASK	DESCRIPTION	ESTIMATED COST	
	Personnel Rate Hrs.	WCC	OUTSIDE
1	Alternate Source Evaluation		
1a	Piping Evaluation		
	Staff $75/hr x 8 hrs	$ 600	
	Excavation Equipment		$ 300
	Vehical $7/hr x hrs	56	
	OVA 1 day/x $75/day	75	
1b	Integrity Test		
		-0-	-0-
1c	Soil Vapor Study		
	Staff 75/hr x 16 hrs	$1,200	
	Excavation Equipment		$ 150
	Vehicle $7/hr x 16 hrs	$ 112	
	Tracer Research Corp. 2500/day x 2 days		5,000
	Tracer Research Plan Preparation $80/hr x 8rs		640
	Subtotals	$2,043	$6,090
2	Exploratory Borings and Wells		
	Staff $75/hr x 56 hrs	$4,200	
	Vehicle $7/hr x 40 hrs	280	
	Drill Rig $105/hr x 40 hrs		$4,200
	Well Materials		900
	OVA 1 week	$ 250	
	Subtotals	$4,730	$5,100
3	Groundwater Sampling	WCC	Outside
	Staff $75/hr x 24	1,800	
	Sr. Staff $80/ hr x 16	1,280	
	Equipment	250	
	Vehicle $7/hr x 16	112	0
	Subtotals	$ 3,442	-0-

Table 1
(Continued)

Woodward-Clyde Consultants

4 Laboratory Analysis

Consultant $100/hr x 16 hrs		$ 1,600
TPH, BTEX (Low B.P) $125/ea x 40	5,000	
Organic Lead, $70/ea x 10		700
Fuel Fingerprint $125/ea x 20	-0-	2,500
Subtotals	$ -0-	$ 9,800

5 Aquifer Tests

Staff $75/hr x 16 hrs	$ 1,200	
Sr. Staff $80/hr x 16 hrs	$ 1,280	
Vehicle $7/hr x 16 hrs	$ 112	
Equipment	$ 180	-0-
	$ 2,772	$ -0-

6 Analysis and Report

Staff 75/hr x 32 hrs	$ 2,400	
Sr. Consultant $140/hr x 8 hrs	1,120	
Graphics $55/hr x 16 hrs	880	
Typing $50/hr x 8 hrs	400	
Consultant $100/hr x 32 hrs		$ 3,200
Reproduction $50/hr x 4 hrs	200	
Subtotals	$ 5,000	$ 3,200

PROJECT TOTALS	$17,987		$24,190
		+10%	2,419
TOTAL	$44,596		$26,609

WCC Initials: DA

Project total $44,596, outside costs paid by WCC
Client Initials: RS

Project total $42,177, outside costs paid by client
Client Initials: _____

APPENDIX A

Proposed Work Plan
For Characterization of
Petroleum Contamination
187 North L Street, Livermore, California,
Supplement to the Proposed Work Plan

SUPPLEMENT TO THE PROPOSED WORK PLAN

1. Ongoing Business Operations

All activities will be conducted in a manner that will allow for the continued operation of the onsite business (Arrow Rentals). Owner should be consulted regarding equipment configuration and impacts upon business operation prior to commencement of various subtasks. Owner will be able to move his rental equipment in and out of the site through the back property fence when blockage from testing activity in the vicinity of W-A well (see Figure 1) becomes necessary.

2. Amendments to Work Plan

a. Subtask 1b (Precision test of tank) shall be eliminated. A precision test on the 1,000-gallon underground storage tank was recently performed. The test results indicate no leakage.

b. After Task 4 add:

> "An appropriate quality assurance/quality control program will be planned and followed."

3. Prior Testing

Phase 1, 2 and 3 testing reports for the site were completed by Woodward-Clyde Consultants and are being provided for your information. Please return Phase I, II and III Site Environmental Assessments with your quotation.

4. Project Budget

If the bidder's quotation for the Proposed Work Plan exceeds $42,000.00, then please include suggestions for reduction in cost. If the bidder's quotation for the Proposed Work is less than $42,000.00, then please include suggestions for appropriate enhancements to the Work Plan.

5. **Report Preparation**

For Task 6 -- Analysis and Report Preparation, please identify how many hours, what personnel categories and what personnel rates are the basis of the not to exceed bid.

6. **Extra Work**

Any extra work will be performed at the personnel rates and unit costs used for the base bid.

7. **Insurance**

Bidders shall identify the insurance coverages which will be applicable to this job.

8. **Number of Copies**
The Contractor shall supply fifteen (15) copies of the draft and final reports.

WCC Initials: PM

Client Initials: RS

PROPOSED WORK PLAN
FOR
CHARACTERIZATION OF PETROLEUM CONTAMINATION
187 NORTH L STREET, LIVERMORE, CALIFORNIA

INTRODUCTION

Previous exploration at this site has detected petroleum product contamination in soil and groundwater at the site (WCC, 1989A, 1989B). As a result of review of that information the Alameda County Hazardous Materials Division of the Department of Environmental Health (letter dated July 25, 1989) has requested that additional site studies be performed and that a work plan for site remediation be submitted to the County for their review.

The previous site exploration detected petroleum in soil in the vicinity of former underground fuel storage tanks from a depth of about 15 feet to the depth of the groundwater table at about 45 feet. Groundwater samples from three 50 to 55 foot deep groundwater monitoring wells installed at the site detected the highest concentration of petroleum products in water from well W-1 located near two former underground fuel storage tanks. Those wells were screened from depths of about 40 to 55 feet. However, well W-1 is also located in the approximate downgradient direction from an existing 1,000 gallon underground gasoline storage tank. It has been reported by Mr. Tony Sullins that during delivery of gasoline several years ago that an unknown quantity (estimated 600 gallons) of gasoline was poured down one of the two vapor monitoring wells near that tank. In addition, since no upgradient groundwater data is available other possible upgradient sources of groundwater contamination were not evaluated.

The purpose of the proposed site exploration work is to develop sufficient soil and groundwater information to form the basis for development of a Site Remediation Plan, as requested in the July 25, 1989 letter from Alameda County. Also, the site exploration and laboratory testing will be intended to evaluate the possible relative contribution of petroleum contamination from the former underground tanks, and the reported release into the vapor monitoring well, or an upgradient source.

SCOPE OF WORK

Task 1 - Alternate Source Evaluation

This task will be directed towards evaluation of possible alternative sources of petroleum contamination on-site. This task will include soil exploration along piping from the former tanks, a precision integrity test of the existing fuel tank, and a soil vapor survey around the existing fuel tank.

Subtask 1a - The existence and pathway of the piping connecting the former tanks with the pump island will be evaluated using an underground line locating equipment. If the piping is located it will be excavated and removed and disposed of properly. If the piping is located, or it's former pathway found, soil samples will be taken approximately every 20 linear feet with footage adjustments made to locate sampling at pipe joints and junctures. Samples will be taken from undisturbed material. Collection, storage and transportation techniques will be as described under Task 2. Samples will be analyzed for gasoline and BTX&E using EPA Method 8020/8015 and diesel using EPA Method 3550/8015. In addition, soil samples taken from pipe joints and junctures will be fingerprinted and analyzed for organic lead, as discussed under Task 4.

Subtask 1b - A precision integrity test will be performed on the existing 1,000 gallon underground gasoline storage tank. The purpose of this test is to evaluate if the tank is leaking, and could be a source of petroleum contamination.

Subtask 1c - A soil vapor study will be performed around the existing 1,000 gallon underground gasoline storage tank. This study will consist of driving temporary probes into the soil at selected points and extracting soil vapors. The probes will be installed immediately adjacent to the tank, in the backfill, and at points on a grid extending north and west across the site. About 15 sample points will be used. A portable laboratory will be used to analyse the sampled soil gas at the site. Soil gas will be analysed for TPH as gasoline, with BTEX, using EPA method 8020/8015.

Task 2 - Exploratory Borings and Groundwater Monitoring Wells

A total of six exploratory borings will be drilled to investigate the extent of petroleum contamination in the vicinity of the site. Three exploratory borings will be drilled on the 187 North L Street site, and three borings will be located off site. See Figure 1 as a reference to the location of existing and proposed borings and wells.

One exploratory boring B-A will be drilled in the vicinity of the vapor monitoring well near the 1,000 gallon gasoline storage tank that is the reported location of a past gasoline spill. The boring will be drilled into the tank's backfill at a point intended to be the optimal location for detecting residual gasoline, if present. The selection will be made based on the facts of the spill incident and the flow dynamics of gasoline in the tank excavation. That boring will be drilled using hollow stem auger methods. Soil samples will be collected with a drive sampler from the backfill adjacent to the tank, and at 5 foot depth intervals to the depth of groundwater which is at about 45 feet. Soil samples will be retained in clean brass tubes, and will be sealed with plastic end caps, labeled and placed in an ice chest. The soil samples will be transported to a state approved commercial analytical laboratory using chain-of-custody procedures. During drilling an organic vapor analyser will be used to perform field evaluations of the presence of organic vapors in the soil

from the boring. The location of samples, geologic materials, and moisture conditions will be recorded on a log by a geologist or engineer during drilling. The boring will be backfilled with a cement/bentonite slurry at the completion of drilling.

Two groundwater monitoring wells W-A and W-B will be installed on the site. Both of these wells will be constructed using 4 inch diameter PVC well casing, to allow for the possible use of these wells as groundwater extraction wells. One well (W-A) will be located downgradient of the 1,000 gallon gasoline tank, and well (W-B) will be located near the north property line downgradient of well W-1. These wells will be drilled after the flow direction has been evaluated more accurately using data from the three in-place and ~~three~~ proposed offsite monitoring wells. The wells will be constructed using 12 inch diameter hollow stem augers. Soil samples will be collected at 5 foot depth intervals as described above for boring samples. The wells will be drilled to depths of about 60 feet to explore the depth of the shallow water bearing layer. Previous exploration has encountered a clay layer at 55 feet in well W-1 and a clayey gravel at 50 feet in well W-3. If a clay layer is encountered that could form an aquitard, the portion of the boring drilled into the clay layer will be backfilled with bentonite pellets. The well will be constructed by placing a screened section from the top of that clay layer, if found, to about 5 feet above the top of groundwater. The annulus around the casing will be filled with appropriately sized sand filter materials to a point about 2 feet above the screened interval. About 2 feet of bentonite pellets will be placed above the sand filter as shown in Figure 2. A cement/bentonite slurry will be placed in the annulus from the top of the bentonite to the surface. The on-site wells will be completed below grade, then covered with a meter box. A plastic cap will be placed over the casing and a locking cover will be placed over the cap for security.

WCC Initials
Client Initials

Three off-site wells will be drilled as approximately shown on Figure 3. One well (W-C) will be drilled upgradient (southeast) of the 1,000 gallon

underground gasoline tank, and two wells (W-D, W-E) will be drilled downgradient of the site. The upgradient well (W-C) will either be located on the property immediately south of the 187 North L Street Property, or within L Street, depending upon the location of utilities and site access. The upgradient well (W-C) will be constructed using 8 inch diameter hollow stem augers, and will be constructed using 2 inch diameter PVC well casing. Soil samples will be collected at 5 foot depth intervals as described above. The well will be about 60 feet deep, and will have a screened section and construction as described above. An effort will be made to locate the two downgradient off-site wells within about 150 feet of the north property line of the site. One well (W-D) will be located downgradient of well W-1 and the second well (W-E) will be located downgradient of well W-3. If permission to drill on the Western Pacific Railroad property cannot be obtained, then the wells could be located in the M Street right of way, or the property north of the railroad property. Both downgradient wells will be constructed using 2 inch diameter will casing as described above. Every effort will be made to explore for the possible presence of a clay aquitard beneath the shallow water bearing zone, and to avoid penetration of such a clay layer. The off-site wells will either be constructed with an above grade locking cover, or a below grade locking cover and meter box, as is appropriate.

Soil cuttings from drilling will be placed in 55-gallon barrels and stored temporarily at the site. Following a review of the laboratory test results of soil samples, the contaminated soil will be disposed of at an appropriate waste disposal facility. Uncontaminated soil may be disposed of at the site.

Task 3-Groundwater Sampling

Each groundwater monitoring well will be developed by bailing or pumping until the extracted water is relatively free of sediment. The extracted water will be placed in 55-gallon drums for temporary storage, and later

proper disposal. The wells will be allowed to stabilize and after about 24 hours the stabilized groundwater levels will be measured. The elevations of the top of the well casings and the locations of the wells will be surveyed to form the basis for evaluating groundwater gradients. Prior to sampling each well, existing and new wells about 3 to 5 casing volumes of water will be removed from the well by bailing and stored in drums until proper disposal. Temperature, pH, and conductivity will be measured during bailing to see that a representative groundwater sample is collected. A groundwater sample will be collected from each well using a clean clear bailer. The sample will be inspected for the presence of floating petroleum product. The groundwater sample will be placed in clean containers provided by the laboratory. Care will be taken to pour the water carefully into the containers to minimize air bubbles, which may affect laboratory results. The sample containers will be labeled and placed on ice in an ice chest for transport to the laboratory under chain of custody procedures.

WCC Initials

Client Initials: RS

Task 4 - Laboratory Analysis

About 40 soil samples will be analysed for Total Petroleum Hydrocarbons (TPH) as gasoline (low boiling point) and benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 8020/8015 modified. About 8 samples from each of the on site boring and on site wells, and the upgradient wells will be tested for TPH and BTEX using EPA 8020/8015 modified. Each of these soil samples will also be tested for organic lead by AA using graphite furnace, using EPA Method 1510. Two soil samples from the on site boring and from the well downgradient of the 1,000 gallon tank will be tested for fuel fingerprints. A fuel fingerprint and a test for organic lead will be performed on a sample of fuel from the 1,000 gallon tank. About 12 soil samples will be tested for TPH as diesel (high boiling point) using EPA method 3550/8015 modified. These results will be compared to a diesel standard in an effort to establish whether diesel is present or if the detected petroleum is aged gasoline, and its approximate age.

One groundwater sample from each well will be tested for TPH as gasoline, with BTEX using EPA method 8020/8015. One water sample from each well will also be tested for TPH as diesel using EPA 8015. An initial fuel fingerprint will be performed using capillary gas chromatography for a water sample from each well in an effort to characterize the age and source of petroleum. If judged to provide useful information additional fuel fingerprinting will be performed using GC/MS methods. Each groundwater sample will also be tested for organic lead, 2-methylnaphthalene, 2-naphthalene, and phenol.

Task 5 - Aquifer Tests

The hydraulic characteristics of the water bearing zone in the immediate vicinity of two wells will be evaluated by performing slug tests in the two on-site 4 inch diameter wells (W-A and W-B) and two additional wells to be selected following drilling. This may be accomplished by inserting a pressure transducer into the well, or some other water level measurement method, and then either rapidly introducing or removing a volume of water (or a solid slug) and measuring the elevation changes as the water level recovers with time. This method can be used to evaluate the conductivity of the water bearing zone that is screened by the well. This data can be used to evaluate the effectiveness of the two 4 inch wells as groundwater extraction wells.

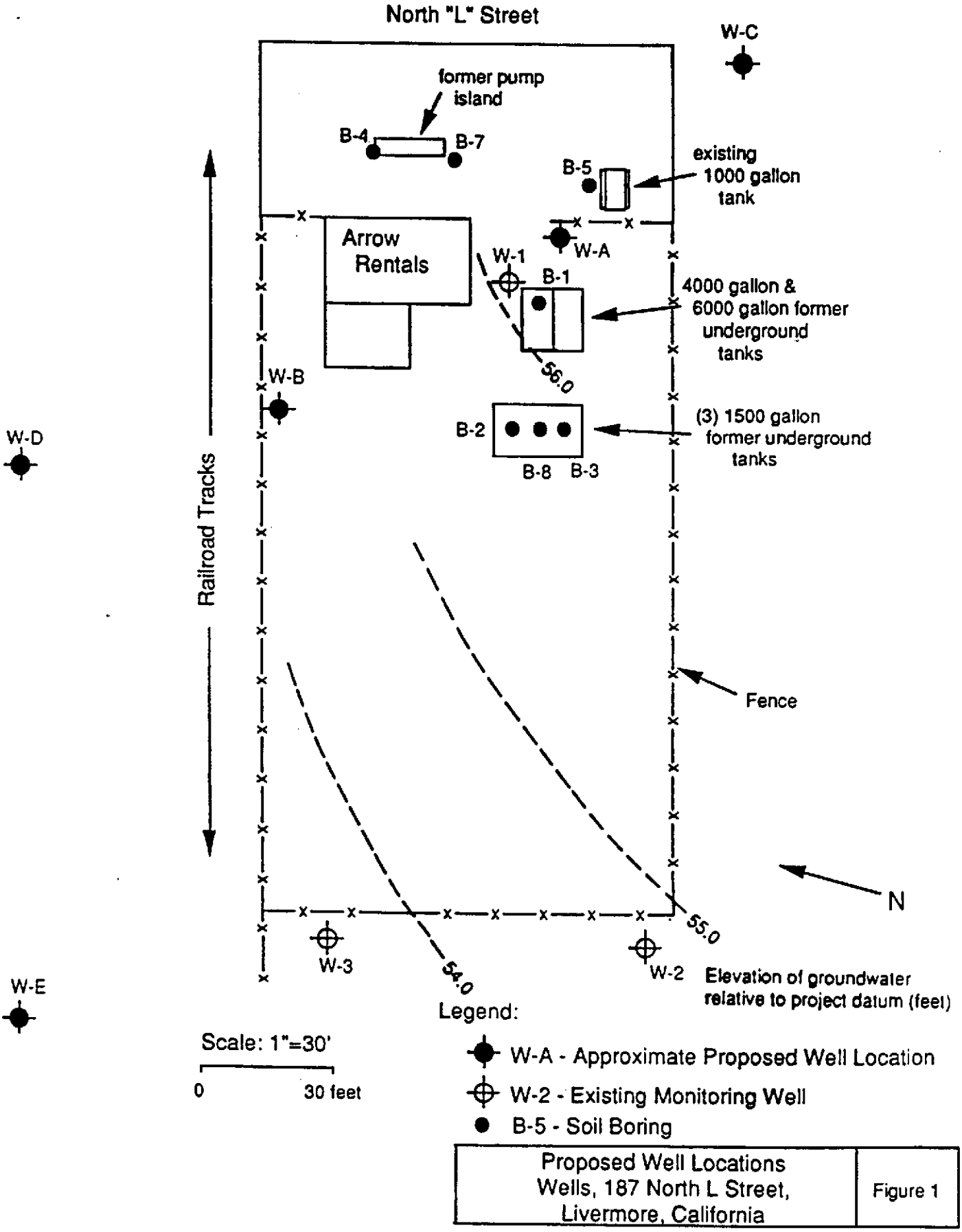
Task 6 - Analysis and Report Preparation

The information developed in tasks 1 through 4 will be analysed and compared to data from the previous site exploration. A report will be prepared describing the results of the site exploration. The report will contain an evaluation of the extent of soil and groundwater contamination, and an evaluation of the source(s) of petroleum contamination. An effort will be made to characterize the sources of contamination by evaluation of fuel fingerprints, relative age dates and organic lead analyses. The

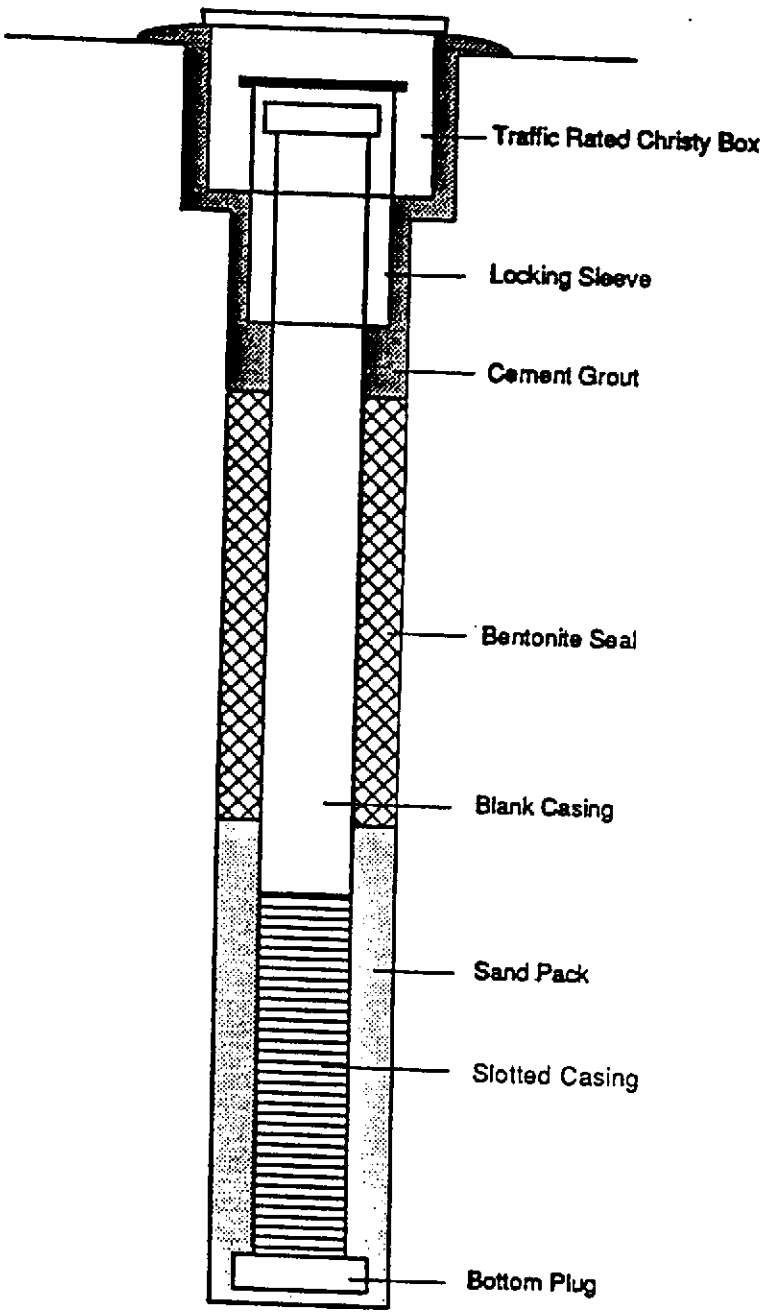
upgradient groundwater data will be reviewed to evaluate possible upgradient sources. If data permits, the relative contribution of the reported gasoline spill in the vapor well will be compared to the contributions from other possible sources of contamination. The report will contain an assessment of the possible remedial measures for soil and groundwater contamination, with general recommendations for the type of remedial actions that would be appropriate for this site.

ESTIMATED SCHEDULE

It is anticipated that about one month may be required to obtain permission to drill the off-site wells. The drilling program will require about three weeks to complete. Groundwater sampling, slug tests, and well surveys will require about another two weeks. Laboratory tests may require about three weeks to complete. It is anticipated that the report will be available in draft form about three weeks after the laboratory results are available. After review by the client, the report can be finalized and made available for submittal to the agencies. A total of about 12 weeks will be required for this scope of work.

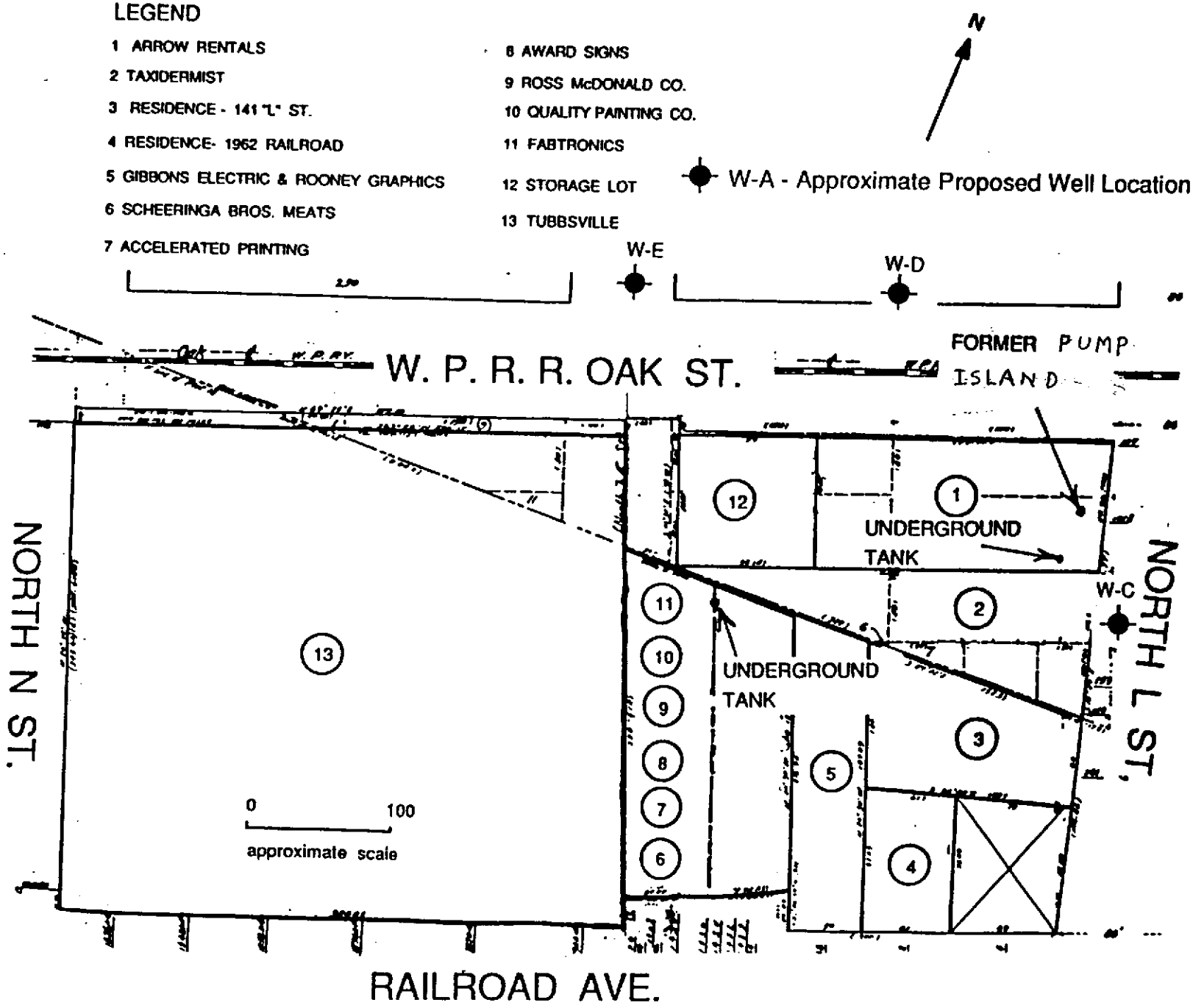


Proposed Well Locations Wells, 187 North L Street, Livermore, California	Figure 1



No Scale

Figure 2 TYPICAL MONITORING WELL CONSTRUCTION DETAILS



APPROXIMATE OFF SITE WELL LOCATIONS

FIGURE 3

AGREEMENT FOR PROFESSIONAL SERVICES

(Hereinafter "Agreement")

BETWEEN

[signature]

(Hereinafter "Client")

187 NORTH L STREET

(Street or Post Office Box)

LIVERMORE, CA. 94550

(City, State and Zip Code)

AND

WOODWARD-CLYDE CONSULTANTS

(Hereinafter "WCC")

500 - 12th Street, Suite 100

(Street or Post Office Box)

Oakland, CA 94607-4014

(City, State and Zip Code)

DATE OF AGREEMENT: May 21, 1990

AGREEMENT NUMBER: 90P0321

The parties agree as follows:

ARTICLE I

SCOPE OF SERVICES, ESTIMATED TIME SCHEDULE, AND ESTIMATED CHARGES

The Scope of Services (hereinafter "Services"), the Estimated Time Schedule and the Estimated Charges are to be set forth in a written Addendum or Addenda to this Agreement. The terms and conditions of this Agreement shall apply to each Addendum, except to the extent expressly modified by the Addendum. Where charges are "not to exceed" a specified sum, WCC shall notify Client before such sum is exceeded and shall not continue to provide the Services beyond such sum unless Client authorizes an increase in the sum. If a "not to exceed" sum is broken down into budgets for specific tasks, the task budget may be exceeded without Client authorization as long as the total sum is not exceeded.

ARTICLE II

METHOD OF CHARGING AND PAYMENT CONDITIONS

Unless otherwise stated in the Addendum, the method of charging for the Services shall be on a time and materials basis and shall be based on the Schedule of Fees and Charges in effect when the Services are performed. The current Schedule of Fees and Charges is shown in Attachment 1. WCC periodically shall submit invoices to Client. Client shall pay each invoice within thirty (30) days of the date of the invoice. However, if Client objects to all or any portion of any invoice, Client shall notify WCC of the objection within fifteen (15) days from date of the invoice, give reasons for the objection, and pay that portion of the invoice not in dispute. Client shall pay an additional charge of one and one-half percent (1½%) of the amount of the invoice per month or the maximum percentage allowed by law, whichever is the lesser, for any payment received by WCC more than thirty (30) days from date of invoice. Payment thereafter shall first be applied to accrued interest and then to the unpaid principal. The additional charge shall not apply to any disputed portion of any invoice resolved in favor of Client. In the event of a legal action brought by WCC against Client for invoice amounts not paid, attorneys' fees, court costs, and other related expenses shall be paid to the prevailing party by the other party.

Client shall compensate WCC for any sales or value-added taxes which apply to the Services rendered under this Agreement or any Addendum thereto. Client shall reimburse WCC for the amount of such taxes in addition to the compensation due for Services.

In addition to the above, if payment of WCC invoices is not maintained on a thirty (30) day current basis, WCC may, by ten (10) days written notice to Client, suspend further performance and withhold any and all data from Client until such invoice payments are restored to a current basis.

ARTICLE III

CONSTRUCTION PROCEDURES

Unless expressly provided in an Addendum (and then only to the extent expressly defined), WCC, except for its own services, shall not specify construction procedures, manage or supervise construction, or implement or be responsible for health and safety procedures; shall not be responsible for the acts or omissions of contractors or other parties on the project; and shall not have control or charge of and shall not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs. In the event WCC, by Addendum, expressly assumes health and safety responsibility for certain concerns such as toxic concerns, the acceptance of such responsibility shall not be deemed an acceptance of responsibility for other health and safety requirements such as those relating to excavating, trenching, drilling and backfilling, unless expressly provided otherwise. WCC testing or inspection of portions of the work of other parties on a project shall not relieve such other parties from their responsibility for performing their work in accordance with applicable plans, specifications and safety requirements.

ARTICLE IV

RECOGNITION OF RISK

Client recognizes that environmental, geologic and geotechnical conditions will often vary from those encountered at the times and locations where data are obtained by WCC, and that the limited data results in uncertainty with respect to the interpretation of these conditions, despite the use of due professional care.

For contaminated waste and chemical projects, Client recognizes the concerns set forth in Attachment 2, entitled "Special Contaminated Waste and Chemical Conditions."

ARTICLE V

PROFESSIONAL RESPONSIBILITY

WCC represents that the Services shall be performed, within the limits prescribed by Client, in a manner consistent with that level of care and skill ordinarily exercised by other professional consultants under similar circumstances at the time the Services are performed. No other representations to Client, express or implied, and no warranty or guarantee is included or intended in this Agreement, or in any report, opinion, document or otherwise.

ARTICLE VI

LIMITATIONS OF LIABILITY

The liability of WCC, its employees, agents and subcontractors (hereinafter for purposes of this Article VI referred to collectively as "WCC"), for Client's claims of loss, injury, death, damage, or expense, including, without limitation, Client's claims of contribution and indemnification with respect to third party claims relating to services rendered or obligations imposed under this Agreement, including all Addenda (hereinafter "Client's Claims"), shall not exceed in the aggregate under this Agreement:

(1) The total sum of $100,000 for Client's Claims arising out of:

(a) any actual or potential environmental pollution or contamination, including, without limitation, any actual or threatened release of toxic, irritant, pollutant, or waste gasses, liquids, or solid materials, or failure to detect or properly evaluate the presence of such substances, except to the extent such release, threatened release or failure to detect or evaluate is caused by WCC's gross negligence or willful misconduct; and

(b) professional negligence, including errors, omissions or other professional acts, and including unintentional breach of contract;

(2) The total sum of $1,000,000 for Client's Claims arising out of negligence, or other causes for which WCC has any legal liability, other than as described in (1)(a) and (b) above.

In no event shall either Client or WCC be liable for consequential damages, including, without limitation, loss of use or loss of profits, incurred by one another or their subsidiaries or successors, regardless of whether such damages are caused by breach of contract, willful misconduct, negligent act or omission, or other wrongful act of either of them.

ARTICLE VII

INDEMNIFICATION

If any claim is brought against Client and/or WCC its employees, agents and subcontractors (hereinafter for purposes of this Article VII referred to collectively as "WCC"), by a third party, relating in any way to services under this Agreement, including all Addenda, the contribution and indemnification rights and obligations of Client and WCC, subject to the limitations of liability under Article VI above, shall be determined as follows:

(1) if any negligence, breach of contract, or willful misconduct of WCC caused any damage, injury or loss claimed by the third party, then WCC and Client shall each indemnify the other against any loss or judgment on a comparative responsibility basis under comparative negligence principles (Client responsibility to include that of its agents, employees and other contractors);

(2) unless WCC was guilty of negligence, breach of contract, or willful misconduct which in whole or in part caused the damage, injury or loss asserted in the third party claim, Client shall indemnify WCC against the claim, liability, loss, legal fees, consulting fees and other costs of defense reasonably incurred;

(3) to the fullest extent permitted by law, Client shall indemnify and hold harmless WCC for all liability arising from the risks described in (1)(a) of Article VI of this Agreement in excess of the limit of liability set forth therein, unless such liability is caused by the gross negligence or willful misconduct of WCC.

ARTICLE VIII

INSURANCE

WCC and Client agree to maintain during the performance of the Services (1) statutory Workers' Compensation coverage; and (2) Comprehensive General and Automobile Liability insurance coverage in the sum of not less than $1,000,000.

ARTICLE IX

RIGHT OF ENTRY

Client grants to WCC, and, if the project site is not owned by Client, warrants that permission has been granted for, a right of entry from time to time by WCC, its employees, agents and subcontractors, upon the project site for the purpose of providing the Services. Client recognizes that the use of investigative equipment and practices may unavoidably alter the existing site conditions and affect the environment in the area being studied.

ARTICLE X

INDEPENDENT CONTRACTOR STATUS AND SUBCONTRACTORS

Unless and only to the extent specifically provided to the contrary, WCC shall be an independent contractor and shall have responsibility for and control over the details and means for providing the Services. WCC can use subcontractors to perform services usually performed by subcontractors. If WCC wishes to use a subcontractor where it is not customary to do so, WCC shall obtain prior written approval or subsequent written confirmation from Client. To the extent that Client insists upon the signing of manifests for the disposal of hazardous substances by WCC's agents or employees, such signing shall be as Client's agent so that WCC will not be considered to be a generator, transporter or disposer of such substances, and Client shall indemnify WCC against any claim or loss resulting from such signing.

ARTICLE XI

SAMPLES, CUTTINGS AND HAZARDOUS SUBSTANCES

WCC shall preserve such soil, rock, water and other samples obtained from the project site as it deems necessary for the project for not longer than forty-five (45) days, unless otherwise legally required, after the issuance of any document that includes the data obtained from those samples, unless other arrangements are mutually agreed upon in writing. At any time, WCC can request in writing that Client remove samples, cuttings and hazardous substances generated by the project from the project site or other location. Client shall promptly comply with such request, and pay and be responsible for the removal and lawful disposal of samples, cuttings and hazardous substances, unless other arrangements are mutually agreed upon in writing.

ARTICLE XII

OWNERSHIP AND MAINTENANCE OF DOCUMENTS

Unless otherwise specified in this Agreement or in an Addendum, and provided that WCC has been fully paid for the Services, Client shall have the right to use the documents, maps, photographs, drawings and specifications resulting from WCC's efforts on the project, for purposes reasonably contemplated by the parties. WCC shall have the right, but shall not be obligated, to retain copies of all such materials and shall have the right to use the same for any purpose, unless such use would be expected to cause harm to Client. Client shall specify in advance, in writing, and be charged for all arrangements for special or extended-period maintenance of such materials by WCC. WCC retains the right of ownership with respect to any patentable concepts or copyrightable materials arising from its Services.

Reuse of any material described above by Client on extensions of this project or on any other project without WCC's written authorization shall be at Client's risk, and Client agrees to indemnify, defend and hold harmless WCC from all claims, damages and expenses, including attorneys' fees, arising out of such unauthorized reuse.

ARTICLE XIII

CONFIDENTIALITY

WCC, upon Client's request, shall have its employees, agents and subcontractors sign reasonable and customary confidentiality agreements furnished by Client.

ARTICLE XIV

CLIENT ACTION TO BE TAKEN

Prior to the commencement of the Services, and thereafter, Client shall notify WCC of any known potential or possible health or safety hazard or condition existing on or near the project site upon which the Services are to be or are being performed by WCC, its agents, employees or subcontractors, with particular reference to hazardous substances or conditions. If hazardous substances or conditions are discovered during the performance of the Services that are different in type, amount or concentration from those disclosed to WCC prior to commencement of the Services, then, upon notification, Client and WCC shall seek to determine the equitable adjustment (if any) to be made to the Addendum. If the parties are unable to agree, the Addendum will be terminated in accordance with the termination for convenience provisions of this Agreement. Client shall compensate WCC for any emergency measures necessary for health and safety. Client shall have the responsibility for properly reporting the discovery of hazardous substances to appropriate authorities.

Client shall correctly show, on plans to be furnished to WCC, the location of subsurface structures, such as pipes, tanks, cables and utilities. If the Services require WCC to investigate the location of such underground structures, then, consistent with the agreed upon scope of such investigation, WCC shall be obligated to perform the investigation in accordance with reasonable standards of care. WCC shall not be responsible for damage to underground structures which occurs despite the use of due care.

Client shall provide WCC, in writing, all criteria, design and construction standards, and all other information relating to Client's requirements for the project.

Client shall give WCC prompt written notice of any suspected deficiency in the Services.

Client, with reasonable promptness, shall provide required approvals and decisions.

ARTICLE XV

DELAYS

In the event that WCC field or technical work is interrupted due to causes outside of its control, WCC shall be equitably compensated (in accordance with WCC's current Schedule of Fees and Charges) for the additional labor, equipment, and other charges associated with maintaining its work force and equipment available during the interruption, or at the option of Client, for such similar charges that are incurred by WCC for demobilization and subsequent remobilization. In no event shall WCC be required to maintain a field force in standby status in the field for a period in excess of five (5) calendar days.

Except for the foregoing provision, neither party shall hold the other responsible for damages or delays in performance caused by force majeure, acts of God, or other events beyond the control of the other party or that could not have been reasonably foreseen and prevented. For this purpose, such acts or events shall include, without limitation, unusual weather affecting performance, floods, epidemics, war, riots, strikes, lockouts or other industrial disturbances, protest demonstrations, unanticipated site conditions, and inability, with reasonable diligence, to supply personnel, equipment or material for the Services. Should such acts or events occur, both parties shall use their best efforts to overcome the difficulties arising and to resume as soon as reasonably possible the normal pursuit of the Services. Delays within the scope of this Article which cumulatively exceed forty-five (45) days shall, at the option of either party, make the applicable Addendum subject to termination for convenience or to renegotiation.

ARTICLE XVI

SUSPENSION OF WORK

Client may, at any time, by ten (10) days written notice, suspend performance by WCC. If payment of invoices by Client is not maintained on a thirty (30) day current basis, WCC may, by ten (10) day written notice to Client, suspend further performance until such payment is restored to a current basis. Suspension for any reason exceeding forty-five (45) days shall, at the option of WCC, make the applicable Addendum subject to termination or to renegotiation. All suspensions shall extend the time schedule for performance in a mutually satisfactory manner, and WCC shall be paid for Services performed and charges prior to the suspension date plus suspension charges. Suspension charges shall include, without limitation, the putting of documents and analyses in order, personnel and equipment rescheduling or reassignment adjustments, and all other related charges incurred directly attributable to suspension.

ARTICLE XVII

TERMINATION

Client may terminate all or any portion of the Services for convenience, at its option, by sending a written Notice of Termination to WCC. WCC may similarly terminate for convenience in the event of delays or suspensions exceeding forty-five (45) days as provided in the foregoing articles. The Notice of Termination shall specify when and which work will be discontinued and when termination shall be effective. No later than thirty (30) days after termination, Client shall pay WCC upon invoice for

Services performed and charges prior to termination, plus termination charges. Termination charges shall include, without limitation, the putting of project documents and analyses in order, personnel and equipment rescheduling or reassignment adjustments, and all other related charges incurred directly attributable to termination.

Either party can terminate this Agreement or an Addendum for cause if the other commits a material, uncured breach of this Agreement. Termination shall be effective twenty (20) days after receipt of a Notice of Termination, unless a later date is specified in the Notice. The Notice of Termination shall contain specific reasons for termination and both parties shall cooperate in good faith to cure the causes for termination stated in the Notice. Termination shall not be effective if reasonable action to cure the breach has been taken before the effective date of the termination. In the event of termination for cause, WCC shall be paid the same as in the case of termination for convenience, and the parties shall have their remedies at law as to any other rights and obligations between them, subject to the other terms and conditions of this Agreement.

Client and WCC recognize that professional standards and ethics govern the Services. If circumstances arise which, in WCC's opinion, preclude it for professional or ethical reasons from continuing performance, WCC shall advise Client of that fact. The parties shall immediately attempt to arrive at a mutually satisfactory solution. If this cannot be done to the satisfaction of both parties, either may terminate, in which case Client shall compensate WCC in accordance with this Article.

ARTICLE XVIII

COMPLIANCE WITH LAW

WCC and Client will use reasonable care to comply with applicable laws in effect at the time the Services are performed, which, to the best of their knowledge, information, and belief, apply to their respective obligations under this Agreement.

Client shall pay for any reasonable additional charges from WCC for services required on the part of WCC to comply with laws or regulations which become effective after the execution of this Agreement or any Addenda to this Agreement.

ARTICLE XIX

ASSIGNMENTS

Neither party to this Agreement shall assign its duties and obligations hereunder without the prior written consent of the other party.

ARTICLE XX

GOVERNING LAW

Unless otherwise provided in an Addendum, the law of the state where the project is located will govern the validity of this Agreement, its interpretation and performance, and remedies for contract breach or any other claims related to this Agreement. If the project is located in more than one state, the law of the state where most of the Services are performed shall govern.

The provisions of this Agreement shall be enforced to the fullest extent permitted by law. If any provision of this Agreement is found to be invalid or unenforceable, the provision shall be construed and applied in a way that comes as close as possible to expressing the intention of the provisions and that saves the validity and enforceability of the provision.

ARTICLE XXI

TIME BAR TO LEGAL ACTION

All legal actions by either party against the other for breach of this Agreement or any Addendum, or for the failure to perform in accordance with the applicable standard of care, however denominated, that are essentially based upon such breach or failure, shall be barred two (2) years from the time claimant knew or should have known of its right to make a claim, but, in any event, not later than four (4) years from the substantial completion of the Services.

XXII

NO THIRD PARTY RIGHTS

This Agreement shall not create any rights or benefits to parties other than Client and WCC.

ARTICLE XXIII

INTEGRATED WRITING

This Agreement constitutes a final and complete repository of the agreements between Client and WCC. It supersedes all prior or contemporaneous communications, representations, or agreements, whether oral or written, relating to the subject matter of this Agreement. Modifications of this Agreement shall not be binding unless made in writing and signed by an Authorized Representative of each party.

ARTICLE XXIV

NOTICES, SIGNATURES AND AUTHORIZED REPRESENTATIVES

The following signatories of this Agreement are the Authorized Representatives of Client and WCC for the execution of this Agreement. Each Addendum shall set forth the name and address of the respective Authorized Representatives of the parties for the administration of that Addendum. Any information or notices required or permitted under this Agreement or any Addendum shall be deemed to have been sufficiently given if in writing and delivered either personally or by mail to the undersigned representative or any other Authorized Representative identified in the applicable Addendum.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly Authorized Representatives, as follows:

CLIENT	WCC
C. A. Sullins Rita Sullins	Patrick C. Lucia
Signature	Signature
C. A. SULLINS RITA SULLINS	Patrick C. Lucia, Ph.D., P.E., G.E.
Typed Name	Typed Name
V. PRES	Principal
Title	Title
5-25-90 5-25-90	May 22, 90
Date of Signature	Date of Signature

WCC'S SERVICES

ADDENDUM NO. 1

In accordance with the Agreement for Professional Services between Don-Sul, Inc. (hereinafter "Client"), and Woodward-Clyde Consultants (hereinafter "WCC"), dated May 21, 1990, this Addendum describes the Scope of Services, Estimated Time Schedule, Estimated Charges, and Payment Conditions for WCC's services on the Project known as:

Site Characterization, 187 N. L. Street Livermore, CA

Client Authorized Representative: Rita Sullins

Address: 187 North L St.
Livermore, Ca. 94550

Telephone No: 415-455-1900

WCC Authorized Representative: Patrick C. Lucia, Ph.D., P.E., G.E.

Address: 500 - 12th Street, Suite 100
Oakland, CA 94607-4014

Telephone No: 415-893-3600

SCOPE OF SERVICES. The Scope of Services shall be described on separate pages attached to this Addendum and initialed by the Authorized Representatives.

ESTIMATED TIME SCHEDULE. The Estimated Time Schedule shall be set forth on a separate page attached to this Addendum and initialed by the Authorized Representatives. Because of the uncertainties inherent in the services contemplated hereunder, time schedules are only estimated schedules which are subject to revision unless specifically described as otherwise herein.

ESTIMATED CHARGES AND PAYMENT CONDITIONS. WCC charges shall be on a "time and materials" basis and shall be in accordance with WCC's Schedule of Fees and Charges in effect at the time the services are performed. WCC's current Schedule of Fees and Charges shall be attached to this Addendum and initialed by the Authorized Representatives.

TERMS AND CONDITIONS. The terms and conditions of the Agreement referenced above shall apply to this Addendum except to the extent expressly modified by this Addendum. In the event of any such modification, the modification shall be set forth on pages attached to this Addendum and signed on the last page by the Authorized Representatives; the Article of the Agreement to be modified shall be specifically referenced in the modification, and the modification shall be precisely described.

Acceptance of the terms of this Addendum is acknowledged by the following signatures of the Authorized Representatives.

APPROVAL AND ACCEPTANCE:

CLIENT	**WCC**
Signature: Rita Sullins	Signature: Patrick C. Lucia
Typed Name: C.A. Sullins Rita Sullins	Typed Name: Patrick C. Lucia, Ph.D., P.E., G.E.
Title: V. Pres	Title: Principal
Date of Signature: 5-25-90 5-25-90	Date of Signature: May 22, 90

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WOODWARD-CLYDE CONSULTANTS
NORTHWEST OPERATING GROUP
1990 SCHEDULE OF CHARGES
HAZARDOUS WASTE MANAGEMENT

This Schedule of Charges applies to services rendered in the current year and until a new schedule of charges is issued. A new schedule of charges is issued at the beginning of each year. Unless other arrangements have been made, charges for all services, including those for projects initiated in the prior year, will be based on the new schedule of charges.

Service of Personnel

Personnel charges are for professional, technical, and support services directly related to projects. Personnel charges are not made for general secretarial service, office management, accounting, and maintenance since these items are included in overhead. Personnel categories and corresponding hourly rates are as follows:

Personnel Category	Hourly Rate
Principal	$150
Senior Consultant	140
Senior Project*	117
Project*	100
Assistant Project*	90
Senior Staff*	80
Staff*	75
Field/Laboratory Supervisor	80
Senior Field/Laboratory Technician	70
Field/Laboratory Technician	60
Illustrator/Draft Person/Editor	55
Technical Typist/Printer	50

*Includes Engineer, Geologist, Chemist, Scientist, etc.

Time for preparation of and providing expert testimonies and depositions is charged at a rate of $150 per hour with a minimum of 4 hours per day. A premium of $15 per hour is added to the hourly rates of nonexempt personnel for overtime. Travel time is charged at hourly rates with a maximum of 8 hours per day. Charges for contract personnel are made according to the hourly rate of their category.

WCC Laboratories

Services rendered by WCC laboratories are charged in accordance with the applicable Schedules of Laboratory Charges, which are available upon request.

WCC Equipment and Vehicle Rentals

WCC equipment (such as surveying, geotechnical, geology, water resources, geophysical, seismology, microcomputer, health and safety, etc.) and WCC vehicles used on a project are charged in accordance with the applicable Schedule of Equipment and Vehicle Rentals, which is available upon request.

Communications/Computers

Communications (telephone, telex, telecopy, courier, and general photocopying, etc.) and personal computers (e.g., for general technical computing) will be charged at a total flat rate of 3% of direct labor. Engineering work stations used for Computer Aided Design (CAD), Geographic Information Systems (GIS), and similar functions are charged in accordance with the applicable Schedule of Computer Charges, which is available upon request.

Other Direct Expenses

Subcontractors and Outside Consultants and Services will be charged at cost times 1.20. Other expenses directly identifiable to the project including (but not limited to) those examples listed below will be charged at cost times 1.15.

> Personal Expenses (such as travel, subsistence, and vehicle rental costs incurred by personnel while on project activities); Equipment or Sample Shipping; Special Supplies (drafting and printing, photos, reference materials, expendable materials such as containers, chemicals, and report reproduction, etc.); and Special Fees, Licenses, Permits, Insurances, etc.