James P. Bowers, P.E.
R. William Rudolph, P

April 27, 1988
SCI 375.003

Mr. William Veale
M. G. C. Construction Company
5145 Industrial Way
Post Office Box 2000
Benicia, California 94510

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Consultation
re: Petroleum Hydrocarbon Contamination
and Underground Fuel Storage Tank Removal
Collins Drive & Hegenberger Road
Oakland, California

Dear Mr. Veale,

This letter records our services to date on the referenced project. The site consists of a gas station with three, 10,000 gallon underground fuel storage tanks and a sump of unknown use. In addition, fuel pumps and associated piping exists near the center of the site. We estimate that the tanks extend about 11 feet below grade. The scope of our services to date, consisted of drilling 4 test borings near the tanks, obtaining soil samples and performing analytical tests on selected samples.

Investigation

In brief, the borings were drilled using hollow-stem auger drilling equipment. Soil samples were obtained using a Modified California Drive sampler. Drilling and sampling equipment were steam-cleaned prior to each use. Soil samples were retained in brass liners. The ends of the samples were covered with Teflon sheeting, capped and sealed with tape. Soil samples were refrigerated until they were delivered to a California DHS certified analytical laboratory. Boring locations are shown on Plate 1. Our engineer prepared a log of the soils encountered in each test boring. The logs of the test borings are present on Plates 2 and 3.

The borings were backfilled with cement bentonite grout. Prior to grouting, groundwater levels were measured and groundwater samples were obtained using a clear acrylic bailer to check for indications of floating gasoline.

Selected soil samples were tested for total petroleum hydrocarbon (TPH), oil and grease, volatile aromatic hydrocarbons (i.e. benzene, toluene, xylene and ethylbenzene (BTXE), and volatile halocarbons (solvents). Specific details regarding the analytical test methods and the test results are presented on the attached laboratory reports.

Subsurface Conditions

Our test borings indicate that the site is underlain by medium stiff to stiff silty and sandy clays which extend to depths of 5 to 8 feet. The clayey soils are underlain by loose silty sands and medium stiff sandy silts. Boring 1 encountered a layer of sandy gravel extending from about 13 feet to the depth explored about 15 feet.

Groundwater was encountered in Test Borings 1, 2 and 4 at a depth of 7 to 7.5 feet the day following drilling. Groundwater was encountered at a depth of about 3 feet in Boring 3. The elevated groundwater in this location may represent water perched within the tank or pipeline backfill.

Conclusions

Based on our preliminary study, it is apparent that gasoline contamination exists in the soil surrounding the tanks. If not already submitted an "Underground Storage Tank Unauthorized Release (Leak) Contamination Site Report" should be promptly filed with the Alameda County Department of Environmental Health (ACDEH). The source of the contamination is probably tank leakage, spillage during refueling operations, pipeline leakage, or a combination of these sources. A summary of current and draft regulatory guidelines is presented in Table 1. At this particular site, the ACDEH will be the lead agency involved in tank removal and contaminated soil clean-up. We suspect that the ACDEH will require removal of soil containing 1000 or more parts per million (ppm) of TPH. Since the TPH concentration in Boring 1 at 8 feet exceeds this value, some removal of contaminated soil will likely be required. In addition, the elevated BTXE concentrations may also necessitate the removal of gas contaminated soils.

Although we did not test groundwater samples as part of our preliminary study, about 1/4-inch of free float gasoline was detected on the groundwater surface in Boring 1. Accordingly, we suspect that the groundwater near the tank site has been affected. The groundwater contamination likely consists of a

thin layer of gasoline on the groundwater surface downgradient of the site. In addition, groundwater within downgradient areas likely contain elevated levels of BTXE. Once the tanks and highly contaminated soils have been removed, the agencies will likely require an investigation of possible groundwater contamination, including the installation of one or more monitoring wells.

In order to mitigate an on-going source of groundwater contamination, the tank should be removed as soon as possible. During tank removal, soil containing gasoline concentrations above clean-up values specified by the ACEHD should be removed. Prior to tank removal, the ACEHD will require that an underground closure plan be submitted (a copy of their standard form is enclosed). In addition, the tank removal contractor may need to submit a Site Safety Plan. In general, we judge that most of the gasoline contaminated soils can likely be treated on-site by aeration. By doing so, the TPH levels for much of the soil can likely be reduced to concentrations which will allow disposal of the soil at a local landfill. Soil which is not aerated to reduce concentrations to acceptable levels and soils containing heavier hydrocarbons, such as motor oil or diesel, should be transported under hazardous waste manifest to a Class 1 disposal facility.

Aeration should be conducted according to the guidelines prepared by the Bay Area Air Quality Management Board; a copy of their guidelines is attached. Essentially, they will limit the amount of soil that be aerated at a particular time, depending upon its initial contamination level. It will be necessary to designate and restrict access to an on-site area where aeration will be conducted.

Groundwater will be encountered within the tank excavation. If free floating gasoline is encountered in the excavation, it should be removed prior to backfilling. This will likely require skimming, pumping, or possibly the use of sorbent materials.

Since the excavation will extend into silty and sandy soils below the groundwater level, excavation slopes will not be stable at steep inclinations. In order to maintain reasonably stable temporary construction slopes, they will need to be flattened significantly.

In order to allow time to obtain and analyze soil samples from the excavation, it will be necessary to leave the excavation open for several days or possibly longer. As a result, it will be necessary to restrict access to the excavation area.

Once contaminated soils have been removed, the excavation should be backfilled. The portion of the excavation below groundwater should be backfilled with a free draining crushed rock or gravel. The portion of the excavation above groundwater and to within about 2 feet of the groundsurface should be backfilled free draining rock or compacted select fill as described below. In order to provide a relatively impervious cap, the upper 2 feet should be backfilled with select fill.

Select fill should not contain organic matter or rocks greater than 4 inches in largest dimension. In addition, it should contain at least 20 percent passing a #200 sieve. In order to provide a temporary roadway surface, the upper portion of the excavation should be backfilled with aggregate baserock. All select fill and baserock should be compacted to at least 90 percent relative compaction (ASTM D1557). A geotextile filter fabric should be placed between the gravel and select fill layers to reduce the risk of fines migrating into the gravel.

We hope this provides you the information required at this time. If we can be of further assistance, please call.

Yours very truly,

Subsurface Consultants, Inc.

R. William Rudolph

R. William Rudolph
Geotechnical Engineer 741 (expires 12/31/88)

RWR:JPB:clh

Attachments:
- Site Plan
- Logs of Test Borings 1 thru 4
- Laboratory Test Reports
- Underground Storage Tank Unauthorized Release (Leak) Contamination Site Report
- Alameda County Underground Tank Closure/Modified Plan Form
- Bay Area Air Quality Management District Regulations - Aeration of Contaminated Soil and Removal of Underground Storage Tanks

Curtis & Tompkins, Ltd., Analytical Laboratories. Since 1878
290 Division Street. San Francisco, CA 94103. Phone (415) 861-1863

LAB NUMBER: 14376
CLIENT: SUBSURFACE CONSULTANTS
PROJECT: COLLIN'S ST

DATE RECEIVED: 03-16-88
DATE ANALYZED: 03-18-88
DATE REPORTED: 03-29-88
PAGE 1 OF 3

Results of Analysis for Petroleum Hydrocarbons/Oil & Grease

Method References: O&G: Oil and Grease, SWWM 503 E
TPH: Total Petroleum Hydrocarbons, EPA 3550/8015

| C&T ID | CLIENT ID | GASOLINE (mg/Kg) | KEROSINE (mg/Kg) | DIESEL (mg/Kg) | O&G (mg/Kg) |
|---|---|---|---|---|---|
| 14376-1 | 1 @ 4.5 | 68 | ND(10) | ND(10) | ND(50) |
| 14376-2 | 1 @ 8.0 | 2,900 | ND(10) | ND(10) | NR |
| 14375-3 | 2 @ 9.5 | 200 | ND(10) | ND(10) | NR |
| 14376-4 | 3 @ 6.5 | 73 | ND(10) | ND(10) | 110 |

ND = Not Detected; Limit of detection indicated in parentheses.

NR = Not Requested.

QA/QC SUMMARY

| | TPH |
|---|---|
| Duplicate: Relative % Difference | 4 |
| Spike: % Recovery | 106 |

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LABORATORY NUMBER: 14376-2
CLIENT: SUBSURFACE CONSULTANTS
CLIENT ID: 1 @ 8.0
PROJECT: COLLIN'S ST

DATE RECEIVED: 03-16-88
DATE ANALYZED: 03-25-88
DATE REPORTED: 03-29-88


EPA 8020: Volatile Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 5030 - Purge & Trap

| COMPOUND | Result ug/Kg | LOD ug/Kg |
|---|---|---|
| Benzene | 17,000 | 500 |
| Toluene | 64,000 | 2500 |
| Ethyl Benzene | 32,000 | 500 |
| Total Xylenes | 150,000 | 500 |
| Chlorobenzene | ND | 500 |
| 1,4-Dichlorobenzene | ND | 500 |
| 1,3-Dichlorobenzene | ND | 500 |
| 1,2-Dichlorobenzene | ND | 500 |

ND = None Detected. Limit of detection (LOD) in last column.

Clarke & Tompkins

LABORATORY NUMBER: 14376-4
CLIENT: SUBSURFACE CONSULTANTS
CLIENT ID: 3 @ 6.5
PROJECT: COLLIN'S ST

DATE RECIEVED: 03-16-88
DATE ANALYZED: 03-17-88
DATE REPORTED: 03-29-88


EPA 8010: Volatile Halocarbons in Soil & Wastes
Extraction Method: EPA 5030 - Purge & Trap

| Compound | Result ug/Kg | LOD ug/Kg |
|---|---|---|
| chloromethane | ND | 100 |
| bromomethane | ND | 100 |
| vinyl chloride | ND | 100 |
| chloroethane | ND | 100 |
| methylene chloride | ND | 100 |
| trichlorofluoromethane | ND | 100 |
| 1,1-dichloroethene | ND | 100 |
| 1,1-dichloroethane | ND | 100 |
| trans-1,2-dichloroethene | ND | 100 |
| chloroform | ND | 100 |
| freon 113 | ND | 100 |
| 1,2-dichloroethane | ND | 100 |
| 1,1,1-trichloroethane | ND | 100 |
| carbon tetrachloride | ND | 100 |
| bromodichloromethane | ND | 100 |
| 1,2-dichloropropane | ND | 100 |
| cis-1,3-dichloropropene | ND | 100 |
| trichloroethylene | ND | 100 |
| 1,1,2-trichloroethane | ND | 100 |
| trans-1,3-dichloropropene | ND | 100 |
| dibromochloromethane | ND | 100 |
| 2-chloroethylvinyl ether | ND | 100 |
| bromoform | ND | 100 |
| tetrachloroethene | ND | 100 |
| 1,1,2,2-tetrachloroethane | ND | 100 |
| chlorobenzene | ND | 100 |
| 1,3-dichlorobenzene | ND | 100 |
| 1,2-dichlorobenzene | ND | 100 |
| 1,4-dichlorobenzene | ND | 100 |

ND = None Detected. Limit of detection (LOD) in last column.

LABORATORY DIRECTOR

# LOG OF TEST BORING 1

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 3/15/88
ELEVATION --

| LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|
| | | | 0 | | | ASPHALTIC CONCRETE - 2" thick |
| | | | | | 17 | BASEROCK |
| | | | | | | GRAY SANDY CLAY (CL) medium stiff, moist, petroleum odor, with gravel |
| | | | 5 | | 14 | DARK GRAY SILTY CLAY (CL) medium stiff, moist, petroleum odor |
| | | | | | | GROUNDWATER LEVEL 3/16/88 |
| | | | | | 5 | GRAY SILTY SAND (SM) loose, saturated, petroleum od |
| | | | 10 | | | |
| | | | | | 16 | DARK GRAY SANDY GRAVEL (GM) medium dense, saturated |
| | | | 15 | | | |

SAMPLER TYPE:
CALIFORNIA DRIVE
O.D.: 2.5 inches
I.D.: 2.0 inches

HAMMER WEIGHT: 140 pounds
HAMMER DROP: 30 inches

# LOG OF TEST BORING 2

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 3/15/88
ELEVATION --

| LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|
| | | | 0 | | | ASPHALTIC CONCRETE - 2" thick |
| | | | | | | BASEROCK |
| | | | | | | BROWN GRAVELLY SAND (SW) medium dense, moist, petroleum odor |
| | | | 5 | | | DARK GRAY SANDY CLAY (CL) medium stiff, moist, petroleum odor, with gravel |
| | | | | | | DARK GRAY SILTY CLAY (CL) medium stiff, moist, petroleum odor |
| | | | 10 | | | GRAY SILTY SAND (SM) medium dense, saturated |
| | | | | | | GROUNDWATER LEVEL 3/16/88 |
| | | | 15 | | | |

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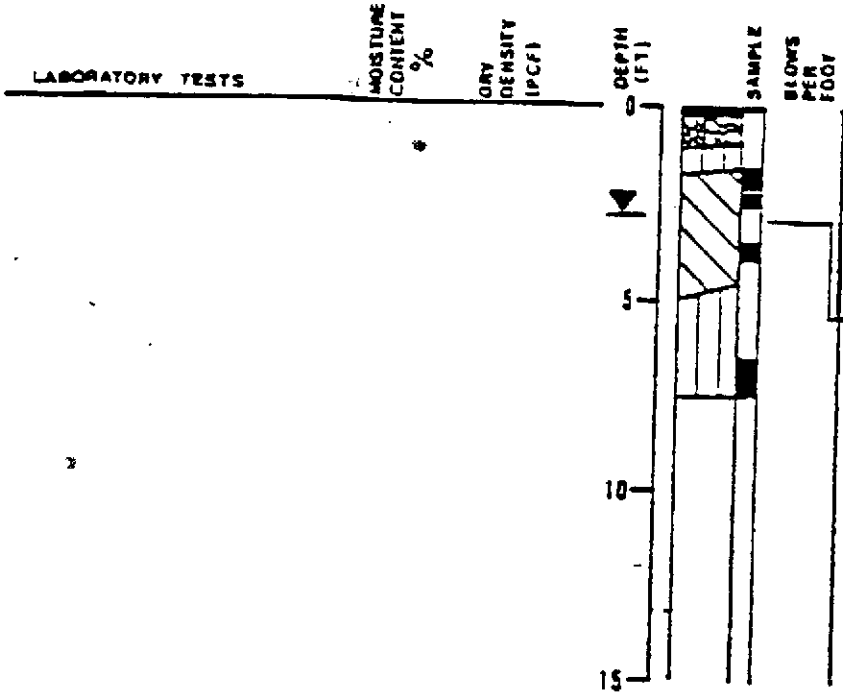
| Subsurface Consultants | COLLINS DRIVE TANKS - OAKLAND, CA | | | PLATE |
|---|---|---|---|---|
| | JOB NUMBER 375.003 | DATE 4/25/88 | APPROVED | 2 |

# LOG OF TEST BORING 3

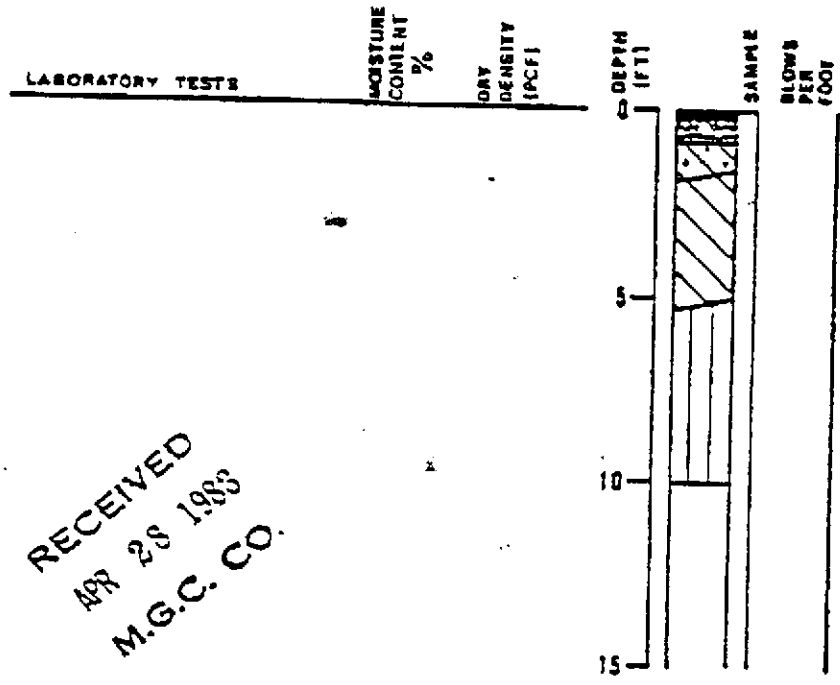
EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 3/15/88
ELEVATION --




ASPHALTIC CONCRETE - 2" thick
BASEROCK
DARK BROWN SANDY CLAYEY SILT (
medium stiff, moist
DARK GRAY SANDY CLAY (CL)
medium stiff, moist
GROUNDWATER LEVEL AFTER DRILLI
DARK GRAY SANDY SILT (ML)
medium stiff, moist, fine gra
sand

# LOG OF TEST BORING 4

EQUIPMENT 6" Solid Flight Auger
DATE DRILLED 3/15/88
ELEVATION --




ASPHALTIC CONCRETE - 2" thick
BASEROCK
GRAY-BROWN CLAYEY SAND (SC)
dense, moist, with gravel (fil
DARK GRAY SILTY CLAY (CL)
medium stiff, moist, petroleum
odor
DARK GRAY SANDY SILT (ML)
medium stiff, moist, petroleum
odor from 6.0 to 9.0 feet

BORING BACKFILLED BEFORE A
STABILIZED GROUNDWATER LEVEL
WAS RECORDED



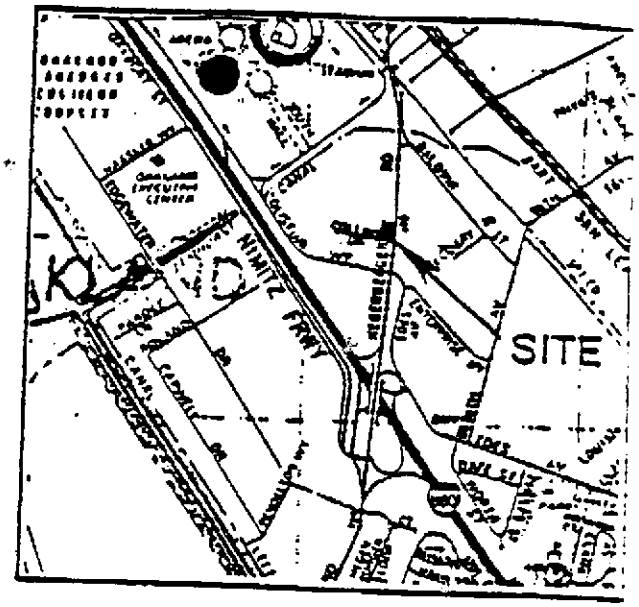
Subsurface Consultants

COLLINS DRIVE TANKS - OAKLAND, CA

| JOB NUMBER | DATE | APPROVED | PLATE |
|---|---|---|---|
| 375.003 | 4/25/88 | | 3 |

TEST BORING

EXISTING STRUCTURE




VICINITY MAP

NOT TO SCALE

N

SERVICE ISLANDS

SUMP

TANKS

CONCRETE SLAB

1

2

3

4

DRIVEWAY

DRIVEWAY

HEGENBERGER ROAD

COLLINS STREET

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# SITE PLAN

Subsurface Consultants

COLLINS DRIVE TANKS - OAKLAND, CA

| JOB NUMBER | DATE | APPROVED |
|---|---|---|
| 375.003 | 4/25/88 | |

PLATE 1

Table 1. Petroleum Hydrocarbon Concentrations in Soil



| Sample Designation | TVH[1] (ppm)[4] | TEH[2] (ppm) | TOC[3] (ppm) |
|---|---|---|---|
| 1 @ 4.5' | TNR[5] | 68[7] | ND |
| 1 @ 8.0' | TNR | 2900[7] | TNR |
| 2 @ 9.5' | TNR | 200[7] | TNR |
| 3 @ 6.5' | TNR | 73[7] | 110 |
| 4 @ 6.0' | ND | ND | ND |
| 4 @ 8.0' | 11 | ND | ND |
| 5 @ 4.0' | 28 | ND | 200 |
| 5 @ 5.0' | 9.5 | 610 | 69 |
| 5 @ 7.5' | 5.3 | ND | 7200 |
| 5 @ 8.0' | 200 | 290 | 50 |
| 6 @ 2.0' | 25 | 19 | 260 |
| 6 @ 6.0' | 5600 | 640 | 150 |
| 6 @ 7.5' | 2100 | ND | 50 |
| 6 @ 10.5' | 3500 | ND | ND |
| 7 @ 6.0' | 1500 | 6400 | 100,000 |
| 7 @ 7.5' | 2200 | 520 | 1800 |
| 7 @ 10.5' | ND | ND | ND |
| 8 @ 4.0' | 75 | 120 | 23,000 |
| 8 @ 6.5' | 4.1 | ND | ND |
| 9 @ 5.0' | 170 | 5000 | 40,000 |
| 9 @ 6.5' | 150 | 2100 | 190 |
| 9 @ 9.0' | ND | ND | ND |
| 10 @ 2.5 | TNR | TNR | ND |
| 11 @ 2.5' | TNR | TNR | 68 |
| 12 @ 2.5' | TNR | TNR | 5400 |
| 13 @ 1.5' | ND | ND | 390 |
| 13 @ 4.5' | ND | 25 | 1300 |
| 14 @ 5.5' | ND | ND | ND |
| 15 @ 1.5' | 590 | ND | 310 |
| 16 @ 8.0' | ND | ND | ND |

Table 1 (cont.)

| Sample Designation | TVH[1] (ppm)[4] | TEH[2] (ppm) | TOC[3] (ppm) |
|---|---|---|---|
| 17 @ 2.5' | ND | ND | 63 |
| 17 @ 11' | ND | ND | ND |
| 18 @ 4' | ND | 24 | 89 |
| 19 @ 1.5' | ND | 55 | 390 |
| 20 @ 5.5' | 100 | 29 | ND |
| 20 @ 11' | 250 | 15 | ND |
| 21 @ 3' | ND | ND | ND |
| 21 @ 10' | ND | ND | ND |
| 22 @ 8' | 1000 | ND | ND |
| 23 @ 2.5' | ND | 27 | ND |
| 23 @ 11' | ND | ND | ND |

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1 As determined by EPA Method 8015 modified after purge and trap extraction (EPA 5030)

2 As determined by EPA Method 8015 modified after sonication extraction (EPA 3550)

3 As determined by SMWW17:5520F

4 ppm = parts per million = milligrams per kilogram = mg/kg

5 TNR = Test not requested

6 ND = None detected, chemicals not present at concentrations above detection limits presented on test reports

7 Quantified as gasoline by laboratory

Table 2. Organic Lead in Soil and Ethylene Dibromide Concentrations

| Sample Description | Organic[1] Lead (ppm)[3] | Ethylene[2] Dibromide (ppm) |
|---|---|---|
| 5 @ 5.0' | ND[4] | TNR[5] |
| 5 @ 7.5' | ND | ND |
| 6 @ 2.0' | ND | TNR |
| 6 @ 7.5' | 0.9 | ND |
| 7 @ 7.5' | ND | ND |
| 8 @ 4.0' | ND | ND |

DRAFT

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1 As determined by DHS Method presented in LUFT Manual
2 As determined by EPA Method 8010
3 ppm = parts per million
4 ND = None detected, chemicals not present at concentrations above detection limits presented on test reports.
5 TNR = Test not requested

Table 3. Lead Concentrations in Soil

| Sample Designation | Lead[1] Concentration (ppm)[2] | Soluble Lead |
|---|---|---|
| 5 @ 5.0' | 29 | -- |
| 5 @ 7.5' | 12 | -- |
| 6 @ 2.0' | 99 | -- |
| 7 @ 7.5' | 12 | -- |
| 8 @ 4.0' | 380 | -- |
| 10 @ 2.5' | 120 | 6.2 |
| 11 @ 2.5' | 7.9 | -- |
| 12 @ 2.5' | 22 | -- |
| 13 @ 1.5' | 86 | 1.3 |
| 17 @ 7.5' | 94 | 14 |
| 19 @ 1.5' | 270 | 8.1 |
| 20 @ 5.5' | 95 | .54 |
| Regulatory Criteria | 1000 | 5 |

[1] As determined by EPA Method 7420

[2] ppm = parts per million = milligrams per kilogram = mg/kg

Table 4. Semi-volatile Organics and Cyanide Concentrations in Soil

| Sample Designation | Concentration (ppm)[1] |
|---|---|
| 5 @ 5.0' | |
| Semi-volatile organics[2] | ND[3] |
| Borings 13, 17 & 19 @ 1.5 to 2.5 feet | |
| Semi-volatile organics | ND |
| Cyanide | 0.49 |
| Borings 5, 9 & 20 at 2.0 yo 5.5 feet | |
| Semi-volatile organics | ND |
| Cyanide | ND |

1 ppm = parts per million = milligrams per kilogram = mg/kg

2 As determined by EPA Method 8270 which includes the compounds listed on the test reports in the Appendix

3 ND = None detected, compounds not present at concentrations above detection limits

Table 5. Heavy Metal Concentrations in Soil Composites

| Total Metal | Composite Concentrations A[1] (ppm)[5] | B[2] (ppm) | Regulatory Criteria STLC[3] (ppm) | TTLC[4] (ppm) |
|---|---|---|---|---|
| Antimony (Sb) | ND[6] | ND | 15 | 500 |
| Arsenic (As) | ND | ND | 5 | 500 |
| Barium (Ba) | 190 | 170 | 100[7] | 10,000[8] |
| Beryllium (Be) | ND | 0.5 | 0.75 | 75 |
| Cadmium (Cd) | 2.0 | 1.4 | 1.0 | 100 |
| Chromium (Cr)[9] | 31 | 30 | 560 | 2,500 |
| Cobalt (Co) | 11 | 13 | 80 | 8,000 |
| Copper (Cu) | 51 | 36 | 25 | 2,500 |
| Lead (Pb) | 170 | 99 | 5 | 1,000 |
| Mercury (Hg) | ND | 0.2 | 0.2 | 20 |
| Molybdenum (Mo) | ND | ND | 350 | 3,500 |
| Nickel (Ni) | 50 | 48 | 20 | 2,000 |
| Selenium (Se) | ND | ND | 1.0 | 1,000 |
| Silver (Ag) | ND | ND | 5 | 500 |
| Thallium (Tl) | ND | ND | 7.0 | 700 |
| Vanadium(V) | 23 | 20 | 24 | 2,400 |
| Zinc (Zn) | 170 | 120 | 250 | 5,000 |

1 Composite includes samples 13 @ 1.5', 17 @ 2.5' and 19 @ 1.5'
2 Composite includes samples 5 @ 2.0', 9 @ 3.5' and 20 @ 5.5'
3 Soluble Threshold Limit Concentration (22 CAC 66699). Provided for reference only and should not be compared to test results.
4 Total Threshold Limit Concentration (CAC 666999)
5 ppm = parts per million = milligrams per kilogram = mg/kg
6 ND = None detected
7 Excluding Barite
8 Excluding Barite and Barium Sulfate
9 Total Chromium compounds

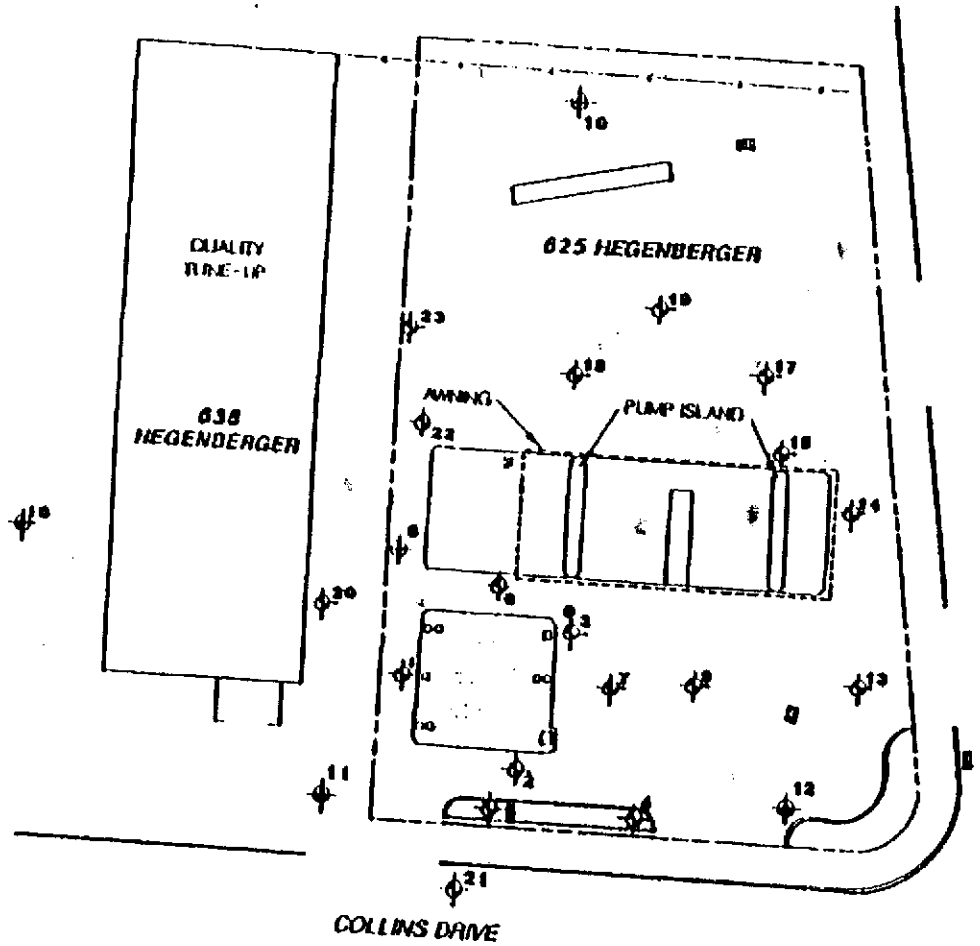
Table 6. Petroleum Hydrocarbon, Lead and Ethylene Dibromide Concentrations in Groundwater

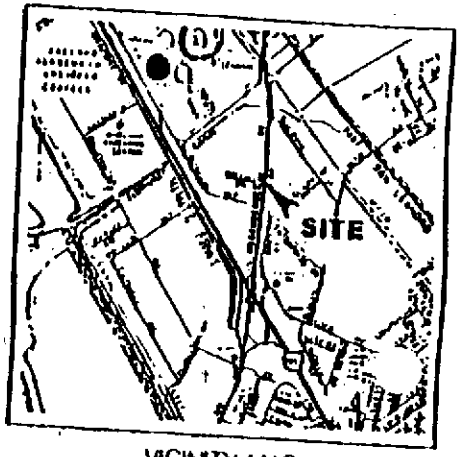
| Sample Description | TVH[1] (ppb)[7] | TEH[2] (ppm)[8] | TOG[3] (ppm) | Organic[4] Lead (ppm) | Total[5] Lead (ppm) | Ethylene[6] Dibromide (ppm) |
|---|---|---|---|---|---|---|
| MW 8 | 18000 | ND[9] | ND | ND | ND | ND |
| MW10 | ND | ND | ND | ND | ND | ND |
| MW11 | 240 | ND | ND | ND | 0.21 | ND |
| MW12 | ND | ND | ND | ND | ND | ND |
| MW16 | 380 | ND | ND | ND | ND | TNR[10] |

Table 7. BTXE Concentrations in Groundwater

| Sample Description | Benzene[11] (ppb) | Toluene[11] (ppb) | Xylene[11] (ppb) | Ethylbenzene[11] (ppb) |
|---|---|---|---|---|
| MW 8 | 3700 | ND | 690 | 290 |
| MW10 | 1.7 | ND | ND | ND |
| MW11 | 53 | ND | ND | ND |
| MW12 | ND | ND | ND | ND |
| MW16 | ND | ND | ND | ND |

1 As determined by EPA Method 8015 modified after purge and trap extraction (EPA 5030)
2 As determined by EPA Method 8015 modified after sonication extraction (EPA 3550)
3 As determined by SMWW17:5520F
4 As determined by EPA Method 7420
5 As determined by DHS Method presented in Luft Manual
6 As determined by EPA Method 504
7 ppb = parts per billion = micrograms per Liter = ug/L
8 ppm = parts per million = milligrams per Liter = mg/L
9 ND = None detected, chemicals not present at concentrations above detection limits presented on test reports
10 TNR = Test not requested
11




VICINITY MAP

- TEST BORING
- MONITORING WELL
- TANK AREA
- TANK PUMP
- FILL INLET
- DRAIN INLET
- SUMP

APPROXIMATE SCALE (feet)

SITE PLAN

Subsurface Consultants

COLLINS & HEGENBERGER – OAKLAND, CA

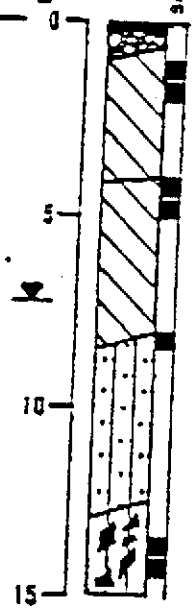
| JOB NUMBER | DATE | APPROVED |
|---|---|---|
| 375003 | 5/9/90 | |

DRAFT

# LOG OF TEST BORING 1

LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 3/15/88
ELEVATION 5.1 feet*




ASPHALTIC CONCRETE - 2" thick
BASE ROCK
GRAY SANDY CLAY (CL)
medium stiff, moist, with some gravel, petroleum odor (fill)
DARK GRAY SILTY CLAY (CL)
medium stiff, moist, petroleum odor
GROUNDWATER LEVEL 3/16/88
GRAY SILTY SAND (SM)
loose, wet, petroleum odor

DARK GRAY SANDY GRAVEL (GM)
medium dense, wet

*Elevations based on an A.L.T.A. survey performed by Majors Engineering, Inc. dated August 1988. Reference datum is City of Oakland datum which is 3.0 feet below USGS sealevel

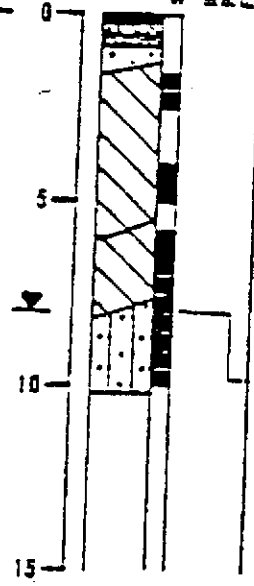
SAMPLER TYPE:
CALIFORNIA DRIVE
O.D.: 2.5 inches
I.D.: 2.0 inches

HAMMER WEIGHT: 140 pounds
HAMMER DROP: 30 inches

# LOG OF TEST BORING 2

LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 3/15/88
ELEVATION 5.0 feet




ASPHALTIC CONCRETE - 2" thick
BASE ROCK*
BROWN GRAVELLY SAND (SW)
medium dense, moist, petroleum odor (fill)
DARK GRAY SANDY CLAY (CL)
medium stiff, moist, with some gravel, petroleum odor
DARK GRAY SILTY CLAY (CL)
medium stiff, moist, petroleum odor
GROUNDWATER LEVEL 3/16/88
GRAY SILTY SAND (SM)
medium dense, wet

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JOB NUMBER 375.003 | DATE 4/25/88 | APPROVED | PLATE

# LOG OF TEST BORING 3

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 3/15/88
ELEVATION 4.9 feet

| LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|
| | | | 0 | | | ASPHALTIC CONCRETE - 2" thick |
| | | | | | | BASE ROCK |
| | | | | | | DARK BROWN SANDY CLAYEY SILT (ML) medium stiff, moist (fill) |
| | | | | | | GROUNDWATER LEVEL AFTER DRILLING |
| | | | 5 | | | DARK GRAY SANDY CLAY (CL) medium stiff, moist (fill) |
| | | | | | | DARK GRAY SANDY SILT (ML) medium stiff, moist, fine grained sand |
| | | | 10 | | | boring backfilled before a stabilized groundwater level was recorded |
| | | | 15 | | | |

DRAFT

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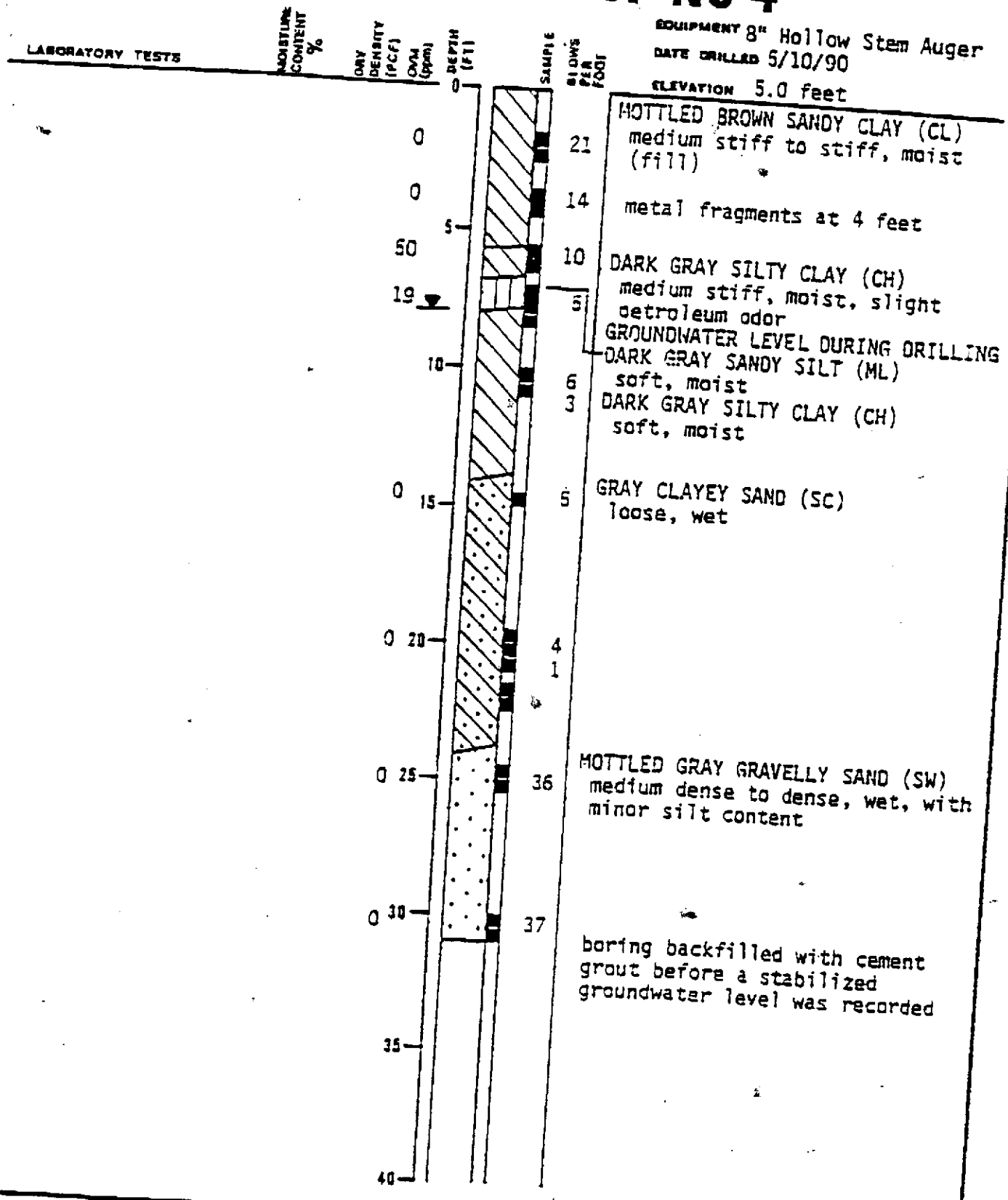
JOB NUMBER 375.003 | DATE 4/25/88 | APPROVED | PLATE

# LOG OF TEST BORING 4

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 5/10/90
ELEVATION 5.0 feet

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JOB NUMBER 375.003 | DATE 5/18/90 | APPROVED | PLATE

# LOG OF TEST BORING 5

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 5/10/90
ELEVATION 5.0 feet

| LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | OVM (ppm) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|---|
| | | | 0 | 0 | | 14 | MOTTLED BROWN SANDY CLAY (CL) medium stiff to stiff, moist, with some gravel (fill) |
| | | | 20 | | | 15 | DARK GRAY SILTY CLAY (CL) medium stiff to stiff, moist, minor gravel content, slight petroleum odor (fill) |
| | | | 270 | 5 | | 13 | |
| | | | 769 | | | 6 | layer of black tarry/oily substance at 5.5 feet |
| | | | | | | 6 | GROUNDWATER LEVEL DURING DRILLING |
| | | | | 10 | | | DARK GRAY CLAYEY SILT (ML) medium stiff, moist, with organic matter, strong petroleum odor |
| | | | | | | | OLIVE GRAY SANDY SILT (ML) loose, moist, with petroleum odor boring backfilled with cement grout before a stabilized groundwater level was recorded |
| | | | | 15 | | | |

# LOG OF TEST BORING 6

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 5/11/90
ELEVATION 5.0 feet

| LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | OVM (ppm) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|---|
| | | | | 0 | | | ASPHALTIC CONCRETE 2" thick |
| | | | 600 | | | 14 | BASE ROCK |
| | | | 500 | | | 11 | MOTTLED BROWN SANDY CLAY (CL) medium stiff, moist, with some gravel (fill) |
| | | | | 5 | | 1 | DARK GRAY SILTY CLAY (CL) |
| | | | | | | 9 | stiff, moist, with some sand, petroleum odor (fill) |
| | | | 700 | | | 9 | DARK GRAY SILTY CLAY (CL) |
| | | | | | | 10 | medium stiff, moist |
| | | | | | | | GROUNDWATER LEVEL AFTER DRILLING |
| | | | 800 | 10 | | 10 | slight sheen on water surface |
| | | | | | | | GRAY GRAVELLY SAND (SW) loose to medium dense, wet, strong petroleum odor, slight sheen |
| | | | | | | | boring backfilled with cement grout before a stabilized groundwater level was recorded |
| | | | | 15 | | | |

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JOB NUMBER 375.003 DATE 5/18/90 APPROVED PLATE

# LOG OF TEST BORING 7

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 5/11/90
ELEVATION --

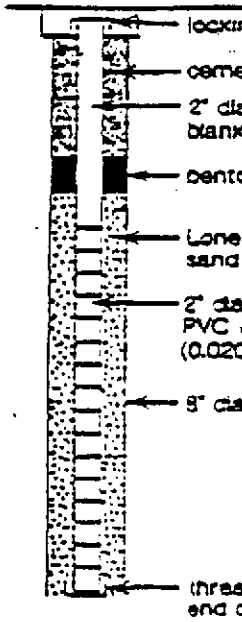
| LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | OVM (ppm) | DEPTH (ft) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|---|
| | | | | 0 | | | ASPHALTIC CONCRETE - 2" thick |
| | | | | | | | BASE ROCK |
| | | | 32 | | | 16 | MOTTLED BROWN SANDY CLAY (CL) medium stiff to stiff, moist, with some gravel (fill) |
| | | | 20 | | | 9 | |
| | | | | 5 | | | |
| | | | 930 | | | 5 | OLIVE GRAY CLAYEY SILT (ML) soft, moist, strong petroleum odor |
| | | | 1600 | | | 6 | GROUNDWATER LEVEL DURING DRILLING |
| | | | 83 | | | 3 | black tar like substance at 7 feet |
| | | | | 10 | | 12 | GRAY SAND (SP) loose to medium dense, moist to wet, slight petroleum odor |
| | | | | | | 5 | |
| | | | | 15 | | | |

boring backfilled with cement grout before a stabilized groundwater level was recorded

*TOC = Top of casing

# LOG OF TEST BORING 8

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 5/11/90
ELEVATION TOC 4.88' *




| MOISTURE CONTENT % | DRY DENSITY (PCF) | OVM (ppm) | DEPTH (ft) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|
| | | | 0 | | | ASPHALTIC CONCRETE - 2" thick |
| | | | | | | BASE ROCK |
| | | 180 | | | 10 | GRAY SILTY SAND (SM) loose to medium dense, moist (fill) |
| | | 420 | | | 8 | |
| | | | 5 | | | |
| | | 220 | | | 6 | DARK GRAY SILTY CLAY (CL) medium stiff, moist, with some gravel, strong petroleum odor (fill) |
| | | | | | 8 | |
| | | | | | | DARK GRAY SILTY CLAY (CL) |
| | | 90 | | | 7 | medium stiff, moist, petroleum odor |
| | | | 10 | | 14 | GROUNDWATER LEVEL DURING DRILLING |
| | | | | | | MOTTLED TAN AND GRAY CLAYEY SILT (ML) medium stiff, moist, petroleum odor |
| | | | 15 | | | GRAY GRAVELLY SAND (SW) medium dense, wet |

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JOB NUMBER 375.003 | DATE 5/15/90 | APPROVED | PLATE

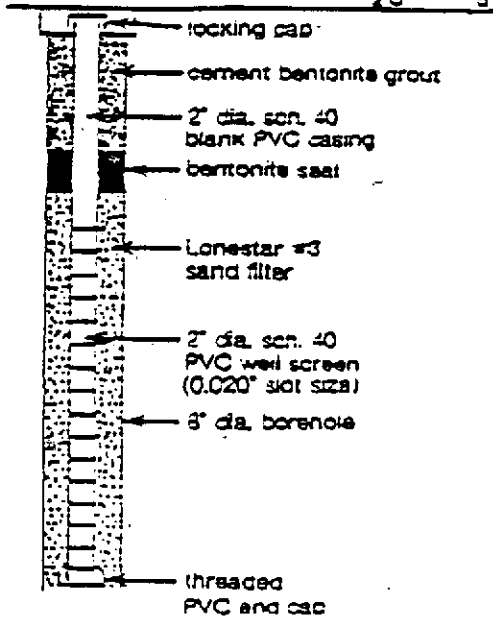
# LOG OF TEST BORING 9

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 5/11/90
ELEVATION 4.6 feet

| LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | OVM (ppm) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|---|
| | | | | 0 | | | ASPHALTIC CONCRETE - 2" thick |
| | | | | | | | BASE ROCK |
| | | | 6 | | | 20 | BLACK SILTY CLAY (CL) stiff, moist, with some gravel (fill) |
| | | | 51 | | | 10 | |
| | | | | 5 | | 10/3" | MOTTLED GRAY GRAVELLY SAND (SW) loose, moist (fill) |
| | | | | | | 4 | BLACK SILTY CLAY (CL) medium stiff to stiff, moist, with concrete fragments, strong petroleum odor (fill) |
| | | | 59 | | | 2 | |
| | | | | 10 | | | GRAY CLAYEY SILT (MH) soft, moist |
| | | | | | | | boring backfilled with cement grout before a stabilized groundwater level was recorded |
| | | | | 15 | | | |

# LOG OF TEST BORING 10

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 5/9/90
ELEVATION TOC 4.21'




| MOISTURE CONTENT % | DRY DENSITY (PCF) | OVM (ppm) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|
| | | | 0 | | | ASPHALTIC CONCRETE - 2" thick |
| | | | | | 5/6" | BASE ROCK - 8" thick |
| | | 0 | | | 17 | BLACK SILTY CLAY (CL) medium stiff, moist, with abundant gravel, concrete fragments (fill) |
| | | | 5 | | | |
| | | 0 | | | 8 | MOTTLED GRAY BROWN SILTY CLAY (CL) medium stiff, moist |
| | | | | | 7 | GROUNDWATER LEVEL DURING DRILLING |
| | | 0 | | | 5 | GRAY CLAYEY SILT (MH) soft to medium stiff, moist |
| | | | 10 | | | DARK GRAY SILTY SAND (SM) loose, wet, with some gravel increase in gravel content below 12 feet |
| | | 0 | | | 21 | |
| | | | 15 | | 2 | GRAY CLAYEY SILT (MH) soft, wet |

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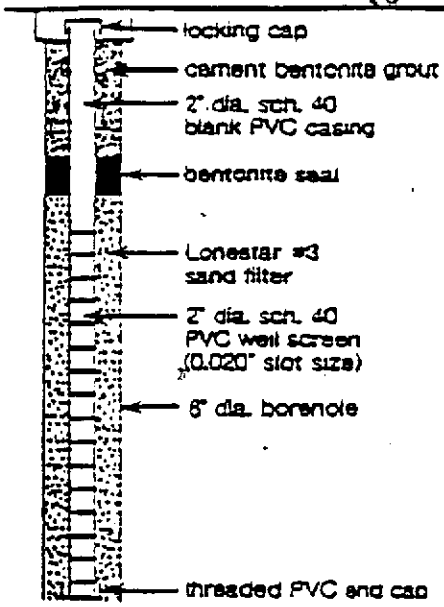
| JOB NUMBER | DATE | APPROVED | PLATE |
|---|---|---|---|
| 375.003 | 5/18/90 | | |

# LOG OF TEST BORING 11

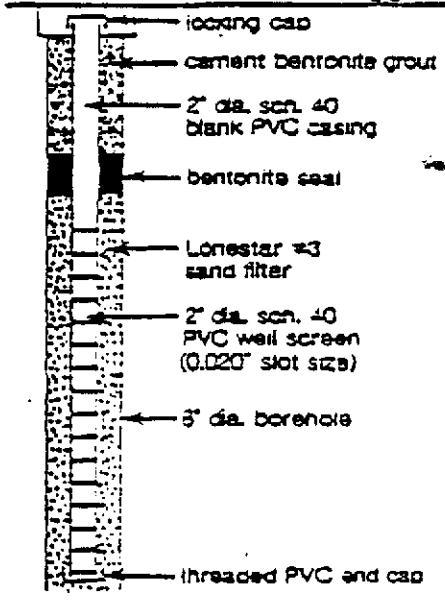
EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 5/9/90
ELEVATION TOC 5.04'




| MOISTURE CONTENT % | DRY DENSITY (PCF) | OVM (ppm) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|
| | | | 0 | | | ASPHALTIC CONCRETE - 2" thick |
| | | | | | | BASE ROCK |
| | | 0 | | | 18 | DARK BROWN SILTY CLAY (CL) medium stiff to stiff, moist, with abundant rock and concrete fragments (fill) |
| | | 0 | 5 | | 15 | |
| | | | | | 13 | DARK GRAY SANDY CLAY (CL) medium stiff, moist, minor sand content |
| | | | | | 3 | |
| | | | | | 4 | GRAY CLAYEY SILT (MH) soft, moist |
| | | | 10 | | | GRAY BROWN SILTY SAND (SM) loose, moist |
| | | | | | 3 | |
| | | | | | | GROUNDWATER LEVEL DURING DRILLING |
| | | | | | | BLACK SAND (SW) medium dense, wet, coarse grained |
| | | | 15 | | 18 | |

# LOG OF TEST BORING 12

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 5/9/90
ELEVATION TOC 4.58'




| MOISTURE CONTENT % | DRY DENSITY (PCF) | OVM (ppm) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|
| | | | 0 | | | ASPHALTIC CONCRETE - 2" thick |
| | | | | | | BASE ROCK - 6" thick |
| | | 0 | | | 16 | GRAY SILTY CLAY (CL) medium stiff, moist, with some sand (fill) |
| | | 0 | | | 14 | |
| | | | 5 | | 10 | |
| | | | | | | MOTTLED GRAY SILTY CLAY (CL-CH) soft, moist, with some organic matter and sand |
| | | 0 | | | 4 | |
| | | 0 | | | 2 | |
| | | | 10 | | | GROUNDWATER LEVEL DURING DRILLING |
| | | | | | 2 | GRAY SILTY SAND (SM) loose, moist, with some gravel |
| | | | | | | MOTTLED OLIVE GRAY SILTY CLAY (CH) soft, moist, with some organic matter |
| | | | 15 | | 2 | |

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| JOB NUMBER | DATE | APPROVED | PLATE |
|---|---|---|---|
| 375.003 | 5/18/90 | | |

# LOG OF TEST BORING 13

EQUIPMENT 6" Hollow Stem Auger
DATE DRILLED 6/27/90
ELEVATION --

| LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|
| | | | 0 | | | ASPHALT CONCRETE - 2" thick |
| | 0 | | | | 12 | BASE ROCK - 6" thick |
| | 0 | | | | 15 | DARK GRAY SILTY CLAY (CL) medium stiff, moist, with some sand and gravel (fill) |
| | 0 | | 5 | | 14 | GROUNDWATER LEVEL AFTER DRILLING grass fragments at 3 feet |
| | 0 | | | | 2 | BROWN SANDY CLAY (CL) medium stiff, moist, with some rocks (fill) |
| | | | 10 | | | DARK GRAY CLAYEY SILT (MH) soft, moist |
| | 22 | | 15 | | 2 | increase in sand content and minor peat content at 13 feet. Boring backfilled with cement grout before a stabilized groundwater level was recorded |

# LOG OF TEST BORING 14

EQUIPMENT 6" Hollow Stem Auger
DATE DRILLED 6/27/90
ELEVATION --

| LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|
| | | | 0 | | | ASPHALT CONCRETE - 2" thick |
| | 32 | | | | 14 | BASE ROCK - 6" thick |
| | 48 | | | | 15 | BLACK SILTY CLAY (CL) medium stiff, moist, with some sand and gravel (fill) |
| | 47 | | 5 | | 11 | BROWN SILTY CLAY (CL) medium stiff, moist with some gravel (fill) |
| | | | | | | GROUNDWATER LEVEL AFTER DRILLING |
| | 29 | | 10 | | 3 | DARK GRAY CLAYEY SILT (MH) soft, moist, with some sand layers |
| | 19 | | 15 | | 4 | Boring backfilled with cement grout before a stabilized groundwater level was recorded |

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JOB NUMBER 375.003 DATE 7/16/90 APPROVED

PLATE

# LOG OF TEST BORING 15

EQUIPMENT 6" Hollow Stem Auger
DATE DRILLED 6/27/90
ELEVATION --

| LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|
| TOG 310 TVH 680 TEH ND | | 5100 | 0 | | 15 | ASPHALT CONCRETE - 2" thick<br>BASE ROCK - 6" thick |
| | | 700 | | | 13 | BLACK SILTY CLAY (CL)<br>medium stiff, moist, with some gravel and rock fragments, sand and wood fragments (fill) |
| | | 230 | 5 | | 15 | |
| | | 1300 | | | 3 | BROWN CLAYEY SAND (SC)<br>medium dense, moist<br>GROUNDWATER LEVEL AFTER DRILLING<br>DARK GRAY CLAYEY SILT (MH)<br>soft, moist, interbedded with some fine grained sand |
| | | | 10 | | | |
| | | | 18 15 | | 7 | Boring backfilled with cement grout before a stabilized groundwater level was recorded |

# LOG OF TEST BORING 16

EQUIPMENT 6" Hollow Stem Auger
DATE DRILLED 6/27/90
ELEVATION --

| MOISTURE CONTENT % | DRY DENSITY (PCF) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|
| | | 0 | | 15 | ASPHALT CONCRETE - 2" thick<br>BASE ROCK - 6" thick |
| | 0 | | | 12 | BLACK SILTY CLAY (CL)<br>medium stiff, moist, with some gravel and rock fragments, nails, brick fragments (fill) |
| | 0 | | | 12 | |
| | 17 | 5 | | | |
| TOG ND TVH ND TEH ND | 28 | | | 14 | GROUNDWATER LEVEL AFTER DRILLING<br>DARK GRAY CLAYEY SANDY SILT (ML)<br>medium stiff, moist |
| | | 10 | | | |
| | 0 | 15 | | 11 | GRAY GRAVELLY SAND (SW)<br>dense, wet |

locking cap
cement bentonite grout
2" dia. sch. 40 blank PVC casing
bentonite seal
Lonestar #3 sand filter
2" dia. sch. 40 PVC well screen (0.020" slot size)
5" dia. borehole
threaded PVC end cap

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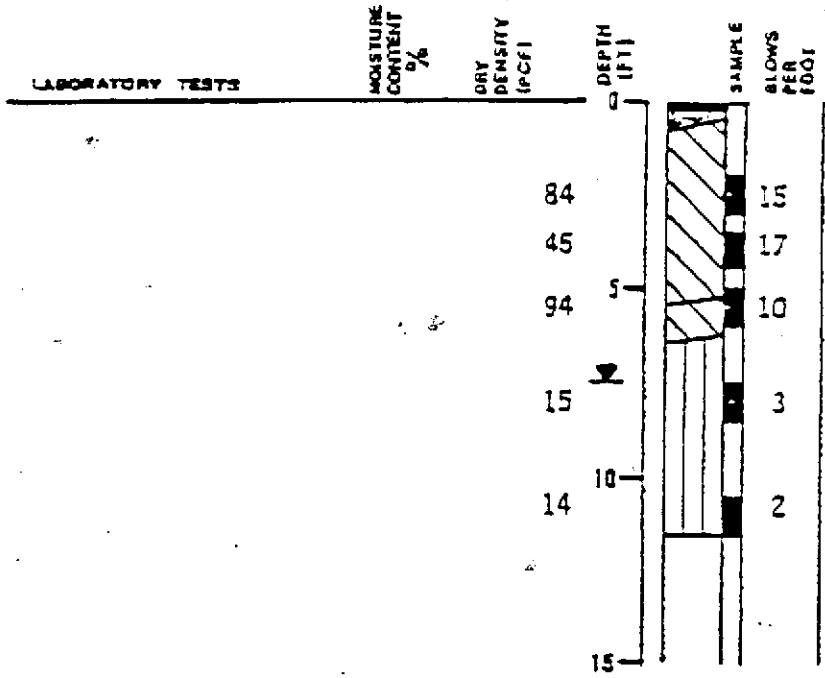
JOB NUMBER 375.003 | DATE 7/16/90 | APPROVED | PLATE

# LOG OF TEST BORING 17

EQUIPMENT 6" Hollow Stem Auger
DATE DRILLED 6/28/90
ELEVATION --

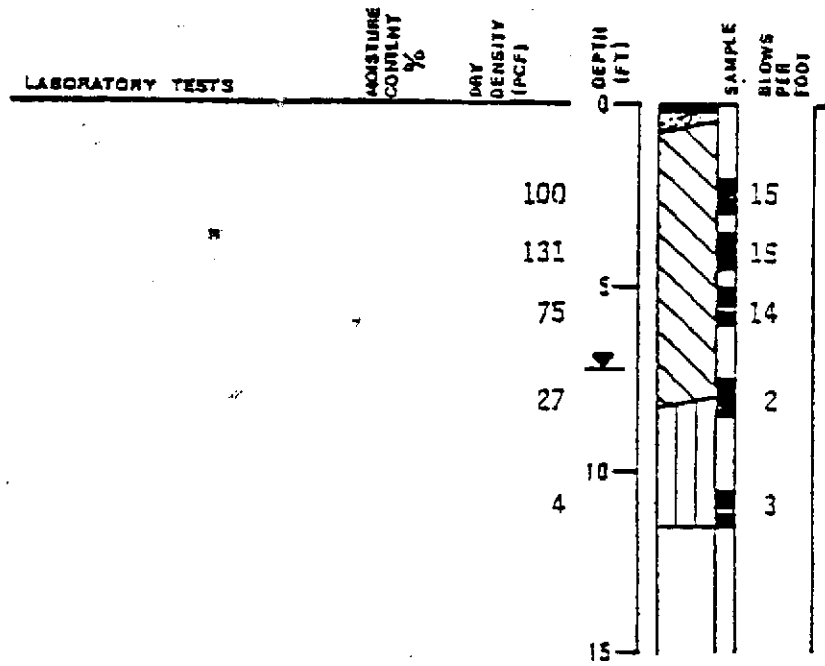



ASPHALT CONCRETE - 2" thick
BASE ROCK - 6" thick
MOTTLED GRAY BLACK SILTY CLAY (CL)
medium stiff, moist, with some rocks, brick, sand and organic matter (fill)
thin gravel and sand layer at 5'
GRAY BROWN SILTY CLAY (CL)
medium stiff, moist
GROUNDWATER LEVEL AFTER DRILLING
DARK GRAY CLAYEY SILT (MH)
soft, moist, with organic matter and thin sand layers

Boring backfilled with cement grout before a stabilized groundwater level was recorded

# LOG OF TEST BORING 18

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 6/28/90
ELEVATION --




ASPHALT CONCRETE - 2" thick
BASE ROCK - 6" thick
BLACK SILTY CLAY (CL)
medium stiff, moist, with some sand and rock fragments (fill)
color change to gray brown

GROUNDWATER LEVEL AFTER DRILLING

DARK GRAY SANDY CLAYEY SILT (ML)
soft, moist
decrease in sand content below 10'
Boring backfilled with cement grout before a stabilized groundwater level was recorded

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COLLINS & HEGENBERGER - OAKLAND, CA

JOB NUMBER 375.003 | DATE 7/16/90 | APPROVED | PLATE

# LOG OF TEST BORING 19

EQUIPMENT 6" Hollow Stem Auger
DATE DRILLED 6/28/90
ELEVATION --

| LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|
| | | | 0 | | | ASPHALT CONCRETE - 2" thick |
| | | 68 | | | 22 | BASE ROCK - 6" thick |
| | | 35 | | | 14 | BLACK SILTY CLAY (CL) medium stiff, moist, with some gravel and sand (fill) |
| | | 12 | 5 | | 24 | BROWN CLAYEY SAND (SC) dense, moist with some gravel (fill) |
| | | | | | | GROUNDWATER LEVEL AFTER DRILLING |
| | | 42 | | | 4 | DARK GRAY CLAYEY SILT (MH) soft, moist, with some organic matter and thin sand layers |
| | | 0 | 10 | | 10 | GRAY CLAYEY SAND (SC) medium dense, wet |
| | | | 15 | | | Boring backfilled with cement grout before a stabilized groundwater level was recorded |

# LOG OF TEST BORING 20

EQUIPMENT 6" Hollow Stem Auger
DATE DRILLED 6/28/90
ELEVATION --

| LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|
| | | | 0 | | | ASPHALT CONCRETE - 2" thick |
| | | 500 | | | 17 | BASE ROCK - 6" thick |
| | | 80 | | | 18 | BLACK SILTY CLAY (CL) medium stiff, moist, with some gravel and rock fragments (fill) |
| | | 3000 | 5 | | 17 | |
| | | | | | | DARK GRAY CLAYEY SILT (ML) medium stiff, moist |
| | | 3700 | | | 6 | GROUNDWATER LEVEL AFTER DRILLING |
| | | | 10 | | | GRAY SILTY SAND (SM) |
| | | 5000 | | | 7 | medium dense, wet, fine grained |
| | | | | | | becomes medium grained |
| | | 0 | 15 | | 9 | Boirng backfilled with cement grout before a stabilized groundwater level was recorded |

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| JOB NUMBER | DATE | APPROVED | PLATE |
|---|---|---|---|
| 375.003 | 7/16/90 | | |

# LOG OF TEST BORING 21

EQUIPMENT 6" Hollow Stem Auger
DATE DRILLED 6/28/90
ELEVATION --

| LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|
| | | | 0 | | | ASPHALT CONCRETE - 3" thick |
| | | 0 | | | 33 | BASE ROCK - 6" thick |
| | | 175 | | | 16 | GRAY BROWN CLAYEY SAND (SC) dense, moist (fill) |
| | | 185 | 5 | | 5 | MOTTLED GRAY AND BLACK SILTY CLAY (CL) medium stiff, moist, with gravel and rock fragments (fill) |
| | | 80 ▼ | | | 5 | DARK GRAY CLAYEY SANDY SILT (ML) soft, moist |
| | | 80 | 10 | | 5 | GROUNDWATER LEVEL AFTER DRILLING |
| | | | | | | DARK GRAY SAND (SW) medium dense, wet |
| | | | 15 | | | Boring backfilled with cement grout before a stabilized groundwater level was recorded |

# LOG OF TEST BORING 22

EQUIPMENT 6" Hollow Stem Auger
DATE DRILLED 6/28/90
ELEVATION --

| LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|
| | | | 0 | | | ASPHALT CONCRETE - 2" thick |
| | | 300 | | | 13 | BASE ROCK - 6" thick |
| | | 420 | | | 17 | BLACK SILTY CLAY (CL) medium stiff, moist, with some sand and rock fragments (fill) |
| | | 235 | 5 | | 13 | GRAY BROWN SILTY SANDY CLAY (CL) medium stiff, moist, with rock fragments (fill) |
| | | 3400 ▼ | | | 9 | DARK GRAY CLAYEY SILT (ML) soft, moist |
| | | 2075 | 10 | | 18 | GROUNDWATER LEVEL AFTER DRILLING |
| | | | | | | GRAY GRAVELLY SAND (SW) dense, wet |
| | | 466 | 15 | | 7 | Boring backfilled with cement grout before a stabilized groundwater level was recorded |

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COLLINS & HEGENBERGER - OAKLAND, CA

| JOB NUMBER | DATE | APPROVED | PLATE |
|---|---|---|---|
| 375.003 | 7/16/90 | | |

# LOG OF TEST BORING 23

EQUIPMENT 6" Hollow Stem Auger
DATE DRILLED 6/28/90
ELEVATION --

| LABORATORY TESTS | MOISTURE CONTENT % | DRY DENSITY (PCF) | DEPTH (FT) | SAMPLE | BLOWS PER FOOT | |
|---|---|---|---|---|---|---|
| | | | 0 | | | ASPHALT CONCRETE - 2" thick<br>BASE ROCK - 6" thick |
| | | 120 | | | 11 | GRAY BROWN SILTY CLAY (CL)<br>medium stiff, moist, with some sand and rock fragments |
| | | 60 | | | 15 | |
| | | 53 | 5 | | 8 | color change to black below 4' |
| | | | | | | GRAY SILTY SAND (SM)<br>loose, moist, minor clay, very fine grained |
| | | 81 | | | 4 | |
| | | | 10 | | | GROUNDWATER LEVEL AFTER DRILLING<br>becomes medium grained |
| | | 245 | | | 6 | |
| | | | | | | DARK GRAY CLAYEY SILT (MH)<br>soft, moist<br>Boring backfilled with cement grout before a stabilized groundwater level was recorded |
| | | 60 | 15 | | 6 | |

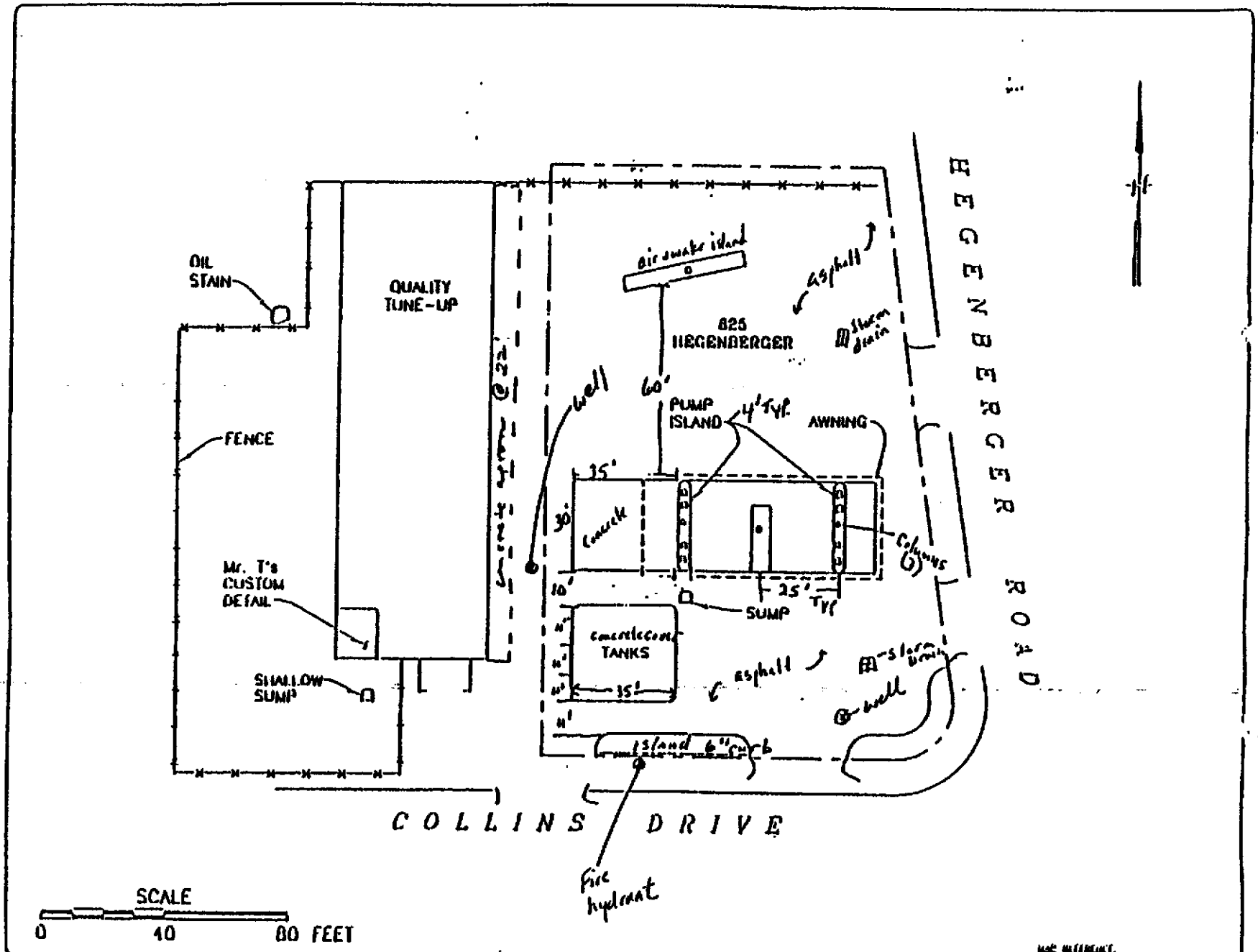
Subsurface Consultants

COLLINS & HEGENBERGER - OAKLAND, CA

| JOB NUMBER | DATE | APPROVED | PLATE |
|---|---|---|---|
| 375.003 | 7/16/90 | | |

SITE PLAN

EXHIBIT "A"




| | | | |
|---|---|---|---|
| DIVERSIFIED INVESTMENT & MANAGEMENT CORPORATION | DINESH MANIAR | SITE PLAN<br>COLLINS & HEGENBERGER - OAKLAND, CA | FIGURE<br>1 |