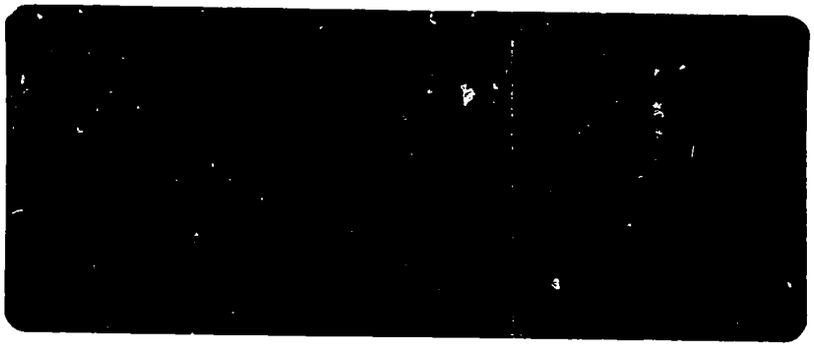
INDEX

Fuel leak
closed cases
start
APPLE
computer

FRAME

ENVIRONMENTAL STRATEGIES CORPORATION



ENVIRONMENTAL STRATEGIES CORPORATION
101 METRO DRIVE, SUITE 650
SAN JOSE, CALIFORNIA 95110
408-453-6100
FAX-408-453-0496

SUPPLEMENTAL SITE INVESTIGATION WORKPLAN FOR APPLE COMPUTER, INC. CUPERTINO, CALIFORNIA

6-3-91

PREPARED

BY

ENVIRONMENTAL STRATEGIES CORPORATION

JUNE 3, 1991

Contents

	Page
Introduction	1
Description of the Apple Computer Facilities	1
De Anza 3	1
De Anza 7	3
Site Description	3
Site Location and Topography	5
Local Geology and Hydrogeology	6
Summary of Previous Site Investigations	6
De Anza 3	9
De Anza 7	11
Supplemental Site Investigation Workplan	11
Subsurface Investigation	15
Methods and Procedures for Soil Borings	16
Methods and Procedures for Well Installation	17
Groundwater Sampling	21
Equipment Decontamination Procedures	21
Quality Assurance and Quality Control	22
Schedule	24
References	
List of Figures:	
Figure 1 - Plot plan of Apple Computer, Inc., offices in Cupertino, CA	2
Figure 2 - Topographic map of Cupertino and vicinity showing probable direction of groundwater flow	4
Figure 3 - Location of shallow soil borings drilled in October 1986	10
Figure 4 - Location for proposed soil boring BH-1 near former underground diesel tank at De Anza 3	13
Figure 5 - Locations for proposed soil borings at De Anza 7	14
Figure 6 - Monitoring well construction schematic	19
Figure 7 - Project schedule	23

Contents
(continued)

Page

List of Appendices:

Appendix A - Lithologic log and well construction details for MW-1 at the De Anza 3 building
Appendix B - Report on 1986 shallow soil borings at the De Anza 7 building
Appendix C - Sample chain-of-custody form

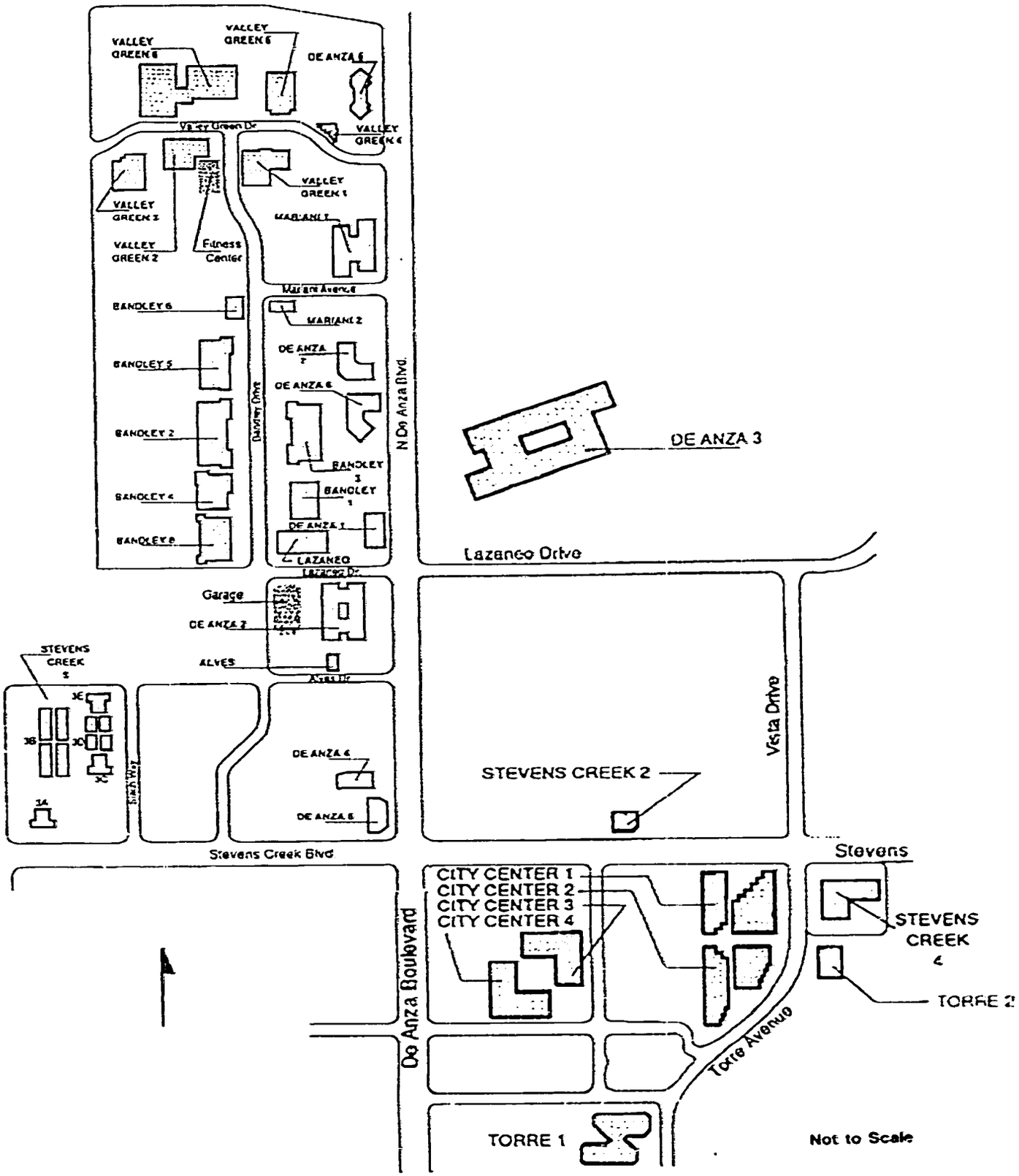
Introduction

This workplan is submitted to the Santa Clara Valley Water District (SCVWD) and presents the proposed approach for the additional field investigations at the Apple Computer, Inc. facilities at 10431 (De Anza 7) and 10500 (De Anza 3) North De Anza Boulevard, in Cupertino, California. The objective of the proposed work at De Anza 7 is to further investigate soil contamination related to possible release(s) from a former underground storage tank, and evaluate the potential effects on groundwater quality in the area. The objective of the investigation at De Anza 3 is to collect verification soil samples for closure of a former underground storage tank. The workplan includes the investigations and analyses necessary to meet the requirements for a subsurface and groundwater investigation as specified in the SCVWD's Guidelines for "Investigation and Remediation at Fuel Leak Sites." Specifically, the workplan describes the methods and procedures for installing soil borings and groundwater monitoring wells, soil sampling, groundwater sampling, laboratory analyses, and sample quality assurance and quality control procedures.

Description of the Apple Computer Facilities

De Anza 3

The De Anza 3 facility is Apple's Networking & Communications and Systems Engineering building located at 10500 North De Anza Boulevard, in Cupertino, California (Figure 1). De Anza 3 is



ESC
ENVIRONMENTAL STRATEGIES CORPORATION
101 METRO DRIVE • SUITE 650
SAN JOSE, CALIFORNIA 95110 • (408) 453-6100

Figure 1 - Plot Plan of Apple Computer, Inc. offices in Cupertino, CA

situated on the southeastern corner of the intersection of North De Anza Boulevard and Mariani Avenue.

De Anza 7

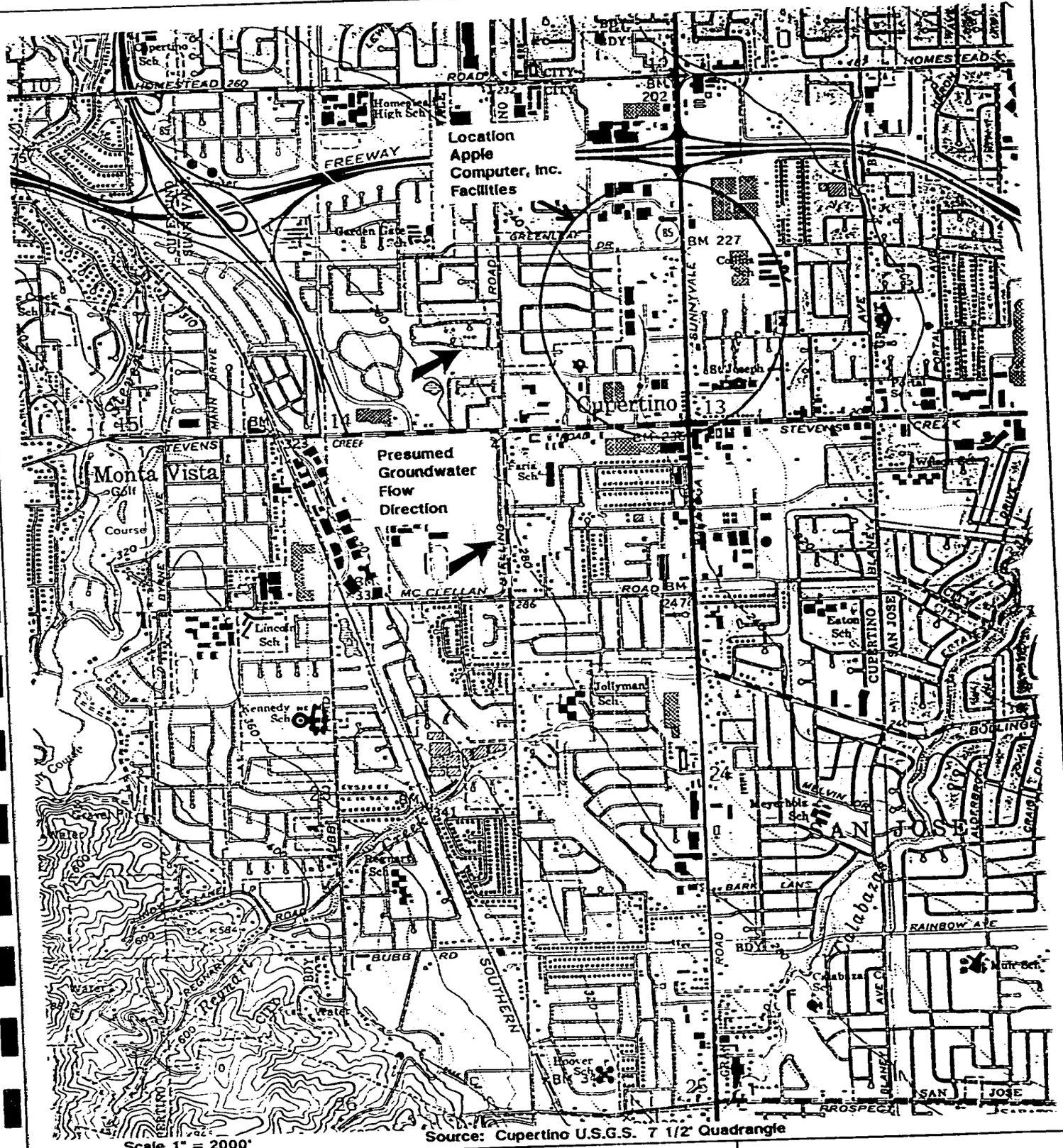
The De Anza 7 building is Apple Computer's Executive Offices and is located at 10431 North De Anza Boulevard, in Cupertino, California (Figure 1). De Anza 7 is situated one block south of the southwestern corner of the intersection of North De Anza Boulevard and Mariani Avenue.

Site Description

Site Location and Topography

The city of Cupertino is situated in the Santa Clara Valley area of the Coastal Range physiographic province (SCVWD, 1989). The valley forms the southern portion of a linear intermountain basin that extends from San Jose northwesterly to the San Francisco area. The local topography is dominated by the northwest-trending Santa Cruz Mountains southwest of Cupertino. Developed areas are characterized by a gently sloping valley floor with elevations decreasing from 400 feet near the mountain foothills to 100 feet around Sunnyvale, California (Figure 2).

The Apple Computer facility is not located near any major drainage (rivers, creeks) in the Santa Clara Valley (Figure 2). The only mappable drainage courses in the area are the Calabazas Creek located more than one mile east of site, and Stevens Creek 1.5 miles west of the site. No other surface water bodies (lakes, reservoirs) or groundwater recharge facilities are in the immediate site vicinity.



Scale 1" = 2000'

Source: Cupertino U.S.G.S. 7 1/2' Quadrangle

ENVIRONMENTAL STRATEGIES CORPORATION
101 METRO DRIVE • SUITE 650
SAN JOSE, CALIFORNIA 95110 • (408) 453-5100

Figure 2 - Topographic Map of Cupertino and Vicinity Showing Probable Direction of Groundwater Flow

Local Geology and Hydrogeology

The geology of the Santa Clara Valley is characterized by relatively young (Pleistocene to Recent) unconsolidated alluvial deposits underlain by older, poorly consolidated to consolidated bedrock. The thickness of the Pleistocene to Recent alluvium increases away from the bounding mountainous areas toward the center of the valley. Significant water-bearing zones (i.e., aquifers) are generally restricted to the more permeable deposits within the uncemented alluvium (Farrar and Bertoldi, 1988; SCVWD, 1989). The low porosity and permeability of the more consolidated bedrock generally limits their capacity to store and transmit water, although relatively high well yields may be attained in highly fractured zones.

The Apple Computer facility in Cupertino is situated along the northern margin of the Forebay hydrographic unit in the Santa Clara Valley Groundwater Basin (SCVWD, 1989). In this area, groundwater flows under unconfined conditions through coarse aquifer materials (sand and gravel). The saturated sand and gravel deposits are separated by discontinuous leaky aquitards consisting predominately of fine silt and clay sediments. The lithologic log for a monitoring well installed near the De Anza 3 building (well identification DA3-3) indicates the presence of thick sand, sand and gravel and silty sand deposits with relatively thin (less than 20 feet thick) interbedded clay and silt layers. (See Appendix A for a copy of the lithologic log for well DA3-3.) The presence of silt and clay layers in the unsaturated zone may allow for the

creation of transient perched water horizons during periods of high surficial recharge.

Hydraulic gradients in the Forebay unit generally mimic the local topography, with the overall regional flow directed to the north and east toward the valley interior. No site-specific information is available on groundwater flow conditions in the unconsolidated deposits at the Apple Computer facility. The depth to water in well DA3-3 in March 1989 was 184 feet below ground surface (bgs). Shallow exploratory borings previously completed around the De Anza 7 building in October 1986 did not encounter saturated material at depths less than 25 feet bgs. A report of the 1986 soil boring program is included in Appendix B. Based on the local topographic profile, groundwater flow in the vicinity of the site should be toward the northeast (Figure 2).

Summary of Previous Site Investigations

De Anza 3

De Anza 3 had a 1,000-gallon single wall steel underground storage tank. The tank was used to store diesel fuel for the emergency generator.

On January 26, 1988 the tank was emptied and removed. David Ghilarducci, Hazardous Materials Inspector, Santa Clara County, Central Fire Protection District (CFPD) witnessed the tank removal. Upon removal of the tank a small hole was discovered on the bottom of the tank. Free product was observed in the excavation near the fill end of the tank. An unauthorized release report was filed with the CFPD on January 29, 1988. A concrete tie-down slab was

discovered under the tank at the depth of 7'2" and measured 14' x 6'9" x 10". Excavated soil and backfill were stockpiled in two piles on the site and soil samples were taken for diesel analysis. The results of the soil sample were 1300 mg/kg (ppm) total extractable hydrocarbons (TEH, i.e., diesel) for one pile and <4 ppm TEH for the other.

The concrete slab was broken and shifted to facilitate soil sampling. Soil samples were collected under the west and east ends of the slab. The west end sample was taken at a depth of 9'4" and the east end sample at a depth of 10 feet. Analyses indicated 8 ppm TEH at the west end and <7 ppm TEH at the east end.

The concrete slab was removed and manifested for disposal to a landfill. Soil samples were taken at deeper depths in the excavation. A west end sample at 12'6" showed levels of 130 ppm TEH. The east end sample at 12 feet was <1 ppm TEH. The north and south wall samples showed levels of 260 ppm TEH and 650 ppm TEH, respectively. The soil under the slab and below the clay layer, 12-14 feet bgs., was determined to contain less than detectable limits of TEH. The side walls of the excavation were suspected of still containing ~~there~~ diesel contamination.

Six additional soil samples were taken from the clay layer at the bottom of the perimeter of the excavation. These clay samples were all below 2 ppm TEH except the sample from the northeast corner which was 69 ppm TEH. Four side wall samples were taken above the clay layer. These showed high diesel levels of 3900, 5500, and 4900 ppm TEH on the east, north, and west walls respectively. The south wall sample had a non-detectable concentration of diesel.

On May 31, 1988, a soil vapor survey was conducted of the area surrounding the tank excavation site. The survey was conducted to determine the lateral and vertical extent of diesel contamination. Only three of the probes showed significant hydrocarbon readings. These samples included probe D with a reading of 55 ppm total hydrocarbons (TH) as propane at a depth of 10-12 feet, probe E with a reading of 70 ppm TH at 10-12 feet, and probe F with a reading of 130 ppm TH at 9-11 feet. Soil samples were collected next to the probe locations. All samples were analyzed for total petroleum hydrocarbons (TPH) as diesel and gasoline and for benzene, toluene, xylene, and ethylbenzene (BTEX). All samples showed only diesel contamination above detection limits. The soil sample near probe D showed a concentration of 7.9 ppm TPH as diesel, near probe E was 13 ppm, and near probe F was 23 ppm. The soil vapor study showed that the diesel contamination was located at a depth of 8-12 feet below grade and extends out 2-4 feet from the edges of the excavation on the north, west, and east sides.

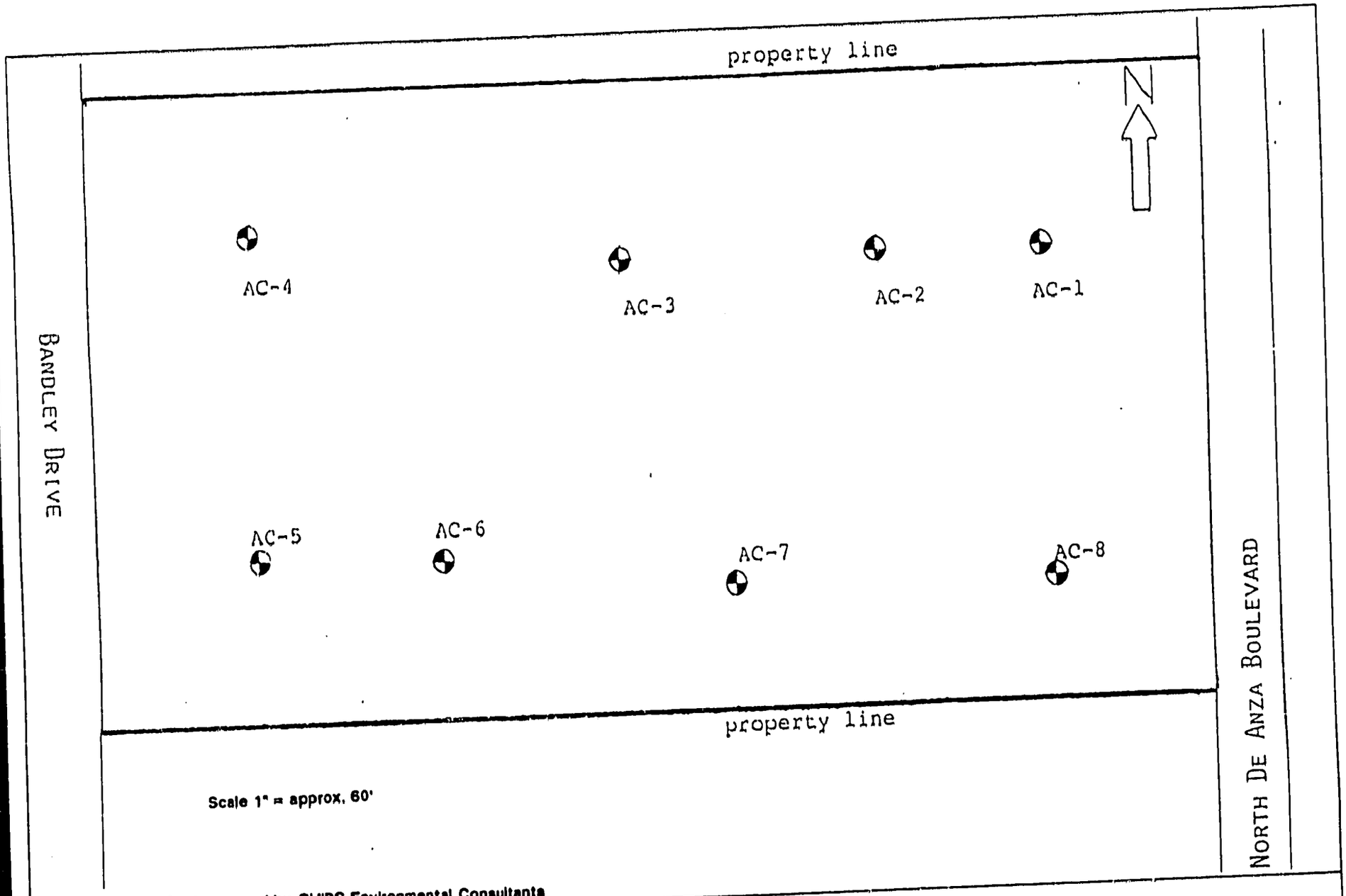
The excavation was enlarged by 2 feet on the west, north, and east walls and deepened to 13 feet below grade. A total of seven side wall samples were taken at a depth of 12.5 feet below grade, two on the west wall, three on the north wall, and two on the east wall. Two soil samples were also taken at the bottom of the excavation at a depth of 13 feet below grade. Two composite soil samples were taken from the excavated soil. All the soil samples taken from the side walls and the bottom of the excavation showed non-detectable concentrations of diesel. The two composite samples of the excavated soil indicated results of 175 and 150 ppm TPH as

diesel. The excavated soil was manifested and disposed of at Casmalia Resources, Inc. The excavation was backfilled and the asphalted paving was replaced.

De Anza 7

The De Anza 7 500-gallon underground storage tank was removed from the Cupertino Nursery in January 1986. The tank was reportedly used for the storage of gasoline. A soil sample was collected at a depth of 1.5 feet below the bottom of the tank excavation. The sample was analyzed for TPH as gasoline and for BTEX by CHIPS Environmental Consultants. The soil sample contained 60 ppm of TPH as gasoline.

In October 1986, eight soil borings were drilled on the property at distances between 50 and 200 feet from where the tank excavation soil sample was collected (Figure 3). The soil borings were drilled to a maximum depth of 25 feet. Soil samples were collected for analyses at five-foot intervals and analyzed for TEH and for pesticides. Concentrations of diesel, up to 21 ppm, were detected in all of the boreholes. The data show a decrease in diesel concentration with depth in AC-1, AC-2, AC-5, and AC-7. Diesel concentrations in the remaining holes (AC-3, AC-4, AC-6, and AC-8) do not show a linear gradation with depth. In addition, very low concentrations of two pesticides were detected in AC-3 and AC-4 at depths of 21 to 21.5 feet, and 19 to 20 feet, respectively. The two pesticides detected were 4,4'-DDE and 4,4'-DDT. The highest concentration of 4,4'-DDE that was detected was 0.021 ppm, and the highest concentration of 4,4'-DDT was 0.024 ppm.



Figured prepared by CHIPS Environmental Consultants

ESC
ENVIRONMENTAL STRATEGIES CORPORATION
101 METRO DRIVE • SUITE 650
SAN JOSE, CALIFORNIA 95110 • (408) 453-6100

Figure 3 - Locations of Shallow Soil Borings Drilled in October 1986

Supplemental Site Investigation Workplan

In a letter dated March 18, 1991, the SCVWD requested a technical report containing a Preliminary Site Assessment implementation report for the De Anza 7 site. A technical report was requested to investigate the threat to groundwater from soil contamination on site which may have resulted from the former underground gasoline tank. The SCVWD is concerned about the potential threat to groundwater due to the results of a verification soil sample collected at the time of tank removal containing 60 ppm TPH as gasoline. The soils underlying the site consist of highly permeable sands and gravels and the potential threat to groundwater has not been determined.

In a letter dated April 25, 1991, the SCVWD requested a technical report containing a workplan for additional investigation at the De Anza 3 site. In order to consider the De Anza 3 site for closure, one soil boring must be installed in the vicinity of the former underground diesel tank and verification soil samples must be collected.

Subsurface Investigation

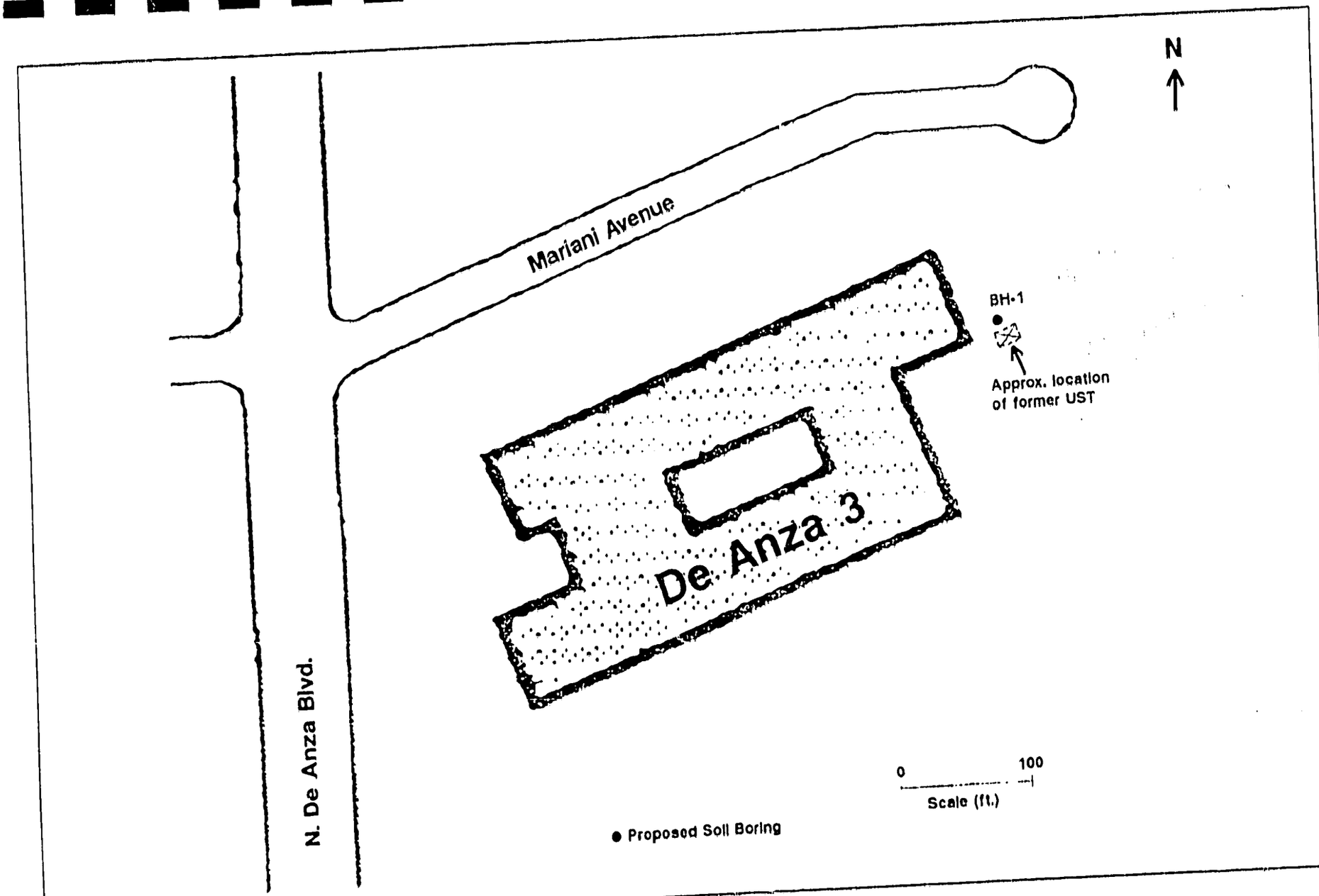
The objective of the subsurface investigation is to assess the soil contamination in the areas of the former underground storage tanks.

At De Anza 3, one soil boring (BH-1) will be installed less than ten feet from the former underground diesel tank in the vicinity of previously detected soil contamination. The proposed

location of soil boring BH-1 is shown in Figure 4. Based on lithologic data from well DA3-3 and previous soil samples from the tank excavation pit, the soil boring will be drilled to a depth of approximately 52 feet below ground surface. Since this boring will be over 45 feet deep, a permit to drill an exploratory boring will be obtained from the SCVWD.

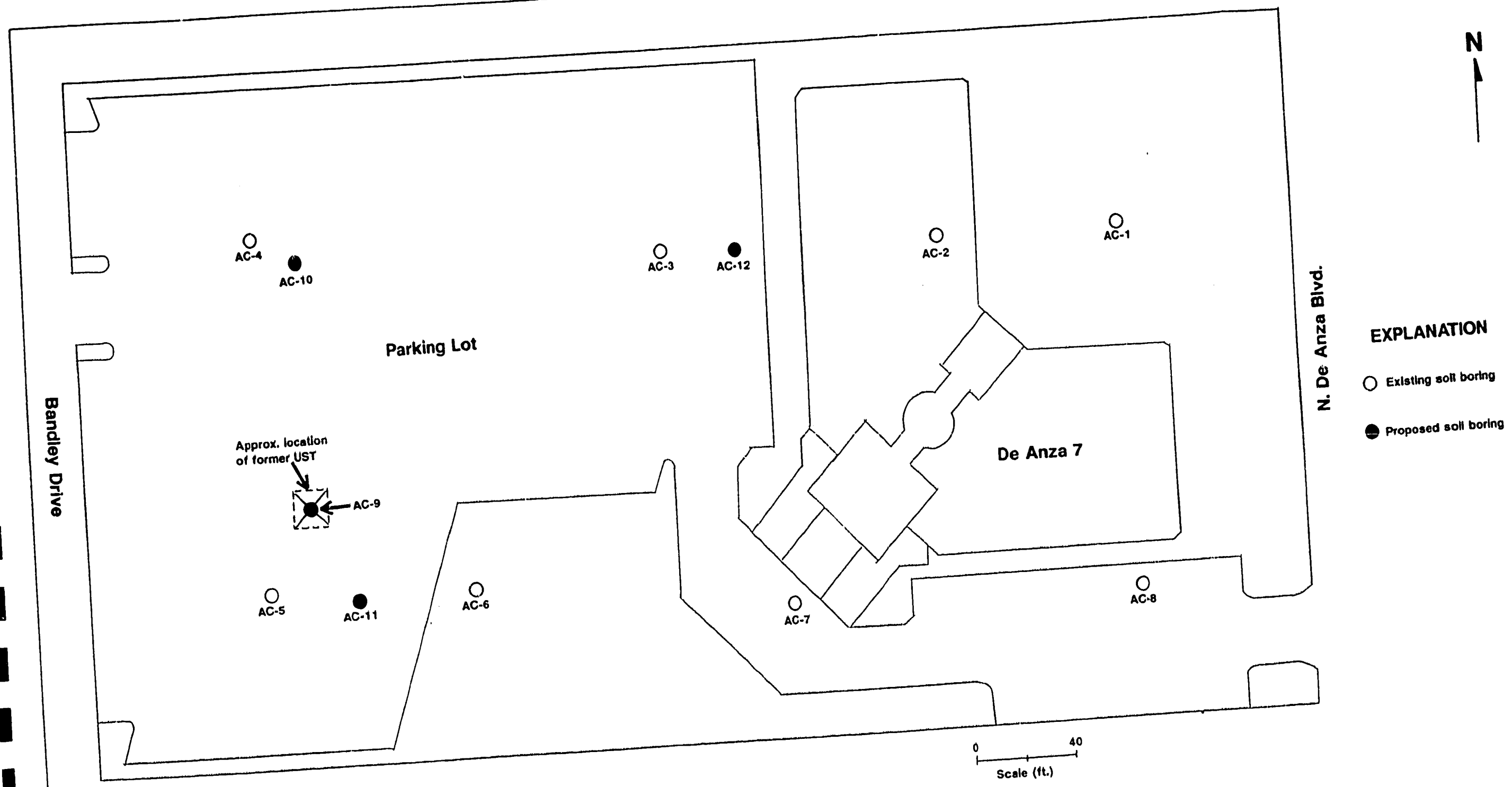
At De Anza 7, one soil boring (AC-9) will be installed at the location of the former underground gasoline tank. The proposed location of the soil boring is shown in Figure 5. This soil boring will be drilled to a depth of approximately 50 feet below ground surface due to the presence of sand and gravel soils. Three additional soil borings (AC-10, AC-11 and AC-12) will be drilled on the property near the locations of several of the 1986 shallow soil borings with levels of petroleum hydrocarbons (Figure 5). These borings will be installed to a depth of 25 feet below ground surface. As with soil boring BH-1, a permit to drill an exploratory boring will be obtained from the SCVWD before drilling AC-9 at the De Anza 7 building.

The available site-specific hydrogeologic data indicates that saturated conditions should not be encountered during completion of the proposed soil borings. Thus, the proposed scope of work outlined above does not include the installation of groundwater monitoring wells. However, monitoring wells will be installed if groundwater is encountered before the desired depth of the boring is reached.



ESC
ENVIRONMENTAL STRATEGIES CORPORATION
101 METRO DRIVE • SUITE 650
SAN JOSE, CALIFORNIA 95110 • (408) 453-6100

Figure 4 - Location for Proposed Soil Boring BH -1 Near Former Underground Diesel Tank at De Anza 3



ESC
ENVIRONMENTAL STRATEGIES CORPORATION
101 METRO DRIVE • SUITE 650
SAN JOSE, CALIFORNIA 95110 • (408) 453-6100

Figure 5 - Locations for Proposed Soil Borings at
De Anza 7

Methods and Procedures for Soil Borings

The proposed soil borings will be drilled using a hollow stem auger rig capable of drilling an eight-inch (O.D.) borehole. Boring depths will range from approximately 25 feet (AC-10, AC-11 and AC-12) to 50 feet (BH-1, AC-9) below existing grade. The borings will be logged in the field by an ESC hydrogeologist using the Unified Soil Classification System (USCS), under the supervision of a California Registered Geologist. Soil samples for lithologic analysis will be obtained at 2.5-foot intervals from borings BH-1 and AC-9 using a California modified split spoon sampler driven ahead of the lead auger. For borings AC-10, AC-11 and AC-12 at De Anza 7, split-spoon soil samples will be collected at 5-foot intervals over the entire depth of the borehole. All soil samples will be screened in the field for volatile organic compounds (VOCs) using a portable photoionization detector (PID).

Soil samples for chemical analysis will be collected every 5 feet, and any at intervals of apparent petroleum hydrocarbon contamination. Soil samples will be obtained by driving a split spoon sampler with clean, 6-inch long brass tubes into the undisturbed soil. Following retrieval of the sampler, the ends of each brass tube will be covered with teflon tape and sealed using tight-fitting plastic caps secured with tape. Each sample will then be labeled, sealed in an air tight bag, and placed in an cooled ice chest for shipment to a California-certified analytical laboratory. Chain-of-custody documentation will be recorded for each sample and shipped with the sample container. A sample chain-of-custody form is included in Appendix C.

Soil samples from boring BH-1 will be analyzed for total petroleum hydrocarbons (TPH) as diesel using California Modified EPA Test Method 8015 as specified in the LUFT Field Manual. Samples from soil boring AC-9 at De Anza 7 will be analyzed for TPH as gasoline using California Modified 8015 and benzene, toluene, ethylbenzene and xylene (BTEX) using EPA Test Method 8020 as referenced in the EPA Test Methods for Evaluating Hazardous Waste (SW-846). Samples from soil borings AC-10, AC-11 and AC-12 will be analyzed for TPH as diesel using California Modified 8015 and organochlorine pesticides using EPA Test Method 8080 (SW-846). Field duplicates will be collected to evaluate analytical precision and variations in contaminant concentrations in the soil matrix. Field duplicates will be collected from AC-9 and either AC-10, AC-11 or AC-12, and analyzed for the corresponding analytical parameters listed above. One field blank will be collected for every 20 soil samples to check decontamination procedures for the sampling equipment.

Material removed from the boreholes will be placed in DOT-approved 55-gallon drums, and temporarily stored at the facility pending the soil analytical results. Unless groundwater is encountered during drilling, each boring will be abandoned by backfilling to the surface with a cement mixture containing less than 5% bentonite.

Methods and Procedures for Well Installation

If groundwater is encountered at any drilling location, drilling will continue approximately 10 to 15 feet below static

water level measured inside the auger stem, and the borehole completed as a groundwater monitoring well. Soil sampling procedures and methods in the saturated zone will be identical to those discussed in the previous section for the respective borehole(s).

Monitoring wells will be constructed of 2-inch I.D., threaded, flush-joined Schedule 40 PVC screen and blank casing. All casing will be steam-cleaned before emplacement down the borehole. A threaded end cap will be placed at the bottom of the screen.

The screened interval for each well will depend on the thickness of the water bearing zone and borehole geology at each location. A composite soil sample from the interval to be screened will be submitted for particle size analysis using ASTM Standard Method D-422 to determine appropriate screen slot size and corresponding filter pack material. A 24-hour sample turnaround will be requested for this analysis to facilitate the well construction. The filter pack material chosen should retain at least 70% of the native material, and the slot size should retain at least 90% of the filter pack material.

After placing the well casing down the borehole, the filter pack will be poured around the screen from the bottom of the borehole to two to three feet above the screen. A two- to three-foot thick bentonite pellet seal will then be placed above the sand pack and hydrated with a small amount of tap water. A cement/bentonite grout mixture will be tremied from the top of the bentonite seal to approximately 1 to 2 feet below ground surface. During emplacement of the well casing, filter pack and bentonite

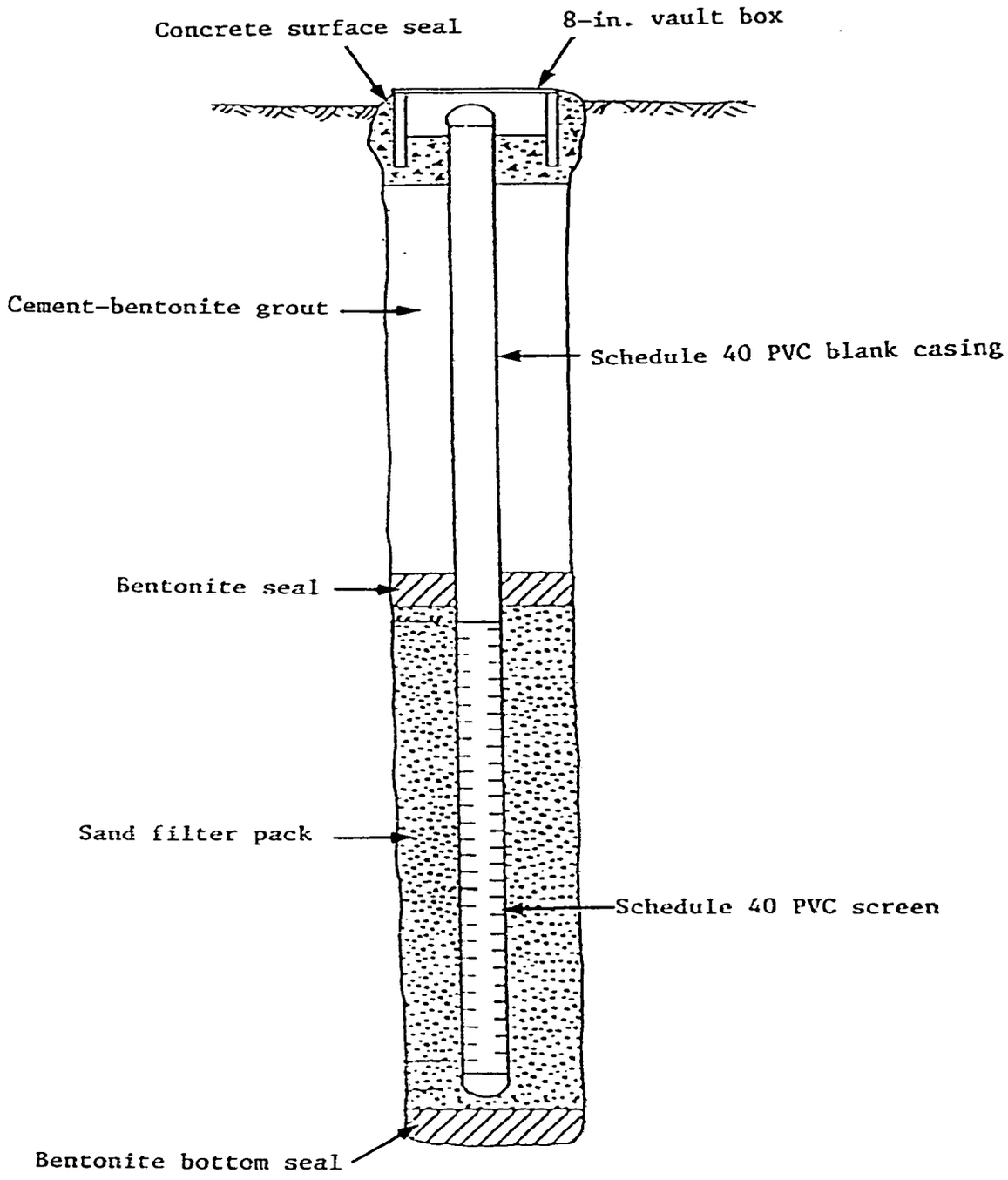
seal, the depth will be monitored with a weighted measuring tape to check for bridging and to verify that the desired depth for the material is obtained. The completed well will be fitted with a vault box with a water-proof cap and lock. Figure 6 shows the proposed monitoring well construction details.

Development of the monitoring wells will occur no sooner than 24 hours after installation. Each well will be developed by first surging the screened interval, then removing water from the well using either the air-lift method or a stainless steel submersible pump. Groundwater purging will continue until a relatively clear discharge is attained from the well. Water temperature, specific conductivity and pH will be monitored during the purging portion of the development process. All development water will be collected in 55-gallon drums and temporarily stored at the facility.

A well survey will be conducted after the completion of field activities to locate the new monitoring wells at the Apple Computer facilities. Elevation of the ground surface around each well and the PVC well casing will determined to the ± 0.01 foot, and referenced to a local and/or U.S. Geological Survey benchmark. Horizontal coordinates will be referenced to the state plane coordinate system.

Groundwater Sampling

Monitoring wells will be sampled no sooner than seven days after development. Before initiating sampling activities, an oil-water interface probe will be used to check for the presence of a floating hydrocarbon product layer. After measuring the depth to



ESC
ENVIRONMENTAL STRATEGIES CORPORATION
101 METRO DRIVE • SUITE 650
SAN JOSE, CALIFORNIA 95110 • (408) 453-6100

Figure 6 - Montoring Well Construction Schematic

water (and product, if present), three to five well volumes will be purged from the well using a clean pump or Teflon bailer. Well purging will be discontinued if the water level is reduced by more than 50% of the static level. The specific conductivity, pH, and temperature will be monitored after purging to ensure that the physical character of the water has stabilized before collecting samples.

All water removed during well sampling activities will be collected in 55-gallon drums and temporarily stored at the site pending validated analytical results.

One round of groundwater samples will be obtained from the new monitoring wells for water quality analysis. Water samples will be collected using a decontaminated teflon bailer with nylon cord. The sample will be placed into the appropriate sample containers, labeled, placed in air-tight bags and stored in a cooler containing ice. Water quality samples will be analyzed for TPH as gasoline or diesel using California Modified 8015, and BTEX using EPA Test Method 602 as referenced in 49 CFR, Part 136. Sample pH will be adjusted to less than 2 by the addition of concentrated HCl to the sample container. Chain-of-custody forms will be completed for all samples submitted for chemical analysis. In addition, a field duplicate, field blank and trip blank will be submitted with the samples for quality assurance/quality control (QA/QC) purposes. The field duplicate and field blank will be analyzed for the same parameters as the environmental samples (i.e., 8015 and 602); the trip blank will be analyzed for BTEX using EPA Test Method 602.

Equipment Decontamination Procedures

All sampling equipment which comes in contact with potentially contaminated soil or water will be decontaminated using the following procedure:

- remove solids with a non-phosphate detergent solution
- rinse with tap water
- double rinse with deionized or distilled water
- air dry.

If pumps are used to purge groundwater from well(s), decontamination procedures will include the closed recycling of a detergent solution, followed by recycling of tap water, and wiping off the pump and tubing with a clean cloth.

Quality Assurance and Quality Control

ESC's Quality Assurance Officer (QAO) will be responsible for establishing data quality requirements and detection limits for all soil and water analyses, and ensuring that quality assurance goals are met during the investigation. The QAO will work closely with the certified analytical laboratory to facilitate the planned sampling and analytical activities. The QAO's overall responsibilities include, but are not limited to: sampling quality control, laboratory quality control, data processing quality control, data quality review, performance auditing, systems auditing, and overall quality assurance. A analytical data QA/QC report will be included in the field investigation report.

Schedule

Figure 7 shows the proposed schedule for completion of the supplemental site investigation at the Apple Computer facility in Cupertino, California. The field activities will begin the week of June 10, 1991. The results of the investigation will be submitted in a technical report to the SCVWD July 31, 1991. The enclosed schedule assumes that no groundwater monitoring wells will be installed during the field investigation.

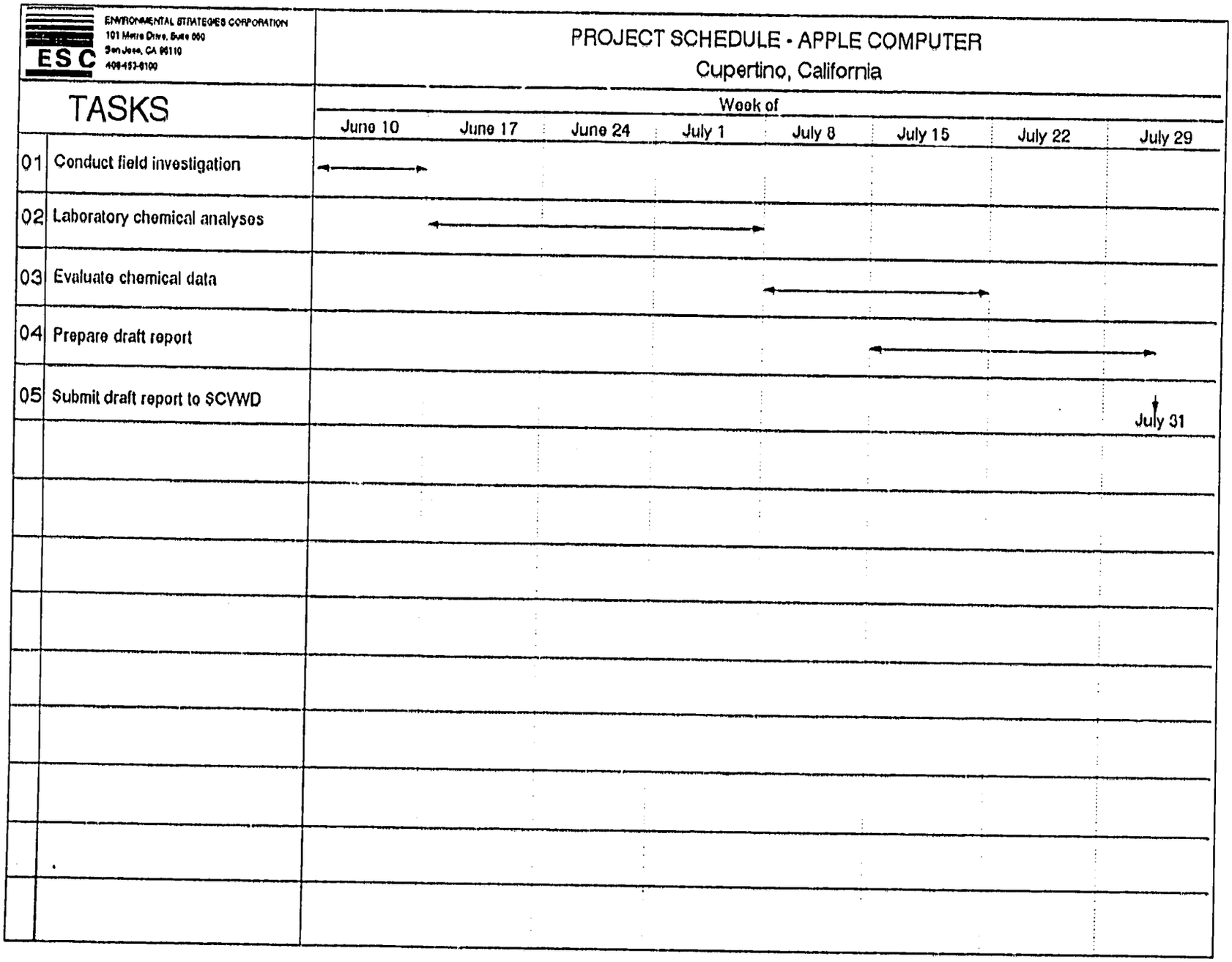

ESC
ENVIRONMENTAL STRATEGIES CORPORATION
101 Metro Drive, Suite 660
San Jose, CA 95110
408-453-6100
PROJECT SCHEDULE - APPLE COMPUTER
Cupertino, California
TASKS
Week of
June 10
June 17
June 24
July 1
July 8
July 15
July 22
July 29
01 Conduct field investigation
02 Laboratory chemical analyses
03 Evaluate chemical data
04 Prepare draft report
05 Submit draft report to SCVWD
July 31

Figure 7

References

Farrar, C.D., and Bertoldi, G.L. 1988. Region 4, Central Valley and Pacific Coast Ranges, in Back, W., Rosenhein, J.S., and Seaber, P.R., eds., Hydrogeology. Geol. Surv. Amer., The Geology of North America, vol. O-2, p. 59-67.

Santa Clara Valley Water District. 1989. Standards for the Construction and Destruction of Wells and other Deep Excavations in Santa Clara County, 30 p.

Appendix A - Lithologic Log and Well Construction Details for MW-1 at the De Anza 3 Building

SOIL DRILLING LOG

McLaren Environmental Engineering

MW # : MW-1
D- 3168
Page 1 of 7
Sampler: G. ROST

PROJECT APPLE DA3-3 LOCATION 100' E OF De ANZA BLVD., 27' N OF S WALL
ELEVATION ~200' MONITORING DEVICE 580 A OVM
SAMPLING DATE(S) 3/29 - 3/31/1989 START 1115 FINISH 1300
SAMPLING METHOD CALIFORNIA SPLIT SPOON SUBCONTRACTOR & EQUIPMENT ALL TERRAIN DRILLING CME 95 W/8" HSA
MEMO SAMPLER
UPPER 140' OF LITHOLOGY DETERMINED FROM BORING DRILLED APPROXIMATELY 12' E OF MW-1 ON 3/14-16/89 BY GREGG DRILLING.

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	OVM reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth
5'	17-30-37	67	5.0-6.5		0.0	Dark yellowish brown (10 YR 4/4) very gravelly sandy loam; soft; non-plastic; moist.	GW		
10'	18-48-38	86	10.0-11.5		0.0				
15'	12-19-32	51	15.0-16.5		0.0	Dark gray (10 YR 4/1) coarse sand; non-plastic; unconsolidated; moist.	SW		
20'	12-15-50	65	20.0-21.0		0.0				
25'	28-50	100+	25.0-26.0		0.0	Dark yellowish brown (10 YR 4/4) very gravelly sandy loam; soft; non-plastic; moist.	GW		
30'	50	100	30-30.5		0.0				

Well Construction Details
- G-5 Christy Box
- Locking Watertight Cap
- 8" Borehole
- Neat cement with 5% Bentonite Mixture
- 2" I.D. Sch. 40 PVC Blank Casing

SIGNATURE OF FIELD SUPERVISOR

TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

McLaren Environmental Engineering

MW # : MW-1
D- 3169
Page 2 of 7
Sampler: G. ROST

PROJECT APPLE DA3-3 LOCATION
ELEVATION MONITORING DEVICE
SAMPLING DATE(S) START FINISH
SAMPLING METHOD SUBCONTRACTOR & EQUIPMENT
MEMO

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: Eff	Sampler Depth Interval (ft.)	Sample ID.#	OVM reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Well Construction Details
	50	100 +	30.0-30.5		0.0					
35'	43-50	100 +	35.0-36.0		0.0					
40'	38-46-48	94	40.0-41.5		0.0	Dark yellowish brown (10 YR 4/4) very gravelly sandy loam; soft; non-plastic; moist.	GW			
45'	39-50	100	45.0-46.0		0.0					
50'	23-24-25	49	49.0-50.5	28830	0.0					
55'	41-50		55.0-56.0		0.0					
60'										

Well Construction Details: Neat Cement With 5% Bentonite Mixture; 2" I.D. Sch. 40 PVC Blank Casing; 8" Borehole

SIGNATURE OF FIELD SUPERVISOR

TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

McLaren Environmental Engineering

MW # : MW-1
D- 3170
Page 3 of 7
Sampler: G. ROST

PROJECT APPLE DA3-3 LOCATION
ELEVATION MONITORING DEVICE
SAMPLING DATE(S) START FINISH
SAMPLING METHOD SUBCONTRACTOR & EQUIPMENT
MEMO

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: Eff.	Sampler Depth Interval (ft.)	Sample ID #	OVM reading (ppm)	Soil Description: Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Well Construction Details
	10-21-30	51	60.0-61.5		0.0	Brown (10 YR 4/3) sandy loam; soft; slightly plastic; gravelly moist.	SC			Neat Cement With 5% Bentonite Mixture
65'	31-50	100 +	65.0-66.0		0.0	Very dark grayish brown (10 YR 3/2) very gravelly loamy sand; soft; non-plastic; moist; ~60% sub-rounded gravels.	GW			2" I.D. Sch. 40 PVC Blank Casing
70'	50	100 +	70.0-70.5		0.0					
75'	6-8-28	36	75.0-76.5		0.0	Brown (10 YR 5/3) silt; soft; non-plastic; moist.	ML			
80'	27-17-31	48	80.0-81.5		0.0					
85'	50	100 +	85.0-85.5		0.0	Very dark grayish brown (10 YR 3/2) very gravelly loamy sand; soft; non-plastic; slightly moist; ~60% sub-rounded gravels.	GW			
90'										

SIGNATURE OF FIELD SUPERVISOR

TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

McLaren Environmental Engineering

MW # : MW-1
D- 3171
Page 4 of 7
Sampler: G. ROST

PROJECT APPLE DA3-3 LOCATION
ELEVATION MONITORING DEVICE
SAMPLING DATE(S) START FINISH
SAMPLING METHOD SUBCONTRACTOR & EQUIPMENT
MEMO

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	OVM reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Well Construction Details
		51	90.0-91.5		0.0					
95'	15-25-29	54	95.0-96.5		0.0	Brown (10 YR 5/3) sandy loam; soft; slightly plastic; gravelly; moist.	SC			Neat Cement With 5% Bentonite Mixture
100'	30-29-21	40	99.0-100.5	28831	0.0					2" I.D. Sch. 40 PVC Blank Casing
105'	18-30-50	80	105-106.5		0.0					8" Borehole
						Brown (10 YR 5/3) silty clay loam; soft; slightly plastic; moist.				
110'	9-13-27	40	110-111.5		0.0		ML			
						Brown (10 YR 5/3) loam; soft; slightly plastic; moist.				
115'	10-17-37	54	115-116.5		0.0					
						Dark brown (10 YR 4/4) clay loam; stiff; moderately plastic; moist.	CL			
120'										

SIGNATURE OF FIELD SUPERVISOR

TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

McLaren Environmental Engineering

MW # : MW-1
D- 3172
Page 5 of 7
Sampler: G. ROST

PROJECT APPLE DA3-3 LOCATION
ELEVATION MONITORING DEVICE
SAMPLING DATE(S) START FINISH
SAMPLING METHOD SUBCONTRACTOR & EQUIPMENT
MEMO

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: REC	Sampler Depth Interval (ft.)	Sample ID #	OVM reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Well Construction Details
	27-27-50	77	120-121.5		0.0	Brown (10 YR 4/3) loamy fine sand; non-plastic; unconsolidated; gravelly; moist.	SW			
						Brown (10 YR 4/3) very gravelly sand; non-plastic; unconsolidated; moist.	GW			
125'	42-43-48	91	125-126.5		0.0	Brown (10 YR 4/3) fine sand; non-plastic; unconsolidated; gravelly; moist.	SW			
130'	12-22-30	52	130-131.5		0.0	Brown (10 YR 4/3) loam; soft; slightly plastic; gravelly; moist.	ML			
135'	36-50	100+	155-156.0		0.0	Olive brown (2.5 Y 4/4) sand; unconsolidated; gravelly; slightly moist.	SW			
140'	15-18-16	34	140-141.5		0.0	Brown (10 YR 4/3) silt loam; soft; slightly plastic; moist.	ML			
145'	7-12-17	29	145-146.5		0.0					
150'										

Neat Cement With 5% Bentonite Mixture
2" I.D. Sch. 40 PVC Blank Casing
8" Borehole

SIGNATURE OF FIELD SUPERVISOR

TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

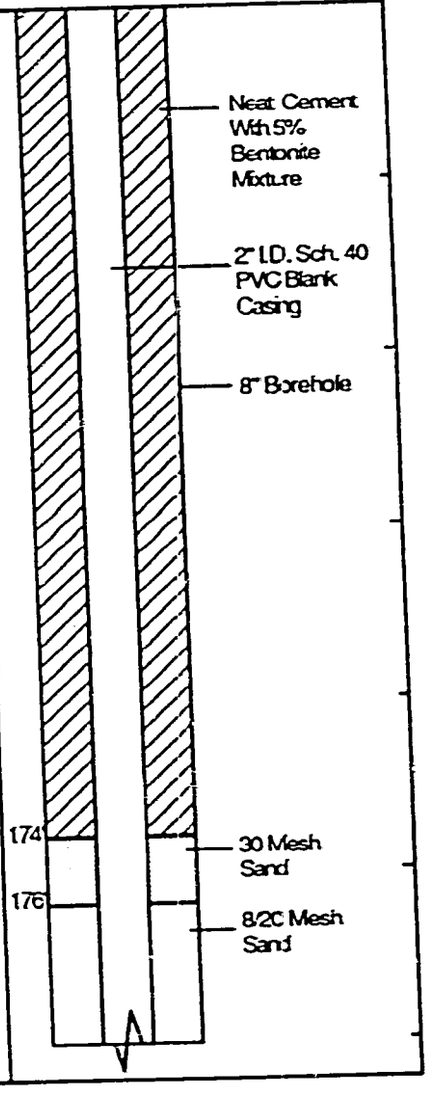
McLaren Environmental Engineering

MW # : MW-1
D- 3173
Page 6 of 7
Sampler: G. ROST

PROJECT APPLE DA3-3 LOCATION
ELEVATION MONITORING DEVICE
SAMPLING DATE(S) START FINISH
SAMPLING METHOD SUBCONTRACTOR & EQUIPMENT
MEMO

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	OVM reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth
	12-19-24	43	150-151.5	28832	0.0	Brown (10 YR 4/3) silt loam; soft; slightly plastic; moist	ML		
155'	18-25-24	49	155-156.5		0.0	Brown (7.5 YR 5/4) silty clay loam; stiff; moderately plastic; moist.	CL		
160'	12-30-50	80	160-161.5		0.0	Brown (10 YR 4/3) very gravelly loam; soft; slightly plastic; moist; ~60 % sub-rounded gravels.	GC		
165'	26-37-50	87	165-166.5		0.0				
170'	36-22-22	44	170-171.5		~0.0	Brown (10 YR 5/3) silt loam; soft; slightly plastic; moist.	ML		
175'	37-50	100	175-176.0		0.0	Brown (10 YR 5/3) very gravelly silt loam; soft; slightly plastic; moist.	GC		
180'									

Well Construction Details



SIGNATURE OF FIELD SUPERVISOR

TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

McLaren Environmental Engineering

MW # : MW-1
D- 3174
Page 7 of 7
Sampler: G. ROST

PROJECT APPLE DA3-3 LOCATION
ELEVATION MONITORING DEVICE
SAMPLING DATE(S) START FINISH
SAMPLING METHOD SUBCONTRACTOR & EQUIPMENT
MEMO

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	OVM reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Well Construction Details
	33-22-25	47	180-181.5		0.0	Brown (10 YR 5/3) silt loam; soft; slightly plastic; very moist	ML			8" Borehole
185'	36-50	100	185-186.0		0.0	Brown (10 YR 4/3) very gravelly loam; soft; slightly plastic; saturated.	GC			2" I.D. 0.020" Slotted PVC Well Casing
190'	9-13-26	39	190-191.5		0.0					
195'	15-24-33	57	195-196.5		0.0	Brown (10 YR 5/3) silt loam; soft; moderately plastic; moist	ML			8/20 Mesh Filter Pack
200'	50	100	200-200.5	28833	0.0				200	T.D.
										End Cap

SIGNATURE OF FIELD SUPERVISOR

TITLE

SIGNATURE OF REVIEWER

TITLE

Appendix B - Report on 1986 Shallow Soil Borings at the De Anza 7 Building

REPORT

SOIL SAMPLING FOR HYDROCARBON ANALYSIS

10431 North DeAnza Boulevard
Cupertino, California

October 9, 1986
Job No. 0009-02

EGC
ENVIRONMENTAL GEOTECHNICAL CONSULTANTS, INC.
CONSULTANTS IN THE APPLIED EARTH SCIENCES

EGC

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS, INC.
CONSULTANTS IN THE APPLIED EARTH SCIENCES

609 PRICE AVENUE, SUITE 102, REDWOOD CITY, CALIFORNIA 94063
TELEPHONE (415) 367-8744

October 9, 1986
Job No. 0009-02

Chips Environmental Consultants, Inc.
1285 Edmundson Avenue
Morgan Hill, CA 95037

Attention: Mr. Mark D. Chips

Subject: **Soil Sampling For Hydrocarbon Analysis**
10431 North DeAnza Boulevard
Cupertino, California

Gentlemen:

Pursuant to your verbal authorization, we have completed the drilling and soils sampling at the subject site. At the time of our field work, the site was in various stages of construction for a new facility to be occupied by Apple Computer, Inc.

LOCATION AND SITE DESCRIPTION

The project site which is presently under construction is located at 10431 North DeAnza Boulevard in Cupertino, California.

PURPOSE & SCOPE

The purpose of this field investigation was to obtain subsurface soil samples from representative locations throughout the subject site.

All of the samples collected during this drilling operation were wrapped in aluminum foil, taped and placed in plastic bags, then stored under refrigeration with ice to insure the preservation of possible contaminents. The soil samples were then labeled, sorted and transported from the project site by a representative of Chips Environmental.

These samples will be sealed and frozen to create an archive of soil samples that represent current site environmental conditions. As testing technology advances, these samples may be retrieved from the archive and tested under the most current methodologies.

FIELD INVESTIGATION

A soils exploratory field investigation was performed at the project site on October 1 and 2, 1986, by the Project Engineer under the direction of a licensed Engineering Geologist. The investigation consisted of a surface site reconnaissance, drilling, sampling and logging of eight exploratory test borings. A truck-mounted drill rig was employed to advance the borings using a 6-inch diameter solid stem continuous flight auger. Undisturbed soil samples were obtained at selected depths using brass liners in a California modified (2" diameter) split tube sampler. Bag samples were substituted when the borings exhibited caving soils. Six borings were advanced to a depth of 25 feet, while two borings were terminated at depths of 13-1/2 and 17 feet due to caving soils. The borings were located by a representative of Chips Environmental Consultants. The enclosed Site Plan, Figure No. 2, shows the boring locations with respect to the proposed structure.

SOIL ENCOUNTERED

The soils at the site were found for the most part to be naturally deposited in nearly horizontal layers. They were found to be a composite of sands and gravels with only minor amounts of clay binder. A detailed description of the soils encountered can be found in Figures No. 3 through 10 of this report.

If you have any questions or require supplemental data, please feel free to contact us at your convenience.

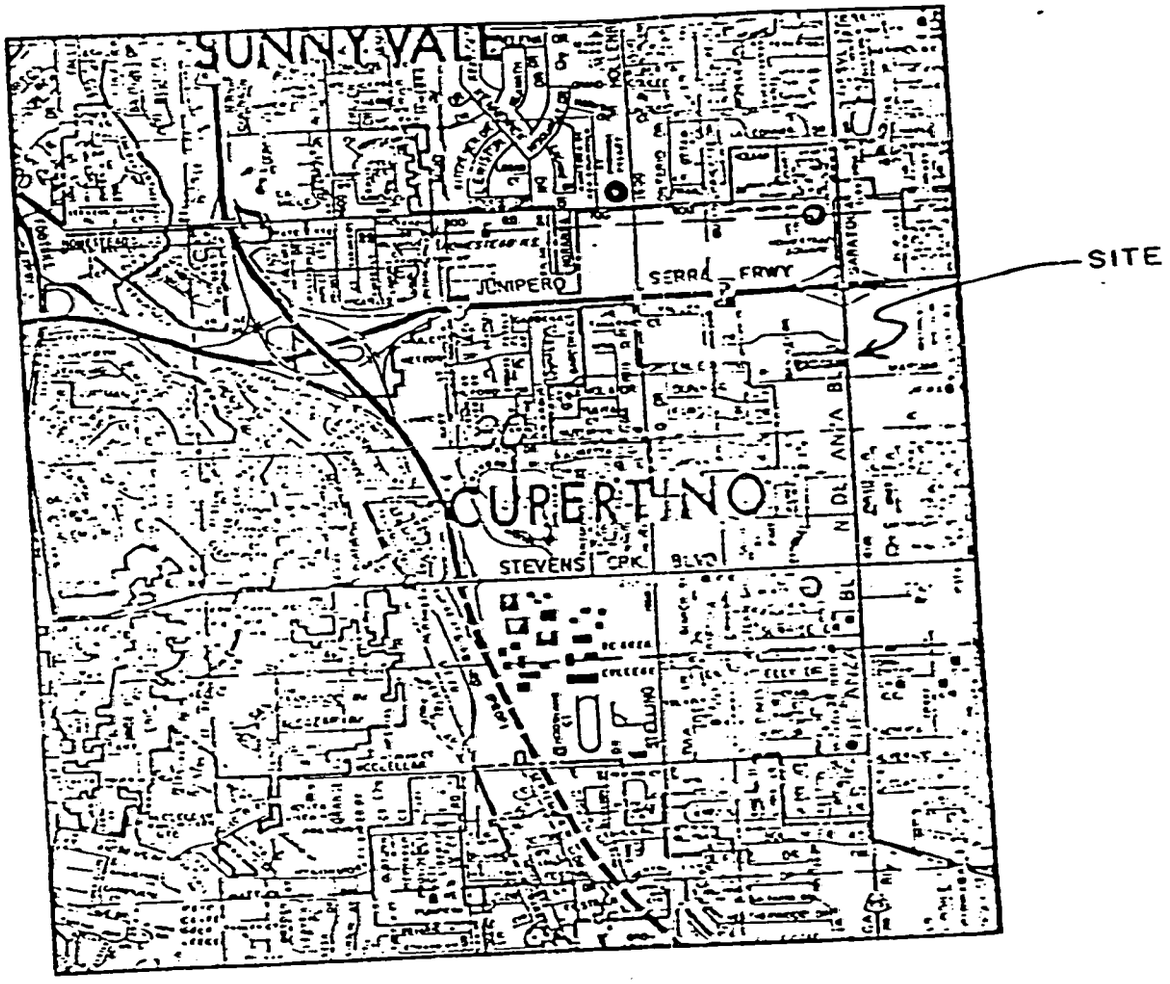
Very truly yours,

E.G.C., Inc.

Kendall W. Price, CEG No. 1188
Associate

Bruce J. Murphy
Director
Environmental Services

KWP:BJM/jo



SITE VICINITY MAP

Thomas Brothers Maps

Santa Clara County

Page 59, Square F-3

ENVIRONMENTAL GEOTECHNICAL
CONSULTANTS

FILE 0009-02

BY _____ DATE _____

CHECKED BY BDM

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS

LOCATION OF BORING

JOB NO	CLIENT	LOCATION
009-02	Chips Environmental	Cupertino

DRILLING METHOD: Continuous Flight Auger

SAMPLING METHOD: Bag & Brassliners

BORING NO: B-1

SHEET: 1 OF 2

					DRILLING START	DRILLING FINISH
WATER LEVEL					TIME	TIME
TIME	-					
DATE				-	DATE	DATE
CASING DEPTH					10/7/86	-

DATUM: ELEVATION:

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	
						0		ML Brown sandy silt, moist, medium stiff
						1		
						2		SM Light brown silty sand w/scattered gravel, moist, medium dense
						3		
						4		
			1 / 5	50		5		
						6		
						7		CL Brown sandy clay w/scattered gravel, moist, very stif
						8		
						9		
			2 / 10	42		10		
						1		Increased gravel
						2		
						3		
						4		
			3 / 15	40		15		SC Brown clayey sand, moist, medium dense
						6		
						7		CL Brown sandy clay, wet, stiff
						8		
						9		GP Light brown sandy gravel, moist, medium dense.
						20		

CHK'D BY

DATE

BY

LOCATION OF BORING

JOB NO	CLIENT	LOCATION
009-02	Chips Environmental	Fullerton

DRILLING METHOD

BORING NO: S-1

SHEET: 2 of 2

SAMPLING METHOD

DRILLING

					START	FINISH
WATER LEVEL					TIME	TIME
TIME						
DATE					DATE	DATE
CASING DEPTH					10/7/86	

DATUM ELEVATION

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH
			4 / 20	68		20	
						1	
						2	
						3	
						4	
			5 / 25			25	
						6	
						7	
						8	
						9	
						30	
						1	
						2	
						3	
						4	
						35	
						6	
						7	
						8	
						9	
						40	

GP
Light brown sandy gravel w/trace of cobble, moist, medium dense

increased Gravel

severe caving below 20'9"

prevents taking drive sample at 25' (retrieved bag sample)

NOTES:

1. Hole terminated at 25'
2. Caving up to 22'9" after drilling
3. No groundwater encountered
4. Hole backfilled and tamped

DRILLING CONTR

CHK'D BY

DATE

FIGURE NO. 3

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS

LOCATION OF BORING

JOB NO	CLIENT	LOCATION
009-02	Chips Environmental	Cupertino

DRILLING METHOD

SAMPLING METHOD:

BORING NO: B-2

SHEET: 1 OF 2

					DRILLING START TIME	DRILLING FINISH TIME
WATER LEVEL						
TIME						
DATE					DATE	DATE
CASING DEPTH					10/1/86	

DATUM ELEVATION

SURFACE CONDITIONS:

DRILLING CONTR

CHK'D BY

DATE

SAMPLER TYPE	MOIST. WATER / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO / DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	
						0		ML Brown sandy silt, moist, medium dense
						1		
						2		SM Light brown silty sand w/some gravel, moist, medium dense, fine to medium grained
						3		
						4		
			1 / 5	52		5		
						6		GP Light brown sandy, clayey gravel w/lenses of silty clay, moist, dense
						7		
						8		
						9		
			2 / 10	61		10		
						1		
						2		SM/ML Brown interlayered sandy silt and silty sand, moist, very stiff
						3		
						4		
			3 / 15	42		15		
						6		
						7		GP Brown sandy gravel w/lenses of silty clay, moist, dense
						8		
						9		
						20		

FIGURE NO. 4

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS

JOB NO	CLIENT	LOCATION
009-02	Chips Environmental	Cupertino

LOCATION OF BORING

DRILLING METHOD

SAMPLING METHOD

BORING NO: B-2

SHEET: 2 OF 2

					DRILLING START TIME	DRILLING FINISH TIME
WATER LEVEL						
TIME						
DATE					DATE	DAT
CASING DEPTH					10/1/85	

DATUM ELEVATION

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH
			4 / 20	80		20	
						1	
						2	
						3	
						4	
			5 / 25			25	
						6	
						7	
						8	
						9	
						30	
						1	
						2	
						3	
						4	
						35	
						6	
						7	
						8	
						9	
						40	

GP + OCL
Brown sandy gravel w/lenses of silty clay, moist dense

GP
Greenish brown sandy gravel, wet, dense

Severe caving below 22' prevent taking drive sample at 25', took bag sample instead

NOTES:

1. Hole terminated at 25'
2. Caving up to 22' after drilling
3. No groundwater encountered
4. Hole backfilled and tamped

CHK'D BY

DATE

FIGURE NO. 4

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS

LOCATION OF BORING

JOB NO	CLIENT	
009-002	Chips Environmental	Cupertino

DRILLING METHOD

SAMPLING METHOD:

BORING NO B-3

SHEET 1 of 2

					DRILLING START TIME	DRILLING FINISH TIME
WATER LEVEL						
TIME						
DATE					DATE	DATE
CASING DEPTH					10/1/86	

DATUM ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	SURFACE CONDITIONS:
						0		ML Reddish brown sandy silt, moist, stiff
						1		
						2		
						3		
						4		ML Brown sandy silt w/scattered coarse sand, moist, hard
			1 / 5	77		5		
						6		
						7		
						8		SM Brown silty sand, moist, medium dense
						9		
						10		
			2 / 10	21		1		
						2		ML Brown sandy silt, wet, very stiff
						3		
						4		
			3 / 15	52		15		
						6		GP Greenish brown sandy gravel, moist, very dense
						7		
						8		
						9		Severe caving below 18' prevent taking drive sample below 18'
						20		

CHK'D BY

DATE

FIGURE NO. 5

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS

LOCATION OF BORING

JOB NO	CLIENT	LOCATION
009-02	Chips Environmental	Cupertino

DRILLING METHOD

SAMPLING METHOD

BORING NO: B-3

SHEET: 2 of 2

					DRILLING START	DRILLING FIN
WATER LEVEL					TIME	TIME
TIME						
DATE					DATE	DATE
CASING DEPTH					10/1/86	

DATUM ELEVATION

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH
			4 / 20			20	
						1	
						2	
						3	
			5 / 19			4	
						25	
						6	
						7	
						8	
						9	
						30	
						1	
						2	
						3	
						4	
						35	
						6	
						7	
						8	
						9	
						40	

GP
Increased Gravel (Bag sample)

Cobbles (Bag sample)

NOTES:

1. Hole terminated at 25'
2. Caving up to 20'after drilling
3. No groundwater encountered
4. Hole backfilled and tamped

DRILLING CONTR

CHK'D BY

DATE

STROKE NO 5

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS

LOCATION OF BORING

JOB NO	CLIENT	LOCATION
009-02	Chips Environmental	Cupertino

DRILLING METHOD

BORING NO: B-4

SHEET: 1 of 2

SAMPLING METHOD:

DRILLING: START TIME / FINISH TIME

WATER LEVEL					
TIME					
DATE					
CASING DEPTH					

DATE: 10/2/86

DATUM ELEVATION

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	
						0		ML Reddish brown sandy silt, moist, medium stiff
						1		
						2		
						3		ML Reddish brown clayey silt, moist, stiff
						4		
						5		
			1 / 5	34		6		
						7		GP Brown sandy clayey gravel, moist, dense
						8		
						9		ML Reddish brown clayey silt, moist, stiff
			2 / 10			10		Bag Sample
						1		
						2		GP Brown sandy clayey gravel, moist, dense
						3		
						4		
			3 / 15			15		Bag Sample
						6		
						7		Cobble
						8		
						9		Increase cobble
			4 / 20			20		Bag Sample

CHK'D BY

DATE

FORM NO. 4

LOCATION OF BORING

JOB NO	CLIENT	LOCATION
009-02	Chips Environmental	Cupertino

DRILLING METHOD

BORING NO B-4

SHEET 2 of 2

SAMPLING METHOD

DRILLING START / FINISH

					TIME	TIME
WATER LEVEL						
TIME	-					
DATE					DATE	DATE
CASING DEPTH			-		10/2/86	

DATUM ELEVATION

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RUNS	DEPTH IN FEET	SOIL GRAPH
						20	
						1	
						2	
						3	
			5 / 24			4	
						25	
						6	
						7	
						8	
						9	
						30	
						1	
						2	
						3	
						4	
						35	
						6	
						7	
						8	
						9	
						40	

GP
Brown sandy clayey gravel w/some cobbles

Bag Sample

NOTES:

1. Hole terminated at 25'
2. Caving up to 21'8" after drilling
3. No groundwater encountered
4. Hole backfilled and tamped

DRILLING CONTR.

CHK'D BY

DATE

FIGURE NO. 6

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS

JOB NO	CLIENT	LOCATION
009-02	Chips Environmental	Cupertino

LOCATION OF BORING

DRILLING METHOD

SAMPLING METHOD:

BORING NO: B-5

SHEET: 1 of 1

					DRILLING START TIME	DRILLING FINISH TIME
WATER LEVEL						
TIME						
DATE					DATE	DATE
CASING DEPTH					10/2/86	

DATUM ELEVATION

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	
						0		ML Reddish brown sandy silt w/minor clay, damp, stiff
						1		
						2		
						3		ML Reddish brown clayey silt, damp, very stiff
						4		
						5		
-			1 / 5	44		6		GP Brown clayey sandy gravel w/minor cobble, moist, dense
						7		
						8		
						9		
			2 / 10			10		Bag sample
						11		Increased cobble
						12		
			3 / 13			13		Bag sample
-						14		
						15		
						16		
						17		
						18		
						19		
						20		

LOGGED BY

DATE

NOTES:

1. Hole terminated at 13.5' due to refusal
2. Caving up to 11.5' after drilling complete
3. No groundwater encountered
4. Hole backfilled and tamped

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS

LOCATION OF BORING

JOB NO	CLIENT	LOCATION
009-02	Chips Environmental	Cupertino

DRILLING METHOD:

SAMPLING METHOD:

BORING NO: B-6

SHEET: 1 of 1

					DRILLING START TIME	DRILLING FINISH TIME
WATER LEVEL						
TIME						
DATE					DATE	DATE
CASING DEPTH					10/2/86	

DATUM: ELEVATION:

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	
						0		ML Reddish brown sandy silt, damp, medium dense
						1		
						2		
						3		ML Reddish brown clayey silt w/trace of sand, moist, very dense
						4		
			1 / 5	39		5		
						6		
						7		GP Brown clayey sandy gravel, moist, dense
						8		
						9		
			2 / 10	46		10		
						11		
						12		Increase cobble
						13		
						14		
			3 / 15			15		Bag sample
						16		
						17		
						18		
						19		
						20		

CHK'D BY:

DATE:

NOTES:
1. Hole terminated at 17' due to refusal
2. Caving up to 13' after drilling
3. No groundwater encountered
4. Hole backfilled and tamped

DRAWING NO. 8

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS

JOB NO	CLIENT	PROJECT
009-02	Chips Environmental	Cupertino

LOCATION OF BORING

DRILLING METHOD

SAMPLING METHOD

BORING NO: B-7

SHEET: 1 of 2

					DRILLING START TIME	DRILLING FINISH TIME
WATER LEVEL						
TIME						
DATE					DATE	DATE
CASING DEPTH					10/2/86	

DATUM ELEVATION

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	
						0		ML Brown sandy silt, moist, very stiff
						1		
						2		SC Brown clayey sand w/some gravel, moist, dense
						3		
						4		
			1 / 5	85		5		
						6		
						7		GP Brown clayey sandy gravel, moist, dense
						8		
						9		
			2 / 10	50		10		
						11		
						12		
						13		About 2' of gravel and cobble (slough) at bottom of hole prevented obtaining driven samples below 14'
			3 / 15			14		
						15		Bag sample
						16		
						17		
						18		Increased cobble
			4 / 19			19		Bag sample
						20		

CHK'D BY

DATE

FIGURE NO. 9

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS

JOB NO	CLIENT	LOCATION
009-02	Chips Environmental	Cupertino

LOCATION OF BORING

DRILLING METHOD

SAMPLING METHOD

BORING NO. B-7

SHEET 2 of 2

					DRILLING START TIME	DRILLING FINISH TIME
WATER LEVEL						
TIME	-					
DATE					DATE	DATE
CASING DEPTH					10/2/85	

DATUM ELEVATION

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	
						20		GP
						1		Cobbles
						2		
						3		
			5 / 24			4		Bag Sample
						25		
						6		
						7		
						8		
						9		
						30		
						1		
						2		
						3		
						4		
						35		
						6		
						7		
						8		
						9		
						40		

NOTES:

1. Hole terminated at 25'
2. Caving up to 22' after drilling
3. No groundwater encountered
4. Hole backfilled and tamped

CHK'D BY

DATE

FIGURE NO. 8

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS

LOCATION OF BORING

JOB NO	CLIENT	LOCATION
009-02	Chips Environmental	Cupertino

DRILLING METHOD

BORING NO: B-8

SHEET: 1 of 2

SAMPLING METHOD:

DRILLING: START TIME / FINISH TIME

WATER LEVEL					
TIME	-				
DATE					
CASING DEPTH					

DRILLING: START DATE 10/2/86 / FINISH DATE

DATUM ELEVATION

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RUNS	DEPTH IN FEET	SOIL GRAPH	
						0		ML Brown sandy silt, moist, very stiff
						1		
						2		SC Brown clayey sand w/scattered gravels, moist, dense
						3		
						4		
-			1 / 5	74		5		
						6		
						7		GP Brown clayey sandy gravel w/some cobbles, moist, dense
						8		
						9		
			2 / 10	68		10		
						1		
						2		
						3		
						4		
						15		About 10' of gravel at bottom of hole prevents sampling at 15' No sample recovery
						6		
						7		GP Brown sandy gravel, moist, dense
						8		
			3 / 19			9		Bag sample
						20		

CHK'D BY

DATE

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS

JOB NO	CLIENT	LOCATION
009-02	Chips Environmental	Cupertino

LOCATION OF BORING

DRILLING METHOD

SAMPLING METHOD

WATER LEVEL					
TIME					
DATE					
CASING DEPTH					

BORING NO. B-8

SHEET 2 of 2

DRILLING START TIME / FINISH TIME

DATE 10/2/85 / DATE

DATUM ELEVATION

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	
						20		GP
						1		
						2		SM Brown fine silty sand w/scattered coarse sand, moist, dense
						3		
			4 / 25			4		Bag sample
						25		
						6		
						7		
						8		
						9		
						30		
						1		
						2		
						3		
						4		
						35		
						6		
						7		
						8		
						9		
						40		

NOTES:

1. Hole terminated at 25'
2. Caving up to 22' after drilling
3. No groundwater encountered
4. Hole backfilled and tamped

CHK'D BY

DATE

FIGURE NO. 10

Appendix C - Sample Chain-of-Custody Form

No. 002877

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME AND LOCATION:
SAMPLERS: *(Signature)*	PRINT NAME:

LINE	SAMPLE NO.	DATE	TIME	COMP.	GRAB	SAMPLE LOCATION	MATRIX	NO. OF CONTAINERS							REMARKS
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	LAB NAME:
			CITY:
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	COURIER:
			AIRBILL NO.:
Received for Laboratory by: *(Signature)*	PRINT NAME: / Date / Time		CUSTODY SEAL NOS:
			COOLER NO:

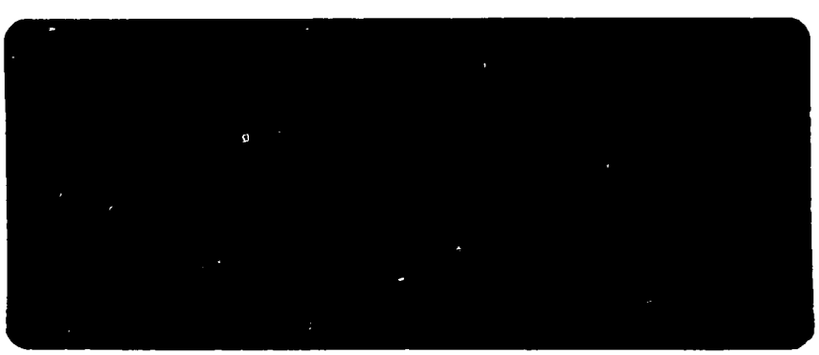
ATTENTION LAB: SEND ANALYTICAL RESULTS TO THE FOLLOWING ESC STAFF MEMBER:

ENVIRONMENTAL STRATEGIES CORPORATION
8521 LEESBURG PIKE, SUITE 650
VIENNA, VIRGINIA 22182
703-821-3700

ESC

DISTRIBUTION: ORIGINAL ACCOMPANIES SHIPMENT; COPY TO ESC FILES

ENVIRONMENTAL STRATEGIES CORPORATION



ENVIRONMENTAL STRATEGIES CORPORATION
101 METRO DRIVE, SUITE 650
SAN JOSE, CALIFORNIA 95110
408-453-6100
FAX-408-453-0496

SUPPLEMENTAL SITE INVESTIGATION
FOR
APPLE COMPUTER, INC.
10500 NORTH DE ANZA BOULEVARD
CUPERTINO, CALIFORNIA

7-31-91

PREPARED

BY

ENVIRONMENTAL STRATEGIES CORPORATION

JULY 31, 1991

Contents

	Page
Introduction	1
Description of the De Anza 3 Facility	1
Local Geology and Hydrogeology	3
Summary of Previous Site Investigations	6
Supplemental Site Investigation	9
Subsurface Investigation	9
Methods and Procedures for Soil Borings	9
Equipment Decontamination Procedures	11
Quality Assurance and Quality Control Procedures	11
Site Investigation Results	12
Sampling Locations and Descriptions	12
Quality Assurance and Quality Control	12
Discussion of Soil Sampling Results	14
Conclusions and Recommendations	15
Conclusions	15
Recommendations	15
References	16

List of Figures:

Figure 1 -	Location of the De Anza 3 facility	2
Figure 2 -	Topographic map of Cupertino	5
Figure 3 -	Location of soil boring BH-1	13

List of Appendices:

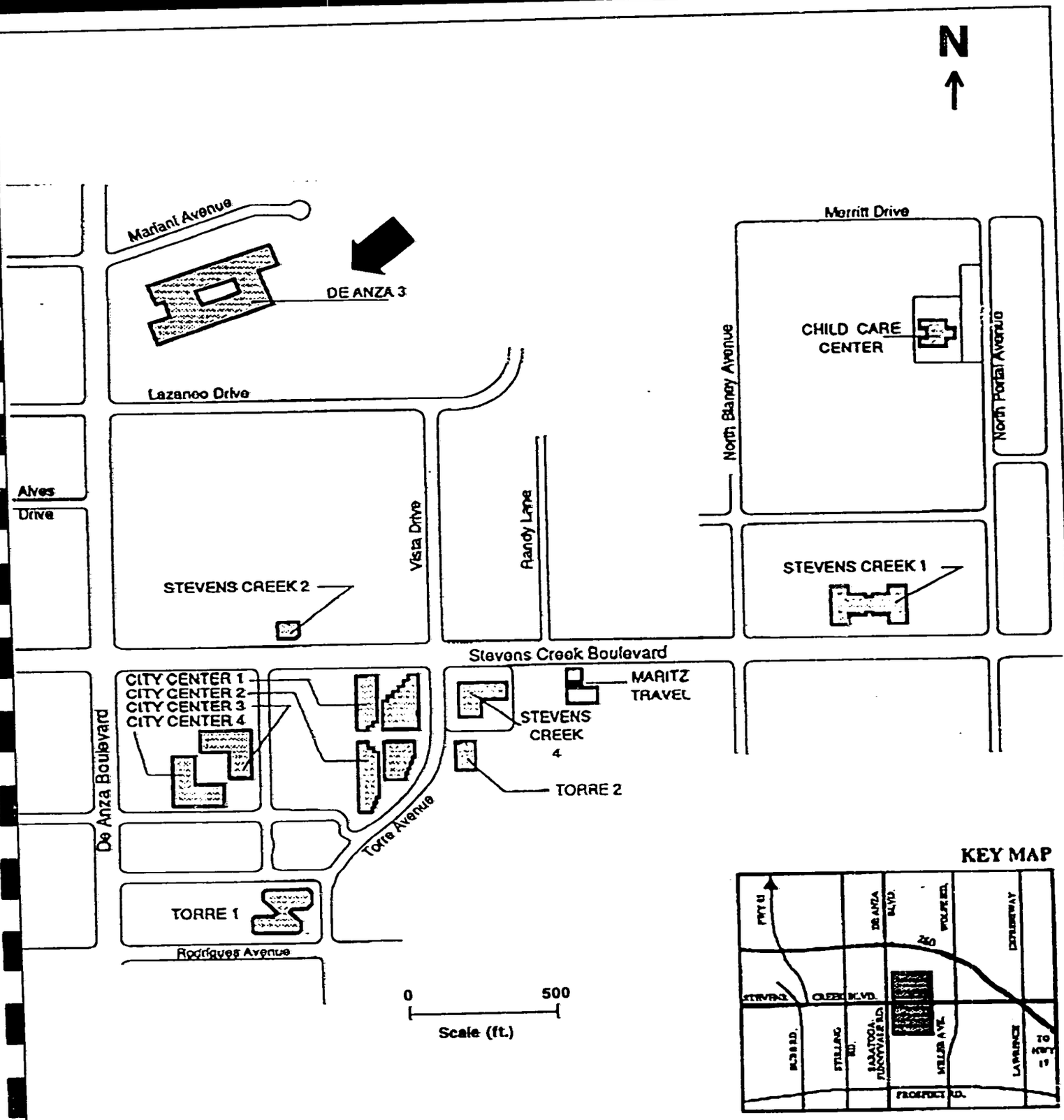
Appendix A - Lithologic log and well construction details for well MW-1
Appendix B - Soil vapor survey conducted in May 1988
Appendix C - SCVWD permit to drill exploratory boring
Appendix D - Boring log for soil boring BH-1
Appendix E - Laboratory reports and chain-of-custody documentation for soil samples

Introduction

This technical report is submitted to the Santa Clara Valley Water District (SCVWD) and presents the results of the installation of a soil boring at the De Anza 3 facility of Apple Computer, Inc. The De Anza 3 facility is located at 10500 North De Anza Boulevard in Cupertino, California. The objective of the investigation was to collect verification soil samples for closure of a former underground storage tank. This technical report is submitted in accordance with the requirements for a subsurface investigation as specified in the SCVWD's Guidelines for "Investigation and Remediation at Fuel Leak Sites," October 1990. Specifically, the technical report describes the methods and procedures for installing soil borings, soil sampling, laboratory analyses, and sample quality assurance and quality control (QA/QC), and presents the results of the site investigation.

Description of the De Anza 3 Facility

The De Anza 3 facility is Apple's Networking & Communications and Systems Engineering building located at 10500 North De Anza Boulevard, in Cupertino, California (Figure 1). De Anza 3 is situated on the southeastern corner of the intersection of North De Anza Boulevard and Mariani Avenue.



ESC

ENVIRONMENTAL STRATEGIES CORPORATION
101 METRO DRIVE • SUITE 650
SAN JOSE, CALIFORNIA 95110 • (408) 453-6100

Figure 1 - Location of the De Anza 3 facility Cupertino, CA

Local Geology and Hydrogeology

The city of Cupertino is situated in the Santa Clara Valley area of the Coastal Range geomorphic province of California (SCVWD, 1989). The valley forms the southern portion of a linear intermountain basin that extends from San Jose northwesterly to the San Francisco area. The local topography is dominated by the northwest-trending Santa Cruz Mountains southwest of Cupertino. Developed areas are characterized by a gently sloping valley floor with elevations decreasing from 400 feet near the mountain foothills to 100 feet around Sunnyvale, California.

The De Anza 3 facility is not located near any major drainage (rivers, creeks) in the Santa Clara Valley. The only mappable drainage courses in the area are Calabazas Creek located more than one mile east of site, and Stevens Creek located approximately 1.5 miles west of the site. No other surface water bodies (lakes, reservoirs) or groundwater recharge facilities are in the immediate site vicinity.

The geology of the Santa Clara Valley is characterized by relatively young (Pleistocene to Recent) unconsolidated alluvial deposits (clay, silt, sand, and gravel) underlain at depth by older, poorly consolidated to consolidated bedrock. These alluvial deposits are of the Santa Clara Formation. The thickness of the Pleistocene to Recent alluvium increases away from the bounding mountainous areas toward the center of the valley. Significant water-bearing zones (i.e., aquifers) are generally restricted to the more permeable deposits within the uncemented alluvium (Farrar and Bertoldi, 1988; SCVWD, 1989). The low porosity and

permeability of the more consolidated bedrock generally limits their capacity to store and transmit water, although relatively high well yields may be attained in highly fractured zones.

The De Anza 3 facility in Cupertino is situated along the southern margin of the Forebay hydrographic unit in the Santa Clara Valley Groundwater Basin (SCVWD, 1989). In this area, groundwater flows under unconfined conditions through coarse aquifer materials (sand and gravel). The saturated sand and gravel deposits are separated by discontinuous leaky aquitards consisting predominately of fine silt and clay sediments. The lithologic log for a monitoring well installed near the De Anza 3 building (well identification MW-1) indicates the presence of thick sand, sand and gravel and silty sand deposits with relatively thin (less than 20 feet thick) interbedded clay and silt layers. (See Appendix A for a copy of the lithologic log for well MW-1.) The presence of silt and clay layers in the unsaturated zone may allow for the creation of transient perched water horizons during periods of high surficial recharge.

Hydraulic gradients in the Forebay unit generally mimic the local topography, with the overall regional flow directed to the north and east toward the valley interior. No site-specific information is available on groundwater flow conditions in the unconsolidated deposits at the De Anza 3 facility. The depth to water in well MW-1 in March 1989 was 184 feet below ground surface (bgs). Based on the local topographic profile, groundwater flow in the vicinity of the site should be toward the northeast (Figure 2).

Source: USGS 7.5 minute
Cupertino, CA quadrangle
1961, photorevised 1980

Scale: 1" = 2000'

ENVIRONMENTAL STRATEGIES CORPORATION
101 METRO DRIVE • SUITE 650
SAN JOSE, CALIFORNIA 95110 • (408) 453-6100

Figure 2 - Topographic map of Cupertino, CA

Summary of Previous Site Investigations

The De Anza 3 complex had a 1,000-gallon single wall steel underground storage tank that was used to store diesel fuel for an emergency generator. On January 26, 1988 the tank was emptied and removed. David Ghilarducci, Hazardous Materials Inspector, Santa Clara County, Central Fire Protection District (CFPD) witnessed the tank removal. Upon removal of the tank, a small hole was discovered on the bottom of the tank. Free product was observed in the excavation near the fill end of the tank. An unauthorized release report was filed with the CFPD on January 29, 1988. A concrete tie-down slab was discovered under the tank at a depth of 7'2" and measured 14' x 6'9" x 10". Excavated soil and backfill were stockpiled in two piles on the site and soil samples were taken for diesel analysis. The results of the soil sample were 1300 mg/kg (ppm) total extractable hydrocarbons (TEH, i.e., diesel) for one pile and <4 ppm TEH for the other.

The concrete slab was broken and shifted to facilitate soil sampling. Soil samples were collected under the west and east ends of the slab. The west end sample was taken at a depth of 9'4" and the east end sample at a depth of 10 feet. Analyses indicated 8 ppm TEH at the west end and <7 ppm TEH at the east end.

The concrete slab was removed and manifested for disposal to a landfill. Soil samples were taken within the excavation. A west end sample at 12'6" showed levels of 130 ppm TEH. The east end sample at 12 feet was <1 ppm TEH. The north and south wall samples showed levels of 260 ppm TEH and 650 ppm TEH, respectively. The soil under the slab and below the clay layer, 12-14 feet bgs., was

determined to contain less than detectable limits of TEH. The side walls of the excavation were suspected of still containing have diesel contamination.

Six additional soil samples were taken from the clay layer at the bottom of the perimeter of the excavation. These clay samples were all below 2 ppm TEH except the sample from the northeast corner which was 69 ppm TEH. Four side wall samples were taken above the clay layer. These showed high diesel levels of 3900, 5500, and 4900 ppm TEH on the east, north, and west walls respectively. The south wall sample had a non-detectable concentration of diesel.

On May 31, 1988, a soil vapor survey was conducted of the area surrounding the tank excavation site (Appendix B). The survey was conducted to determine the lateral and vertical extent of diesel contamination. Only three of the probes showed significant hydrocarbon readings. These samples included probe D with a reading of 55 ppm total hydrocarbons (TH) as propane at a depth of 10-12 feet, probe E with a reading of 70 ppm TH at 10-12 feet, and probe F with a reading of 130 ppm TH at 9-11 feet. Soil samples were collected next to the probe locations. All samples were analyzed for total petroleum hydrocarbons (TPH) as diesel and gasoline and for benzene, toluene, xylenes, and ethylbenzene (BTXE). All samples showed only diesel contamination above detection limits. The soil sample near probe D showed a concentration of 7.9 ppm TPH as diesel, near probe E was 13 ppm, and near probe F was 23 ppm. The soil vapor study showed that the diesel contamination was located at a depth of 8-12 feet below

grade and extended out 2-4 feet from the edges of the excavation on the north, west, and east sides.

The excavation was enlarged by 2 feet on the west, north, and east walls and deepened to 13 feet below grade. Following excavation, a total of seven side wall samples were taken at a depth of 12.5 feet below grade, two on the west wall, three on the north wall, and two on the east wall. Two soil samples were also taken at the bottom of the excavation at a depth of 13 feet below grade. Two composite soil samples were taken from the excavated soil. All the soil samples taken from the side walls and the bottom of the excavation showed non-detectable concentrations of diesel. The two composite samples of the excavated soil indicated results of 175 and 150 ppm TPH as diesel. The excavated soil was manifested and disposed of at Casmalia Resources, Inc. The excavation was backfilled and the asphalt paving was replaced.

Supplemental Site Investigation

Subsurface Investigation

In a letter dated April 25, 1991, the SCVWD requested a technical report containing a workplan for additional investigation at the De Anza 3 site. The SCVWD requested the installation of one soil boring in the vicinity of the former underground diesel tank and collection of verification soil samples. The workplan for additional investigation was submitted to the SCVWD on June 3, 1991. In a letter dated June 13, 1991, the SCVWD commented on the workplan and requested a technical report presenting the results of the additional site investigation.

The objective of the subsurface investigation was to collect verification soil samples for closure of the former underground diesel storage tank. A soil sample was collected directly above the clay layer at a depth of ten feet to verify that any possible lateral migration of diesel fuel contamination was removed during over-excavation.

Methods and Procedures for Soil Borings

The soil boring was drilled using a hollow stem auger rig capable of drilling an eight-inch (O.D.) borehole. The borings were logged in the field by an ESC hydrogeologist using the Unified Soil Classification System (USCS), under the supervision of a California Registered Geologist. Soil samples for lithologic analysis were obtained at 2.5-foot intervals from boring BH-1 using a California modified split spoon sampler driven ahead of the lead

auger. All soil samples were screened in the field for volatile organic compounds (VOCs) using a portable photoionization detector (PID). Soil samples for chemical analysis were collected every 5 feet. Soil samples were obtained by driving a split spoon sampler with clean, 6-inch long brass tubes into the undisturbed soil. Following retrieval of the sampler, the ends of each brass tube were covered with teflon tape and sealed using tight-fitting plastic caps secured with tape. Each sample was then labeled, sealed in an air tight bag, and placed in an cooled ice chest for shipment to a California-certified analytical laboratory. Chain-of-custody documentation was recorded for each sample and shipped with the sample containers.

Soil samples from boring BH-1 were analyzed for TPH as diesel using California Modified EPA Test Method 8015 as specified in the LUFT Field Manual and BTXE using EPA Test Method 8020. One field duplicate was collected to evaluate analytical precision and variations in contaminant concentrations in the soil matrix. One field blank was collected to check decontamination procedures for the sampling equipment. The laboratory detection limits for TPH as diesel and BTXE are 1 ppm and 0.005 ppm, respectively.

Material removed from the boreholes was placed in DOT-approved 55-gallon drums, and temporarily stored at the facility pending the soil analytical results. The boring was abandoned by backfilling to the surface with a cement mixture containing less than 5% bentonite.

Equipment Decontamination Procedures

All sampling equipment which came in contact with potentially contaminated soil was decontaminated using the following procedure:

- remove solids with a non-phosphate detergent solution
- rinse with tap water
- double rinse with deionized or distilled water
- air dry.

Quality Assurance and Quality Control Procedures

ESC's Quality Assurance Officer (QAO) was responsible for establishing data quality requirements and detection limits for all soil analyses, and ensuring that quality assurance goals were met during the investigation. The QAO worked closely with the certified analytical laboratory to facilitate the planned sampling and analytical activities. The QAO's overall responsibilities include, but were not limited to: sampling quality control, laboratory quality control, data processing quality control, data quality review, performance auditing, systems auditing, and overall quality assurance. An analytical data quality assurance and quality control (QA/QC) report is included in this field investigation report.

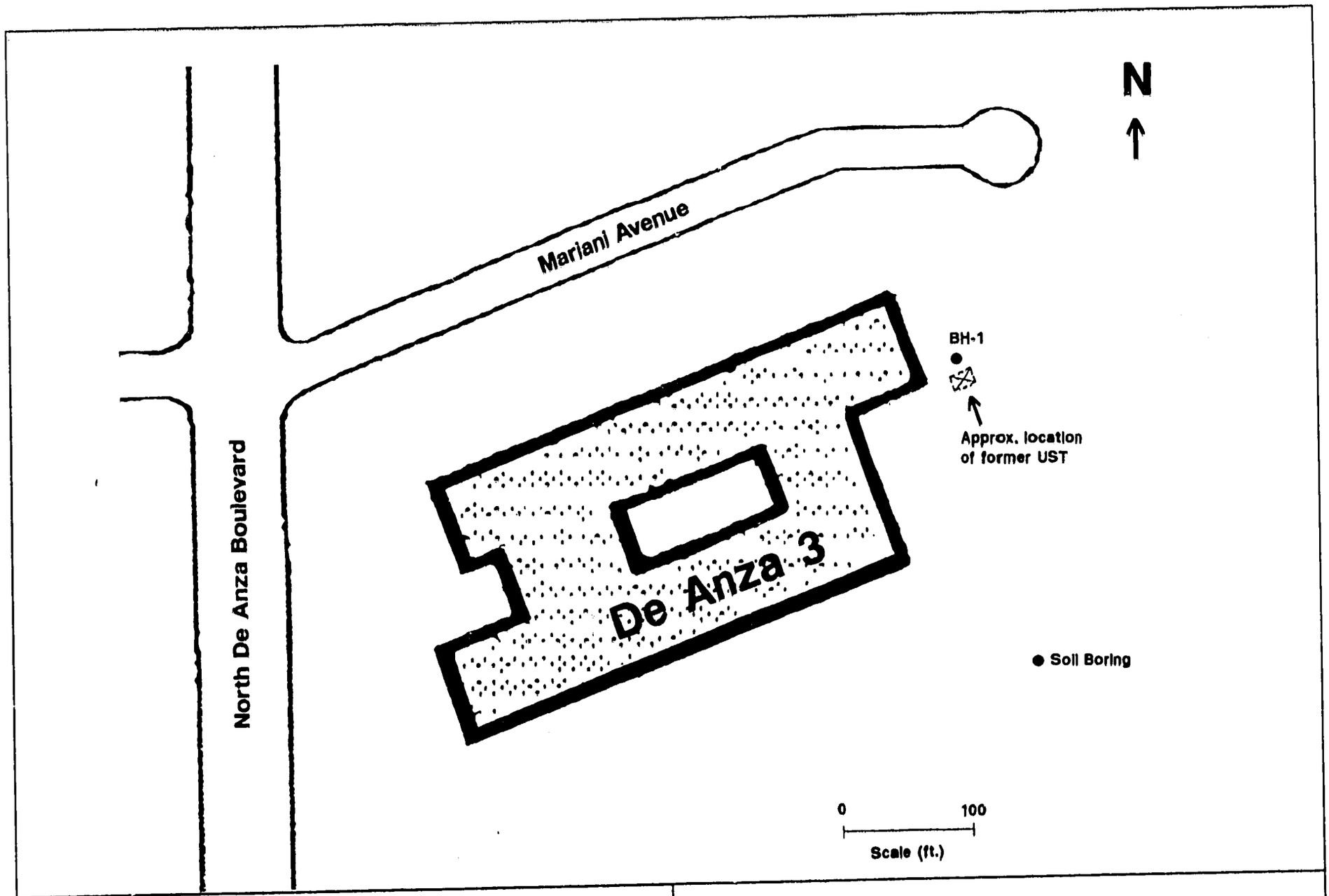
Site Investigation Results

Sampling Locations and Descriptions

One soil boring (BH-1) was installed ten feet north of the center of the former underground diesel tank in the vicinity of previously detected soil contamination. The location of soil boring BH-1 is shown in Figure 3. Based on lithologic data from well MW-1 and previous soil samples from the tank excavation pit, the soil boring was drilled to a depth of 52 feet below ground surface. Since this boring was over 45 feet deep, a permit to drill an exploratory boring was obtained from the SCVWD (Appendix C). The soil boring was installed and soil samples were collected on June 16, 1991. The boring log for soil boring BH-1 is presented in Appendix D.

Quality Assurance and Quality Control

Field quality assurance and quality control (QA/QC) procedures for sampling included the collection of duplicate samples, field blanks, and trip blanks. The duplicate sample was analyzed along with the other samples to evaluate the reproducibility of the sample collection and analytical procedures. The field blank was collected by pouring laboratory grade distilled/deionized water over the sampling instruments and served to determine if any contaminants were inadvertently introduced from the sampling equipment or sampling procedures. The trip blank was an unopened bottle of laboratory grade distilled/deionized water that accompanied the sample shipment to ensure that no contamination was



ESC
ENVIRONMENTAL STRATEGIES CORPORATION
101 METRO DRIVE • SUITE 650
SAN JOSE, CALIFORNIA 95110 • (408) 453-6100

Figure 3 - Location of soil boring BH-1

introduced during shipment. The field and trip blanks were analyzed for BTXE and TPH as gasoline.

Discussion of Soil Sampling Results

Analytical results for soil boring BH-1 are presented in Appendix E. Sample BH-1-55 is a duplicate soil sample of BH-1 at 50 feet (BH-1-50). The samples were analyzed for TPH as diesel and BTXE. TPH as diesel and BTXE were not detected in any soil samples, the field blank, or the trip blank. Sample BH-1-10 was collected directly above the clay layer and showed nondetectable levels of TPH as diesel and BTXE. Chain-of-custody documentation is also presented in Appendix E. The material removed from the borehole was used on landscaped areas onsite.

Conclusions and Recommendations

Conclusions

The objective of this investigation was to collect verification soil samples for closure of a former underground storage tank. One soil boring, BH-1, was installed to a depth of 52 feet at the De Anza 3 facility. Soil samples were collected every five feet and analyzed for TPH as diesel and BTXE. TPH as diesel and BTXE were not detected in any soil samples. The results of this investigation verify that diesel fuel contamination was removed during over-excavation conducted in September 1988.

Recommendations

ESC recommends that the fuel leak investigation at the De Anza 3 facility be considered for closure. The SCVWD should recommend closure of this site to the Regional Water Quality Control Board, San Francisco Bay Region.

References

Farrar, C.D., and Bertoldi, G.L. 1988. Region 4, Central Valley and Pacific Coast Ranges, in Back, W., Rosenhein, J.S., and Seaber, P.R., eds., Hydrogeology. Geol. Surv. Amer., The Geology of North America, vol. O-2, p. 59-67.

Santa Clara Valley Water District. 1989. Standards for the Construction and Destruction of Wells and other Deep Excavations in Santa Clara County.

Appendix A - Lithologic Log and Well Construction Details for Well MW-1

SOIL DRILLING LOG

McLaren Environmental Engineering

MW # : MW-1
D- 3168
Page 1 of 7
Sampler: G. ROST

PROJECT APPLE DA3-3 LOCATION 100' E OF De ANZA BLVD., 27' N OF S WALL
ELEVATION ~200' MONITORING DEVICE 580 A OVM
SAMPLING DATE(S) 3/29 - 3/31/1989 START 1115 FINISH 1300
SAMPLING METHOD CALIFORNIA SPLIT SPOON SUBCONTRACTOR & EQUIPMENT ALL TERRAIN DRILLING CME 95 W/8" HSA
SAMPLER
MEMO UPPER 140' OF LITHOLOGY DETERMINED FROM BORING DRILLED APPROXIMATELY 12' E OF MW-1 ON 3/14-16/89 BY GREGG DRILLING.

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID#	OVM reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth
5'	17-30-37	67	5.0-6.5		0.0	Dark yellowish brown (10 YR 4/4) very gravelly sandy loam; soft; non-plastic; moist.	GW		
10'	18-48-38	86	10.0-11.5		0.0				
15'	12-19-32	51	15.0-16.5		0.0	Dark gray (10 YR 4/1) coarse sand; non-plastic; unconsolidated; moist.	SW		
20'	12-15-50	65	20.0-21.0		0.0				
25'	28-50	100+	25.0-26.0		0.0	Dark yellowish brown (10 YR 4/4) very gravelly sandy loam; soft; non-plastic; moist.	GW		
30'	50	100	30-30.5		0.0				

Well Construction Details
- G-5 Christy Box
- Locking Watertight Cap
- 8" Borehole
- Neat cement with 5% Bentonite Mixture
- 2" I.D. Sch. 40 PVC Blank Casing

SIGNATURE OF FIELD SUPERVISOR

TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

McLaren Environmental Engineering

MW # : MW-1
D- 3169
Page 2 of 7
Sampler: G. ROST

PROJECT APPLE DA3-3 LOCATION
ELEVATION MONITORING DEVICE
SAMPLING DATE(S) START FINISH
SAMPLING METHOD SUBCONTRACTOR & EQUIPMENT
MEMO

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	OVM reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Well Construction Details
	50	100 +	30.0-30.5		0.0					
35'	43-50	100 +	35.0-36.0		0.0					
40'	38-46-48	94	40.0-41.5		0.0	Dark yellowish brown (10 YR 4/4) very gravelly sandy loam; soft; non-plastic; moist.	GW			
45'	39-50	100	45.0-46.0		0.0					
50'	23-24-25	49	49.0-50.5	28830	0.0					
55'	41-50		55.0-56.0		0.0					
60'										

Well Construction Details: Neat Cement With 5% Bentonite Mixture; 2" I.D. Sch. 40 PVC Blank Casing; 8" Borehole

SIGNATURE OF FIELD SUPERVISOR

TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

McLaren Environmental Engineering

MW # : MW-1
D- 3170
Page 3 of 7
Sampler: G. ROST

PROJECT APPLE DA3-3 LOCATION
ELEVATION MONITORING DEVICE
SAMPLING DATE(S) START FINISH
SAMPLING METHOD SUBCONTRACTOR & EQUIPMENT
MEMO

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	OVM reading (ppm)	Soil Description: Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Well Construction Details
	10-21-30	51	60.0-61.5		0.0	Brown (10 YR 4/3) sandy loam; soft; slightly plastic; gravelly moist.	SC			Neat Cement With 5% Bentonite Mixture
65'	31-50	100 +	65.0-66.0		0.0	Very dark grayish brown (10 YR 3/2) very gravelly loamy sand; soft; non-plastic; moist; ~60% sub-rounded gravels.	GW			2" I.D. Sch. 40 PVC Blank Casing
70'	50	100 +	70.0-70.5		0.0					
75'	6-8-28	36	75.0-76.5		0.0	Brown (10 YR 5/3) silt; soft; non-plastic; moist.	ML			
80'	27-17-31	48	80.0-81.5		0.0					
85'	50	100 +	85.0-85.5		0.0	Very dark grayish brown (10 YR 3/2) very gravelly loamy sand; soft; non-plastic; slightly moist; ~60% sub-rounded gravels.	GW			
90'										

SIGNATURE OF FIELD SUPERVISOR

TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

McLaren Environmental Engineering

MW # : MW-1
D- 3171
Page 4 of 7
Sampler: G. ROST

PROJECT APPLE DA3-3 LOCATION
ELEVATION MONITORING DEVICE
SAMPLING DATE(S) START FINISH
SAMPLING METHOD SUBCONTRACTOR & EQUIPMENT
MEMO

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	OVM reading (ppm)	Soil Description: Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Well Construction Details
		51	90.0-91.5		0.0					
95'	15-25-29	54	95.0-96.5		0.0	Brown (10 YR 5/3) sandy loam; soft; slightly plastic; gravelly; moist.	SC			Neat Cement With 5% Bentonite Mixture
100'	30-29-21	40	99.0-100.5	28831	0.0					2" I.D. Sch. 40 PVC Blank Casing
105'	18-30-50	80	105-106.5		0.0					8" Borehole
						Brown (10 YR 5/3) silty clay loam; soft; slightly plastic; moist.				
110'	9-13-27	40	110-111.5		0.0		ML			
						Brown (10 YR 5/3) loam; soft; slightly plastic; moist.				
115'	10-17-37	54	115-116.5		0.0					
						Dark brown (10 YR 4/4) clay loam; stiff; moderately plastic; moist.	CL			
120'										

SIGNATURE OF FIELD SUPERVISOR

TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

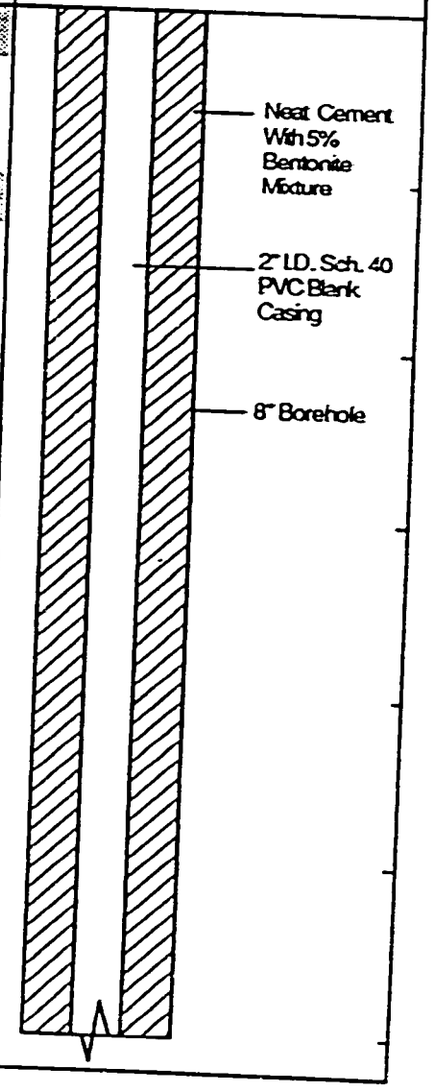
McLaren Environmental Engineering

MW # : MW-1
D- 3172
Page 5 of 7
Sampler: G. ROST

PROJECT APPLE DA3-3 LOCATION
ELEVATION MONITORING DEVICE
SAMPLING DATE(S) START FINISH
SAMPLING METHOD SUBCONTRACTOR & EQUIPMENT
MEMO

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: Eff.	Sampler Depth Interval (ft.)	Sample ID #	OVM reading (ppm)	Soil Description: Color, Texture, Moisture, Etc.	Unified Classification
	27-27-50	77	120-121.5		0.0	Brown (10 YR 4/3) loamy fine sand; non-plastic; unconsolidated; gravelly; moist.	SW
125'	42-43-48	91	125-126.5		0.0	Brown (10 YR 4/3) very gravelly sand; non-plastic; unconsolidated; moist.	GW
						Brown (10 YR 4/3) fine sand; non-plastic; unconsolidated; gravelly; moist.	SW
130'	12-22-30	52	130-131.5		0.0		
						Brown (10 YR 4/3) loam; soft; slightly plastic; gravelly; moist.	ML
135'	36-50	100 +	155-156.0		0.0		
						Olive brown (2.5 Y 4/4) sand; unconsolidated; gravelly; slightly moist.	SW
140'	15-18-16	34	140-141.5		0.0		
						Brown (10 YR 4/3) silt loam; soft; slightly plastic; moist.	ML
145'	7-12-17	29	145-146.5		0.0		
150'							

Graphic Log / Sampled Depth / Well Construction Details



SIGNATURE OF FIELD SUPERVISOR

TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

McLaren Environmental Engineering

MW # : MW-1
D- 3173
Page 6 of 7
Sampler: G. ROST

PROJECT APPLE DA3-3 LOCATION
ELEVATION MONITORING DEVICE
SAMPLING DATE(S) START FINISH
SAMPLING METHOD SUBCONTRACTOR & EQUIPMENT
MEMO

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	OVM reading (ppm)	Soil Description: Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth
	12-19-24	43	150-151.5	28832	0.0	Brown (10 YR 4/3) silt loam; soft; slightly plastic; moist	ML		
155'	18-25-24	49	155-156.5		0.0	Brown (7.5 YR 5/4) silty clay loam; stiff; moderately plastic; moist.	CL		
160'	12-30-50	80	160-161.5		0.0	Brown (10 YR 4/3) very gravelly loam; soft; slightly plastic; moist; ~60 % sub-rounded gravels.	GC		
165'	26-37-50	87	165-166.5		0.0				
170'	36-22-22	44	170-171.5		~0.0	Brown (10 YR 5/3) silt loam; soft; slightly plastic; moist.	ML		
175'	37-50	100	175-176.0		0.0	Brown (10 YR 5/3) very gravelly silt loam; soft; slightly plastic; moist.	GC		
180'									

Well Construction Details

- Neat Cement With 5% Bentonite Mixture
- 2" I.D. Sch. 40 PVC Blank Casing
- 8" Borehole
- 174'
- 30 Mesh Sand
- 176'
- 8/20 Mesh Sand

SIGNATURE OF FIELD SUPERVISOR

TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

McLaren Environmental Engineering

MW # : MW-1
D- 3174
Page 7 of 7
Sampler: G. ROST

PROJECT APPLE DA3-3 LOCATION
ELEVATION MONITORING DEVICE
SAMPLING DATE(S) START FINISH
SAMPLING METHOD SUBCONTRACTOR & EQUIPMENT
MEMO

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	OVM reading (ppm)	Soil Description: Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Well Construction Details
180	33-22-25	47	180-181.5		0.0	Brown (10 YR 5/3) silt loam; soft; slightly plastic; very moist	ML			8" Borehole
185	36-50	100	185-186.0		0.0	Brown (10 YR 4/3) very gravelly loam; soft; slightly plastic; saturated.	GC			2" I.D. 0.020" Slotted PVC Well Casing
190	9-13-26	39	190-191.5		0.0					
195	15-24-33	57	195-196.5		0.0	Brown (10 YR 5/3) silt loam; soft; moderately plastic; moist	ML			8/20 Mesh Filter Pack
200	50	100	200-200.5	28833	0.0					T.D. 200 End Cap

SIGNATURE OF FIELD SUPERVISOR

TITLE

SIGNATURE OF REVIEWER

TITLE

Appendix B - Soil Vapor Survey Conducted in May 1988

CHIPS
Environmental
Consultants, Inc.

718 E. Evelyn Avenue
Sunnyvale, CA 94086

(408)736-1380

KCP-WD-APPVM.LET.DOC 384

June 23, 1988

Apple Computer
10495 Bandley Drive
Mail Stop 16S
Cupertino, CA 95014

Attention: Cindy Petty

Subject: Soil Vapor Mapping at Apple facility at 10500 North De Anza Blvd., Cupertino, CA on 5/31/88.

Dear Ms. Petty:

On 5/31/88 CHIPS Environmental Consultants, Inc. conducted a soil vapor survey of the area surrounding the excavation site at 10500 North De Anza Blvd., Cupertino, CA, where previously a 1000 gallon diesel tank had resided. This survey was conducted to determine possible lateral and vertical movement of diesel fuel from the aforementioned tank. Previous soil samples taken on 4/12/88 by CHIPS Environmental Consultants, Inc. indicated the presence of diesel in the soil at the top of the clay layer at approximately 10 feet below grade of the North, East and West walls of the excavation.

The vapor study was conducted to obtain data on the lateral and vertical extent of the diesel in the soil. A total of 14 probes were employed to conduct this survey. The probes have 50 3/16" holes drilled into the bottom 24 inches of the probes. Vapor samples were therefore obtained at discreet depths, i.e. when the results are listed for a depth of 5 to 7 feet this implies that the bottom of the probe was at a depth of 7 feet below grade and that the sampling holes in the probe were at a depth of 5 to 7 feet below grade. A total of 57 discrete soil vapor samples were obtained during the survey. The samples were obtained in 1 or 2 foot intervals. During the sampling each probe was driven in increments, a hydrocarbon reading was determined and if the reading was above the detection limit the probe was driven deeper and further readings were taken until the readings were below the detection limit. This way a good picture of the depth of diesel in soil was determined. The probe spacing was determined so that the spheres of influence from the applied pump vacuum overlapped. Probes were driven slightly deeper on the north and west sides to account for a possible dip of the clay layer to the north-west.

Only three of the probes showed significant hydrocarbon readings. These were probes D with a high reading of 55 PPM Total Hydrocarbons as Propane at a depth of 10-12', probe E with a high reading of 70 PPM Total Hydrocarbons at a depth of 10-12' and probe F with a high reading of 130 PPM Total Hydrocarbons at a depth of 9-11". Soil samples were taken next to these probes

by driving steel pipe and retrieving the samples after drilling pilot holes. Sample 001809 near probe D was taken at a depth of 10-11'. Sample 002467 near probe E was taken at a depth of 10.5-11.5', while sample 002468 was taken at a depth of 9.5-10.5'. All samples were analyzed for Total Petroleum Hydrocarbons as diesel and gasoline and were analyzed for Benzene, Toluene, Xylene and Ethylbenzene. Analysis was conducted by Trace Analysis Laboratory, Inc. a California Department of Health Services Certified Hazardous Waste Testing Laboratory. All samples showed only diesel concentrations above the detection limit of the analysis.

The soil sample near probe D showed a concentration of 7.9 PPM diesel, near probe E was 13 PPM, while near probe F the result was 23 PPM diesel. These levels are not considered significant and show a steep drop off from the edges of the excavation where the readings obtained from soil samples on 4-12-88 were in the 3900-5500 PPM range. Probed D, E and F are within 2.5 feet of the excavation side walls.

The vapor gas survey calibrates well with the analytical results of the soil sampling. If you divide the highest reading at a probe obtained by the soil gas survey by the concentration of the diesel found in the soil near the probe you obtain the following numbers: 7.0, 5.4 and 5.9 (55/7.9,70/13, 135/23). This indicates that one is obtaining a good correlation between soil gas analysis and soil analysis.

The probes were left capped and left in place until it can be determined if they can be used as part of any remediation.

Discussion

The results of the soil vapor survey and confirming soil samples indicate that the diesel in the soil has not moved significantly from the perimeter of the excavation. The soil samples taken near probes D, E, and F indicate only low levels of diesel concentration (7.9-23 PPM). These samples are all within 2.5 ft of the excavation walls and indicate that the diesel has not moved far from the excavation perimeter. The probes were all driven deep to a point where no detectable hydrocarbons were found. This indicates that the diesel in soil is located in the 8-12' depth only. The secondary perimeter probes on the north, west and east sides (probes M, N, L, K, J, I, H and G) show no significant hydrocarbon readings and indicate that when you get to 5' from the excavation perimeter there is no significant diesel in the soil.

Recommendations:

After consultation with Karl Anania of Anania Geologic Engineering we recommend that excavation of a small amount of soil should be the most beneficial procedure.

The soil gas vapor study has shown that the diesel is located at a depth of 8-12 feet below grade and extends out 2-4 feet from the edges of the excavation on the north, west and east sides. Excavation of this soil and its proper disposal

is our recommendation. After removal of the soil the hole can be backfilled, the area reasphalted and the project considered complete. We recommend that you contact Dale McNally of Petrotek (408) 292-7566 to assist you in this phase of the project. The soil vapor probes that are not destroyed by this excavation will be sealed with a bentonite slurry and the asphalt repatched.

If you have any questions or need any further information please do not hesitate to contact me.

Sincerely,

Michael L. Murtiff

CEC-KCP-APPVMAP.DOC 384

FIELD SAMPLING AND ANALYSIS OF SOIL GASES AT APPLE COMPUTER DE ANZA III BLDG. LOCATED AT 10500 NORTH DE ANZA BLVD., CUPERTINO, CALIFORNIA

Prepared by:
CHIPS Environmental Consultants, Inc.
718 East Evelyn Avenue
Sunnyvale, California 94086

Principal Investigators:
M.L. Murtiff
T.J. Glass

Prepared for:
Apple Computer
10495 Bandley Drive
Mail Stop 16S
Cupertino, CA 95014

Project Officer: Cindy Petty

June 1988

CONTENTS

		Page
Disclaimer		3
Abstract		4
Section 1	Introduction	5
Section 2	Results	6
Section 3	Procedures	9
Section 4	Quality Assurance/Quality Control	10
Section 5	Sample Calculations	11
Section 6	Plot Plan	12
Appendix	Raw Data	13

DISCLAIMER

This report was furnished to Apple Computer by CHIPS Environmental Consultants, Inc. The contents and results were produced solely for the use of Apple Computer.

Any and all data generated by this program is considered confidential and shall not be released to a third party without the written consent of an authorized representative of Apple Computer.

ABSTRACT

The intent of this program was to perform a rapid screening survey of soil gases around the excavation area of a previously removed 1000 gallon diesel underground storage tank near the Apple Computer De Anza III building located at 10500 North De Anza Blvd., Cupertino, CA. The program consisted of installation of 14 temporary exploratory probes at different depths and the subsequent analysis of soil gases from the aforementioned probes. The intent of the soil gas sampling was to define relative areas of soil contamination at this site.

SECTION 1

Introduction

At the request of Apple Computer, CHIPS Environmental Consultants, Inc. performed a series of soil gas analyses at Apple Computer De Anza III Building, located at 10500 North De Anza Blvd., Cupertino, California on 5/31/88. The soil gases were analyzed for total hydrocarbons employing a Beckman Model 400 Hydrocarbon Analyzer equipped with a Flame Ionization Detector (FID).

All data results can be found in Section 2. A brief description of the sampling and analysis methods can be found in Section 3. Quality assurance and quality control efforts are summarized in Section 4. Section 5 contains a set of sample calculations which show how the results were obtained from the raw data. Section 6 consists of the plot plan. The appendix contains all the raw data that was used to derive the results.

SECTION 2

Results

Soil Vapor Concentrations

PROBE #	DEPTH*	TH** (ppm)
A1	5-7'	ND
A2	7-9'	3
A3	8-10'	3
A4	9-11'	2
A5	10-12'	ND
B1	5-7'	ND
B2	7-9'	4
B3	8-10'	12
B4	9-11'	14
B5	10-12'	12
B6	11-13'	ND
C1	5-7'	ND
C2	7-9'	1
C3	9-11'	ND
D1	5-7'	ND
D2	7-9'	22
D3	8-10'	30
D4	9-11'	54
D5	10-12'	55
D6	11-13'	5
D7	12-14'	ND
E1	5-7'	ND
E2	7-9'	4
E3	8-10'	4
E4	9-11'	7
E5	10-12'	70
E6	11-13'	8
E7	12-14	ND
F1	5-7'	ND
F2	7-9'	2
F3	8-10'	15
F4	9-11'	135
F5	10-12'	7
F6	11-13'	ND
G1	8-10'	4
G2	10-12'	ND

Soil Vapor Concentrations

PROBE #	DEPTH*	TH**(ppm)
H1	8-10'	10
H2	10-12'	2
H3	11-13'	ND
I1	8-10'	3
I2	10-12'	ND
J1	8-10'	5
J2	10-12'	14
J3	11-13'	ND
J4	12-14'	ND
K1	8-10'	2
K2	10-12'	5
K3	11-13'	ND
K4	12-14'	ND
L1	8-10'	1
L2	10-12'	ND
M1	9-11'	5
M2	10-12'	ND
M3	11-13'	ND
M4	12-14'	ND
N1	9-11'	1
N2	10-12'	ND

* Depth Below Grade in Feet
** Total Hydrocarbons (TH) as propane, C_3 in PPM m/m basis
ND Below Detection Limit of 0.5 parts per million

Results Discussion

The detection limits for the above analyses was 0.5 PPM for total hydrocarbons (TH) on a molar basis. The amount of hydrocarbons in the extracted vapor is not necessarily indicative of the contamination of the surrounding soil, but reflects contamination nearby.

A total of 14 probes were employed to conduct this survey. 57 (fifty seven) discrete soil vapor samples were taken at depths ranging from 5 to fourteen feet in one or two foot intervals.

Only three of the probes showed significant hydrocarbon readings. These were probes D (55 ppm) at 10-12, L (70 ppm) at 10-12' and F (130 ppm) at 9-11'. Soil sampling was performed at these locations and analyzed for Total Petroleum Hydrocarbons as diesel and for the presence of Benzene, Toluene, Xylenes and Ethylbenzene. All samples only showed diesel concentrations of 7.9, 13 and 23 ppm for samples near probes D, E and F respectively. These levels are not considered significant and indicate a large drop in concentration from the values obtained 4/12/88 (3900-5500 ppm range) at the edge of the excavation perimeter. Probes D, E and F are within 2.5 feet of the excavation side walls.

The results of the soil vapor survey and confirming soil samples indicate that the diesel in the soil has not moved significantly from the perimeter of the excavation with most of the contamination located in the 8-12 foot depth only. The secondary perimeter probes on the north, west and east sides (probes M, N, L, K, J, I, H and G) show no significant hydrocarbon readings and indicate that at 5 feet from the excavation perimeter diesel is not present in the soil at any significant concentration.

Based on these findings we recommend excavation of 2 to 4 feet from the perimeter of the present excavation on the north, west and east sides at a depth of 8-12 feet below grade.

SECTION 3

Procedures

1) Sampling Point Location: Each probe was installed at a location that would optimize the detection of soil contaminants around the subject location.

2) Probe Logistics: Each probe was constructed of 1/4 to 1/2 inch diameter pipe. A point was forged on one end and 3/16 inch holes (50 each) were drilled into the lower 24 inches of the probe.

3) Probe Installation: Each probe was installed into the soil either by hand or pneumatic equipment. If the probe was located over asphalt or concrete, a 1 inch diameter hole was first drilled for ease of installation. Probes were installed at various depths ranging from 5 to 14 feet below grade.

4) Soil Gas Sampling: The following procedure was used to sample soil gases: each probe was connected to a "probe-head T" fitting. One side of the "T" was closed with a Teflon faced silicone septa, the other side of the "T" was connected to a diaphragm pump for soil gas removal. The pump flow rate was 5 liters per minute. Soil gases were introduced to the Beckman Analyzer through a 1/4 inch teflon sampling line.

5) Soil Gas Analysis: Analysis was performed by introducing the soil gas sample into a Beckman Analyzer Model 400 equipped with a Flame Ionization Detector (FID) and recorded with a linear chart recorder.

6) Instrument Calibrations: The Beckman FID was calibrated using a 5,020 PPM m/m certified standard of propane in air.

SECTION 4

Quality Assurance/Quality Control

Quality assurance for the soil gas sampling and analysis was maintained as follows:

1) Field blank samples were run periodically throughout the test day.

2) Field calibrations were run periodically throughout the test day.

3) Replicate analyses were run to ensure repeatability.

4) Teflon tubing was used to deliver the sample gases to the analytical instrumentation. This was done to minimize sample loss through adsorption and sample memory due to offgassing.

5) Leak checks were preformed on the sample lines before the tests and throughout the day.

6) Sample pump flow rate and instrument pressures were checked before the tests and throughout the day.

7) Filters were used extensively throughout the system to insure removal of foreign material from the sample pathway.

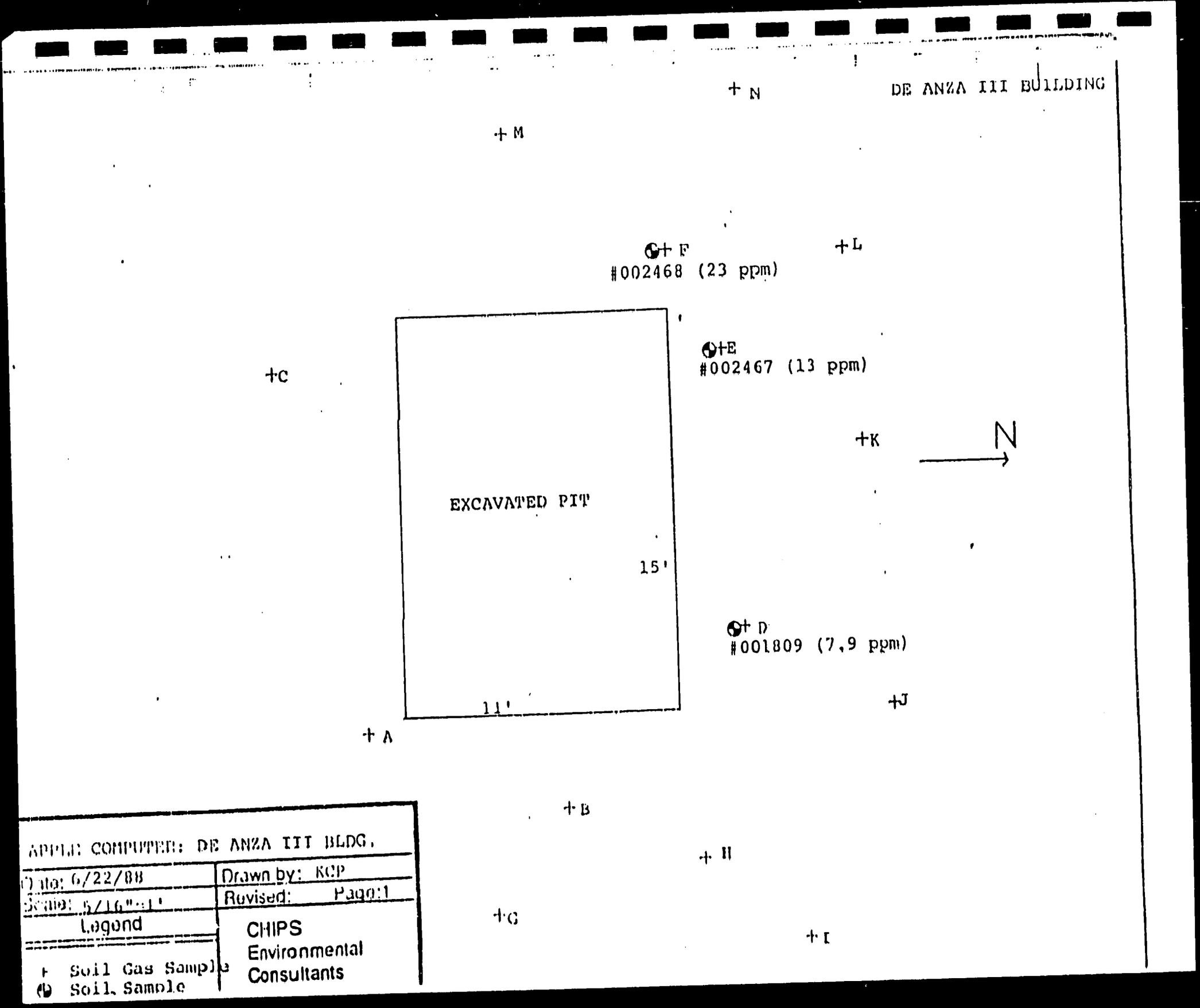
SECTION 5

Sample Calculation

Sample concentrations were read directly off the strip chart (Appendix). Probe concentrations are compared to field calibrations to determine each reading. No special calculations were performed.

SECTION 6

Plot Plan



APPLE COMPUTER: DE ANZA III BLDG.	
Date: 6/22/88	Drawn by: KCP
Scale: 5/16"=1'	Revised: Page:1
Legend	CHIPS Environmental Consultants
+ Soil Gas Sample	
Soil Sample	

Appendix C - SCVWD Permit to Drill Exploratory Boring

Santa Clara Valley Water District

APPLICATION TO DRILL EXPLORATORY BORINGS
(Over 45 Feet Deep Only)

FC 265 (08-30-90)

DISTRICT PERMIT NO. 91E0073

5750 Almaden Expressway, San Jose, CA 95118 (408) 265-2600

Owner's Name:	Consultant Firm:	Drilling Co.:	
APPLE COMPUTER	ENVIRONMENTAL STRATEGIES	BAY LAND DRILLING	
Address: 10500 N. DE ANZA BLVD.	Address: 101 METRO DR. SUITE 650	Address: 600 CRANE AVE	
City, State, Zip: CUPERTINO, CA. 95014	City, State, Zip: SAN JOSE, CA. 95110	City, State, Zip: FOSTER CITY, CA. 94404	
Telephone No.: (408) 974-0476	Telephone No.: 408 453-6100	Telephone No.: (415) 322-2900	Contractor's Lic. No. (C-61 or C-57 Req'd): 374152

The boring(s) to be drilled is/are located on Assessor's Parcel No. 316-22-017

In space at right sketch location of proposed boring(s) in sufficient detail to identify location. In addition to distances to nearest street and intersection, show distances to any existing structures, landmarks or topographic features.

Is this a:

- [x] Single boring?
- [ ] Cluster of borings? How many in cluster?_____

Proposed depth of boring(s):

- [x] 45 to 150 feet
- [ ] 151 to 300 feet
- [ ] Over 300 feet

NO PERMIT IS REQUIRED FOR UNDER 45 FEET

Is work to be done in S.C.V.W.D. right of way?

- [x] Yes
- [ ] No

Address of Boring(s) Site: 10500 N. DE ANZA BLVD. Bldg #3
CUPERTINO, CA.

SITE PLAN - PLEASE DRAW ACCURATELY

REFER TO ATTACHMENT.

N

Geologic Setting: 3 (See Figure 1, Construction Standards; Use "BR" if in bedrock)

I understand that all work is to be done in accordance with District Ordinance 90-1 and conditions of Permit on the reverse side. (SPECIAL CONDITIONS ON PERMIT MAY BE ADDED BY DISTRICT UPON RECEIVING COMPLETED APPLICATION).

SIGNATURE: Dan B. [signature] DATE: 6/3/91

APPLICANT TO COMPLETE ALL INFORMATION ON THIS SIDE ONLY
DISTRICT WILL PREPARE PERMIT ON REVERSE SIDE AND RETURN TO APPLICANT

EXPLORATORY BORING(S) CONSTRUCTION PERMIT

FC 285 (08-30-90)

Geologic Setting:	Date Issued:	Permit Number:
3	6-6-91	91E0073

Based on information on the Application and attachment(s) thereto (if any) permission is hereby granted to drill exploratory boring(s). Permission to start work is subject to the following conditions:

GENERAL CONDITIONS

A. SCVWD WELL INSPECTION DEPARTMENT, 927-0710, Ext. 660, MUST BE NOTIFIED A MINIMUM OF ONE WORKING DAY PRIOR TO STARTING BACKFILL WORK. Construction authorized under this permit is subject to any instructions relative to the applicable "Standards for the Construction of Wells" by District representative. A District Inspector must be on site to witness the backfill procedure.

B. By exercising this permit, permittee certifies that all statements on Application are correct, including accurate location of the boring.

C. This permit is valid only for the purpose specified herein. No change in construction procedure as prescribed in District Standards and in Special Conditions below will be allowed except upon written permission of the District.

D. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the District, its officers, agents, and employees free and harmless from any and all expense, cost or liability in connection with or resulting from the exercise of this permit including, but not limited to, property damage, personal injury and wrongful death.

E. Compliance with "CAL/OSHA", California Labor Code Section 6300 (and following) is required.

F. Borings shall be backfilled within one week after drilling.

G. Borings require District field inspection during the backfilling procedure. The District shall be notified as prescribed in condition "A" above.

H. Driller or consultant is to submit the original Drilling Log to SCVWD within 30 days of completion of work.

I. Permit will be automatically cancelled if not exercised or extension requested by permittee within 180 calendar days of above date.

J. For the purpose of drilling exploratory soil borings; drilling contractor must possess a valid C-61 or C-57 Contractor's License.

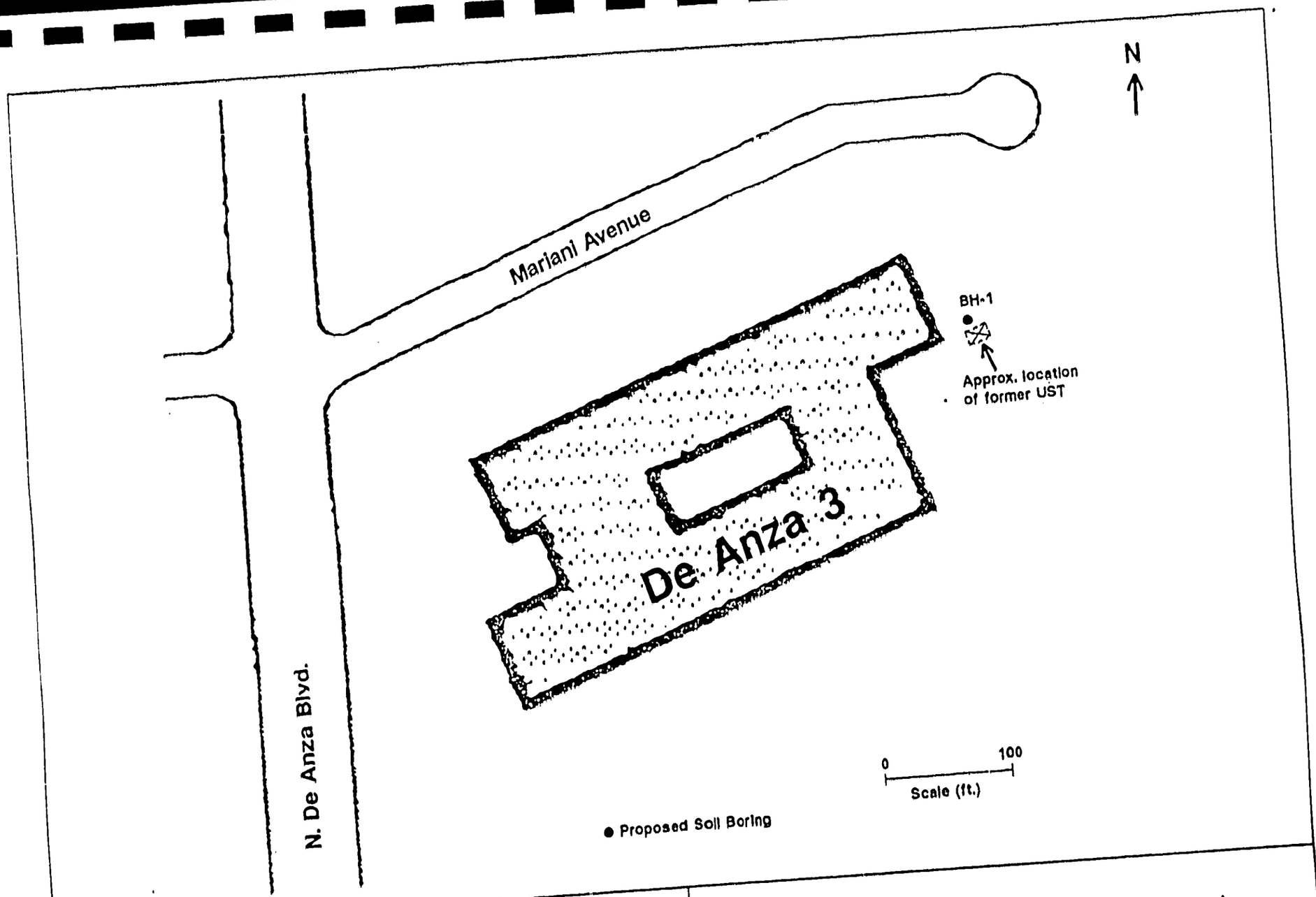
K. All drilling fluids and materials will be safely handled and properly disposed of in the appropriate method.

L. Permittee shall have a current copy of their Workman's Compensation Insurance on file with the S.C.V.W.D.

SPECIAL CONDITIONS

If District elects not to inspect backfill procedure, Permittee will furnish certification that backfill was placed in accordance with, or in a manner superior to the provisions set forth in the District Well Standards; said certification to be signed by a registered Geologist or Civil Engineer or in the case of a test well the signature of the licensed C-57 well driller.

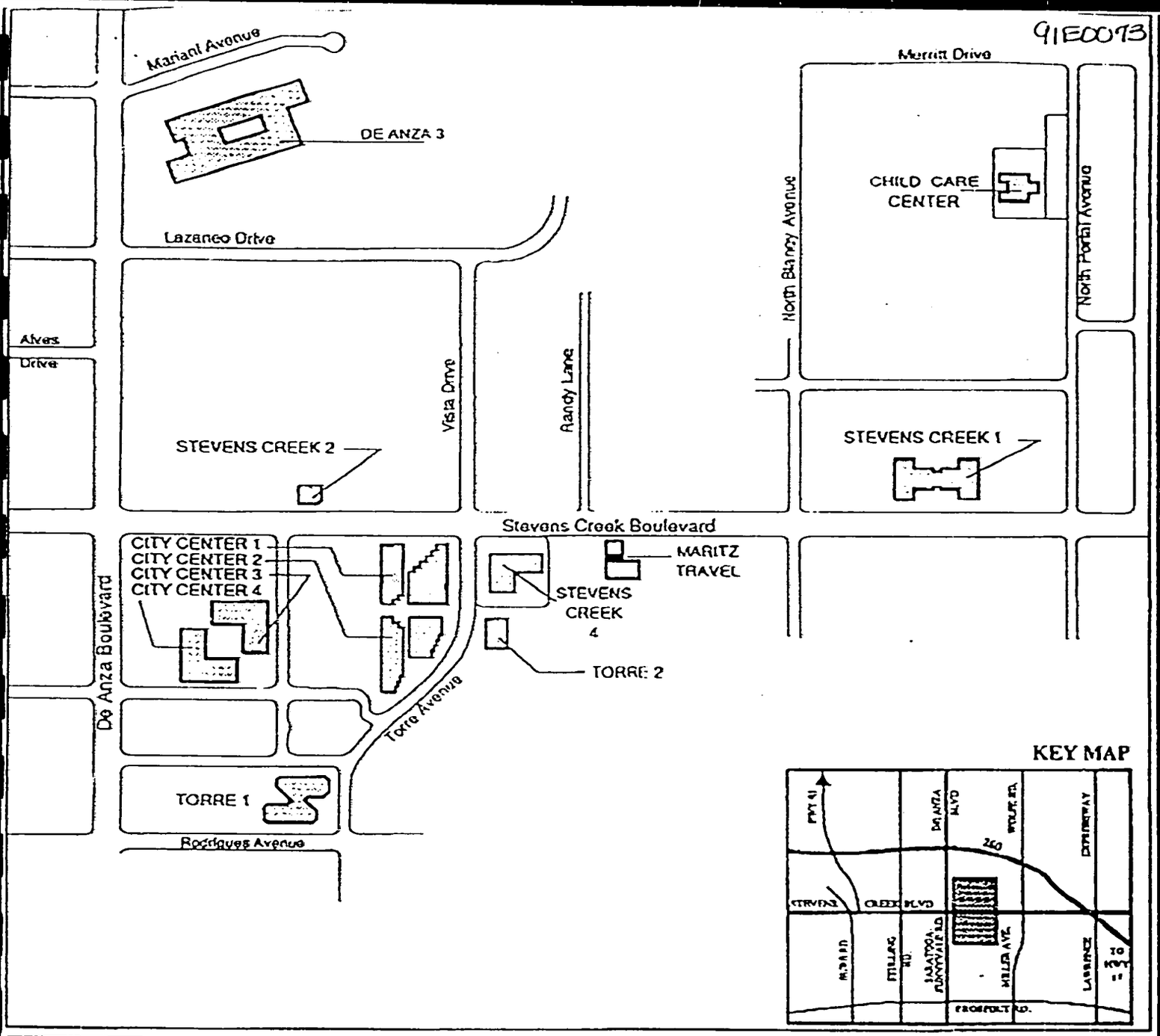
SCVWD APPROVED [signature] SIG



ESC
ENVIRONMENTAL STRATEGIES CORPORATION
101 METRO DRIVE • SUITE 650
SAN JOSE, CALIFORNIA 95110 • (408) 453-6100

Figure 4 - Location for Proposed Soil Boring BH -1 Near Former Underground Diesel Tank at De Anza 3

91E0073



SITE	USER GROUP	ADDRESS	SQUARE FEET
CHILD CARE CENTER		10253 North Portal Avenue	7,200
CITY CENTER 1	IS&T/FINANCE FOR SALES/MARKETING	20300 Stevens Creek Blvd.	25,071
CITY CENTER 2	SALES/MARKETING	20330 Stevens Creek Blvd.	138,805
CITY CENTER 3	WW PRODUCT MARKETING	20400 Stevens Creek Blvd.	182,200
CITY CENTER 4	WW PRODUCT MARKETING/ADVANCED TECHNOLOGY GROUP	20450 Stevens Creek Blvd.	181,200
DE ANZA 3	NETWORKING& COMMUNICATIONS/ SYSTEMS ENGINEERING	10500 No. De Anza Blvd.	211,024
STEVENS CREEK 1	IS&T INFORMATION SYSTEMS & SERVICES	19925 Stevens Creek Blvd.	57,138
STEVENS CREEK 2	SYSTEMS ENGINEERING	20401 Stevens Creek Blvd.	11,552
STEVENS CREEK 4	RESOURCE CENTER/IS&T APPLE USA	20230 Stevens Creek Blvd.	35,189
TORRE 1	IS&T APPLE USA	10201 Torre Avenue	29,723
TORRE 2	DISTRIBUTION/90'S PROJECT	10000 Torre Avenue	45,900
MARITZ	APPLE TRAVEL	20100 Stevens Creek Blvd.	

Apple Computer, Inc. | EAST CAMPUS | SCALE

Appendix D - Boring Log for Soil Boring BH-1

BORING LOG
Environmental Strategies Corporation
101 Metro Dr. #650
San Jose, CA 95110

PROJECT
Apple Computer
CA-657

Boring No. BH-1
Sheet 1 of 3
Date Drilled 6/16/91

Drilling Co. Baylands Drilling
Driller
ESC Geologist Dave Swietanski

Boring Location Building #3
Ground Elevation
TOC Elevation

Boring
Method Hollow Stem Auger
Hole Diameter 8 inch
Inside Diameter 4 1/4 inch
Total Depth 52 feet

Casing/Screen
Type
Diameter
Screen Length
Screen Slot Size

Sampler
Method Split Spoon
Length (ft.) 1.5
Hammer (lbs.) 140
Fall (ins.) 30

Depth	P.I.D. (ppm)	Percent Recovery	Sample Depth	Blows/6''	Well Design	Sample Description
0						Asphalt/Aggregate Baserock
						FILL-SANDY SILT (ML): light brown (10YR 3/6); with gravel; dense; damp
5	0.6		3.5-5	7,7,11		CLAYEY SILT (ML): dark brown (10YR 4/3); trace sand & gravel, subrounded; medium stiff; damp
	0		8.5-10	8,14,20		SILTY SAND (SM): dark brown (10YR 4/3); trace gravel, rounded; stiff; dry to damp
10	.2					SILTY CLAY (CL): brown to grayish brown (10YR 5/3 to 5/2); trace fine sand; stiff; damp
						SANDY SILT (ML): light gray to brown (10YR 5/2); with subangular gravel; very stiff; damp
15	0		13.5-15	18,20,22		
	.2					
20			18.5-20	20/50 for 6"		SILTY GRAVEL (GM): grayish brown (10YR 5/2): trace coarse sand, subangular; very dense to hard; damp

BORING LOG
Environmental Strategies Corporation
101 Metro Dr. #650
San Jose, CA 95110

PROJECT
Apple Computer
CA-657

Boring No. BH-1
Sheet 2 of 3
Date Drilled 6/16/91

Drilling Co.
Driller
ESC Geologist

Boring Location
Ground Elevation
TOC Elevation

Boring
Method
Hole Diameter
Inside Diameter
Total Depth

Casing/Screen
Type
Diameter
Screen Length
Screen Slot Size

Sampler
Method
Length (ft.)
Hammer (lbs.)
Fall (ins.)

Depth	P.I.D. (ppm)	Percent Recovery	Sample Depth	Blows/6''	Well Design	Sample Description
						(continued) GM
			23.5-25	26,35,37		SILTY SAND (SM-SP): grayish brown (10YR 4/3); coarse sand, subangular; trace coarse gravel; stiff; damp
25	0					
			28.5-30	35,50 for 6"		
30	0					
	0		33.5-35	10,10,12		SANDY SILT/SILTY SAND (ML-SM); light brown (7.5YR 6/2); fine grained sand; trace clay; stiff; damp to moist
35						
	0					@ 37-38': very moist seam
			38.5-40	7,10,14		
40						

BORING LOG
Environmental Strategies Corporation
101 Metro Dr. #650
San Jose, CA 95110

PROJECT
Apple Computer
CA-657

Boring No. BH-1
Sheet 3 of 3
Date Drilled 6/16/91

Drilling Co. _____
Driller _____
ESC Geologist _____

Boring Location _____
Ground Elevation _____
TOC Elevation _____

Boring
Method _____
Hole Diameter _____
Inside Diameter _____
Total Depth _____

Casing/Screen
Type _____
Diameter _____
Screen Length _____
Screen Slot Size _____

Sampler
Method _____
Length (ft.) _____
Hammer (lbs.) _____
Fall (ins.) _____

Depth	P.I.D. (ppm)	Percent Recovery	Sample Depth	Blows/6''	Well Design	Sample Description
		-				(continued) ML-SM
45	0		43.5-45	25,50 for 6"		SANDY SILTY GRAVEL (GM-GP): grayish brown (10YR 5/2); very dense; damp to moist
						SILTY SAND/SILTY SAND (ML-SM): grayish brown (10YR 5/2); with trace gravel; stiff; moist
50	0		48.5-50	10,11,14		Bottom of Boring @ 52' No groundwater encountered
55						

Appendix E - Laboratory Reports and Chain-of-Custody Documentation for Soil Samples

Enseco
A Corning Company

CASE NARRATIVE

The enclosed report contains sample results that are presented using a "CLP" format (i.e., analytes not detected are reported using the method detection limit (MDL) or instrument detection limit (IDL) in the reporting limit column followed by a "U" qualifier). The "U" flag designates sample values that are at or below the MDL (Organics) or IDL (Inorganics) for that analyte.

The "J" flag designates sample values that are between the MDL/IDL and the Enseco reporting limit. The Enseco reporting limits are generally 2 to 5 times the laboratory MDL/IDL. These reporting limits are set at a level above which Enseco laboratories can detect and quantify analytes consistently. These Enseco reporting limits can be found on the method blank samples contained in this report. These method blank samples appear as ND in the results column and a value in the reporting limit column. NOTE: All other reported values reflect IDL/MDL in the reporting limit column. For example:

Parameter	Result	Dry Weight Units	Reporting Limit	
TPH,Extractable	7.8	mg/kg	7.8	U

This data means that no Extractable Petroleum Hydrocarbons were found in this sample. The MDL/IDL is 7.8 mg/kg which has been corrected for % moisture. The result has a "U" flag which means the sample concentration is at or below the MDL/IDL or NOT DETECTED. All sample analyte values in this report which contain a "U" flag means they are NOT DETECTED IN THE SAMPLE.

All other footnotes found in the original report are documented in the original report. Preliminary results for pesticides were provided on 7/5/91 at 1:30 pm. to David Badio. TEPH and TVPH were provided at 2:00 pm., and BTEX at 4:00 pm to David Badio on 7/5/91.

Signed Linnea M Coffey

Date 7/30/91

Linnea M. Coffey
Program Administrator

Enseco
A Corning Company

SAMPLE DESCRIPTION INFORMATION
for
Environmental Strategies Corporation

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
060471-0001-SA	AC-9-5	SOLID	15 JUN 91	11:15	19 JUN 91
060471-0002-SA	AC-9-10	SOLID	15 JUN 91	11:35	19 JUN 91
060471-0003-SA	AC-9-15	SOLID	15 JUN 91	11:50	19 JUN 91
060471-0004-SA	AC-9-20	SOLID	15 JUN 91	12:00	19 JUN 91
060471-0005-SA	AC-9-25	SOLID	15 JUN 91	12:20	19 JUN 91
060471-0006-SA	AC-9-30	SOLID	15 JUN 91	13:00	19 JUN 91
060471-0007-SA	AC-9-35	SOLID	15 JUN 91	13:20	19 JUN 91
060471-0008-SA	AC-9-40	SOLID	15 JUN 91	13:50	19 JUN 91
060471-0009-SA	AC-9-45	SOLID	15 JUN 91	14:00	19 JUN 91
060471-0010-SA	AC-9-50	SOLID	15 JUN 91	14:20	19 JUN 91
060471-0011-SA	AC-9-55	SOLID	15 JUN 91	17:00	19 JUN 91
060471-0012-SA	AC-10-5	SOLID	15 JUN 91	15:20	19 JUN 91
060471-0013-SA	AC-10-10	SOLID	15 JUN 91	15:20	19 JUN 91
060471-0014-SA	AC-10-15	SOLID	15 JUN 91	15:35	19 JUN 91
060471-0015-SA	AC-10-20	SOLID	15 JUN 91	15:45	19 JUN 91
060471-0016-SA	AC-10-25	SOLID	15 JUN 91	16:10	19 JUN 91
060471-0017-SA	AC-11-5	SOLID	15 JUN 91	09:20	19 JUN 91
060471-0018-SA	AC-11-10	SOLID	15 JUN 91	09:35	19 JUN 91
060471-0019-SA	AC-11-15	SOLID	15 JUN 91	09:50	19 JUN 91
060471-0020-SA	AC-11-20	SOLID	15 JUN 91	10:00	19 JUN 91
060471-0021-SA	AC-11-25	SOLID	15 JUN 91	10:20	19 JUN 91
060471-0022-SA	AC-12-5	SOLID	16 JUN 91	15:30	19 JUN 91
060471-0023-SA	AC-12-10	SOLID	16 JUN 91	15:40	19 JUN 91
060471-0024-SA	AC-12-15	SOLID	16 JUN 91	15:50	19 JUN 91
060471-0025-SA	AC-12-20	SOLID	16 JUN 91	16:10	19 JUN 91
060471-0026-SA	AC-12-25	SOLID	16 JUN 91	16:30	19 JUN 91
060471-0027-SA	AC-12-30	SOLID	16 JUN 91	16:45	19 JUN 91
060471-0028-SA	BH-1-5	SOLID	16 JUN 91	09:35	19 JUN 91
060471-0029-SA	BH-1-10	SOLID	16 JUN 91	09:40	19 JUN 91
060471-0030-SA	BH-1-15	SOLID	16 JUN 91	10:00	19 JUN 91
060471-0031-SA	BH-1-20	SOLID	16 JUN 91	10:20	19 JUN 91
060471-0032-SA	BH-1-25	SOLID	16 JUN 91	10:40	19 JUN 91
060471-0033-SA	BH-1-30	SOLID	16 JUN 91	11:00	19 JUN 91
060471-0034-SA	BH-1-35	SOLID	16 JUN 91	11:30	19 JUN 91
060471-0035-SA	BH-1-40	SOLID	16 JUN 91	11:45	19 JUN 91
060471-0036-SA	BH-1-45	SOLID	16 JUN 91	12:10	19 JUN 91
060471-0037-SA	BH-1-50	SOLID	16 JUN 91	12:40	19 JUN 91
060471-0038-SA	BH-1-55	SOLID	16 JUN 91	13:00	19 JUN 91
060471-0040-SA	Trip Blank	AQUEOUS	15 JUN 91	17:30	19 JUN 91
060471-0041-SA	Field Blank	AQUEOUS	15 JUN 91	17:30	19 JUN 91
060471-0042-SA	Trip Blank	AQUEOUS	16 JUN 91	17:00	19 JUN 91
060471-0043-SA	Field Blank	AQUEOUS	16 JUN 91	17:00	19 JUN 91

Enseco
A Corning Company

Total Extractable Petroleum Hydrocarbons

Method TEPH-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-5
Lab ID: 060471-0028-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 21 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
TPH, Extractable	7.6	mg/kg	7.6	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 7.6%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Total Extractable Petroleum Hydrocarbons

Method TEPH-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-10
Lab ID: 060471-0029-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 21 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
TPH, Extractable	7.5	mg/kg	7.5	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 7.2%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Total Extractable Petroleum Hydrocarbons

Method TEPH-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-15
Lab ID: 060471-0030-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 21 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
TPH, Extractable	7.4	mg/kg	7.4	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 5.3%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Total Extractable Petroleum Hydrocarbons

Method TEPH-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-20
Lab ID: 060471-0031-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 21 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
TPH, Extractable	7.3	mg/kg	7.3	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 4.0%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Total Extractable Petroleum Hydrocarbons

Method TEPH-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-25
Lab ID: 060471-0032-SA
Matrix: SOLID Sampled: 16 JUN 91 Received: 19 JUN 91
Authorized: 19 JUN 91 Prepared: NA Analyzed: 21 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
TPH, Extractable	7.3	mg/kg	7.3	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 4.2%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley Approved By: Prudy Darley

Enseco
A Corning Company

Total Extractable Petroleum Hydrocarbons

Method TEPH-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-30
Lab ID: 060471-0033-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 21 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
TPH, Extractable	7.8	mg/kg	7.8	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 10%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Total Extractable Petroleum Hydrocarbons

Method TEPH-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-35
Lab ID: 060471-0034-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 21 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
TPH, Extractable	8.5	mg/kg	8.5	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 18%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Total Extractable Petroleum Hydrocarbons

Method TEPH-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-40
Lab ID: 060471-0035-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 21 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
TPH, Extractable	7.9	mg/kg	7.9	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 11%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Total Extractable Petroleum Hydrocarbons

Method TEPH-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-45
Lab ID: 060471-0036-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 21 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
TPH, Extractable	8.2	mg/kg	8.2	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 15%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Total Extractable Petroleum Hydrocarbons

Method TEPH-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-50
Lab ID: 060471-0037-SA
Matrix: SOLID Sampled: 16 JUN 91 Received: 19 JUN 91
Authorized: 19 JUN 91 Prepared: NA Analyzed: 21 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
TPH, Extractable	8.3	mg/kg	8.3	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 16%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley Approved By: Prudy Darley

Enseco
A Corning Company

Total Extractable Petroleum Hydrocarbons

Method TEPH-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-55
Lab ID: 060471-0038-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 21 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
TPH, Extractable	7.8	mg/kg	7.8	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 9.9%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)

Method BTXE-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-5
Lab ID: 060471-0028-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 26 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
Benzene	0.54	ug/kg	0.54	U
Toluene	1.1	ug/kg	1.1	U
Ethyl benzene	1.1	ug/kg	1.1	U
Xylenes (total)	4.3	ug/kg	4.3	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 7.6%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)

Method BTXE-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-10
Lab ID: 060471-0029-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 26 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
Benzene	0.54	ug/kg	0.54	U
Toluene	1.1	ug/kg	1.1	U
Ethyl benzene	1.1	ug/kg	1.1	U
Xylenes (total)	4.3	ug/kg	4.3	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 7.2%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)

Method BTXE-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-15
Lab ID: 060471-0030-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 26 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
Benzene	0.53	ug/kg	0.53	U
Toluene	1.1	ug/kg	1.1	U
Ethyl benzene	1.1	ug/kg	1.1	U
Xylenes (total)	4.2	ug/kg	4.2	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 5.3%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)

Method BTXE-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-20
Lab ID: 060471-0031-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 26 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
Benzene	0.52	ug/kg	0.52	U
Toluene	1.0	ug/kg	1.0	U
Ethyl benzene	1.0	ug/kg	1.0	U
Xylenes (total)	4.2	ug/kg	4.2	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 4.0%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)

Method BTXE-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-25
Lab ID: 060471-0032-SA
Matrix: SOLID Sampled: 16 JUN 91 Received: 19 JUN 91
Authorized: 19 JUN 91 Prepared: NA Analyzed: 26 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
Benzene	0.52	ug/kg	0.52	U
Toluene	1.0	ug/kg	1.0	U
Ethyl benzene	1.0	ug/kg	1.0	U
Xylenes (total)	4.2	ug/kg	4.2	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 4.2%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley Approved By: Prudy Darley

Enseco
A Corning Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)

Method BTXE-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-30
Lab ID: 060471-0033-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 26 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
Benzene	0.56	ug/kg	0.56	U
Toluene	1.1	ug/kg	1.1	U
Ethyl benzene	1.1	ug/kg	1.1	U
Xylenes (total)	4.5	ug/kg	4.5	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 10%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)

Method BTXE-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-35
Lab ID: 060471-0034-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 26 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
Benzene	0.61	ug/kg	0.61	U
Toluene	1.2	ug/kg	1.2	U
Ethyl benzene	1.2	ug/kg	1.2	U
Xylenes (total)	4.9	ug/kg	4.9	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 18%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)

Method BTXE-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-40
Lab ID: 060471-0035-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 26 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
Benzene	0.56	ug/kg	0.56	U
Toluene	1.1	ug/kg	1.1	U
Ethyl benzene	1.1	ug/kg	1.1	U
Xylenes (total)	4.5	ug/kg	4.5	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 11%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)

Method BTXE-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-45
Lab ID: 060471-0036-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 26 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
Benzene	0.59	ug/kg	0.59	U
Toluene	1.2	ug/kg	1.2	U
Ethyl benzene	1.2	ug/kg	1.2	U
Xylenes (total)	4.7	ug/kg	4.7	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 15%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)

Method BTXE-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-50
Lab ID: 060471-0037-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 26 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
Benzene	0.59	ug/kg	0.59	U
Toluene	1.2	ug/kg	1.2	U
Ethyl benzene	1.2	ug/kg	1.2	U
Xylenes (total)	4.7	ug/kg	4.7	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 16%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)

Method BTXE-S

Client Name: Environmental Strategies Corporation
Client ID: BH-1-55
Lab ID: 060471-0038-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 26 JUN 91

Parameter	Result	Dry weight Units	Reporting Limit	
Benzene	0.55	ug/kg	0.55	U
Toluene	1.1	ug/kg	1.1	U
Ethyl benzene	1.1	ug/kg	1.1	U
Xylenes (total)	4.4	ug/kg	4.4	U

Note U : Compound analyzed for but not detected.

Percent Moisture is 9.9%. All results and limits are reported on a dry weight basis.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley

Enseco
A Corning Company

GENERAL INORGANICS

Client Name: Environmental Strategies Corporation
Client ID: BH-1-5
Lab ID: 060471-0028-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: See Below

Received: 19 JUN 91
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Percent Water	7.6	%	0.10	ASTM D2216	NA	24 JUN 91

ND = Not detected
NA = Not applicable

Reported By: Janice Winn

Approved By: Pat Abe

Enseco
A Coming Company

GENERAL INORGANICS

Client Name: Environmental Strategies Corporation
Client ID: BH-1-10
Lab ID: 060471-0029-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: See Below

Received: 19 JUN 91
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Percent Water	7.2	%	0.10	ASTM D2216	NA	24 JUN 91

ND = Not detected
NA = Not applicable

Reported By: Janice Winn

Approved By: Pat Abe

Enseco
A Corning Company

GENERAL INORGANICS

Client Name: Environmental Strategies Corporation
Client ID: BH-1-15
Lab ID: 060471-0030-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: See Below

Received: 19 JUN 91
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Percent Water	5.3	%	0.10	ASTM D2216	NA	24 JUN 91

ND = Not detected
NA = Not applicable

Reported By: Janice Winn

Approved By: Pat Abe

Enseco
A Corning Company

GENERAL INORGANICS

Client Name: Environmental Strategies Corporation
Client ID: BH-1-20
Lab ID: 060471-0031-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: See Below

Received: 19 JUN 91
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Percent Water	4.0	%	0.10	ASTM D2216	NA	24 JUN 91

ND = Not detected
NA = Not applicable

Reported By: Janice Winn

Approved By: Pat Abe

Enseco
A Corning Company

GENERAL INORGANICS

Client Name: Environmental Strategies Corporation
Client ID: BH-1-25
Lab ID: 060471-0032-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: See Below

Received: 19 JUN 91
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Percent Water	4.2	%	0.10	ASTM D2216	NA	24 JUN 91

ND = Not detected
NA = Not applicable

Reported By: Janice Winn

Approved By: Pat Abe

Enseco
A Corning Company

GENERAL INORGANICS

Client Name: Environmental Strategies Corporation
Client ID: BH-1-30
Lab ID: 060471-0033-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: See Below

Received: 19 JUN 91
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Percent Water	10	%	0.10	ASTM D2216	NA	24 JUN 91

ND = Not detected
NA = Not applicable

Reported By: Janice Winn

Approved By: Pat Abe

Enseco
A Corning Company

GENERAL INORGANICS

Client Name: Environmental Strategies Corporation
Client ID: BH-1-35
Lab ID: 060471-0034-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: See Below

Received: 19 JUN 91
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Percent Water	18	%	0.10	ASTM D2216	NA	24 JUN 91

ND = Not detected
NA = Not applicable

Reported By: Janice Winn

Approved By: Pat Abe

Enseco
A Corning Company

GENERAL INORGANICS

Client Name: Environmental Strategies Corporation
Client ID: BH-1-4C
Lab ID: 060471-0035-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: See Below

Received: 19 JUN 91
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Percent Water	11	%	0.10	ASTM D2216	NA	24 JUN 91

ND = Not detected
NA = Not applicable

Reported By: Janice Winn

Approved By: Pat Abe

Enseco
A Corning Company

GENERAL INORGANICS

Client Name: Environmental Strategies Corporation
Client ID: BH-1-45
Lab ID: 060471-0036-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: See Below

Received: 19 JUN 91
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Percent Water	15	%	0.10	ASTM D2216	NA	24 JUN 91

ND = Not detected
NA = Not applicable

Reported By: Janice Winn

Approved By: Pat Abe

Enseco
A Corning Company

GENERAL INORGANICS

Client Name: Environmental Strategies Corporation
Client ID: BH-1-50
Lab ID: 060471-0037-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: See Below

Received: 19 JUN 91
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Percent Water	16	%	0.10	ASTM D2216	NA	24 JUN 91

ND = Not detected
NA = Not applicable

Reported By: Janice Winn

Approved By: Pat Abe

Enseco
A Corning Company

GENERAL INORGANICS

Client Name: Environmental Strategies Corporation
Client ID: BH-1-55
Lab ID: 060471-0038-SA
Matrix: SOLID
Authorized: 19 JUN 91

Sampled: 16 JUN 91
Prepared: See Below

Received: 19 JUN 91
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Percent Water	9.9	%	0.10	ASTM D2216	NA	24 JUN 91

ND = Not detected
NA = Not applicable

Reported By: Janice Winn

Approved By: Pat Abe

Enseco
A Corning Company

Total Volatile Petroleum Hydrocarbons

Method TVPH-A

Client Name: Environmental Strategies Corporation
Client ID: Trip Blank
Lab ID: 060471-0040-SA
Matrix: AQUEOUS
Authorized: 19 JUN 91

Sampled: 15 JUN 91
Prepared: NA

Received: 19 JUN 91
Analyzed: 25 JUN 91

Parameter	Result	Units	Reporting Limit	
TPH, Volatile	0.20	mg/L	0.20	U

Note U : Compound analyzed for but not detected.

ND = Not detected
NA = Not applicable

Reported By: Prudy Darley

Approved By: Prudy Darley