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December 21, 1993

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Mr. Ron Markle
State Water Resources Control Board
P.O. Box 944212
Sacramento, California 94244-2120

Re: 19984 Meekland Avenue, Hayward, California 94541 (Site)
Claim No.: 003377

Dear Mr. Markle:

Jerry Harbert, the claimant, is undertaking the Phase III--Corrective Action Plan Implementation portion of the cleanup of the Meekland Road property. Pursuant to 23 C.C.R. §2812.1 this phase of work has been "three-bid." I am enclosing herein the Request for Bid Proposal as well as the responses from CTTS, Inc. (the current environmental contractor on the Site), Applied Geotechnology, Inc. (AGI) and Excel Environmental and General Engineering (Excel). You will note that the Request for Bid is very lengthy and that all the proposals in response to the Request for Bid are lengthy. Also attached are amendments to the Excel and CTTS workplans to cover the cost of a risk based assessment of clean-up goals. The Alameda County Health Care Services Agency, Department of Environmental Health, has approved a work plan, however, as you can see from each of the proposals this general approval still allows the various consultants to select from various technologies. In other words, there are several options available from each environmental consultant. It is impossible to know who is the "low bidder," until the final remediation technology is selected.

After careful review we determined that AGI Alternative 2 is the most cost-effective and technically correct proposal. I am forwarding all the bid proposals to you in order to obtain your approval to retain AGI as the environmental contractor for Phase III. As you know, clean-ups are an ongoing process and things such as risk assessments or changes in site conditions can change the methods of remediation. Because of these variables we believe it is important that

environmental contractors with technical sophistication as well as cost-effectiveness be retained. AGI meets these goals.

Please review these proposals and let me know whether the retention of AGI will satisfy the State Board's requirements justifying selection of a contractor pursuant to 23 C.C.R. §2812.1(d). Because we and Alameda County are anxious to quickly move forward with this work, I will be contacting you shortly after the new year to discuss this matter.

Very truly yours,

REED, ELLIOTT, CREECH & ROTH

JEFFREY S. LAWSON

JSL/ls
Encl.
Request for Bids
AGI Proposal
CTTS Proposal & Amendment
Excel Proposal & Amendment

cc: Client w/o enclosures
cc: Barry Gore w/o enclosures

[WP]1220MARK.LV3/HARBE-05(1)

REQUEST FOR PROPOSAL

SITE LOCATION:

DURHAM TRANSPORTATION, INC.
19984 MEEKLAND AVENUE
HAYWARD, CALIFORNIA

REQUEST FOR BID PROPOSAL

I PURPOSE

It has been well documented that the SITE has soil and ground water contamination, as gasoline. The current SITE clean up levels are established by the Lead Regulatory Agency (LRA) in this case the LRA is the Alameda County Health Care Services Agency. The LRA has established that at a minimum the soil is to be remediated to less then 10 Parts Per Million Total Petroleum Hydrocarbons by EPA Method 8015 Modified for Gasoline and the ground water to 1 Part Per Billion Benzene by EPA Method 602. The successful bidders must meet these standards when proposing remediation methods.

II SITE HISTORY

The site was utilized as a service station from May 1946 through August 1989, when the subsurface fuel tanks were removed. To date the SITE has been monitored as directed by the LRA. Reports are available at the LRA's office for review.

III PROPOSED SCOPE OF WORK

A. SOIL REMEDIATION

It's been estimated that approximently 450 cubic yards of soil has been impacted and will require remediation. This amount is an estimate based on previous monitoring well installations at the SITE. The location of the impacted soils has been determined to be localized to the former tank location west towards MW-5 (approximately 10 feet), north towards MW-7 (approximently 5 feet) to a depth of twenty eight feet Below Surface Grade (BSG) were ground water will be encountered. In addition to the former fuel tank location a minimal amount of soil contamination is believed to exist in the vicinity of the former waste oil tank location.

B. GROUND WATER REMEDIATION

The current extent of the ground water plume has not yet been determined and further investigation as to the source(s) of the off site plume is required. Thus only the plume that exists under the SITE shall be initially addressed. The method that has been recommended to the LRA is pump and treatment by activated carbon prior to discharged to an off site location.

Bidders are encouraged to include evaluated comparisons of several feasible remediation methods for the site that will addresses both the soil and ground water contamination, as well as, a clear explanation for choosing the proposed method of remediation.

IV PROJECT COST ANALYSIS FOR EACH PROPOSED METHOD

All Bidders shall provide to Durham Transportation, Inc. a cost summary of the proposed remediation methodology from start to closure. The cost analysis shall include but not be limited to:

1. Preparation of a complete CAP to be submitted and approved by the Durham Transportation, Inc. and then the LRA.
2. Obtaining the proper permits to complete the CAP as approved by the LRA.
3. All pilot studies that may be required by the LRA to complete the approved CAP.
4. Purchase (or lease) of all required equipment, structures and materials to complete the CAP as approved by the LRA.
5. Equipment operation and maintenance.
6. Monitoring reports as required by the LRA.
7. Verification sampling (post closure monitoring of the ground water) and site closure.

V BIDDING REQUIREMENTS

All prospective bidders must be agreeable to or meet the following specifications:

1. All bidders must have at least three (3) years experience conducting site remediation work in the State of California. A statement of qualifications attesting to such experience must accompany all bids submitted.

2. The successful bidder must have the necessary personnel to complete the scope of work as approved by the LRA, including technical professionals that currently licensed to operate with in the State of California and the jurisdiction of the LRA.

3. All bidders must be willing to must carry out the approved CAP in a timely, professional, safe and legal manner while maintaining all necessary records and other safeguards to ensure that all items reported to the LRA are true and accurate. All work shall be in a manner approved by the LRA.

4. All bidders are required to submit at least four references of previous clients for whom similar work has been completed in the last three years.

5. The successful bidder must provide Durham Transportation, Inc. with proof of insurance in the amount of one million dollars for general liability insurance and professional errors and omissions

liability insurance in the amount of one million dollars for the life of the project. Durham Transportation, Inc. shall not be responsible for the cost of any associated premiums. The successful bidder shall be responsible for any third party claims related to the execution of the approved CAP by the LRA, with the exception of claims filed by employees of Durham Transportation, Inc. Proof of insurance shall be furnished to Durham Transportation, Inc. prior to the implementation of the contract or the approved CAP.

6. All bidders understand that Durham Transportation, Inc. intends to seek reimbursement for the remediation work completed on the site from the Underground Storage tank Cleanup Fund administered by the State Water Resources Control Board, and will agree to respond to any reasonable inquiry from that agency regarding any claim submitted by Durham Transportation, Inc. in conjunction with this site.

7. All bidders understand that Durham Transportation, Inc. will contact the listed references and other wise conduct an investigation to determine to the satisfaction of Durham Transportation, Inc. that the bidders have the technical and financial capabilities to perform the CAP as approved by the LRA and has established goodwill with subcontractors, suppliers, clients and regulatory agencies.

8. All bidders understand that Durham Transportation, Inc, reserves the right to reject any or all bids without notice or cause. Durham Transportation, Inc. retains the right to solicit and accept additional bids as necessary in its judgment.

All bids are due by 13:00 September 15, 1993.

VI INVOICES AND PAYMENTS

Invoices shall be submitted to Durham Transportation, Inc. monthly. All invoices shall be detailed and specify the actual costs incurred during the billing period. Invoices shall reference the specific task and its associated costs. In addition the invoice shall include when the service was performed, and broken down into individual components. Invoices shall be submitted in duplicate with the original signatures. Durham Transportation, Inc. understands that it is responsible for paying the invoice when they are due, regardless of whether or not the work is reimbursed by the SB 2004 Cleanup Fund.

CTTS, Inc.
toxic technology services

WORKPLAN FOR THE DELINEATION, CONTAINMENT AND REMEDIATION OF SOIL AND GROUNDWATER CONTAMINATION

19984 MEEKLAND AVENUE
HAYWARD, CALIFORNIA

Prepared For:

Mr. David Delamotte
Durham Transportation
9171 Capitol of Texas Highway North
Travis Building, Suite 200
Austin, Texas 78759

Prepared By:

CTTS, Inc.
Toxic Technology Services
P.O. Box 515
Rodeo, California 94572

November 1, 1992
Project No. 92-7

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SECTION 2 SITE DESCRIPTION AND CONTAMINATION CHARACTERIZATION

2.1 Vicinity Description

The subject site is located at the northeast corner of the intersection of Meekland Avenue and Blossom Way in the unincorporated area of Alameda County, near the City of Hayward. The site is in a commercial area, surrounded by residential areas of both single family and multiple family complexes. At the four corners of the Meekland/Blossom intersection are the subject site, a liquor store, an auto repair shop, and a strip center with a grocery store, hair salon and comics/trading card shop. Both the liquor store and auto repair shop had operated at one time as gas stations. Fuel tanks have been removed from both locations. Plate 4 presents a one mile radius around the subject site. Plate 5 presents a vicinity map which includes businesses and residences around the subject site and locations of the wells associated with the subject site.

2.2 Hydrogeological Setting

The subject site is underlain by generally fine-grained alluvial fan and flood plain deposits derived from the hills located approximately two miles east of the site. The deposits are late Quaternary in age and overlie rock of the Franciscan Assemblage at an unknown but probably great depth.

Three to four feet of fill generally overlies the Quaternary deposits at the site. The fill consists primarily of a clayey to sandy gravel.

The native deposits underlying the fill consist of silty clay to clayey silt with minor and varying amounts of sand and gravel. Lenses of silty sand and gravel, approximately 3 to 4 inches thick, were encountered during well installations. No other significant bedding or stratification of the units was observed to the depth explored (40 to 45 feet) and the deposits are considered to be homogeneous for hydrologic considerations.

2.3 Site Map

Plate 1 presents the subject site as it currently exists. Included in this plate are the adjacent streets, tank excavation locations, and monitoring well locations. After repeated searches by USA, no underground utilities have been located.

Plate 3 presents the site as it appeared from 1954 to the time of demolition in 1990.

2.4 Soils Investigation

Soil conditions have been extensively investigated from the time of tank removal. The methods utilized include soil gas testing, visual inspection and sampling and analysis of soils from shallow trenches and soil borings installed as groundwater monitoring wells.

2.4.1 Tank Removal

Soil samples taken at the time of tank removal indicated that contamination exists at the bottom of the fuel tank excavation. Contamination is the most prevalent in the area where the manifolded tanks were situated. The highest levels of contaminates were found to be:

Gasoline	6178 ug/Gm
Benzene	12 ug/Gm
Ethylbenzene	67 ug/Gm
Toluene	83 ug/Gm
Xylenes	420 ug/Gm

Soil samples were collected from beneath each of the tanks. Two samples were collected from below the gasoline tanks, one from each end. One sample was collected from below the waste oil tank. Groundwater was not encountered in the excavations.

Samples were collected by excavating approximately two feet into native soil using a backhoe. A brass sample tube was driven into the soil brought up by the backhoe bucket. The sample tube was capped with teflon tap and plastic slip caps, labeled, and placed in an iced cooler for transportation, under chain of custody to a state certified hazardous waste laboratory for analysis.

The complete data report for the tank removal can be found in Toxic Technology Services Report 89-6 dated September 13, 1989.

The Phase II investigation that took place during 1990 consisted of soil gas testing, sampling and analysis of the on site wash rack sump, shallow test pits and the installation of five on site monitoring wells. The complete data report on the Phase II Characterization can be found as Toxic Technology Services Report 90-4 dated November 27, 1990.

2.4.2 Soil Gas Testing

NET Pacific, Inc., of Santa Rosa, California was contracted to perform soil gas testing as outlined in the workplan of April 6, 1990, which is on file with Alameda County. Testing was conducted from April 30, 1990 through May 3, 1990.

The soil gas results were used as a qualitative indicator of areas of contamination. Analyses requested were:

- Petroleum Hydrocarbons (gasoline) which was measured as Hexane,
- Volatile Halogenated Hydrocarbons by Method 8010
- Benzene, Toluene, Ethylbenzene and Xylenes by Method 8020

Samples were collected by pounding a 1 inch probe to the desired depth with a pneumatic hammer. The probe allowed for a sampling interval of up to 6 feet. A vacuum was drawn on each sampling hole and a soil vapor sample collected in an evacuated glass globe. Before the sampling probe was pulled out, the vapor

was monitored with a portable vapor analyzer. Samples were kept on ice until analysis.

Analysis was conducted on site via a mobile laboratory. The mobile lab is equipped with two gas chromatographs and three detectors; Flame Ionization Detector (FID), Hall Detector and a Photoionization Detector. Analytical standard curves and sample duplicates were run throughout the testing period.

After the sample was taken, each sampling hole was filled with concrete grout. A permit from Zone 7 was obtained for this work.

Plate 6 shows the soil gas testing locations. Volatile halogenated hydrocarbon levels were non-detected for all soil gas locations tested. Plate 6 also presents petroleum hydrocarbon values plotted for each location. Results indicate pockets of contamination, but give no clear-cut source or plume.

A complete analytical report from NET Pacific is presented as Appendix D of Progress Report #1, dated July 2, 1990.

2.4.3 Trenching Activities

On June 20, 1990, shallow exploratory trenching activities were conducted. This was prompted by additional information regarding the site. The 1946 site plan (Plate 2) shows a lube garage containing a sump in the southeast corner of the property and two 1000 gallon tanks in the southwest quadrant of the site.

Several unsuccessful attempts were made to get a soil gas sample in the southwest part of the site, where these tanks were located. At approximately six feet below grade, the probe struck an object or objects that were impenetrable. The decision was made to trench in this area.

Plate 7 shows the locations of the shallow trenches. No trench was greater than a depth of 5 feet. No staining or odor was detected from any of the trenches, so soils were put back in the respective trench.

Test Pit #1 was a 5 foot deep cut through the area where the old gasoline tanks were located as per the 1946 site plan (Plate 1). No tanks were located. The pit had been backfilled with construction debris presumably from the demolition of the original service station.

Test Pit #2 was a 5 foot deep cut in the southeast corner of the site. According to the 1946 site plans, this was the location of a lube garage which contained a two-stage, concrete sump. No sign of a sump was found in this trench.

Test Pit #3 was a 5 foot deep cut in the southeast corner of the site, approximately 5 feet south of Trench #2. In this trench was a concrete basin, thought to be one stage of the old two stage sump. A clay sewer pipe also ran north/south in this trench. The sewer pipe was dry and had not been used in some time. Attempts made to locate the other stage of the sump were

unsuccessful. It is assumed that it has been removed.

Test Pit #4 was a three foot deep cut on the west side of the concrete sump located on the north side of the property. This sump is from the service station built sometime after 1954. The purpose of this trench was to assess whether or not there are any lines leading from the sump to the west. No such lines were located. The soil in this area was composed of a top layer of fill, approximately a foot deep, the remainder being previously undisturbed native soil.

In summary, results from the shallow trenching activities indicate that the original gasoline tanks from 1946 had been removed and the pit filled with construction rubble. The original sump in the southeast corner of the site was found as evidenced by the concrete basin and the adjacent sewer pipe. This sump apparently was cleaned out and filled in with soil.

None of the areas trenched had odor or visible contamination.

On September 4, 1990, shallow trenches were excavated in specific locations on the subject site as per the amendment to the Phase II Plan (Plate 7). A minimum of one soil sample was taken from each trench. No significant contamination was found in any of the trenches.

Test Pits #5-#7 were excavated where the hydraulic lifts were located. The purpose of these excavations was to investigate shallow contamination from hydraulic oil. One sample from each trench was taken at the location of the bottom of the trench. No odor or staining was found in any of these trenches. Samples were analyzed for Total Oil and Grease, Total Petroleum Hydrocarbons as Diesel and Motor Oil and Stoddard Solvent. Data for Test Pits #5 and #6 were none detected. Data for Test Pit #7 are reported in Table 1.

Test Pit #8 was located through the waste oil sump that lead to the waste oil tank. At a depth of eight feet, a slight odor was detected. Samples were collected at depths of 2.5′ and 8.0′ and analyzed for Total Oil and Grease, Volatile Chlorinated Hydrocarbons, Total Petroleum Hydrocarbons as Gasoline, Diesel and Motor Oil, BTEX and Stoddard Solvent.

Test Pit #9 was on the east side of the washrack sump. The purpose of this trench was to investigate the outlet of the sump. The sump emptied into an old sewer line. There was no odor or staining detected. A soil sample was collected at 7.0′ and analyzed for Total Petroleum Hydrocarbons as Gasoline, Diesel, Stoddard Solvent and BTEX.

Test Pit #10 was through the center of the waste oil tank excavation. The purpose of this trench was to confirm that this area is not a shallow source of contamination. A sample was taken at 7.5′ and analyzed for Total Oil and Grease, Volatile Chlorinated Hydrocarbons, Total Petroleum Hydrocarbons as Gasoline, Diesel and Motor Oil, BTEX and Stoddard Solvent.

Test Pit #11 was located between monitoring wells MW-3 and MW-6. A trench was placed in this location because a high soil gas reading was obtained in this area. The possibility of a shallow source of contamination had to be investigated. One sample was taken at a depth of 7.5' and analyzed for Total Oil and Grease, Volatile Chlorinated Hydrocarbons, Total Petroleum Hydrocarbons as Gasoline, Diesel and Motor Oil, BTEX and Stoddard Solvent. A slight odor was detected in this trench between 4' and 8'.

All test pits were backfilled with the respective soils that had been excavated. Table 1 is a summary of positive results from test pit sampling. Test pit logs and laboratory reports for the test pit samples are presented in Toxic Technology Services Report 90-4 dated November 27, 1990.

2.4.4 Soil Borings From Groundwater Monitoring Well Installations

On October 1, 1990, a boring, identified as B-1 (Plate 7) was placed to a depth of 25 feet in the area where the fuel tanks from the 1940's were located. This was done to evaluate this area as a shallow source of contamination. Soil samples were taken every 5 feet. Samples from 5 feet, 15 feet and 25 feet were sent to NET Pacific for analysis. After sample collection, the bore hole was filled with concrete to grade as required by Zone 7.

There are currently eight on site and two off site groundwater monitoring wells associated with the subject site. This includes MW-1 installed in 1986 by Applied Geosystems and nine wells installed under the direction of Toxic Technology Services dating from 1989 to 1992. Boring logs of each well and B-1 are presented under Appendix C. The boring logs provide soil strata information. Appendix D presents analytical data for all soils resulting from well installations and B-1.

2.5 Summary of Soils Investigation

It appears that the fuel tanks that were removed in 1989 were the primary source of contamination. A search was made for additional sources via the soil gas testing and the shallow trenching, but none were found.

Data from the soils investigation thus far indicates that there are two zones of contamination. These are the fuel tank excavation and the capillary fringe.

2.5.1 Fuel Tank Excavation

Data indicates that the tank excavation is contaminated from the approximate depth of the tank bottom (12 feet) to groundwater.

2.5.2 Capillary Fringe

Data from the soil gas testing and well installation borings indicate that in general, the soil throughout the subject site is contaminated from a depth of approximately 20 feet (the capillary fringe) to the depth of groundwater at

SECTION 3 PROPOSED REMEDIATION FOR ON SITE SOIL CONTAMINATION

3.1 Purpose

The proposed soil remediation for the site is to excavate approximately 450 cubic yards of contaminated soil from the fuel tank pit and waste oil tank pit and process it through a portable soil remediation unit designed for thermally treating hydrocarbon contaminated soils.

Excavated soil will be thermally treated to achieve a level of no more than 10 ppm of petroleum hydrocarbons. However the goal of treatment is to obtain levels of non-detectable with a detection reporting limit of no greater than 1 ppm.. Treated soil will be placed back into the on site excavations. Clean fill will be brought in from off site to bring the excavations up to grade. The excavated areas will be paved with asphalt.

3.2 Method Description

Falcon Energy of Stockton, California operates a transportable soil burning unit for hydrocarbon contaminated soils. This unit is designed to remediate soil contaminated with light distillate petroleum hydrocarbons which include gasoline, diesel and a variety of other fuels. The system operates by rapidly volatilizing petroleum hydrocarbons from the soil and then thermally destroying them in the discharge air stream. The unit consists of a rotary dryer with feed system, discharge and combustion control systems, a dust collector, a modular thermal oxidizer and associated fuel and delivery systems.

The soil remediation unit can process approximately 25 tons per hour throughput depending on contaminant levels, moisture content and other variables.

The unit is designed for a maximum peak soil discharge temperature of 850 degrees Fahrenheit from the dryer and a maximum afterburner peak outlet temperature at 1850 degrees Fahrenheit. Operating setpoint maximums of 800 degrees Fahrenheit and 1800 degrees Fahrenheit respectively are recommended.

Soil in need of treatment is loaded onto the feed hopper which discharges the soil onto a variable speed feeder belt. The feeder belt conveys the soils to a vibrating screen and then onto a belt weigh scale which provides soil feed rate and total weights to the units's electronic control panel. The belt then feeds the contaminated soil into a counterflow rotary drum dryer where volatile compounds and moisture in the soil are evaporated by the heat which is supplied by the direct firing burner. Heat transfer to the soil in the rotary dryer is maximized by the veiling action of specifically designed lifting flights and patented combustion volume flights.

The heated, dry soil is then discharged into the mixer cooler. The evaporated volatiles and water, along with dust released by the drying process, are carried over the dryer's exhaust gases into a knockout box in the baghouse

where the large particles drop out in the gas stream. These precleaned gases are then routed through the baghouse. Dust collected from the knockout box and baghouse are carried to the dryer's mixer cooler and blended into the clean soil output. Output from the baghouse is routed through an exhaust fan into a modular thermal oxidizer/stack unit which reduces the hydrocarbon content of the gas stream.

The Falcon unit currently holds a permit to operate from the San Joaquin Valley Unified Air Pollution Control District. The unit is also recognized by the Bay Area Air Quality Management District. The BAAQMD however requires that Falcon Energy obtain a site specific operating permit prior to commencement of any project in that district.

Appendix F presents information on Falcon Energy's portable soil remediation unit.

3.3 On Site Soil Remediation

Soils from the fuel tank excavation and the waste oil tank excavation will be excavated and processed through the Falcon Energy portable soil remediation unit. Remediated soil will be placed on plastic and piled into 50 cubic yard portions. The piles will be marked as to time and date of treatment. These piles will then be sampled as described below and analyzed by a certified environmental laboratory to confirm the effectiveness of treatment. Piles that are clean will be placed back into the plastic lined excavations.

Soils to be treated are of two types, previously excavated soil and undisturbed soil.

3.3.1 Previously Excavated Soil

Soils that had been excavated in both the fuel tank area and the waste oil tank area at the time of tank removal, had been placed back into the respective excavations after the excavations had been lined with plastic. The levels of contamination over time have more than likely decreased, however this soil will be removed and processed through the portable soil remediation unit so that it can be placed back into the excavations.

3.3.2 Undisturbed Soil

The waste oil pit was essentially clean when samples were taken at the time of tank removal. Therefore the pit will not be over excavated, but a confirmatory sample will be taken from each side wall and the bottom of the excavation.

If data from the waste oil tank excavation indicates contamination, additional soil will be excavated until a 100 ppm hydrocarbon (or less) level is attained.

The fuel pit was significantly contaminated with gasoline and BTEX. This pit will be over excavated on the north, east and west sides. The south side of

the pit was clean and will not be over excavated for safety reasons. The bottom of this pit will be excavated to a depth of approximately 23 feet. Two soil samples will be taken from each sidewall and four will be taken from the bottom. Samples will be collected in brass liners and kept in a cooled ice chest until delivery to NET Pacific Laboratory, a state certified hazardous waste laboratory. Analytical parameters will be:

Total Petroleum Hydrocarbons, Gasoline (TPH-G)
Total Petroleum Hydrocarbons, Diesel (TPH-D)
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)

If at the time of excavation and sampling, it appears that excavation should continue, this will be done to the extent possible. Field measurements will be taken with a portable organic vapor analyzer to assist with this decision making. Field measurements will be confirmed by soil sampling and analysis.

If data from the fuel pit excavation indicates no detectable levels of contamination or levels less than 100 ppm of TPH-G, the excavations will be backfilled with the remediated soil, brought up to grade with clean fill and paved with asphalt.

If data from the fuel pit excavation indicates contamination over 100 ppm of TPH-G, Alameda County will be immediately notified. For safety reasons, the excavation will be too large and deep to remain open. The hole will be backfilled with the remediated soil. Further remediation of the soil contamination will addressed by the groundwater remediation.

3.3.3 Sampling And Analysis Of Remediated Soil

As stated earlier, remediated soil will be placed on plastic in 50 cubic yard portions and labeled as to time and date of treatment. To confirm that the remediated soil has been treated to 10 ppm TPH-G or less, each pile will be sampled in a manner similar to Regulation 8, Rule 40 of the the Bay Area Air Quality Management District. The sampling strategy is as follows:

Each 50 cubic yard pile will be figuratively split into four equal sectors. A discreet sample will be collected from the center of each sector. Samples will be taken using a clean brass tube driven into the soil with a rubber mallet. The ends of the brass tube will be covered with teflon tape and plastic caps and taped. All samples will immediately placed on ice and transported to NET Pacific, a state certified hazardous waste laboratory. At the lab, each of the four samples will be analyzed for:

Total Petroleum Hydrocarbons, Gasoline (TPH-G)
Total Petroleum Hydrocarbons, Diesel (TPH-D)
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)

Results will be obtained within 24 - 48 hours of sampling. All piles that are 10 ppm of TPH-G or less will be placed back into the on site excavations.

3.3.4 Replacement Of Remediated Soil

Both the fuel tank and the waste oil excavations will be lined with plastic after data from sidewall and bottom samples confirm levels remaining in the pits, if any.

After verified clean (10 ppm TPH-G or less), remediated soil will be placed back into the excavations.

Because of the size and depth of the fuel tank excavation, the hole should filled as soon as possible. For this reason, verified clean remediated soil will be placed into the excavation starting from the southeast side. This side was clean at the time of tank removal. Replacement of soil will proceed to the northwest after sidewall and bottom samples are taken.

When soil replacement is completed, clean fill will be brought in from off site to bring the excavation up to grade. Both excavations will then be paved with asphalt.

3.4 Well Abandonment

The over excavation of the fuel pit will destroy the integrity of MW-1. Therefore, MW-1 will be abandoned according to regulations set forth by Zone 7 prior to pit excavation. This includes obtaining a permit from Zone 7 and abandonment of the well by pulling up the casing and grouting the boring.

MW-5 will be used to monitor the groundwater near the contaminated pit area.

3.5 Time Schedule

Figure 3 presents the proposed time/task schedule for the proposed soil remediation.

SECTION 4 PROPOSED REMEDIATION FOR ON SITE GROUNDWATER CONTAMINATION

4.1 Purpose

The purpose of the proposed on site groundwater remediation is to deal with on site groundwater contamination as a separate issue from off site groundwater contamination. Off site contamination has not yet been fully characterized. However, there is sufficient on site data to begin an on site remediation program. The treatment consists of groundwater pumped through a series of carbon canisters and discharged under permit to the local POTW.

4.2 Scope Of Work

4.2.1 Monitoring Well Installation In The North Corner

In general, the subject site has a strong chemical data base, however before beginning remediation, new information revealed that the adjacent neighbor to the northeast has been using a groundwater well monthly for several years. This could have an affect on the movement of the contamination in this direction. To this end, a two inch groundwater monitoring well will be installed as shown in Plate 1, purged, sampled and analyzed for the constituents listed below. This well would then be incorporated in the quarterly monitoring program.

4.2.2 Proposed Aquifer Tests

4.2.2.1 Slug and Recovery Tests

Slug and/or recovery tests may be performed in selected existing monitoring wells to estimate material properties, primarily hydraulic conductivity. Slug tests will involve the "instantaneous" introduction of water into the well and observations of subsequent declining water level. It is anticipated that distilled or deionized water will be used for these tests. An alternative to introduction of water may be raising of the water level in the wells by displacement with a rod or similar object. The rod would be decontaminated if used for multiple tests.

Recovery tests would involve the removal of water from the well and observation of subsequent rise in water levels in the well over time. Water would be removed from the well by bailing or pumping. Pumps and hoses would be decontaminated as discussed above. Bailers will be of the disposal type and used for only one well. Water derived from testing will be placed in 55 gallon drums and disposed of or treated on site.

4.2.2.2 Pump Tests

A pump test may be performed in Monitoring Well No. 6. The test will involve pumping of the well, observation of water levels in the pumping well and one or more nearby observation wells. Water derived from the pumping will be treated on site or disposed of as discussed above.

4.2.3 On Site Groundwater Remediation Program

In general, the groundwater remediation chosen for the subject site is to pump contaminated groundwater from MW-5, MW-6, MW-7 and MW-9 (Plate 8) and direct it through a three canister carbon bed system. Deposition of treated water would be into the sanitary sewer. A schematic of this system is presented as Plate 9.

Each extraction well will contain a dedicated pump and the output from each pump will be manifolded into a single pipe. Pumping rates will be determined by conducting a pump test. Extracted water will be directed through three 55 gallon canisters of activated carbon. Treated water will then be pumped into a 500 gallon holding tank. When water in the holding tank has been verified clean, through chemical analysis, it will be discharged into the sanitary sewer.

The system is designed such that if treated water does not meet the discharge requirements of the Oro Loma Sanitary District, the water can be redirected through the carbon until discharge requirements have been achieved.

Sampling ports will be located at each extraction well, before each carbon canister and before and after the holding tank.

A sanitary sewer discharge permit will be obtained from the Oro Loma Sanitary District before final deposition.

According to the Oro Loma Sanitary District discharge requirements dated January 3, 1991, the allowable limits for our subject site requirements are as follows:

BTEX.....	Non-detectable
Total Petroleum Hydrocarbons.....	15 mg/L

A copy of the Oro Loma Sanitary District Special Discharge Conditions are presented as Appendix G.

Discharge into the sanitary sewer will be controlled on site so that discharge will be at selected time intervals. These time intervals and flow rates will be negotiated with the Oro Loma Sanitary District prior to discharge.

The sampling schedule for the groundwater remediation is as follows:

First Week of Installation - Daily influent and effluent

Weeks Two through Four - Weekly influent and effluent

Weeks Five through End of Remediation - Monthly influent and effluent

Samples will also be taken between canisters 1 and 2 to check for breakthrough. This will occur weekly for the first six weeks and monthly thereafter. When breakthrough occurs, canister 2 will be moved to the number

one position, canister 3 will be moved to the number two position and the spent canister will be replaced with fresh carbon and placed in the number three position.

The groundwater remediation alternative is a closed system and does not involve air stripping of contaminants, therefore, no permit from the Bay Area Air Quality Management District (BAAQMD) will be required.

4.3 Time Schedule

Figure 3 presents the proposed time/task schedule for the proposed on site groundwater remediation.

It is recommended that the remediation of the groundwater below the site be initiated concurrently with on-going characterization of the off site groundwater contamination. If an off site remediation system is required, it would probably be set up and operated independently of the on site system.

Therefore, the is no reason to delay the on site work and in addition, it will provide valuable for a cost effective data design and operation of an off site system.

SECTION 5 PHASE I INVESTIGATION OF OFF SITE GROUNDWATER CONTAMINATION

Data obtained from MW-10 and MW-11, the off site groundwater monitoring wells indicates that there is contamination off site. However, the contaminant levels in MW-10 are considerably higher than in MW-11 or the down gradient on site wells. This raises the issue of other possible sources of contamination contributing to the off site problem.

In brief discussions with neighbors of the subject site, it was learned that several of the local properties had operated as gas stations at one time and had underground tanks. There is the possibility too that the car wash located on Blossom Way was at one time a petroleum distribution center. Any releases from this site could spread contamination down gradient and be present in MW-10.

Similarly, product releases to the groundwater from tanks located under Hank's Liquors (northwest corner of Meekland and Blossom) and Hoang's Auto Care (southwest corner of Meekland and Blossom) (Plate 5) could appear in MW-10.

The initial scope of work, is to conduct an intensive historical search of the area within a one-half mile radius of the subject site.

This includes the following steps:

1. An area reconnaissance in a one-half mile radius around the subject site.
2. A file search and personal interviews with the Alameda County inspectors for that area and the Eden Fire District inspectors.
3. A file search at the Regional Water Quality Control Board
4. A file search at the Alameda County Planning Department
5. A search of the known water wells in the area.
6. A historical aerial photograph search.
7. Interviews with some of the local residents.

This information would then be assessed and compiled into a report detailing the possible contributors, if any and specific steps to characterize the off site contamination.

SECTION 6 REPORTING

All activities involving the subject site will be reported to Durham Transportation on a monthly basis.

The reports will be in the format of progress reports which could include any or all of the following:

Introduction
Monthly Monitoring of Groundwater Elevations
Quarterly Monitoring Well Sampling and Analysis
Monthly Activities
Remediation Data
Summary and Conclusions

Each month, copies of progress reports will be forwarded to representatives of Alameda County and the Water Quality Control Board.

SECTION 7 SITE SAFETY PLAN

A site safety plan for this program is provided as a separate document.

TABLES

TABLE 1
SUMMARY OF RESULTS FROM
TEST PIT SAMPLING

Test Pit #7 - 9.0'	
Oil and Grease	57 mg/kg (ppm)
Total Petroleum Hydrocarbons (Motor Oil)	16 mg/kg (ppm)
Test Pit #8 - 2.5'	
Toluene	69 ug/kg (ppb)
Total Petroleum Hydrocarbons (Motor Oil)	20 mg/kg (ppm)
Test Pit #8 - 8.0'	
Toluene	17 ug/kg (ppb)
Test Pit #9 - 7.0'	
Toluene	24 ug/kg (ppb)
Test Pit #10 - 7.5'	
Toluene	5 ug/kg (ppb)
Test Pit #11 - 7.5'	
Toluene	34 ug/kg (ppb)

TABLE 2

GROUNDWATER ELEVATIONS (feet above MSL)
DURHAM TRANSPORTATION--MEEKLAND PROJECT

DATE	MW1	MW3	MW4	MW5	MW6	MW7	MW8	MW9	MW10	MW11
Jan-91	25.18	25.16	25.22	25.54	25.16	25.21	.	.	.	.
Feb-91	25.44	25.38	25.45	25.39	25.40	25.46	25.48	25.40	.	.
Mar-91	27.48	27.45	29.56	26.62	27.46	27.50	27.40	27.40	.	.
Apr-91	28.15	28.09	27.99	28.04	28.00	28.02	28.06	27.99	.	.
May-91	27.18	27.12	27.16	27.17	27.11	27.19	27.19	27.13	.	.
Jun-91	26.54	26.45	26.56	26.77	26.46	26.53	26.57	26.58	.	.
Jul-91	26.12	26.04	26.05	26.13	26.04	26.10	26.13	26.04	.	.
Aug-91	25.59	25.49	25.62	25.37	25.50	25.59	25.60	25.52	.	.
Sep-91	25.15	25.18	25.18	25.49	25.06	25.16	25.18	25.15	.	.
Oct-91	24.88	24.86	24.92	25.00	24.82	24.97	24.94	24.84	.	.
Nov-91	24.96	24.90	24.97	24.94	24.87	24.94	24.96	24.89	.	.
Dec-91	24.76	24.69	24.78	24.89	24.67	24.76	24.79	24.70	.	.
Jan-92	25.39	25.31	25.28	25.48	25.31	25.37	25.37	25.32	25.16	25.90
Feb-92	28.24	28.23	28.22	28.24	28.15	28.24	28.26	28.19	28.37	28.18
Mar-92	28.46	28.54	28.46	28.49	28.40	28.46	28.59	28.42	28.32	28.41
Apr-92	28.49	28.43	28.48	28.39	28.43	28.49	28.51	28.44	28.32	28.44
May-92	27.77	27.76	27.75	27.79	27.56	27.75	27.79	27.70	27.67	27.68
Jun-92	26.91	26.92	26.87	26.88	26.81	26.87	26.92	26.81	26.64	26.76
Jul-92	26.50	26.40	26.47	26.49	26.41	28.16	26.53	26.41	26.23	26.37
Aug-92	25.86	25.88	25.85	25.81	25.76	25.83	25.88	25.79	25.26	26.07
Sep-92	25.65	25.68	25.64	25.60	25.56	25.61	25.67	25.56	25.39	25.54

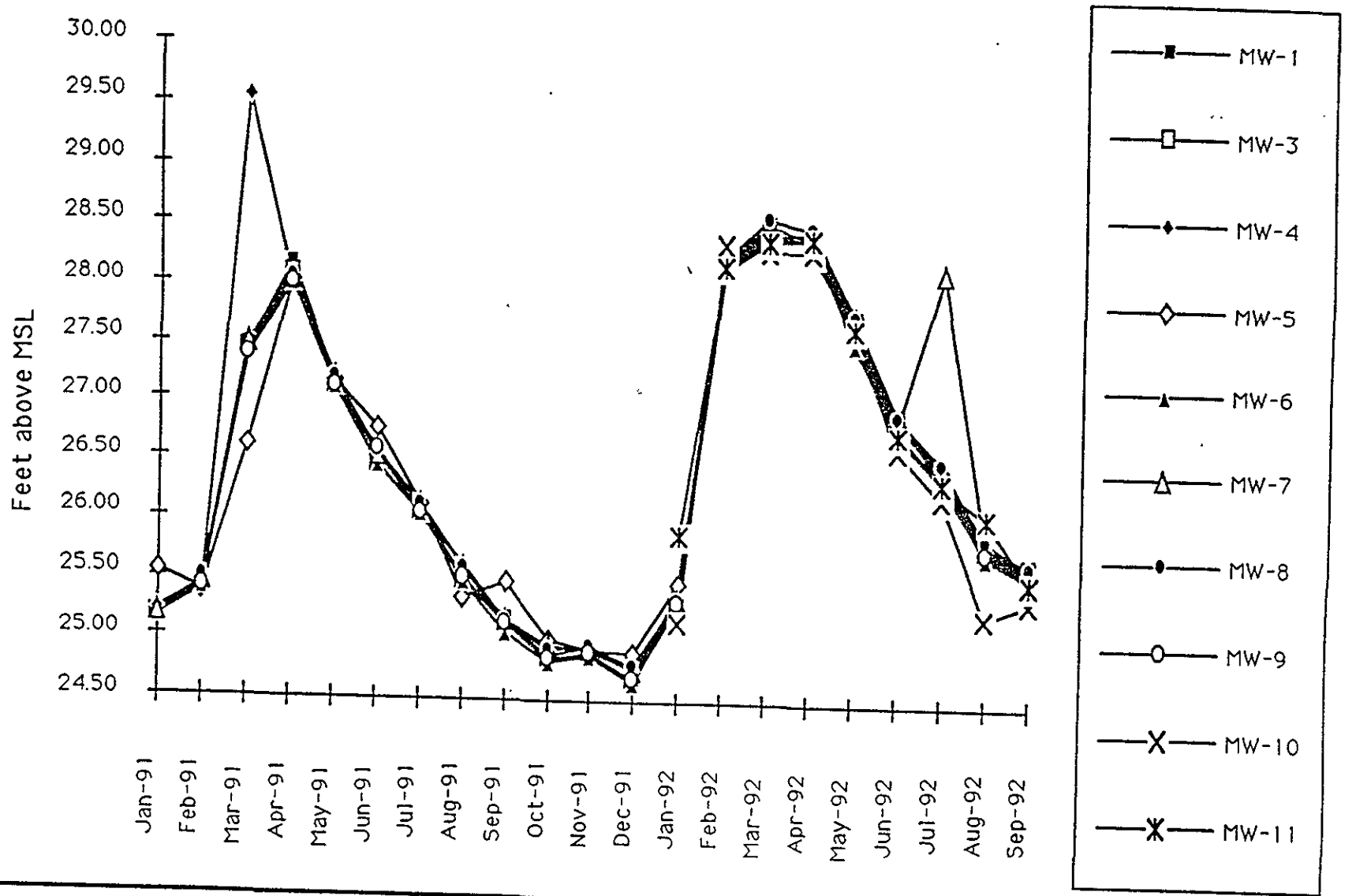
TABLE 2 a

GROUNDWATER ODOR AND SHEEN OBSERVATIONS
DURHAM TRANSPORTATION--MEEKLAND PROJECT

	MW1	MW3	MW4	MW5	MW6	MW7	MW8	MW9	MW10	MW11
Jan-91	O S	- -	- -	- -	o -	o -	. .	. .	. .	. .
Feb-91	O S	- -	- -	o -	o -	- -	- -	o -	. .	. .
Mar-91	X X	X X	X X	X X	X X	X X	X X	X X	. .	. .
Apr-91	O -	- -	- S	- -	- -	- -	- -	- -	. .	. .
May-91	- -	- -	- -	o -	- -	- -	- -	- -	. .	. .
Jun-91	o -	- -	- -	o -	- -	- -	- -	- -	. .	. .
Jul-91	O S	- -	- -	- -	o -	- -	- -	- -	. .	. .
Aug-91	O S	- -	o -	o -	o -	o -	- -	- -	. .	. .
Sep-91	O S	- -	- -	o -	o -	- -	- -	- -	. .	. .
Oct-91	O S	- -	- -	- -	- -	- -	- -	- -	. .	. .
Nov-91	O S	- -	- -	o -	o -	- -	- -	- -	. .	. .
Dec-91	O S	o -	- -	o -	o -	- -	- -	- -	. .	. .
Jan-92	O S	o -	- -	o -	o -	- -	- -	- -	. .	. .
Feb-92	O -	- -	- -	o -	- -	- -	- -	o -	o -	o -
Mar-92	O -	- -	- -	o S	- -	- -	- -	- -	O -	- -
Apr-92	o -	o -	- -	o -	o -	- -	- -	o -	o -	- -
May-92	O S	o -	- -	o -	- -	o -	- -	- -	o -	- -
Jun-92	O -	- -	- -	- -	- -	- -	- -	- -	o -	o -
Jul-92	O -	- -	- -	o -	- -	- -	- -	- -	O -	- -
Aug-92	O -	- -	- -	o -	- -	- -	- -	- -	- -	- -
Sep-92	O -	- -	- -	o -	- -	- -	- -	- -	o -	- -

O=Strong Odor o=Slight Odor S=Sheen -=None Present X= No Observation Made

FIGURES



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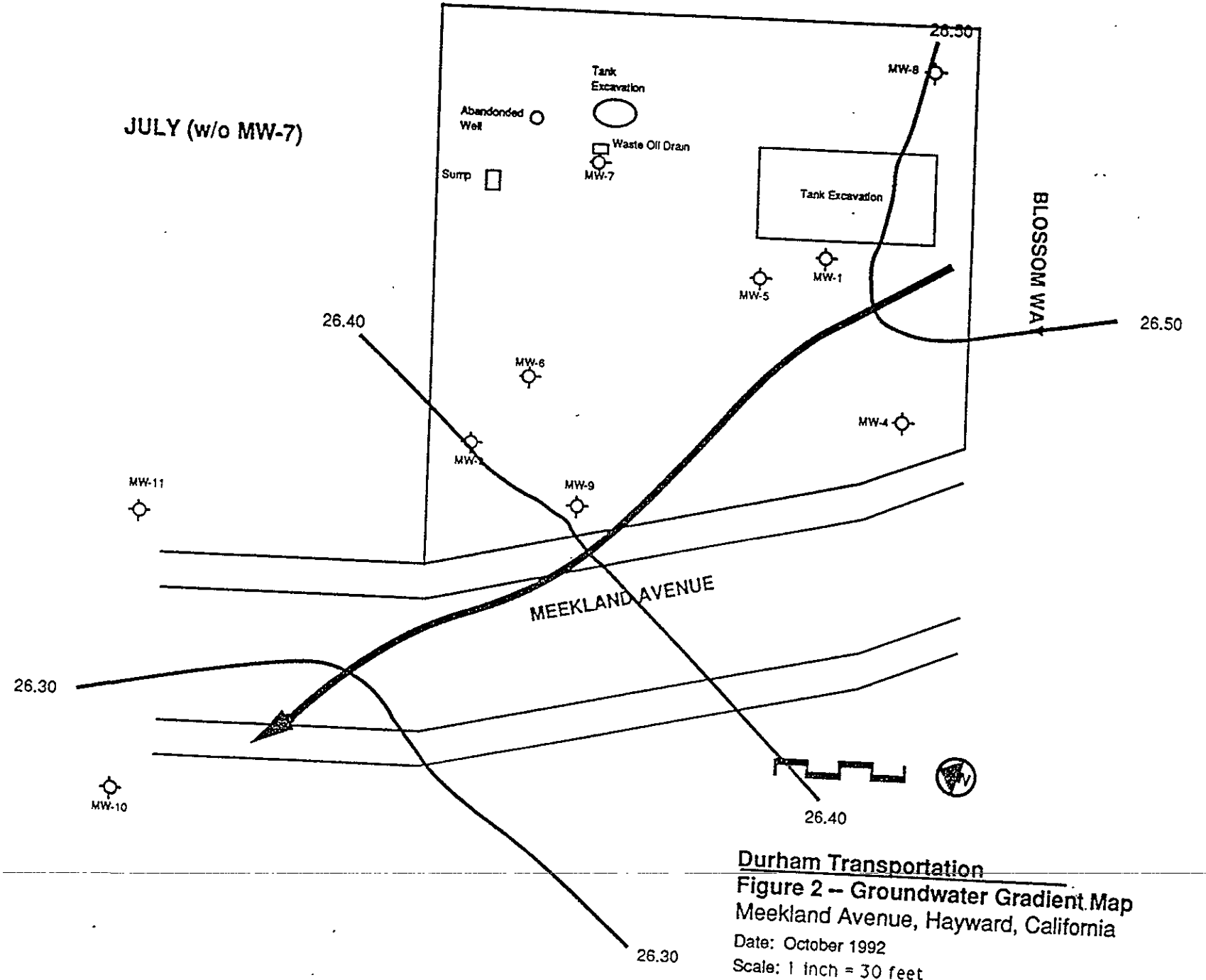
(510) 799-1140

Groundwater Elevations

Durham Transportation
Meekland Avenue, Hayward, California

Figure
1



Durham Transportation

Figure 2 -- Groundwater Gradient Map

Meekland Avenue, Hayward, California

Date: October 1992

Scale: 1 inch = 30 feet

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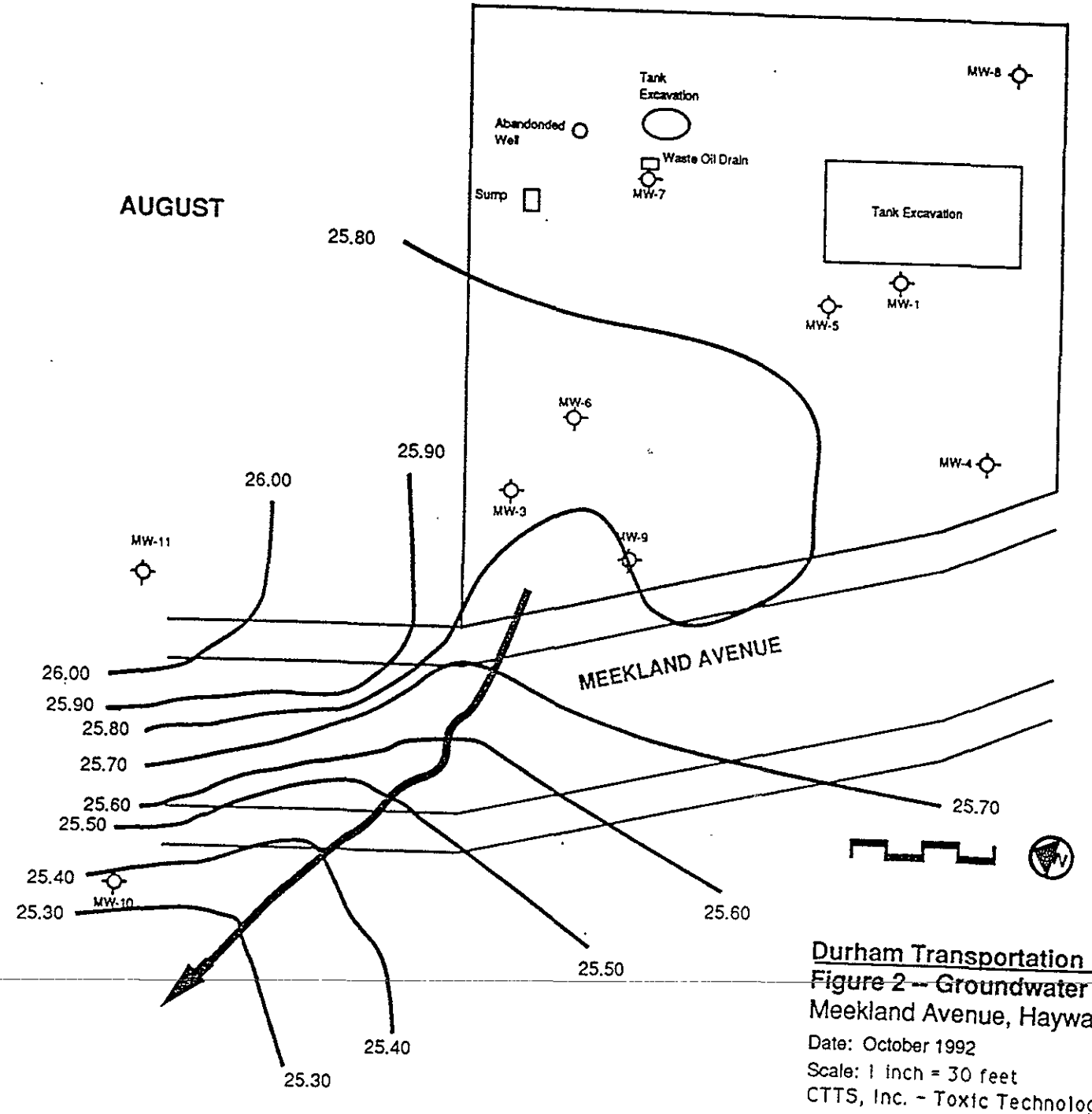


Durham Transportation

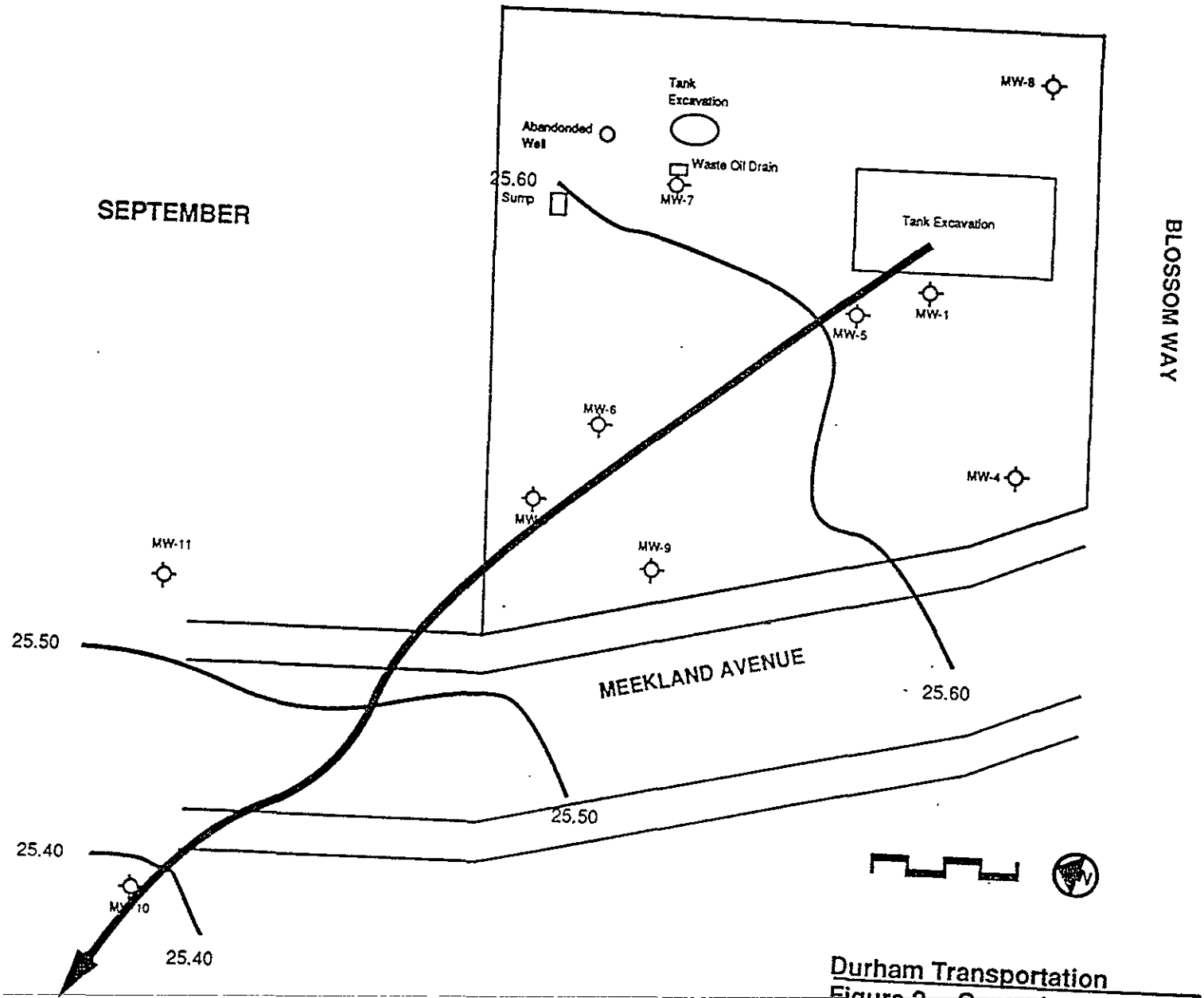
Figure 2 -- Groundwater Gradient Map

Meekland Avenue, Hayward, California

Date: October 1992

Scale: 1 inch = 30 feet

CTTS, Inc. - Toxic Technology Services



Durham Transportation
Figure 2 -- Groundwater Gradient Map
Meekland Avenue, Hayward, California
Date: October 1992
Scale: 1 inch = 30 feet
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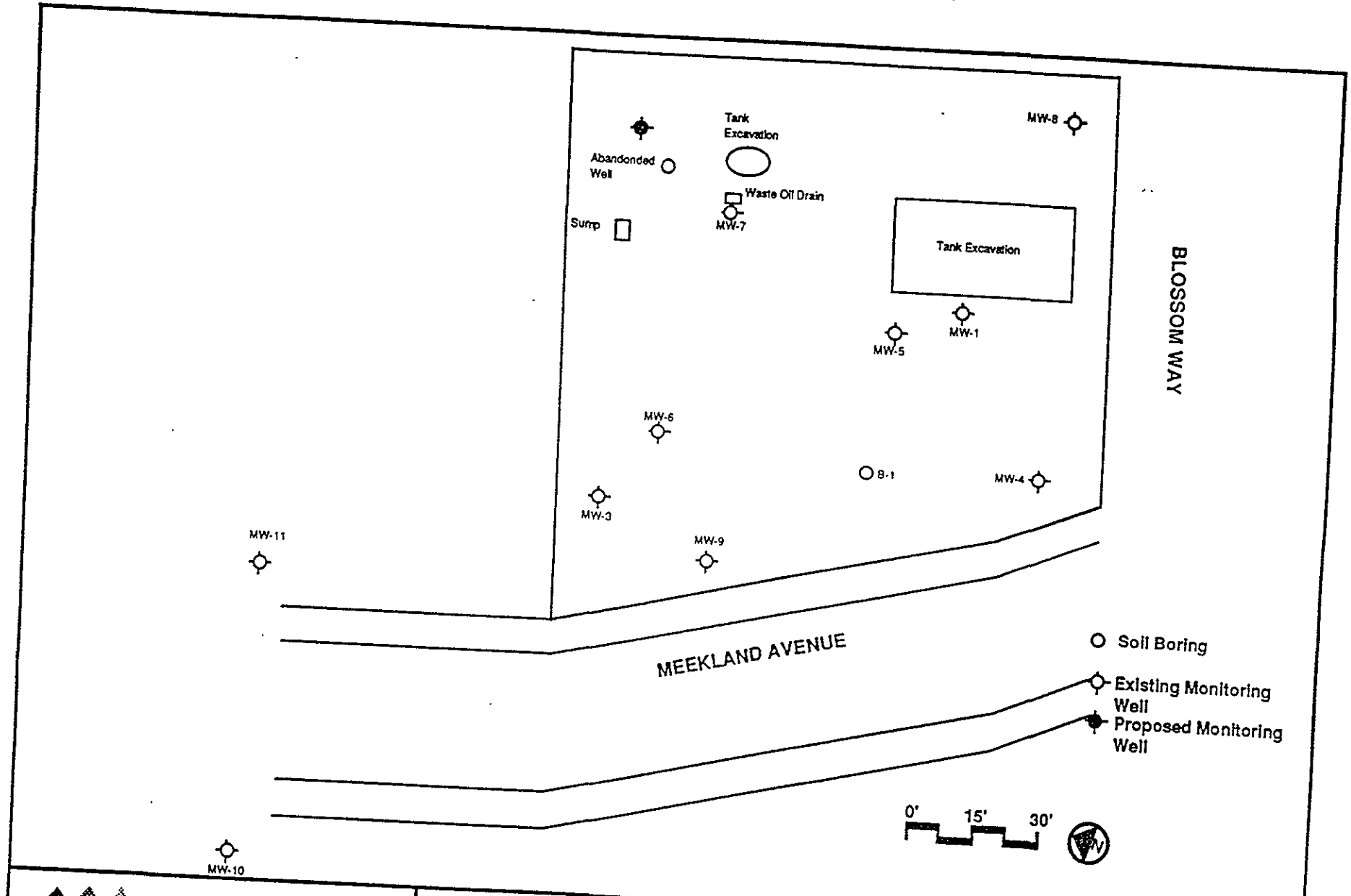
PLATES



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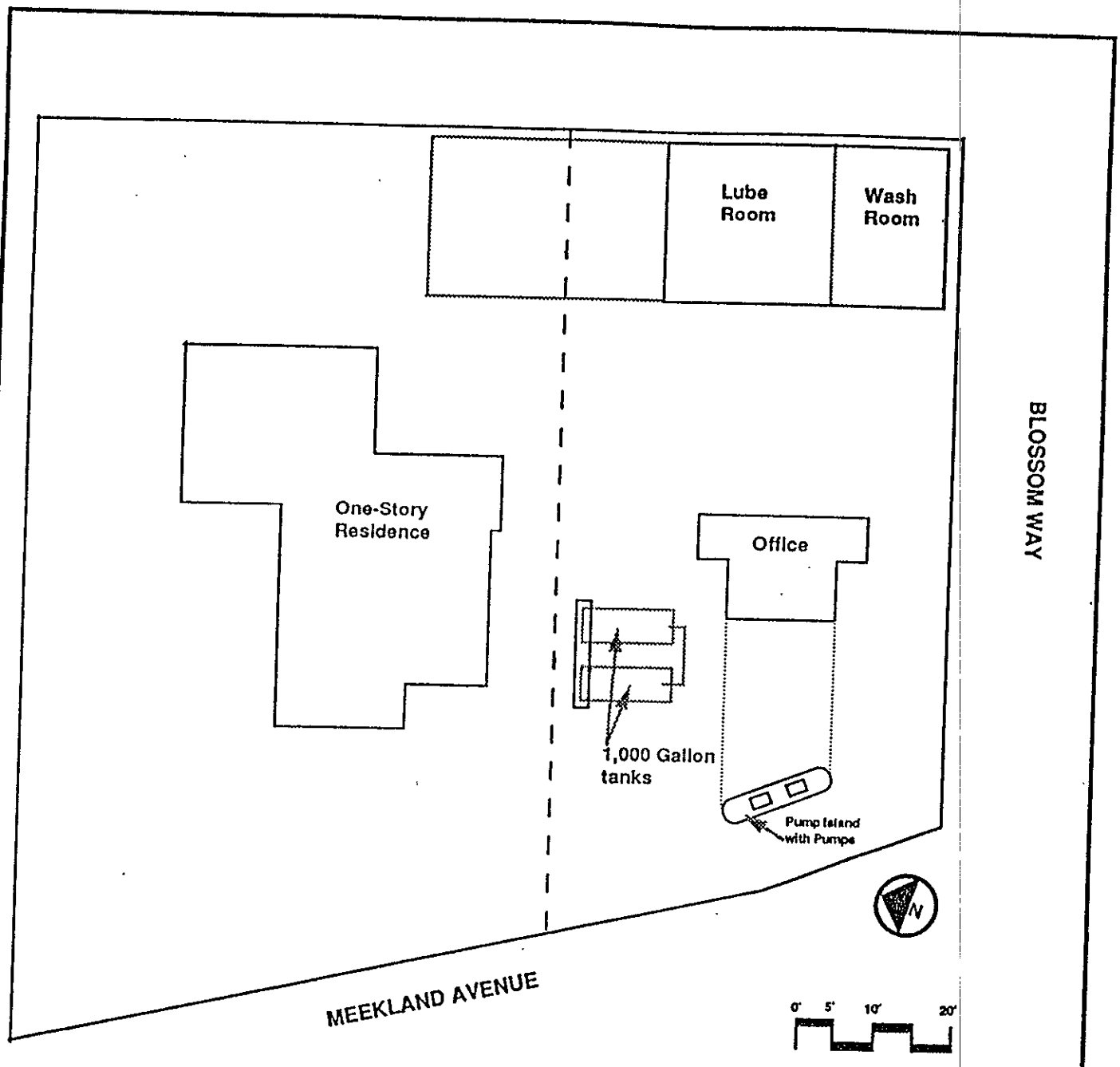
SITE PLAN (Current)

Project 92-7
Durham Transportation
Meekland Avenue, Hayward, California

Plate
1
1" = 30'



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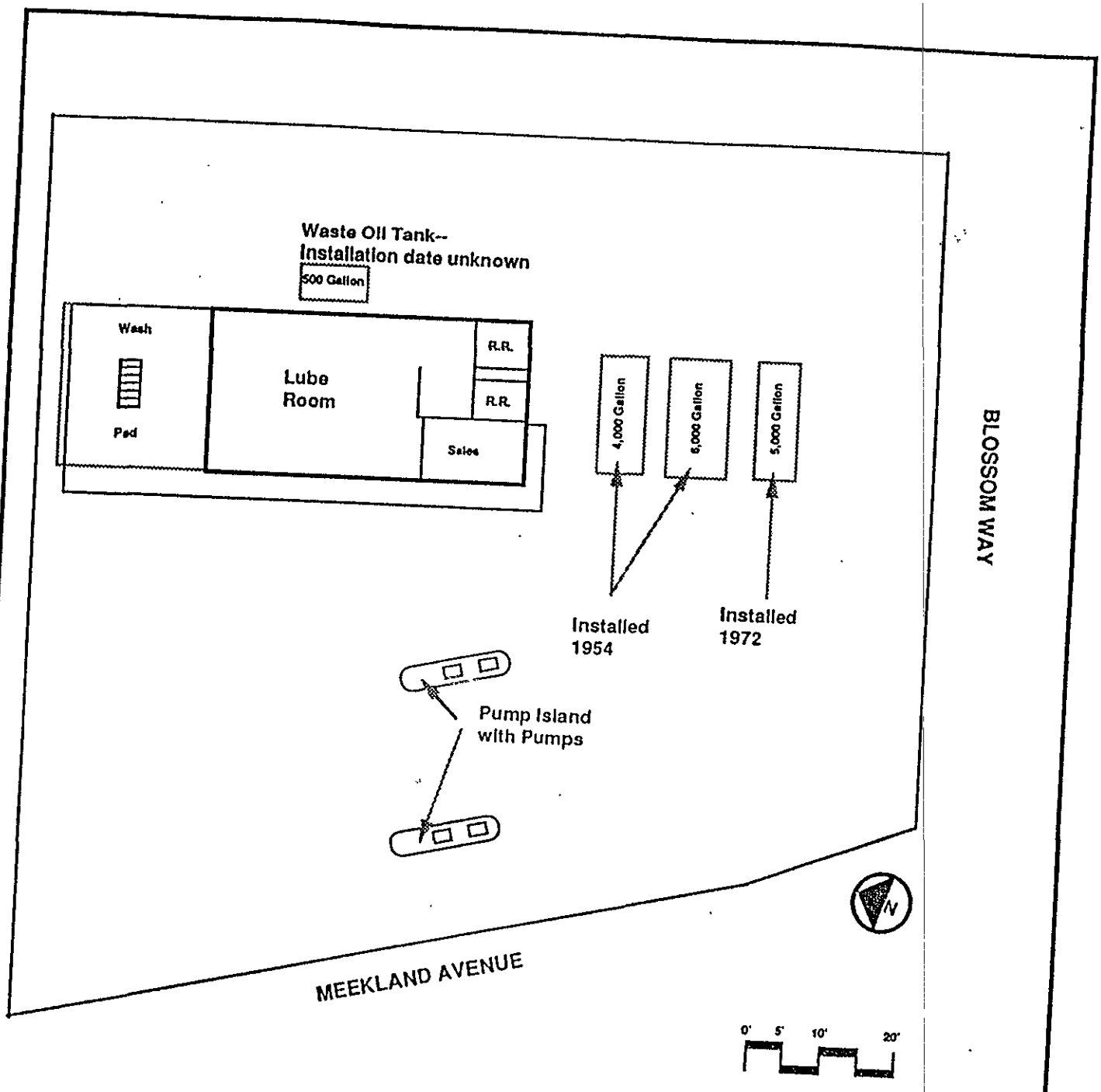
SITE PLAN (1946)

Project 92-7
Durham Transportation
Meekland Avenue, Hayward, California

Plate
2
1" = 20'



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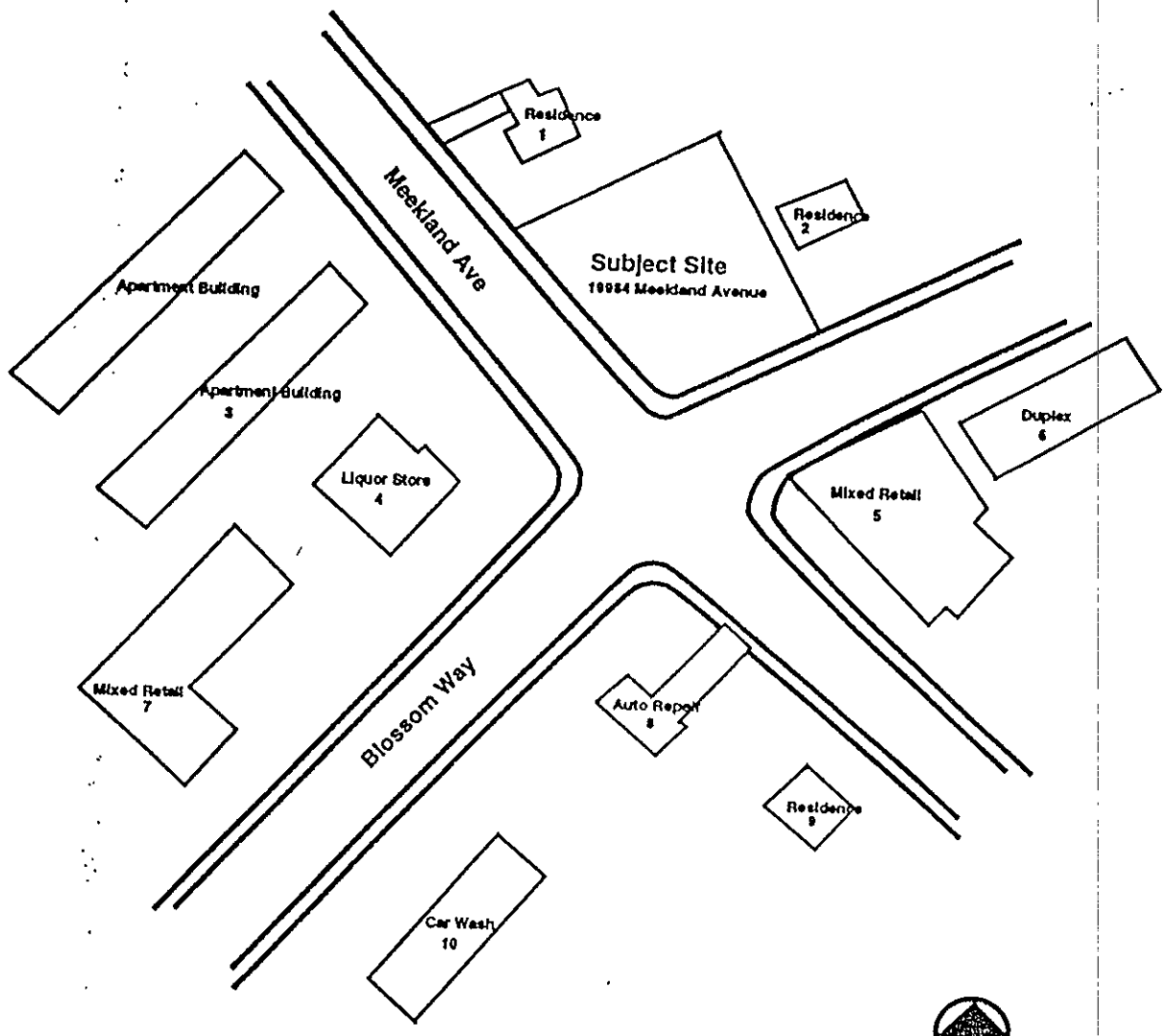
SITE PLAN (1954-1990)

Project 92-7
Durham Transportation
Meekland Avenue, Hayward, California

Plate
3
1" = 20'

CTTS, Inc. *toxic technology services* P.O. Box 515 • Rodeo, California 94572 (510) 799-1140	**ONE MILE RADIUS VICINITY MAP** **Project 92-7** **Durham Transportation** Meekland Avenue, Hayward, California	Plate **4**



KEY TO BUILDING ADDRESSES

1.	19870	Meekland Avenue
2.	126	Blossom Way
3.	19875	Meekland Avenue
4.	50	Blossom Way
5.	20006 - 20332	Meekland Avenue
6.	127 - 139	Blossom Way
7.	40 - 46	Blossom Way
8.	20009	Meekland Avenue
9.	20337	Meekland Avenue
10.	38	Blossom Way

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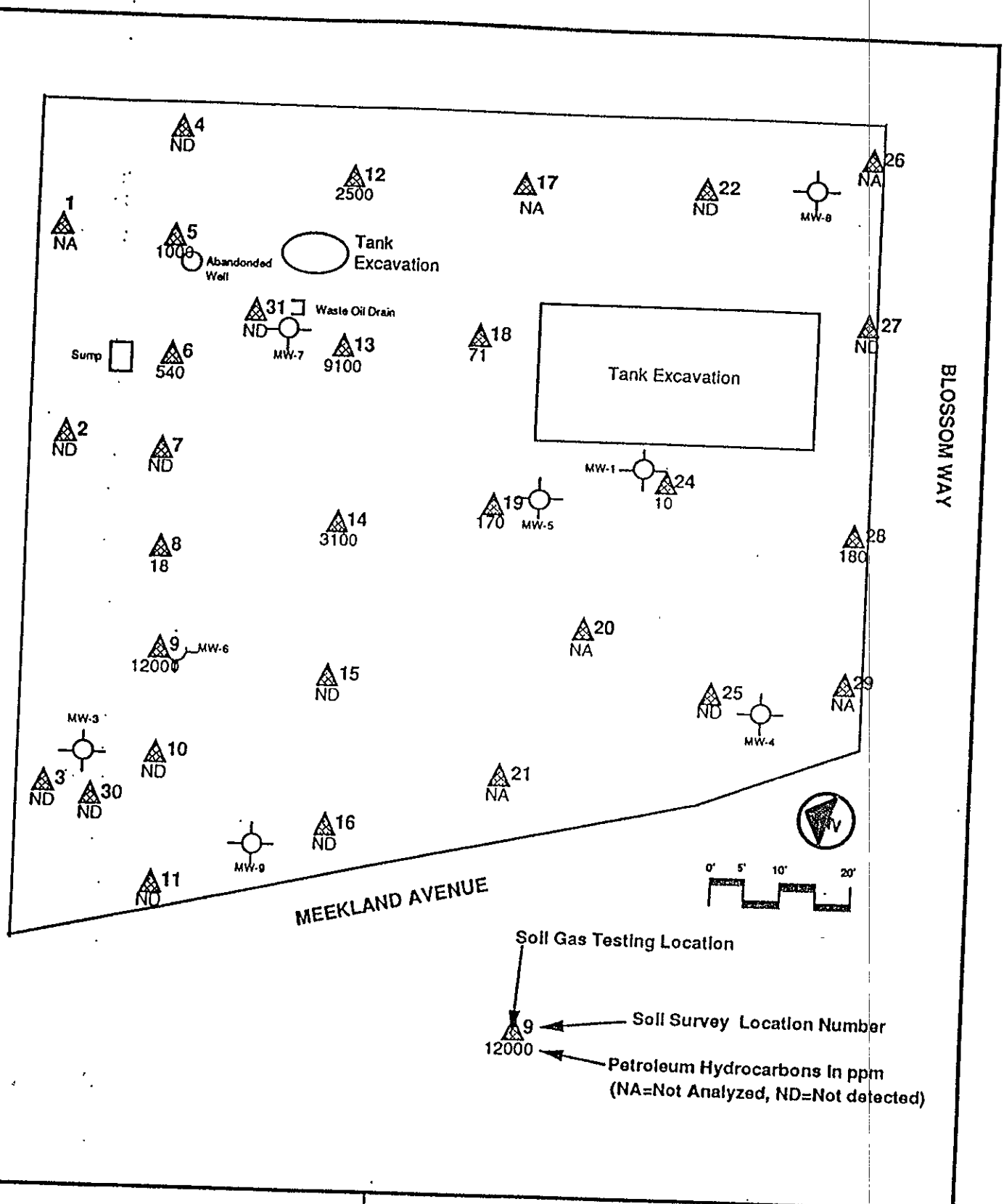
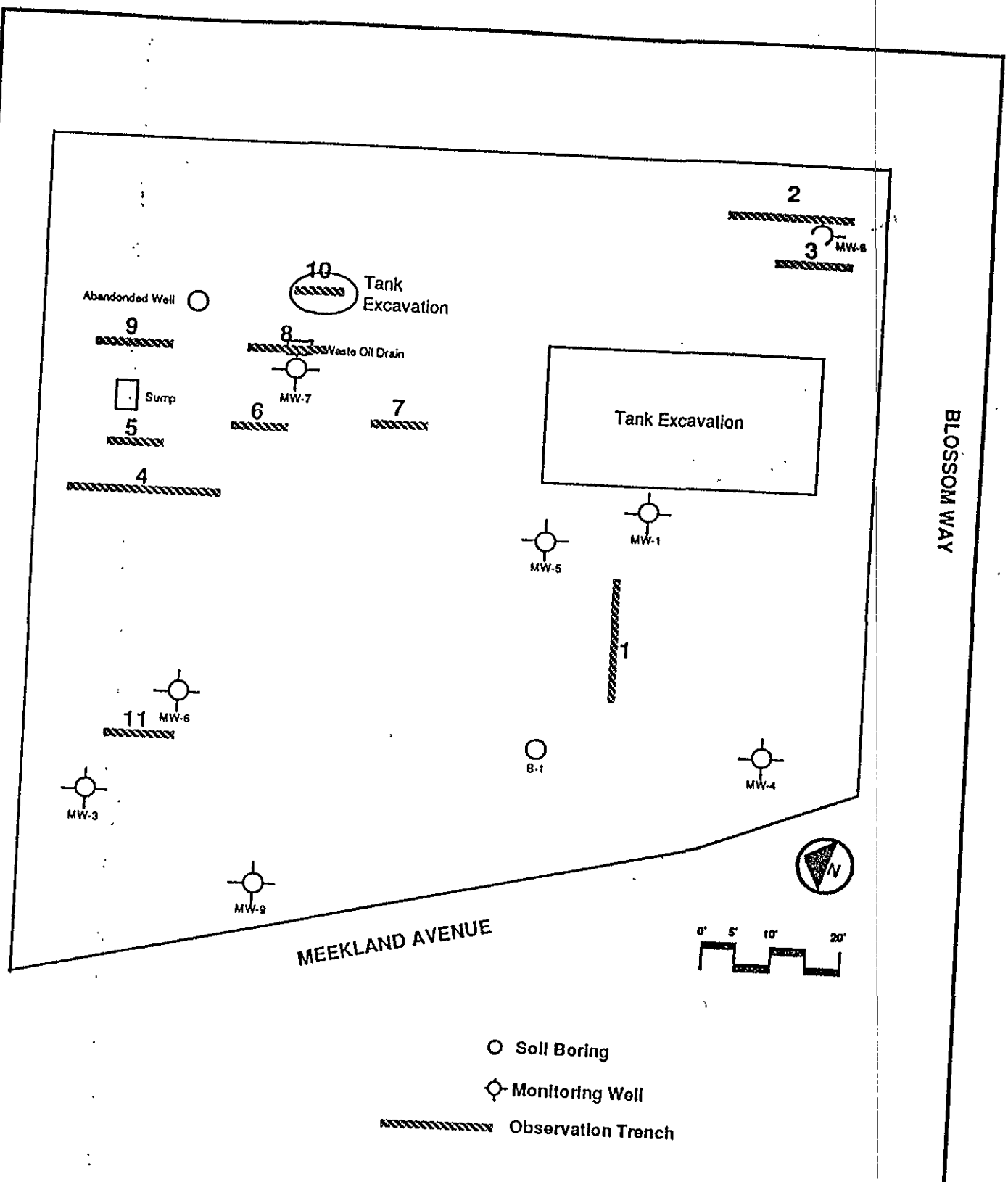
IMMEDIATE VICINITY MAP

Project 92-7
Durham Transportation
Meekland Avenue, Hayward, California

Plate
5
1" = 100'



CTTS, Inc. toxic technology services P.O. Box 515 • Rodeo, California 94572 (510) 799-1140	SOIL GAS TESTING LOCATIONS Project 92-7 Durham Transportation Meekland Avenue, Hayward, California	Plate 6 1" = 20'



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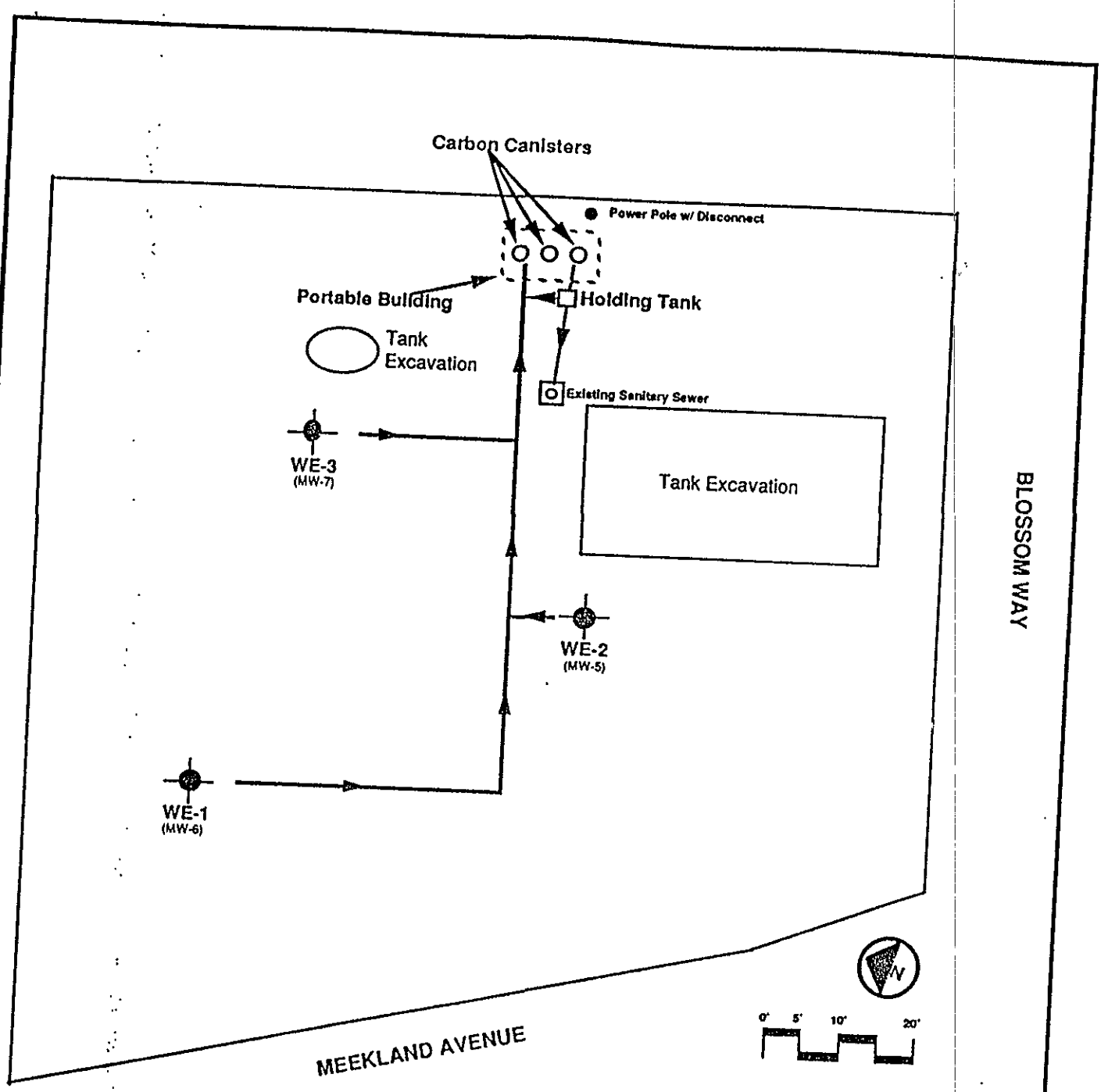
TRENCH LOCATIONS

Project 92-7
Durham Transportation
Meekland Avenue, Hayward, California

Plate
7
1" = 20'



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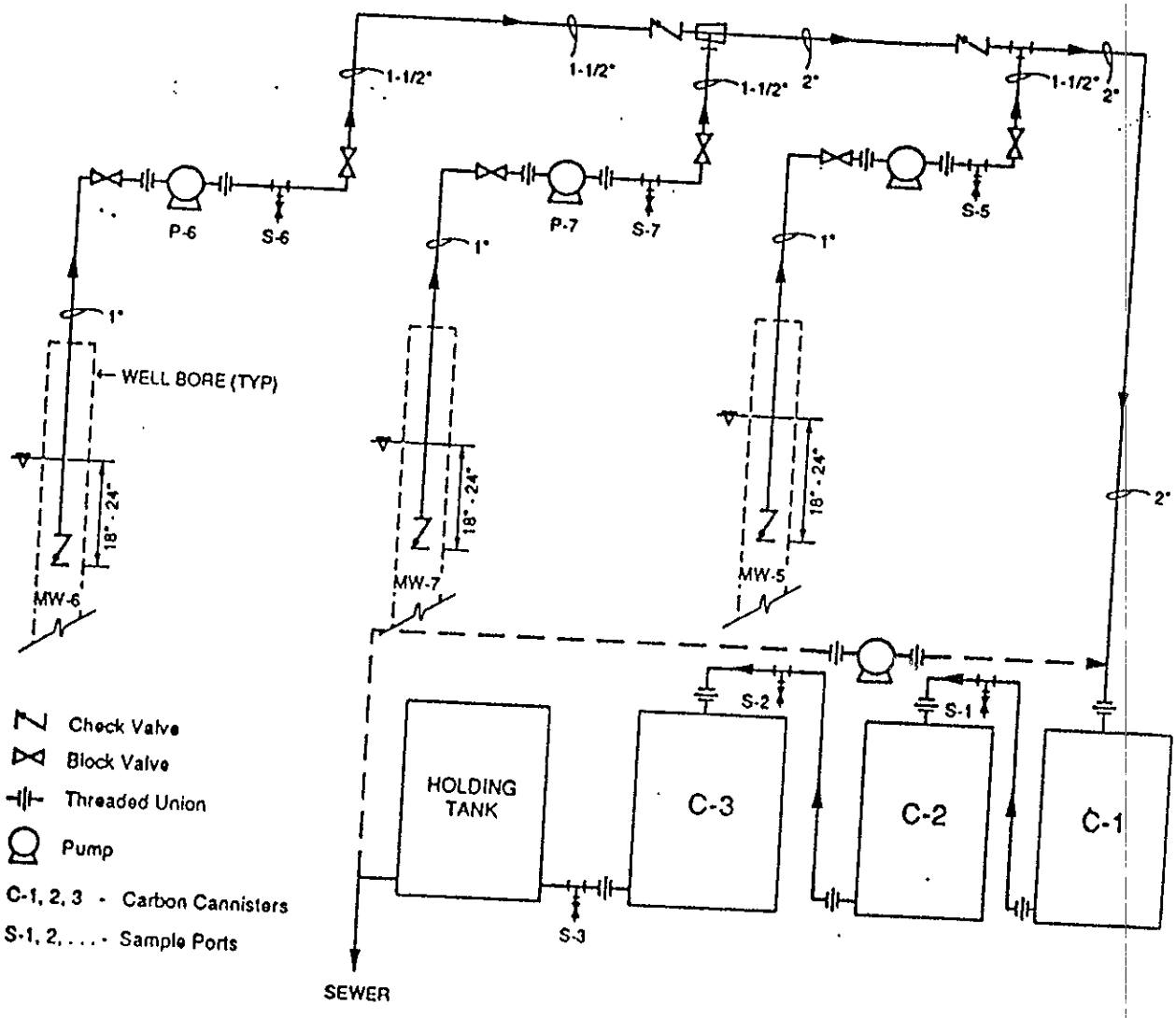
GROUNDWATER REMEDIATION SYSTEM
Project 92-7
Durham Transportation
Meekland Avenue, Hayward, California

Plate
8
1" = 20'



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(510) 799-1140

GROUNDWATER REMEDIATION SCHEMATIC

Project 92-7
Durham Transportation
Meekland Avenue, Hayward, California

Plate 9

no scale

APPENDIX A

Please print or type Form designed for use on elite (12-pitch) typewriter

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. CA C 1 0 0 0 0 8 1 2 9 8 4 0 1 0 0 1 | Manifest Document No. | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: DURHAM TRANSPORTATION, INC. P.O. BOX 515 RODEO, CALIFORNIA 94572

4. Generator's Phone ( ): (510) 799-1140

A. State Manifest Document Number: 9173829

B. State Generator's ID: H A H 0 3 6 0 1 9 3 7 8

5. Transporter 1 Company Name: FALCON ENERGY

6. US EPA ID Number: C A D 9 8 2 5 2 6 8 5 7

C. State Transporter's ID: 204146

D. Transporter's Phone: (209) 463-7108

7. Transporter 2 Company Name: EVERGREEN ENVIRONMENTAL

8. US EPA ID Number: C A D 9 8 2 4 4 6 8 9 0

E. State Transporter's ID: CA YARD

F. Transporter's Phone: (800) 972-5284

9. Designated Facility Name and Site Address: EVERGREEN ENVIRONMENTAL 777 LOCUST AVE, RIPON, CA 95366

10. US EPA ID Number: CA D 9 8 2 4 4 6 8 9 0

G. State Facility's ID: C A D 9 8 2 4 4 6 8 9 0

H. Facility's Phone: (800) 972 5284

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste Number
a. NON RCRA HAZARDOUS WASTE, LIQUID	001	T,T	00660	G	State 134 EPA/Other NONE
b.					State EPA/Other
c.					State EPA/Other
d.					State EPA/Other

J. Additional Descriptions for Materials Listed Above: 99% WATER, PURGED WELL WATER

K. Handling Codes for Wastes Listed Above: a. 17 b. c. d.

15. Special Handling Instructions and Additional Information: 24 HOUR EMERGENCY RESPONSE NUMBER 1 (800)399-HEL

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month	Day	Year
Lisa Polos	Lisa Polos	07	17	92

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
WALKER Daniel	D Walker	07	17	92

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Joe Lima	Joe Lima	07	17	92

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Joe Lima	Joe Lima	07	17	92

DO NOT WRITE BELOW THIS LINE.

GENERATOR

TRANSPORTER

FACILITY

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7550

DHS 8022A (12/90)
EPA 8700-22

White: TSDF SENDS THIS COPY TO DHS WITHIN 30 DAYS.
To: P.O. Box 3000, Sacramento, CA 95812

State of California—Health & Welfare Agency
Form Approved OMB No 2050—0039 (Expires 9 30 91)

See Instructions on Back and Front of Page 7

Page 6

Department of Health Services
Toxic Substances Control Division
Sacramento CA 95814

Please print or type. Form designed for use on elite (12-pitch typewriter).

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.
C A C 10 10 10 12 19 19 18 14 19	011 14 19 11
2. Page 1 of 1	Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Durham Transportation Inc.
19984 Meekland Ave. Hayward, CA 94541

4. Generator's Phone (510) 799-1049

A. State Manifest Document Number: 90472949

B. State Generator's ID: C A D 10 13 16 1 10 11 19 13 17 18

5. Transporter 1 Company Name: Stamco, Inc.

6. US EPA ID Number: C A D 10 16 13 15 14 17 19 19 16

C. State Transporter's ID: 21320

D. Transporter's Phone: 800 321-1030

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Statewide Environmental Services
12618 S. Main St.
Los Angeles, CA 90061

10. US EPA ID Number: C A D 10 10 10 10 18 18 12 15 12

G. State Facility's ID

H. Facility's Phone: 213- 756- 7896

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Non-RCRA Hazardous Waste Solid (Hydrocarbon fuels, soil) no class, no ID	0 0 8	DM	0 2 0 0 0	P	State 611
					EPA/Other none
b.					State
					EPA/Other
c.					State
					EPA/Other
d.					State
					EPA/Other

J. Additional Descriptions for Materials Listed Above
a. Oil, diesel in soil 24 hr phone 800-321-1030
Bill to Ecology Recovery Assoc.

K. Handling Codes for Wastes Listed Above
a. 14/01 b. c. d.

15. Special Handling Instructions and Additional Information
a. SES Profile P 1098, ERG No. 31

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name: Lisa Biles — Signature: Lisa Biles — Month Day Year: 11 12 15 91

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Ray Oczynski — Signature — Month Day Year: 11 12 15 91

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19
Printed/Typed Name: STUART BROWN — Signature — Month Day Year: 11 13 91

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA CALL 1-800-852-7550

HS 8022 A
EPA 8700—22
(Rev. 6-89) Previous editions are obsolete

Do Not Write Below This Line

** TOTAL PAGE.001 **

ERICKSON BAKERSFIELD

Form Approved OMB No. 2050-0039 (Expires 9-30-91)

Please print or type. (Form designed for use on elite (12-pitch) typewriter).

1224

and Front of Page 7

Toxic Substances Control Division
Sacramento, California

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: CIA|C|0|0|0|2|9|9|8|4|9 | Manifest Document No.: 7|2|2|8|3

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address:
Durham Trucking
P.O. Box 948
Rosemead, CA 91770-0948

A. State Manifest Document Number: 89890865

4. Generator's Phone: (213) 571-7020

B. State Generator's ID:

5. Transporter 1 Company Name: Erickson, Inc.

6. US EPA ID Number: C|A|D|0|0|9|4|6|6|3|9|2

C. State Transporter's ID: 235-1393

7. Transporter 2 Company Name:

8. US EPA ID Number:

D. Transporter's Phone: (415) 377-0477

E. State Transporter's ID: 106200

9. Designated Facility Name and Site Address:
Gibson Oil
Commercial Dr.
Bakersfield, CA 93308

10. US EPA ID Number: C|A|D|9|8|0|8|8|3|1|1|7

F. Transporter's Phone:

G. State Facility's ID: CAD981015431017

H. Facility's Phone: (805) 377-0413

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Non-RCRA Hazardous Waste Liquid	001	TT	05812	G	State 221
					EPA/Other None
b.					State
					EPA/Other
c.					State
					EPA/Other
d.					State
					EPA/Other

J. Additional Descriptions for Materials Listed Above

A. Oily water rinsate profile # 7362-1

K. Handling Codes for Wastes Listed Above

a. 01 b.

c. d.

14. Special Handling Instructions and Additional Information

Gloves & Goggles

15. 612.36

GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name: DAVID C SCHULTZ | Signature | Month 07 Day 12 Year 90

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: ROBERT CAMARA | Signature | Month 07 Day 12 Year 90

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

19. Discrepancy Indication Space

FACILITY

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed/Typed Name: David Holland | Signature | Month 07 Day 12 Year 90

EPA Form 8700-22 (1/86)
OMB-22

Do Not Write Below This Line

Please print or type (Form designed for use on elite (12-pitch typewriter))

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. CAC000118994 — Manifest Document No. 19518

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
DURHAM TRANSPORTATION INC.
P.O. BOX 948
ROSEMEAD, CA. 91770
SITE: 19984 HESPERIAN HWY WEST, CA.

4. Generator's Phone

A. State Manifest Document Number 89494

B. State Generator's ID

5. Transporter 1 Company Name: H & H Ship Service Co. — 6. US EPA ID Number: CAD000470711

C. State Transporter's ID

7. Transporter 2 Company Name — 8. US EPA ID Number

D. Transporter's Phone

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
H & H Ship Service Co.
220 CHINA BASIN ST.
SAN FRANCISCO, CA. 94107 — 10. US EPA ID Number: CAD000470711

G. State Facility's ID

H. Facility's Phone (415) 543-4

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No.
a. RESIDUE GASOLINE TANK (CALIFORNIA only Regulated WASTE)	01011	TP	06010D	P	
b. RESIDUE GASOLINE TANK (CALIFORNIA only regulated WASTE)	01011	TP	05010D	P	
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Pumped out 6,000 gallon, 5,000 gallon tanks last containing gasoline.

K. Handling Codes for Wastes Listed Above
a. b. c. d.

15. Special Handling Instructions and Additional Information
APPROPRIATE protective clothing AND RESPIRATOR.

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Michael Zetz — Signature — Month Day Year: 8/11/89

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Robert V. Petrucci — Signature — Month Day Year: 8/11/89

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name — Signature — Month Day Year

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA CALL 1-800-852-7550

GENERATOR — TRANSPORTER — FACILITY

DHS 8022 A (1/88)
EPA 8700—22
(Rev 9-88) Previous editions are obsolete.

Do Not Write Below This Line

Blue: GENERATOR SENDS THIS COPY TO DOHS WITHIN 30 DA
To: P.O. Box 400, Sacramento, CA 95812-0400

APPENDIX B

TAT

TESTING AND TECHNOLOGY

P.O. Box 4570
Vallejo, CA 94590
(707) 648-5014

1377 9th Avenue
San Francisco, CA 941224
(415) 472-0375

May 6, 1988

Jack Worthington
DURHAM TRANSPORTATION
93 Jackson Street
Hayward, CA 94544

Dear Jack:

I would like to take this opportunity to thank you for allowing TAT to be of service to you.

Enclosed are the reports for the underground storage tank tests performed on May 6, 1988 at 93 Jackson Street in Hayward. As you already know tank #3, the 5,000 gallon tank containing unleaded tested tight, and the results were well within the guidelines set forth by State regulations.

The test results on tanks #1 and #2 which are manifolded suggests a leak within 12" (+/-) grade.

I have sent a copy of these reports on to Hugh Murphy of the Alemeda County Health Department for your convenience.

If you have any further questions regarding this matter, please feel free to call me at: (415) 472-0375

Sincerely,

Susan T. Lee
Office Manager

STL/lob

Enclosures

CC: Tom Peacock, The Alemeda County Health Dept.

TESTING AND TECHNOLOGY
1377 9th Avenue
San Francisco, CA 94122
(415) 753-4464

INVOICE # 2257 TEST DATE 4/23/88

COMPANY NAME DURHAM TRANSPORTATION PHONE # (415) 889-7200

MAIL ADDRESS 93 JACKSON ST., HAYWARD, CA 94544

TANK ADDRESS 19984 MEEKLAND AVE., HAYWARD, CA

CONTACT NAME JACK WORTHINGTON

PROPERTY OWNER SAME PHONE #

PHONE #

TANK INFORMATION

TANK #	[redacted]	[redacted]	THREE
PRODUCT	UNLEAD	REG	UNLEAD
CAPACITY	4,000	6,000	5,000
CONSTRUCTION	STEEL	STEEL	STEEL
DIAMETER	77"	96"	96"
FILL PIPE	42"	32"	45"
TANK BOTTOM DEPTH	119/123	128/133	141/147
PUMP TYPE	SUCTION	SUCTION	SUCTION
VAPOR RECOVERY	PHASE II(UNUSED)	PHASE II(UNUSED)	PHASE II(UNUSED)
TANK WATER	TRACE	0	0

TEST INFORMATION

TEST EQUIPMENT	HORNER	HORNER	HORNER
FULL SYST/TANK ONLY	------MANIFOLDED------		PASS
DATE TANK FILLED	4/22/88	4/23/88-7AM	4/22/88
GALLONS TO TOP OFF	N/A	N/A	N/A
GROUND WATER DEPTH	26'+	26'+	26'+
TANK BTM PRESSURE	4.13 PSI	4.39 PSI	4.65 PSI

RESULTS

PASS - FAIL	--------FAIL--------		PASS
LOSS RATE	--------.2641 GPH---		+.0086

COMMENTS TANK #1 AND #2 ARE MANIFOLDED ABOVE TANK TOP, PROBABLY THROUGH THE VAPOR RECOVERY PIPING. TEST SUGGESTS A LEAK WITHIN 12" (+/-) OF GRADE.

TESTING AND TECHNOLOGY

TEST REPORT HORNER 'EZY CHEK' LEAK DETECTOR

OMPANY DURHAM TRANSPORTATION DATE 4/23/88 INVOICE 2257 [redacted]

PRODUCT UNLEADED CAPACITY 4,000 MEASURED API 56.5 TEMPERATURE 63

ADJUSTED API 56.1 COEF OF EXPANSION .00066249 TEMP SHIFT FACTOR 2.650

OTHER 40 GALLONS ADDED AT 14:00 TO OVERFILL TANK FOR TEST

IME	TEST HEIGHT	CHART GAIN #'S	CHART LEVEL LOSS	FACTR	RESLT	TEMP STRT	TEMP END	GAIN LOSS	TEMP FACTR	TEMP RESULT	15 MIN RESULT IN GAL	HOURL RESUL GAL/H
:45						.860	.860	0	2.650	0		
7:00						.860	.859	-.001		-.0026		
7:15						.859	.858	-.001		-.0026		
:30						.858	.857	-.001		-.0026		
:45						.857	.856	-.001		-.0026		
:30						.856	.855	-.001		-.0026		
:45						.855	.852	-.003		-.0078		
:00						.852	.850	-.002		-.0053		
:15						.850	.848	-.002		-.0053		
:30						.848	.848	0		0		

TESTED BY JACK A. WURTS

OMMENTS TANK #1 AND #2 MANIFOLDED - TEMPERATURE MEASUREMENT TAKEN ON TANK #1, TEMPERATURE AND LEVEL MEASUREMENTS TAKEN ON TANK #2.

JE DATA FOR THIS TEST MEETS NFPA 329 STANDARDS. THE EQUIPMENT USED TO GENERATE HIS DATA IS ABLE TO DETECT A PRODUCT LOSS AT THE RATE OF 0.05 GALLONS PER HOUR. IIS IS NOT TO BE CONSTRUED AS AN ALLOWABLE LEAK RATE, BUT RATHER AS AN ACCURACY LERANCE OF THE TESTING EQUIPMENT WHICH ALLOWS FOR THE MANY VARIABLES INVOLVED. AT GUARANTEES ONLY THAT THE DATA FOR THIS REPORT MEETS NFPA CRITERIA ON THE DAY THIS TEST. TAT MAKES NO WARRANTY OF TANK AND/OR LINE FITNESS NOR DO WE ASSUME SPONSIBILITY FOR ANY LEAKAGE WHICH MAY HAVE OCCURRED AS A RESULT OF THIS TEST.

TESTING AND TECHNOLOGY

TEST REPORT HORNER 'EZY CHEK' LEAK DETECTOR

COMPANY DURHAM TRANSPORTATION DATE 4/23/88 INVOICE 2257 TANK # 2

PRODUCT REGULAR CAPACITY 6,000 MEASURED API 58 TEMPERATURE 64

ADJUSTED API 56.3 COEF OF EXPANSION .00066356 TEMP SHIFT FACTOR 3.981

CALIBRATING ROD .05 DIVIDED BY # LINES 20 = CHART CALIB FACTOR .0025

CALIBRATING ROD .05 DIVIDED BY # LINES 21.6 = CHART CALIB FACTOR .0026

OTHER 40 GALLONS ADDED AT 14:00 TO OVERFILL TANK FOR TEST

TIME	TEST HEIGHT	CHART #'S	GAIN LOSS	CHART LEVEL FACTR	RESLT	TEMP STRT	TEMP END	GAIN LOSS	TEMP FACTR	TEMP RESULT	15 MIN RESULT IN GAL	HOURLY RESULT GAL/HR
6:45	+13"	75 76	+1	.0026	+.0026	.022	.027	+.005	3.981	+.0199	-.0173	
7:00	+13"	76 73	-3		-.0078	.027	.034	+.007		+.0279	-.0331	
7:15	+13"	73 74	+1		+.0026	.034	.042	+.008		+.0318	-.0266	
7:30	+13"	74 71	-3		-.0078	.042	.047	+.005		+.0199	-.0251	-.1021
7:45	+13"	71 70	-1		-.0026	.047	.052	+.005		+.0199	-.0199	-.1047
8:30	+36"	58 38	-20	.0025	-.0500	.065	.070	+.005		+.0199	-.0673	
8:45	+36"	38 18	-20		-.0500	.070	.075	+.005		+.0199	-.0623	
9:00	+36"	X 70	X		X	.075	.081	+.006		+.0239	X	
9:15	+36"	70 50	-20		-.0500	.081	.086	+.005		+.0199	-.0646	
9:30	+36"	50 30	-20		-.0500	.086	.091	+.005		+.0199	-.0699	-.2641

RESULTS CERTIFIED TIGHT NO AT TEST HEIGHT OF +13" LOSS RATE (GPH) -.1047 (+/-)

AT TEST HEIGHT OF +36" LOSS RATE (GPH) -.2641 (+/-)

TESTED BY _____
JACK A. WURTS

COMMENTS TEST INDICATES A LEAK IN THE PIPING WITHIN 12" (+/-) OF GRADE.

E DATA FOR THIS TEST MEETS NFPA 329 STANDARDS. THE EQUIPMENT USED TO GENERATE IS DATA IS ABLE TO DETECT A PRODUCT LOSS AT THE RATE OF 0.05 GALLONS PER HOUR. IS IS NOT TO BE CONSTRUED AS AN ALLOWABLE LEAK RATE, BUT RATHER AS AN ACCURACY OLERANCE OF THE TESTING EQUIPMENT WHICH ALLOWS FOR THE MANY VARIABLES INVOLVED. AT GUARANTEES ONLY THAT THE DATA FOR THIS REPORT MEETS NFPA CRITERIA ON THE DAY F THIS TEST. TAT MAKES NO WARRANTY OF TANK AND/OR LINE FITNESS NOR DO WE ASSUME ESPONSIBILITY FOR ANY LEAKAGE WHICH MAY HAVE OCCURRED AT A TIME OTHER THAN

TESTING AND TECHNOLOGY

TEST REPORT HORNER 'EZY CHEK' LEAK DETECTOR

COMPANY DURHAM TRANSPORTATION DATE 4/23/88 INVOICE 2257 TANK # 3

PRODUCT UNLEAD CAPACITY 5,000 MEASURED API 56.5 TEMPERATURE 63

ADJUSTED API 56.1 COEF OF EXPANSION .00066249 TEMP SHIFT FACTOR 3.312

CALIBRATING-ROD .05 DIVIDED BY 6 LINES 19.3 = CHART CALIB FACTOR .0027

OTHER 12 GALLONS ADDED AT 09:30 TO OVERFILL TANK FOR TEST

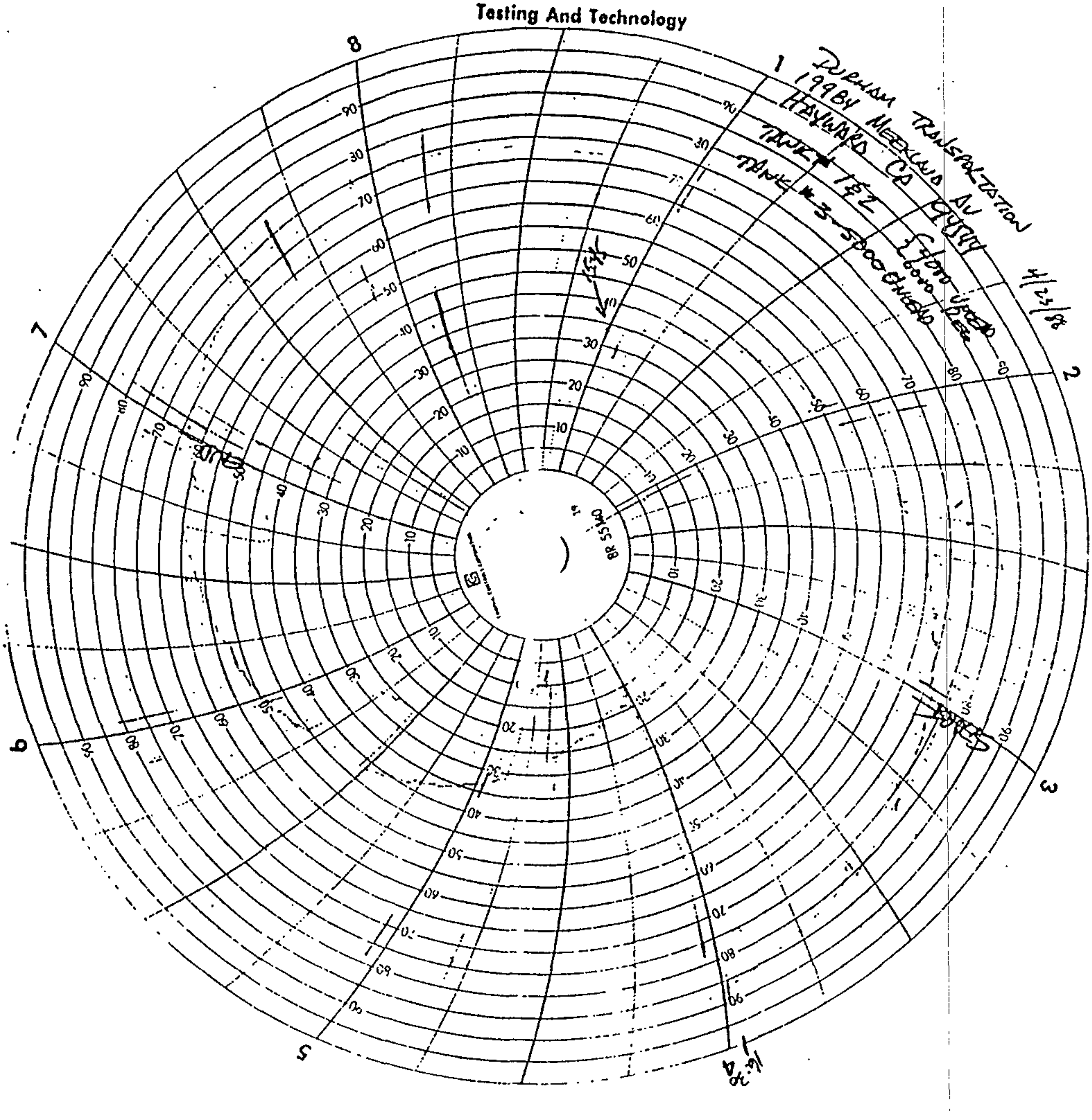
TIME	TEST HEIGHT	CHART GAIN/LOSS	CHART LEVEL FACTR	RESLT	TEMP START	TEMP END	GAIN LOSS	TEMP FACTR	TEMP RESULT	15 MIN RESULT IN GAL	HOURLY RESULT GAL/HR
4:30	+8"	43 82 +39	.0027	+.1053	.429	.441	+.012	3.312	+.0397	+.0656	
4:45	+8"	42 63 +21		+.0567	.441	.456	+.015		+.0497	+.0070	
5:00	+8"	63 81 +18		+.0486	.456	.471	+.015		+.0497	-.0011	
5:15	+8"	81 99 +18		+.0486	.471	.483	+.012		+.0397	+.0089	
5:30	+8"	15 33 +18		+.0486	.483	.497	+.014		+.0464	+.0022	+.0192
5:45	+8"	34 52 +18		+.0486	.497	.510	+.013		+.0431	+.0055	+.0177
6:00	+8"	52 72 +20		+.0540	.510	.521	+.011		+.0364	+.0176	+.0342
6:15	+8"	72 88 +16		+.0432	.521	.534	+.013		+.0430	+.0002	+.0255
6:30	+8"	18 33 +15		+.0405	.534	.546	+.012		+.0397	+.0008	+.0241
6:45	+8"	33 49 +16		+.0432	.546	.557	+.011		+.0364	+.0068	+.0254
7:00	+8"	49 64 +15		+.0405	.557	.569	+.012		+.0397	+.0008	+.0086

RESULTS CERTIFIED TIGHT YES AT TEST HEIGHT OF +8" LOSS RATE (GPH) +.0086 (+/-).

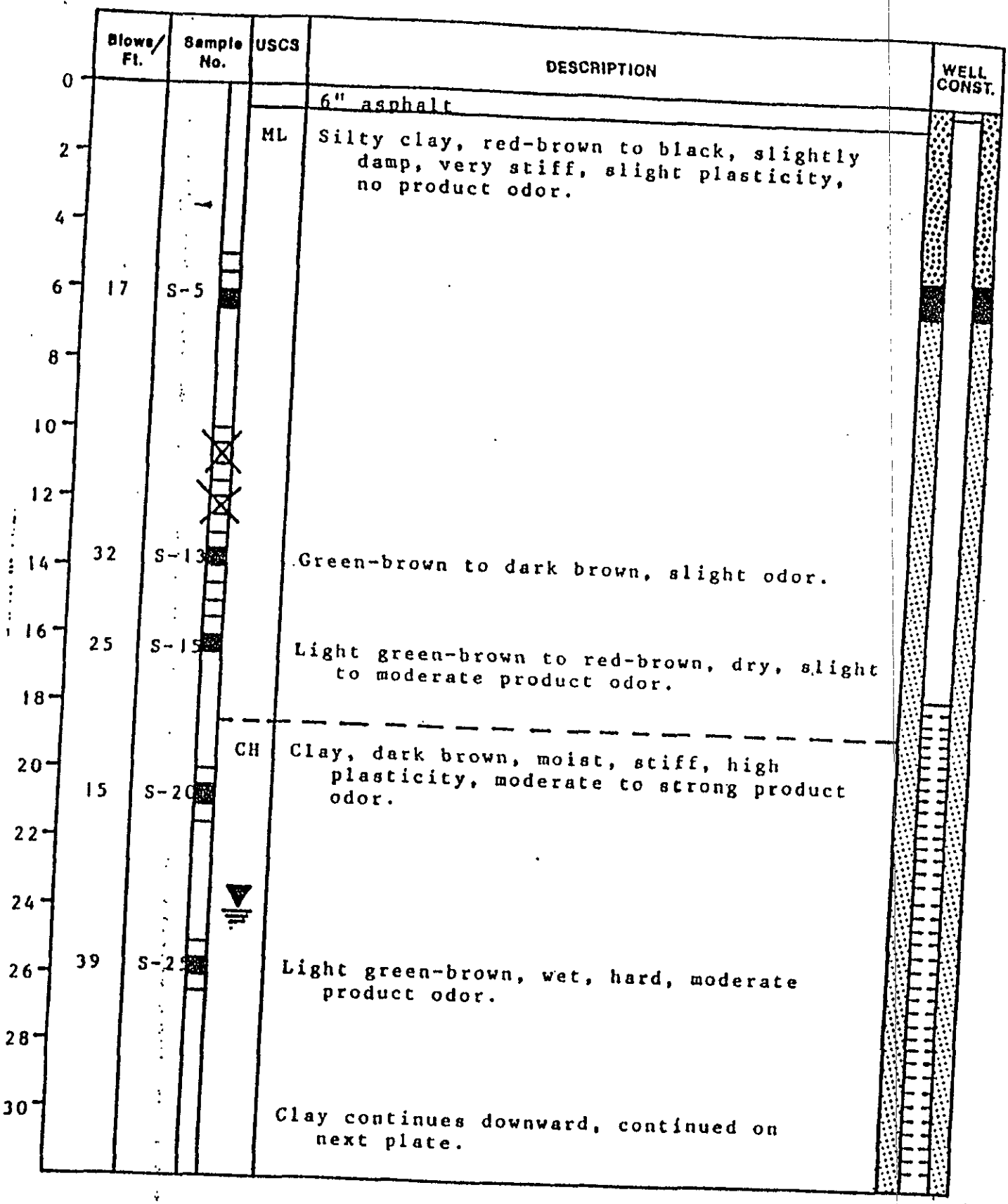
TESTED BY JACK A. WURTS

COMMENTS

THE DATA FOR THIS TEST MEETS NFPA 329 STANDARDS. THE EQUIPMENT USED TO GENERATE THIS DATA IS ABLE TO DETECT A PRODUCT LOSS AT THE RATE OF 0.05 GALLONS PER HOUR. THIS IS NOT TO BE CONSTRUED AS AN ALLOWABLE LEAK RATE, BUT RATHER AS AN ACCURACY TOLERANCE OF THE TESTING EQUIPMENT WHICH ALLOWS FOR THE MANY VARIABLES INVOLVED. TAT GUARANTEES ONLY THAT THE DATA FOR THIS REPORT MEETS NFPA CRITERIA ON THE DAY OF THIS TEST, TAT MAKES NO WARRANTY OF TANK AND/OR LINE FITNESS NOR DO WE ASSUME RESPONSIBILITY FOR ANY LEAKAGE WHICH MAY HAVE OCCURRED AS A RESULT OF THIS TEST.


Testing And Technology
DURHAM TRANSPORTATION
19984 MEEKLAND AV
HAYWARD CA 94541
TANK # 1 & 2
TANK # 3
4/23/98
BR 5540

APPENDIX C



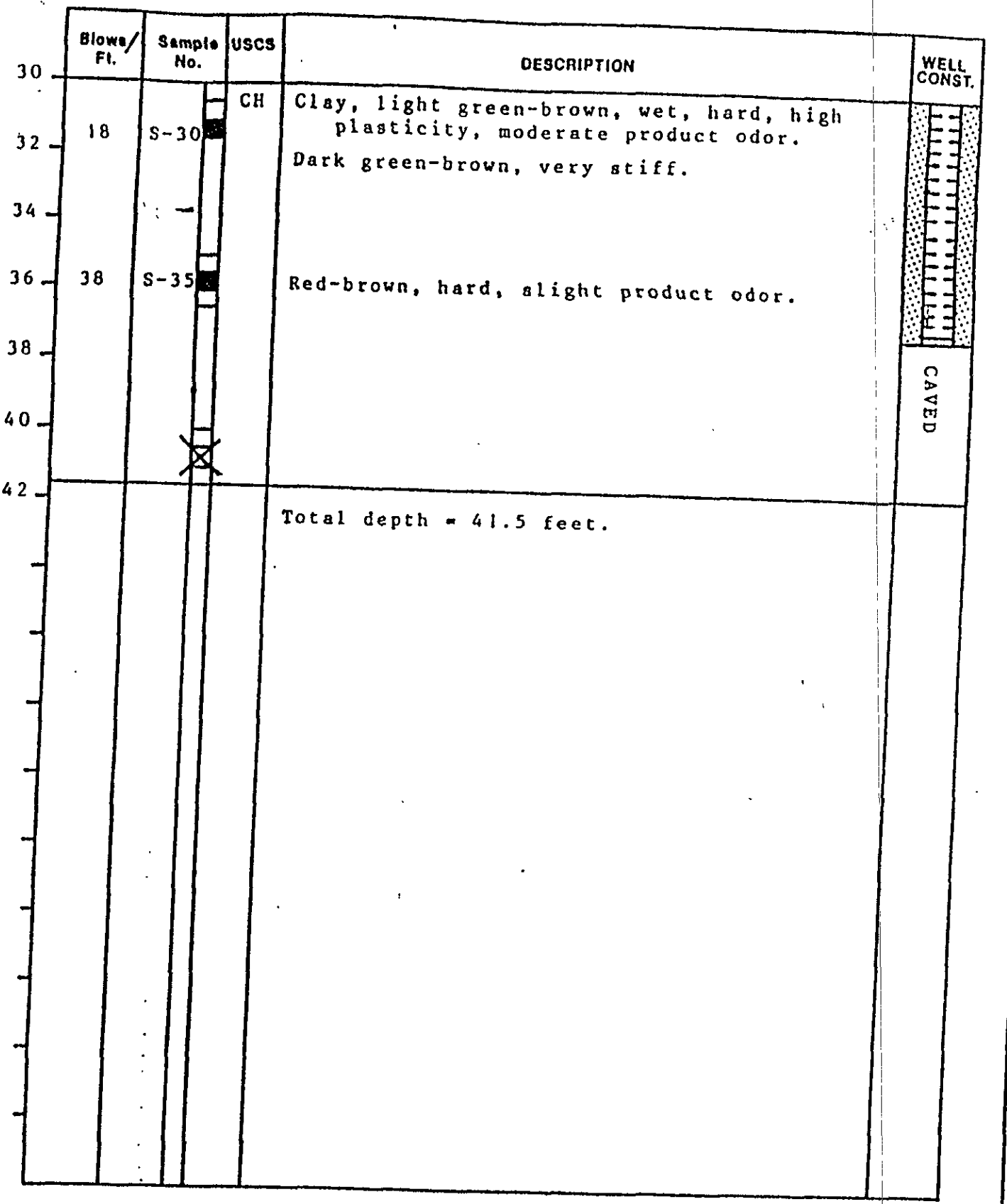
Applied GeoSystems

LOG OF BORING B1/MW-1

Harbert Transportation
Hayward, California

PLATE

P-4



Applied GeoSystems

LOG OF BORING B-1/MW-1

Harbert Transportation
Hayward, California

PLATE

P-5

BORING LOCATION: Meekland and Blos[illegible] Ave
DRILLING CONTRACTOR: HEW Drilling | DRILLER: Jeff
DRILLING EQUIPMENT: CME 55
DIAMETER OF BORING:
PURPOSE OF BORING: Monitoring Well
SAMPLING EQUIPMENT:
COMMENTS:

ELEVATION AND DATUM:
DATE STARTED: 11-28-89 | DATE FINISHED: 11-28-89
COMPLETION DEPTH (FT): 40 | ROCK DEPTH (FT): -
NO. OF UNDIST. SAMPLES: 7 | CORE:
WATER FIRST DEPTH(FT): 34 | COMPL.:
LOGGED BY: J. Alt | CHECKED BY:

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG / LITHOLOGY	SAMPLES NO.	SAMPLES TYPE	SAMPLES BLOW COUNT	DRILLING RATE/TIME	REMARKS
	Fill						
	dark brown clay, dry, adobe						
5	reddish brown fine sandy silt with some clay, dry				6 8 10		
	Tan sandy silt to silty sand. Thin lens of coarse sand at 11 ft.; dry, becoming moist at 15 ft.				3 5 8		
15					2 4 6		
20	Gray clay, moist, mottled brown, moderately plastic				2 4 5		
25					4 7 10		
30							

Project: Durham Site
Project No.:

LOG OF BORING B-3 /MW3

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG LITHOLOGY	SAMPLES NO.	SAMPLES TYPE	SAMPLES BLOW COUNT	SAMPLES DRILLING RATE/TIME	REMARKS
30	Gray clay mottled brown, moist, moderately plastic.				4 4 5		
35	Brown clayey sand and gravel, grades downward to brown clayey silt.				5 7 11		
40	Bottom of boring No sample						
45							
50							
55							
60							
65							
70							

Project

Project No.

CONT. LOG OF BORING B-3

BORING LOCATION: Meekland and Blossom Ave
DRILLING CONTRACTOR: HEW Drilling | DRILLER: Jeff
DRILLING EQUIPMENT: CME 55
DIAMETER OF BORING:
PURPOSE OF BORING: Monitoring Well
SAMPLING EQUIPMENT:
COMMENTS:

ELEVATION AND DATUM:
DATE STARTED: 11-28-89 | DATE FINISHED: 11-28-89
COMPLETION DEPTH (FT): 40 | ROCK DEPTH (FT): -
NO. OF UNDIST. SAMPLES: 7 | CORE:
WATER DEPTH(FT): FIRST | COMPL.:
LOGGED BY: J. Alt | CHECKED BY:

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG LITHOLOGY	SAMPLES NO.	SAMPLES TYPE	BLOW COUNT	DRILLING RATE/ TIME	REMARKS
	Fill - Sand and Gravel						
5	Dark brown clay, dry				8 6 4		
	Tan silty clay, dry						
10	brown sandy gravel				5 6 9		
15	Gray clayey silt to silty clay, locally sandy				2 4 4		
20	Same as above moist				1 4 4		
25	Same as above with brown mottlings				4 5 6		
30							

Project: Durham Site
Project No.:

LOG OF BORING B-4 /mw4

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG LITHOLOGY	SAMPLES NO.	SAMPLES TYPE	SAMPLES BLOW COUNT	SAMPLES DRILLING RATE/ TIME	REMARKS
30	Gray clay, moist, mottled brown				4 7 13		
35	Brown silty clay, wet				6 7 9		
40	bottom of boring						
45							
50							
55							
60							
65							
70							

Project

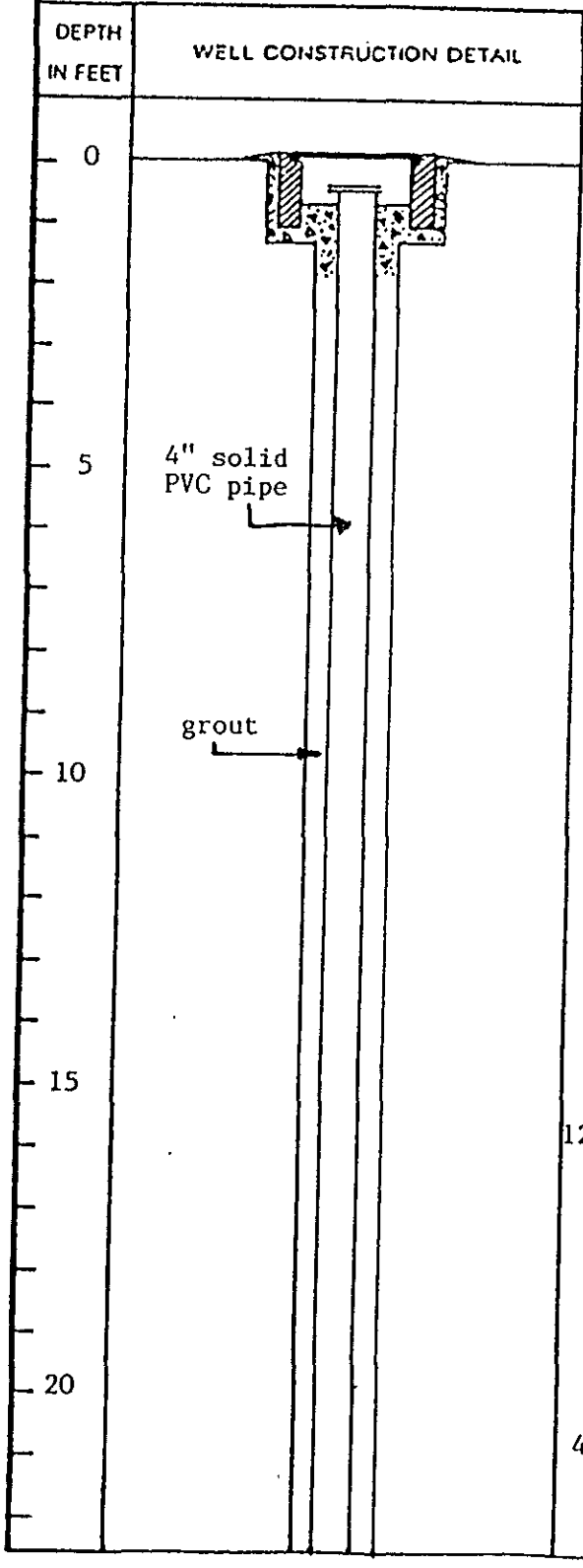
Project No.

CONT. LOG OF BORING B-4

BORING LOG

Project: Durham Transportation
Location: see location map
Job #: 90-4
Geologist/Engineer: J. Alt
Drill Agency: HEW Drilling

Hole/Well #: MW-5
Diameter of Drill Hole: 8"
Total Depth of Hole: 45 ft.
Date Started: Aug. 31, 1990
Date Completed: Aug. 31, 1990

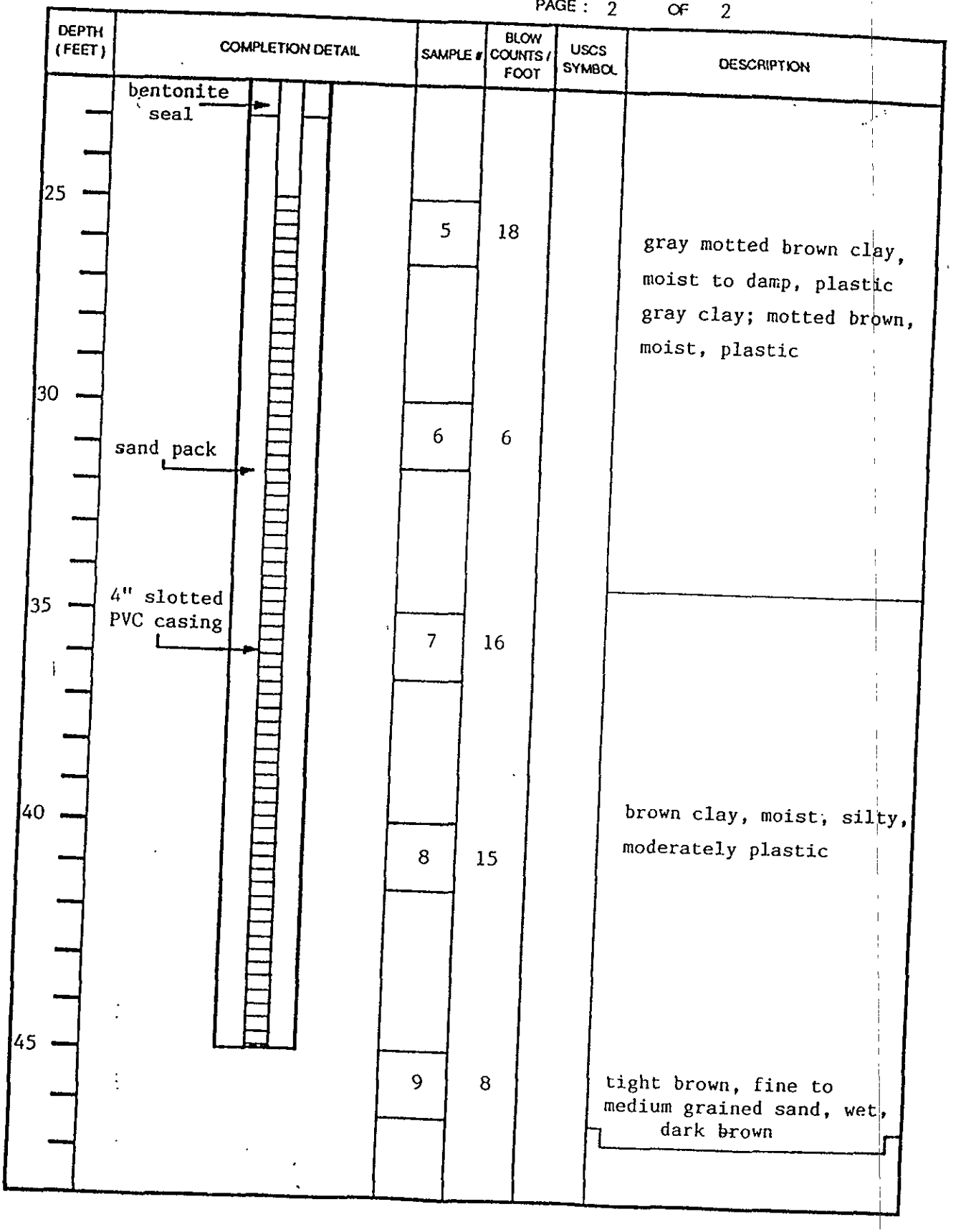


DESCRIPTION

- gravelly sand-fill, dry
  dark brown clay-soil horizon
- medium brown sandy clay, moist
- blue gray sandy clay grading to a clayey sand, moist
- grayish brown sandy clay, moist, scattered small gravel
- grayish brown fine to medium grained sand, moist
- light brown clay, moist plastic, reddish brown mottling

BORING LOG

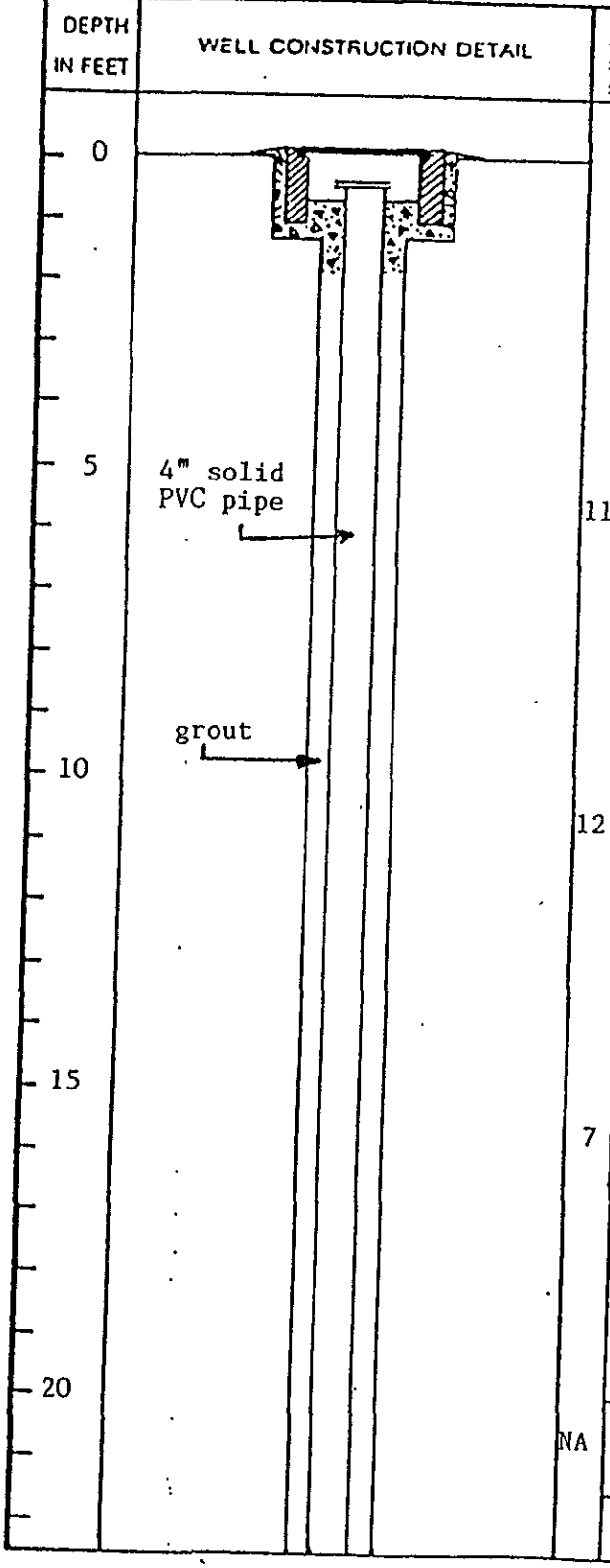
PROJECT: Durham Transportation
JOB NUMBER: 90-4
HOLE / WELL # : MW-5
PAGE : 2 OF 2



BORING LOG

Project: Durham Transportation
Location: see location map
Job #: 90-4
Geologist/Engineer: J. Alt
Drill Agency: HEW Drilling

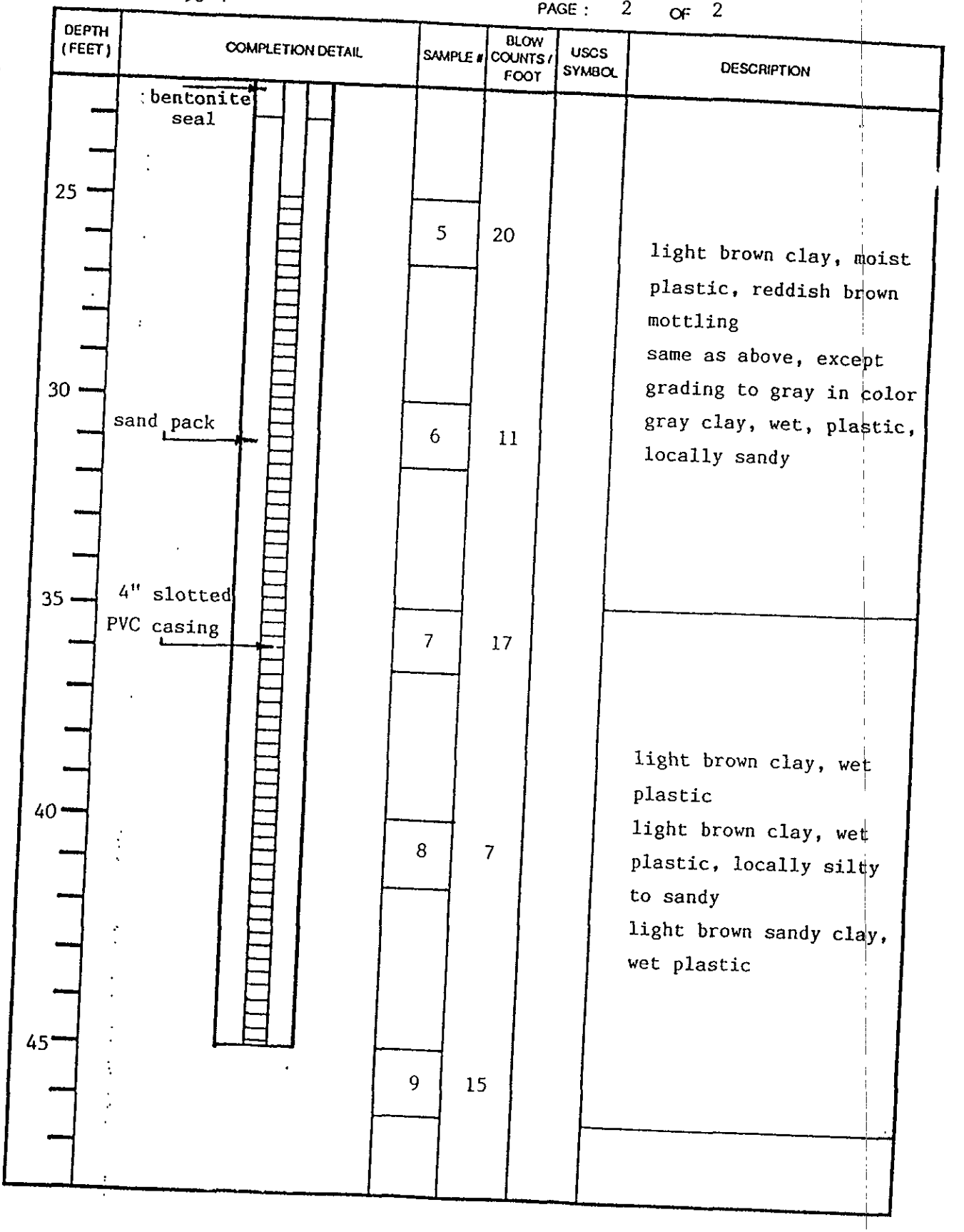
Hole/Well #: MW-6
Diameter of Drill Hole: 8 inches
Total Depth of Hole: 45 ft.
Date Started: Aug. 30, 1990
Date Completed: Aug. 30, 1990



BORING LOG

PROJECT: Durham Transportation
JOB NUMBER: 90-4

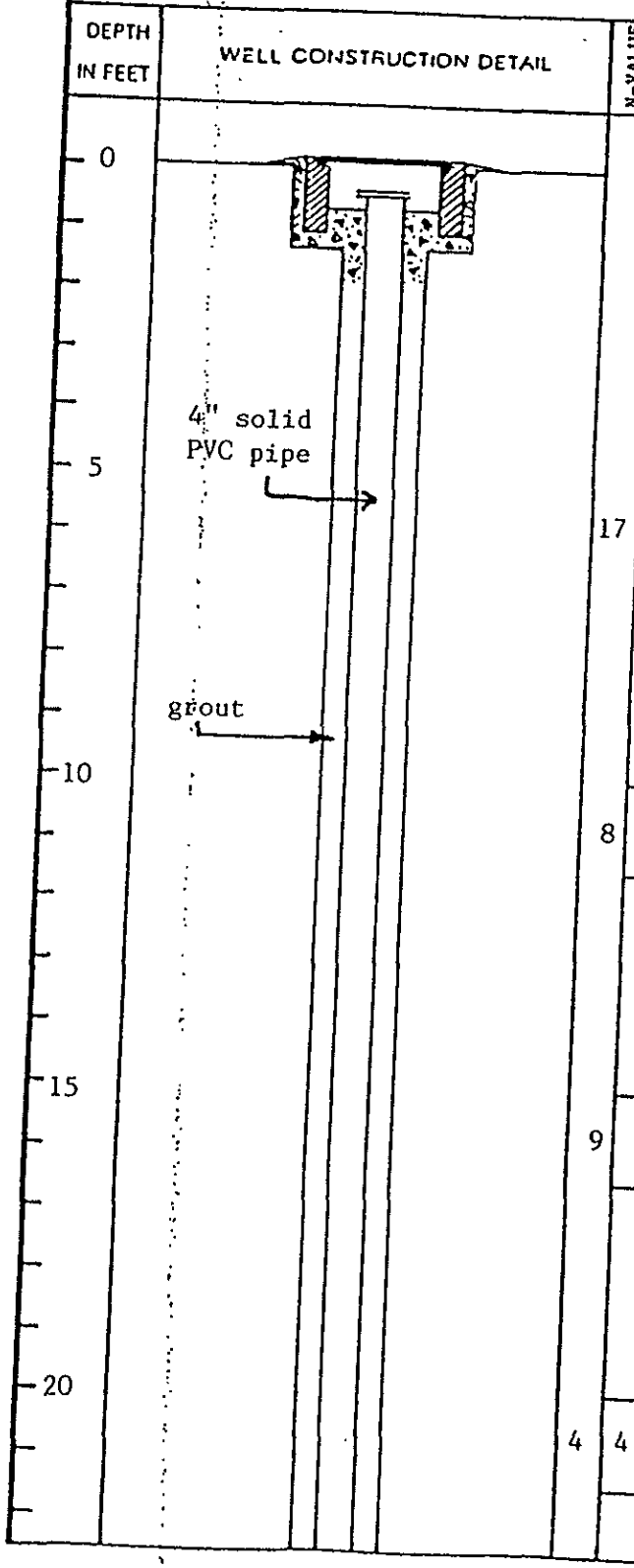
HOLE / WELL # : MW-6
PAGE : 2 OF 2



BORING LOG

Project: Durham Transportation
Location: see location map
Job #: 90-4
Geologist/Engineer: J. Alt
Drill Agency: HEW Drilling

Hole/Well #: M W - 7
Diameter of Drill Hole: 8"
Total Depth of Hole: 45 ft.
Date Started: Oct. 1, 1990
Date Completed: Oct. 1 , 1990



DESCRIPTION

4" concrete

fill - sand and gravel

dark brown clay, damp grading to medium brown silty clay

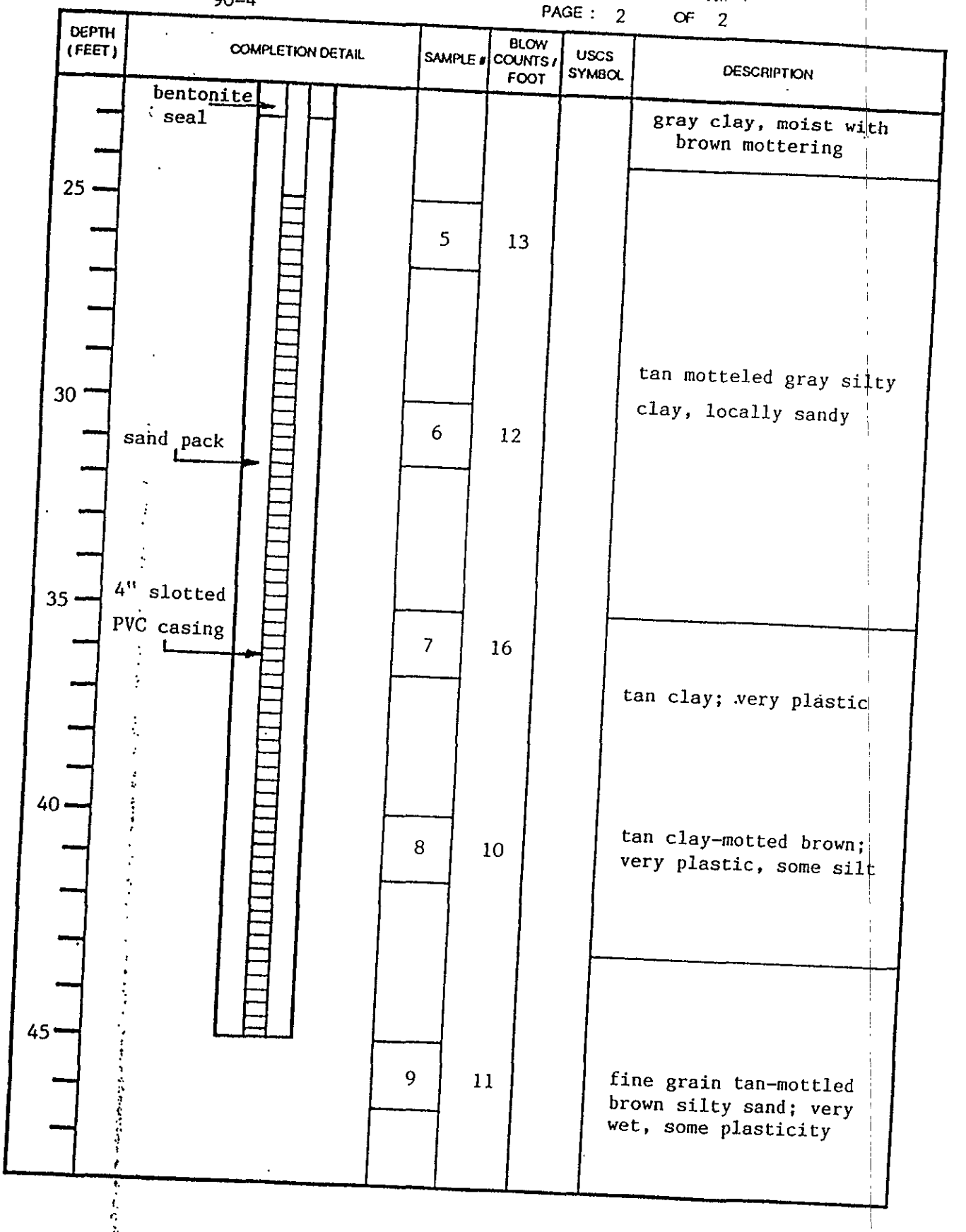
medium brown clayey silt, damp

gray sand, medium grained, damp

gray clay, moist with brown mottering

BORING LOG

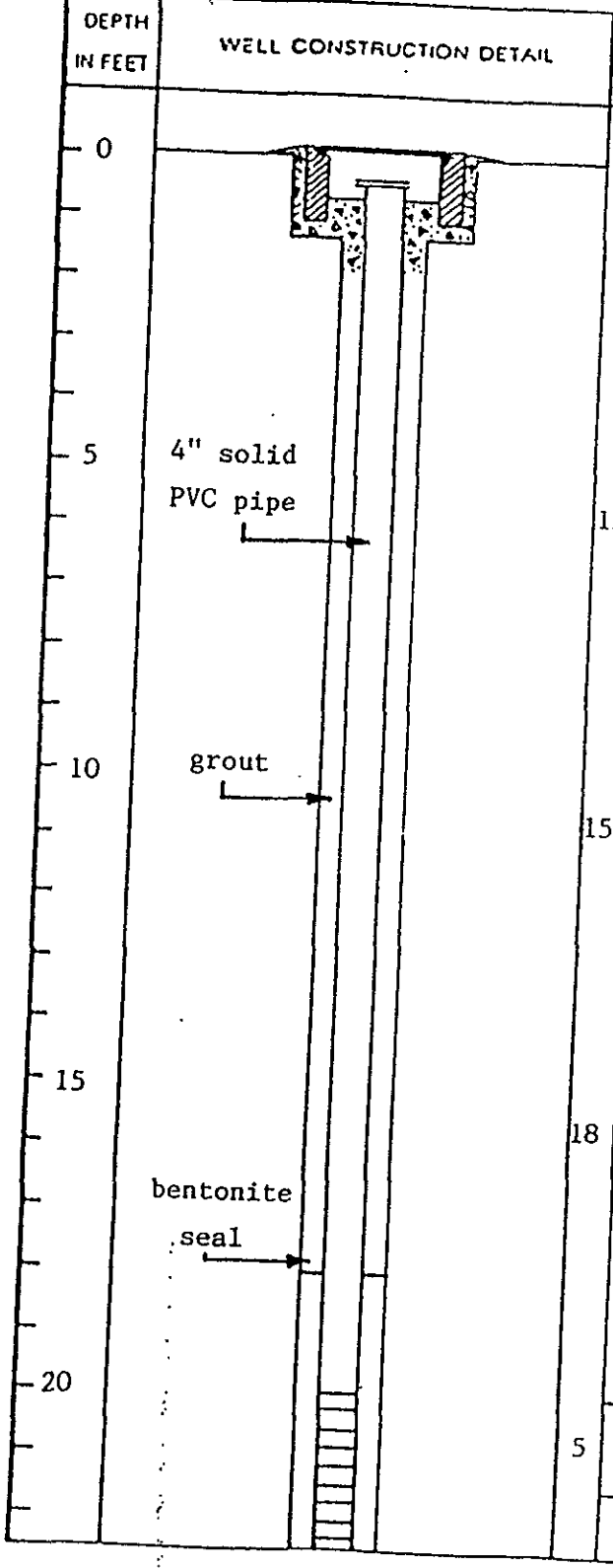
PROJECT: Durham Transportation
JOB NUMBER: 90-4
HOLE / WELL #: MW-7
PAGE: 2 OF 2



BORING LOG

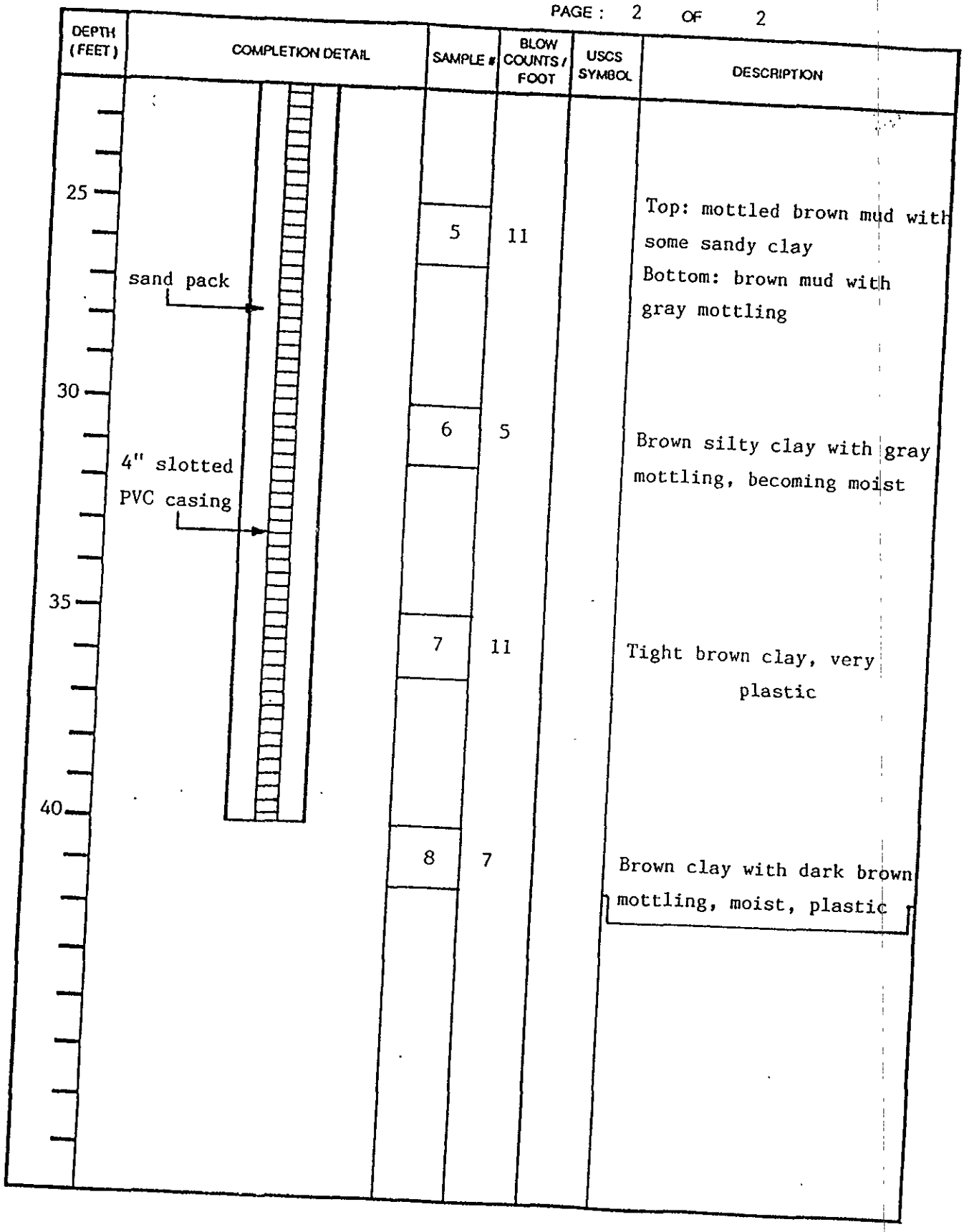
Project: Durham Transportation
Location: see location map
Job #: 91-6
Geologist/Engineer: J. Alt
Drill Agency: HEW Drilling

Hole/Well #: MW-8
Diameter of Drill Hole: 10"
Total Depth of Hole: 40'
Date Started: Feb. 13, 1991
Date Completed: Feb. 13, 1991



BORING LOG

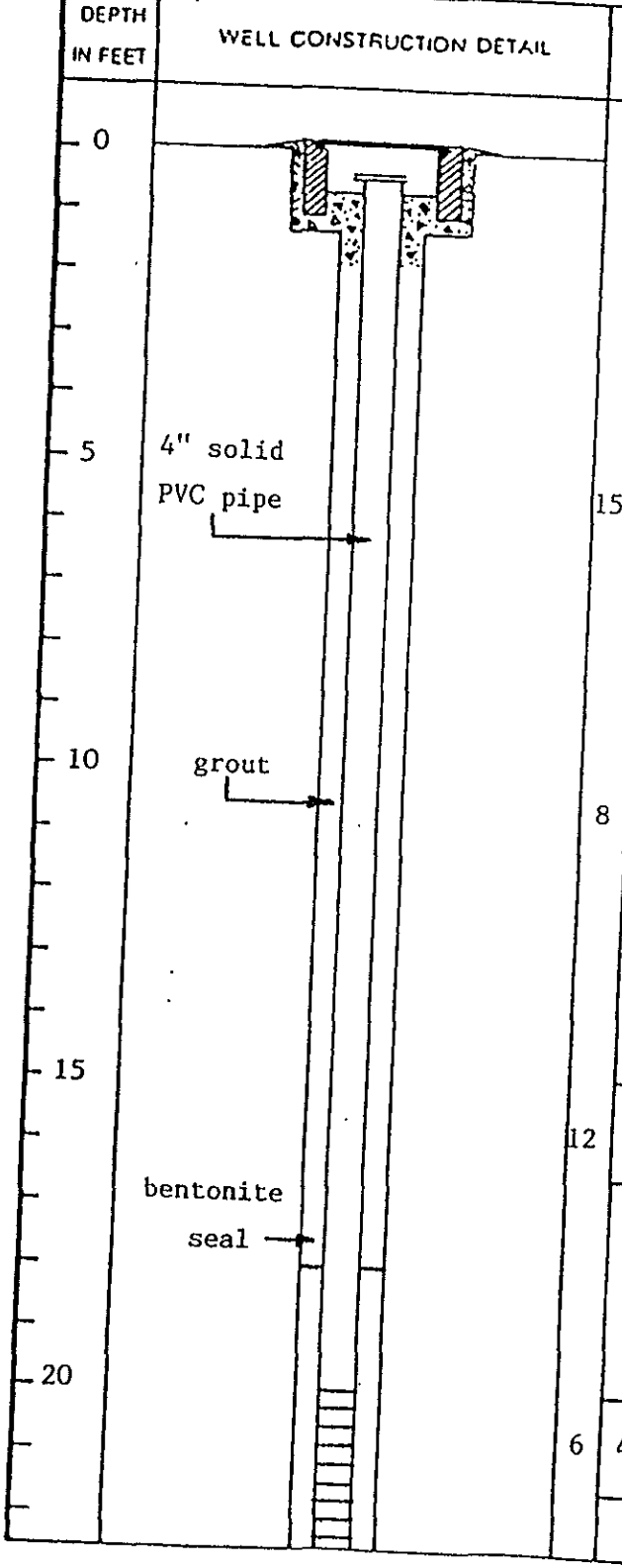
PROJECT: Durham Transportation
JOB NUMBER: 91-6
HOLE / WELL #: MW-8
PAGE: 2 OF 2



BORING LOG

Project: Durham Transportation
Location: see location map
Job #: 91-6
Geologist/Engineer: J. Alt
Drill Agency: HEW Drilling

Hole/Well #: MW-9
Diameter of Drill Hole: 10"
Total Depth of Hole: 40'
Date Started: Feb. 13, 1991
Date Completed: Feb. 13, 1991

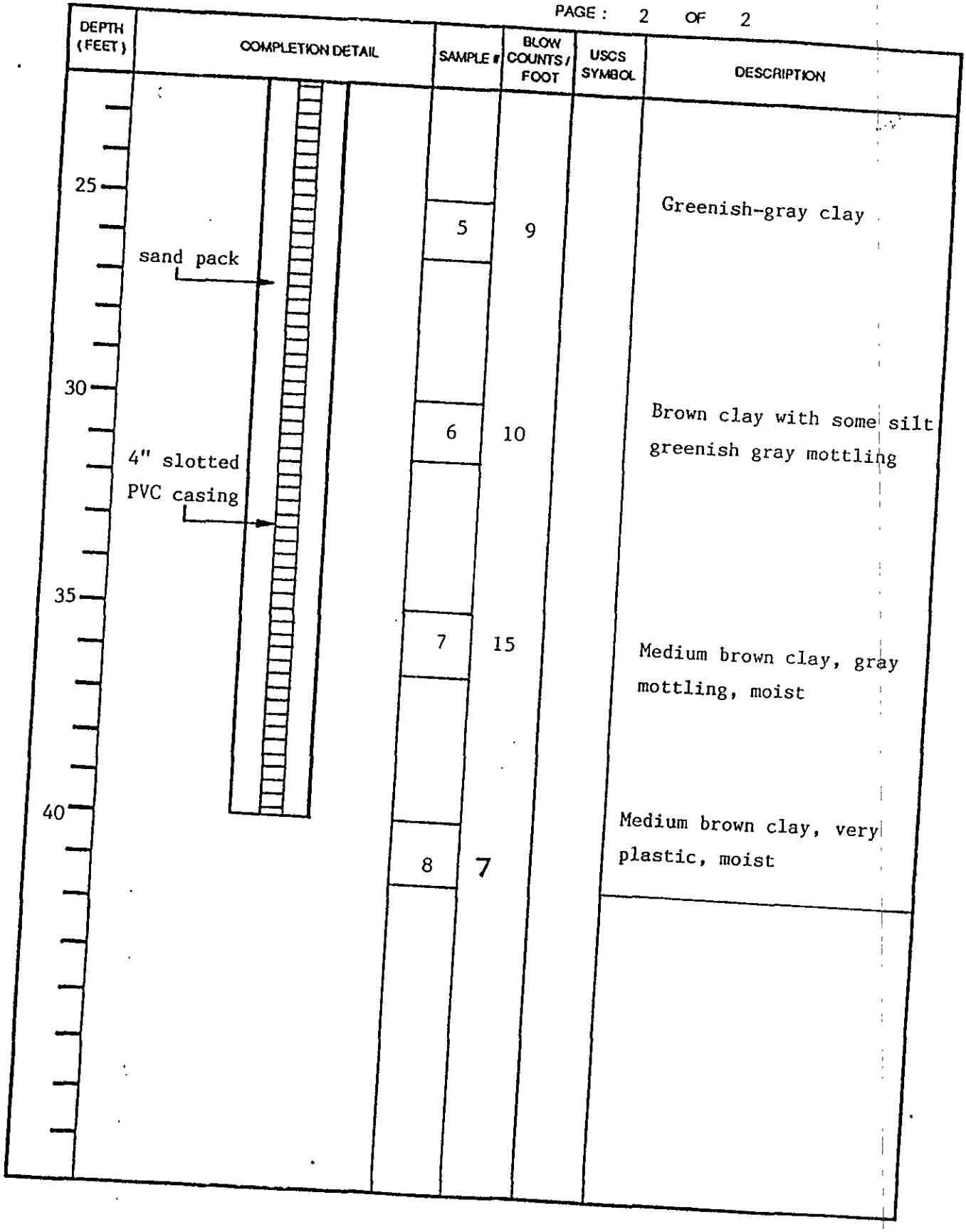


N-VALUE	SAMPLE	GRAPHIC SYMBOL	DESCRIPTION
15	1		Medium brown clayey silt, somewhat plastic, some small angular rock fragments, dry
8	2		Same as above
12	3		Brown clayey silt, locally sandy, moderated to low plasticity, grading to fine grain sand, loose, moist
6	4		Brown sandy clay, gray mottling

BORING LOG

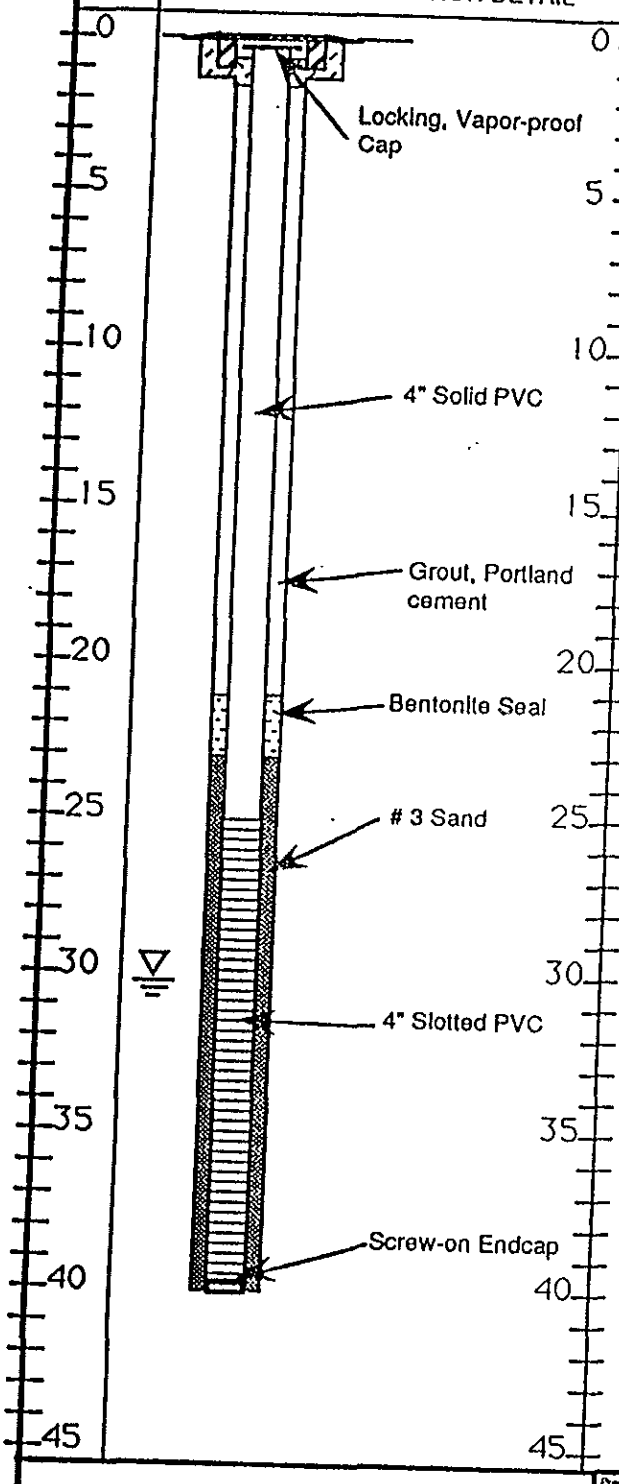
PROJECT: Durham Transportation
JOB NUMBER: 91-6

HOLE / WELL #: MW-9
PAGE: 2 OF 2



BORING LOG AND RECORD OF MONITORING WELL INSTALLATION

Figure 1
MW-10



N-VALUE	SAMPLE #	DESCRIPTION
		4" Asphalt over 1" Gravel Base, Sandy
		Dark brown clay, Organic Plastic, Moist
		Reddish brown clay, Moist, Moderately plastic
4/4/10		Light brown clayey silt, Moist, No odor Grades to silty clay
4/4/8		Light brown clayey sand, Scattered coarse sand to pebbles, Moist Grading to sandy gravel
3/3/5		Light brown sandy to silty clay Plastic, Moist Thin (~2" thick) lenses of coarse sand No hydrocarbon odor
4/5/7	1	Gray clay with brown mottling Moist, moderately plastic Abundant root holes No hydrocarbon odor
4/8/9	2	Gray clay, brown mottling Moist, Plastic
3/7/9	3	Light brown clayey fine sand, Grey mottling, Faint hydrocarbon odor (locally moderate), Scattered pebbles
5/10/12		Light brown clayey fine sand to fine sandy clay, Moist (not saturated), Very faint hydrocarbon odor, Grey mottling, Oxidized roots
		End of Boring

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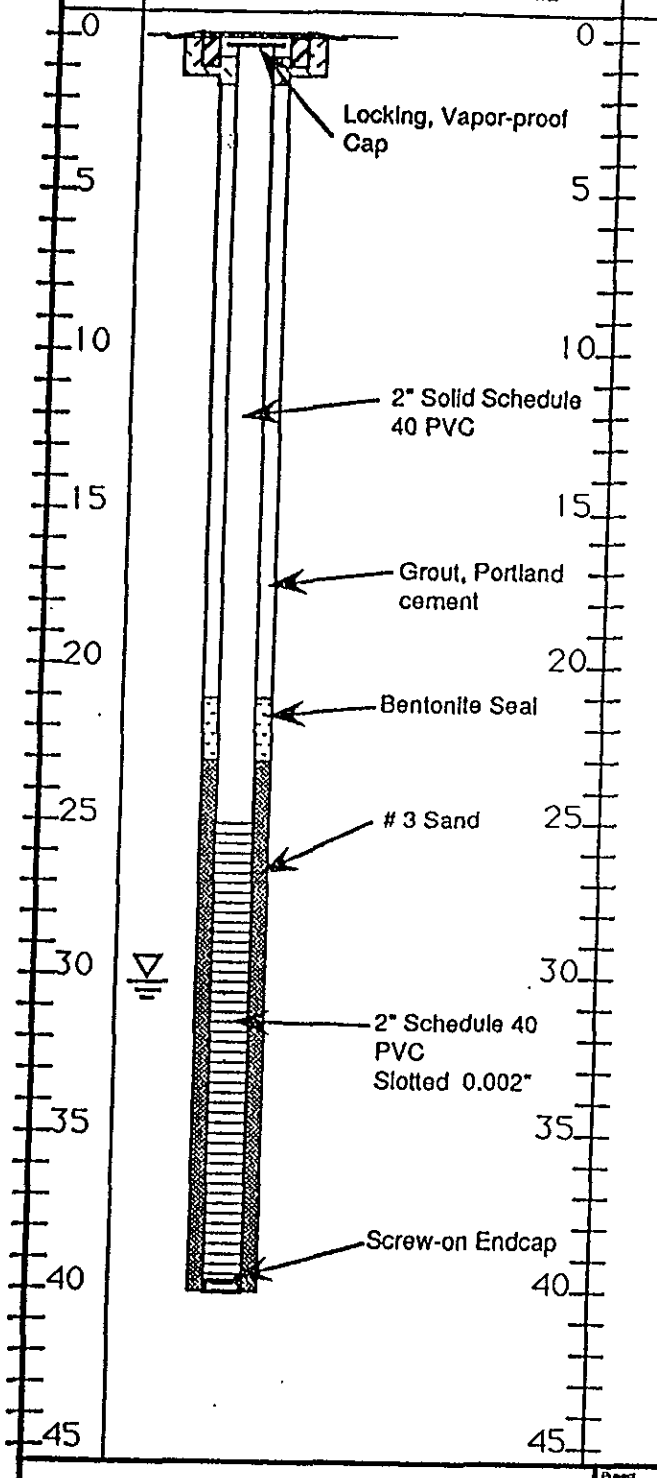
Project: Durham Transportation	Hole/well #: 10
Location: Apartment, 19875 Meekland Ave	Diameter of Drill Hole: 10"
Job #: 91-15	Total Depth of Hole: 40'
Geologist/Engineer: J. N. Alt	Date Started: 1/21/92
Driller: HEW	Date Completed: 1/21/92

BORING LOG AND RECORD OF MONITORING WELL INSTALLATION

Figure 2
MW-11



N-VALUE	SAMPLE #	DESCRIPTION
		4" Concrete over 6" Base Dark brown clay, Moist, Plastic
10/10/11		Light brown silty fine sand, Moist
8/10/10		Light brown clayey silt with some fine sand, Moist, No hydrocarbon odor
4/6/8		Medium brown silty clay Moderately plastic, Moist, No hydrocarbon odor, Grades into clayey to silty sand
3/5/5	1	Gray clay, Moist, Plastic, No hydrocarbon odor
8/12/15		Lost most of sample-- Tan sandy clay with gray mottling, Very faint hydrocarbon odor
4/6/7	2	Tan sandy clay, Wet, Grey mottling, Moderate hydrocarbon odor
8/9/10	3	Medium brown silty to fine sandy clay, Grey mottling, Moist to wet, No hydrocarbon odor
		End of Boring

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Project: Durham Transportation	Borehole #: 11
Location: Residence, 19870 Meekland Ave.	Diameter of Drill Hole: 8"
Job #: 91-15	Total Depth of Hole: 40'
Geologist/Engineer: J. N. Alt	Date Started: 1/24/92
Driller: HEW	Date Completed: 1/24/92

BORING LOG

Project Durham Transportation
Location see location map
Job # 90-4
Geologist/Engineer J. Alt
Drill Agency HEW Drilling

Hole/Well # B-1
Diameter of Drill Hole 8 inches
Total Depth of Hole 25 ft.
Date Started Oct. 1,1990
Date Completed Oct. 1,1990

DEPTH IN FEET	WELL CONSTRUCTION DETAIL	N-VALUE	SAMPLE	GRAPHIC SYMBOL	DESCRIPTION
0					backfill gravel, etc.
5		15	1		
10	boring log only; no well was installed	13	2		fine grain sand green with hydrocarbons; slightly silty the first foot, brown clay with black streaks
15		10	3		gravel fill in first foot, next comes green soil (silty, sandy clay), odor of old petroleum, last foot sandy clay gray (slight green tinge), some plastcity
20		8	4		dark gray silty clay; very plastic mottled brown down to approximately 21'; has greenish tint.

BORING LOG

PROJECT: Durham Transportation
JOB NUMBER: 90-4

HOLE / WELL #: B-1
PAGE : 2 OF 2

DEPTH (FEET)	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / FOOT	USCS SYMBOL	DESCRIPTION
25		5	15		gray with slight green tinge first 10". brown clay, mottled green and orange; very plastic soil, still pretty dry.

APPENDIX D

SOIL CHEMICAL DATA
DURHAM TRANSPORTATION--MEEKLAND PROJECT

BORING 1
Installed 10/1/90

Depth (ft)	5.5	15.5	25.5
Gasoline (mg/Kg)			150
Diesel (mg/Kg)			3.7
Motor Oil (mg/Kg)	*13		
Benzene (ug/Kg)		40	1200
Ethylbenzene (ug/Kg)		5.8	2100
Toluene (ug/Kg)	36	34	2400
Xylenes (ug/Kg)		25	8400
1,2-Dichloroethane (ug/Kg)		4	41

MONITORING WELL 1
Installed 6/30/86

Depth (ft)	20
Gasoline (mg/Kg)	**240

MONITORING WELL 3
Installed 11/28/89

Depth (ft)	20.5	25.5	30.5
Gasoline (mg/Kg)		52	23
Diesel (mg/Kg)			
Benzene (ug/Kg)	130	440	540
Ethylbenzene (ug/Kg)		200	210
Toluene (ug/Kg)	22	480	188
Xylenes (ug/Kg)		930	400
Trichloroethene (ug/Kg)	200		

* The positive result for the Motor Oil analysis on this sample appears to be a lighter hydrocarbon than Diesel.

**Reported as total Hydrocarbons by Method 8020. Analysis performed by Applied Geosystems, Fremont, CA.

MONITORING WELL 4
Installed 11/28/89

Depth (ft)	15.5	20.5
Benzene (ug/Kg)	20	75
Ethylbenzene (ug/Kg)	13	26
Toluene (ug/Kg)	19	20
Xylenes (ug/Kg)		15

MONITORING WELL 5
Installed 8/31/90

Depth (ft)	5.5	10.5	20.5	45.5
Gasoline (mg/Kg)			560	
Diesel (mg/Kg)			6.4	
Benzene (ug/Kg)		37	9600	14
Ethylbenzene (ug/Kg)		3.5	7400	7.3
Toluene (ug/Kg)	3.9	16	22000	21
Xylenes (ug/Kg)		19	45000	34
1,2-Dichloroethane (ug/Kg)		2.4	61	

MONITORING WELL 6
Installed 8/30/90

Depth (ft)	20.5	30.5	45.5
Gasoline (mg/Kg)		23	1.2
Diesel (mg/Kg)		5.3	
Benzene (ug/Kg)	46	70	20
Ethylbenzene (ug/Kg)		60	15
Toluene (ug/Kg)		96	35
Xylenes (ug/Kg)		59	56
1,2-Dichloroethane (ug/Kg)		5.7	

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.

MONITORING WELL 7
Installed 10/1/90

Depth (ft)	AUGER	15.5	25.5	35.5	45.5
Gasoline (mg/Kg)	120				
Diesel (mg/Kg)	23				1.1
Benzene (ug/Kg)	310		43		7.1
Ethylbenzene (ug/Kg)	1700		3.4		12
Toluene (ug/Kg)	1400	15	4.4	27	36
Xylenes (ug/Kg)	6900		10	5.7	56
1,2-Dichloroethane (ug/Kg)	5.9				

MONITORING WELL 8
Installed 2/13/91

Depth (ft)	25	35
Toluene (ug/Kg)	3.3	28

MONITORING WELL 9
Installed 2/13/91

Depth (ft)	20	30	40
Gasoline (mg/Kg)	2.2	39	
Diesel (mg/Kg)		6	
Benzene (ug/Kg)	150	180	
Ethylbenzene (ug/Kg)	29	230	
Toluene (ug/Kg)	66	340	11
Xylenes (ug/Kg)	67	1000	8.2
1,2-Dichloroethane (ug/Kg)	7.9	11	

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.

MONITORING WELL 10
Installed 1/21/92

Depth (ft)	21	26	31
Gasoline (mg/Kg)	ND	52	ND
Diesel (mg/Kg)	ND	*11	ND
Benzene (ug/Kg)	4.4	ND	ND
Ethylbenzene (ug/Kg)	3.6	330	ND
Toluene (ug/Kg)	14	ND	2.5
Xylenes (ug/Kg)	18	1500	3.4
1,2-Dichloroethane (ug/Kg)	ND	ND	ND
Tetrachloroethene (ug/Kg)	ND	ND	ND

MONITORING WELL 11
Installed 1/24/92

Depth (ft)	21	30	35
Gasoline (mg/Kg)	ND	ND	ND
Diesel (mg/Kg)	ND	ND	ND
Benzene (ug/Kg)	4.3	ND	ND
Ethylbenzene (ug/Kg)	ND	3.9	ND
Toluene (ug/Kg)	8	4.1	4.5
Xylenes (ug/Kg)	ND	ND	ND
1,2-Dichloroethane (ug/Kg)	ND	ND	ND
Tetrachloroethene (ug/Kg)	ND	ND	ND

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.

APPENDIX E

GROUNDWATER CHEMICAL DATA
DURHAM TRANSPORTATION--MEEKLAND PROJECT

MONITORING WELL 1

	Jul-86	Mar-90	Jul-90	Oct-90	Jan-91	Apr-91	Jul-91	Oct-91	Jan-92	Apr-92	Jul-92
Gasoline(mg/L)	*42	27	27	43	22	42	46	27	27	33	41
Diesel(mg/L)	NA	NA	11	8.5	2.7	**3.1	**4.3	**4.3	**14	**11	**19
Benzene(ug/L)	5500	2700	4000	3400	3000	5100	6500	4400	3300	8900	5600
Ethylbenzene(ug/L)	NA	490	ND	1200	990	1200	830	1100	1200	1200	1300
Toluene(ug/L)	4900	840	1500	2700	1800	3700	2900	1400	1600	3500	2600
Xylenes(ug/L)	6100	800	4400	5300	2800	3200	3700	3200	3800	3700	4000
Lead (Total)(ug/L)	NA	NA	NA	9.0							
1,1-Dichloroethane(ug/L)	NA	16	ND	ND							
1,2-Dichloroethane(ug/L)	NA	ND	62	26	27	120	64	25	24	120	49
Trichloroethene(ug/L)	NA	ND	ND	ND							
Chlorobenzene(ug/L)	NA	ND	ND	1.4							
Tetrachloroethene(ug/L)						ND	ND	ND	ND	ND	ND

*Reported as Total Hydrocarbons by method 602. Analysis performed by Applied Geosystems, Fremont, CA.

** The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel

MONITORING WELL 3

	Nov-89	Mar-90	Jul-90	Oct-90	Jan-91	Apr-91	Jul-91	Oct-91	Jan-92	Apr-92	Jul-92
Gasoline(mg/L)	29	12	7.3	6.2	4.6	8.3	6.6	6.3	4	7.4	3
Diesel(mg/L)	NA	NA	0.99	0.97	0.68	* 0.64	* 0.89	*1.7	*0.79	*1.8	*2.4
Benzene(ug/L)	4600	2300	5200	75	2200	2800	2000	2000	1200	730	190
Ethylbenzene(ug/L)	680	59	ND	7.5	220	370	250	410	250	370	ND
Toluene(ug/L)	1100	300	440	150	110	490	230	330	60	180	2.8
Xylenes(ug/L)	1100	490	480	250	89	760	380	550	200	640	410
Lead (Total(ug/L))	40	NA	NA	ND							
1,1-Dichloroethane(ug/L)	ND	26	ND	ND							
1,2-Dichloroethane(ug/L)	36	ND	67	48	40	43	29	27	22	19	30
Trichloroethene(ug/L)	ND	ND	ND	ND							
Chlorobenzene(ug/L)	ND	ND	ND	ND							
Tetrachloroethene(ug/L)						ND	ND	ND	ND	ND	ND

MONITORING WELL 4

	Nov-89	Mar-90	Jul-90	Oct-90	Jan-91	Apr-91	Jul-91	Oct-91	Jan-92	Apr-92	Jul-92
Gasoline(mg/L)	ND	ND	ND	ND	0.08	1.4	0.13	ND	ND	0.78	ND
Diesel(mg/L)	NA	NA	ND	ND	ND	* 0.13	ND	ND	ND	*0.13	ND
Benzene(ug/L)	33	7.4	ND	ND	9.2	220	14	5.3	6.8	ND	ND
Ethylbenzene(ug/L)	1.3	2.0	ND	ND	2.4	72	3.3	1.0	1.3	51	ND
Toluene(ug/L)	1	2.0	ND	ND	1.7	ND	9.7	ND	ND	ND	ND
Xylenes(ug/L)	5.2	1.1	ND	ND	0.7	17	ND	0.8	ND	4.8	ND
Lead (Total)(ug/L)	12	NA	NA	ND							
1,1-Dichloroethane(ug/L)	NA	ND	ND	ND							
1,2-Dichloroethane(ug/L)	NA	ND	0.9	0.5	ND	ND	0.81	ND	ND	1.6	1.3
Trichloroethene(ug/L)	NA	ND	ND	0.7							
Chlorobenzene(ug/L)	NA	ND	ND	ND							
Tetrachloroethene(ug/L)						ND	ND	ND	ND	ND	ND

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.

MONITORING WELL 5

	Oct-90	Jan-91	Apr-91	Jul-91	Oct-91	Jan-92	Apr-92	Jul-92
Gasoline(mg/L)	9.6	10	18	15	14	12	23	27
Diesel(mg/L)	1.9	1.2	* 0.86	* 2.2	*3.3	*1.9	*6.4	*5.9
Benzene(ug/L)	1200	1600	2500	4800	5000	4300	8600	6000
Ethylbenzene(ug/L)	70	720	550	610	530	390	ND	ND
Toluene(ug/L)	160	200	580	1100	820	380	2600	1500
Xylenes(ug/L)	520	510	500	760	800	590	1900	1600
Lead (Total)(ug/L)	3.0							
1,2-Dichloroethane(ug/L)	22	33	61	62	49	56	125	93
Tetrachloroethene(ug/L)	ND		ND	ND	ND	ND	ND	ND
Chlorobenzene(ug/L)					0.42			
Chloroform(ug/L)	ND							
Oil and Grease(ug/L)	5.4							

MONITORING WELL 6

	Oct-90	Jan-91	Apr-91	Jul-91	Oct-91	Jan-92	Apr-92	Jul-92
Gasoline(mg/L)	27	7.2	17	11	4.8	6.1	7.2	8.6
Diesel(mg/L)	4.7	1.6	* 0.80	* 1.4	*1.6	*1.2	*1.8	*1.7
Benzene(ug/L)	2700	1400	2800	1200	380	460	340	1300
Ethylbenzene(ug/L)	450	ND	610	ND	69	180	350	380
Toluene(ug/L)	2900	200	1200	380	340	200	460	280
Xylenes(ug/L)	3300	830	1800	750	730	590	920	1100
Lead (Total)(ug/L)	9							
1,2-Dichloroethane(ug/L)	40	23	53	29	22	26	30	35
Tetrachloroethene(ug/L)	ND		ND	ND	ND	ND	ND	ND
Chlorobenzene(ug/L)					ND			
Chloroform(ug/L)	0.4							
Oil and Grease(mg/L)	ND							

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.

MONITORING WELL 7

	Oct-90	Jan-91	Apr-91	Jul-91	Oct-91	Jan-92	Apr-92	Jul-92(1)	Jul-92(2)
Gasoline(mg/L)	14	4.5	2.4	2	ND	1.1	1.7	1.9	1.2
Diesel(mg/L)	2.7	1.4	LOST	*0.91	*0.37	*0.29	*0.52	*0.59	*0.7
Benzene(ug/L)	390	320	320	470	ND	230	310	410	21
Ethylbenzene(ug/L)	ND	42	77	ND	ND	45	78	78	1.0
Toluene(ug/L)	18	48	62	24	ND	7.0	28	21	2.6
Xylenes(ug/L)	1200	350	130	88	ND	88	170	170	90
Lead (Total)(ug/L)	11								
1,2-Dichloroethane(ug/L)	14	10	11	9.7	4.5	6.4	3.2	8.7	8.2
Tetrachloroethene(ug/L)	1.3		0.6	ND	0.68	3.5	0.5	2.1	2.0
Chlorobenzene(ug/L)					ND				
Chloroform(ug/L)	ND								
Oil and Grease(mg/L)	7.8								

MONITORING WELL 8

	Feb-91	Apr-91	Jul-91	Oct-91	Jan-92	Apr-92	Jul-92
Gasoline(mg/L)	ND	ND	ND	ND	ND	ND	ND
Diesel(mg/L)	ND	ND	ND	ND	ND	ND	ND
Benzene(ug/L)	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene(ug/L)	ND	ND	ND	ND	ND	ND	ND
Toluene(ug/L)	ND	ND	2	0.6	ND	ND	3.3
Xylenes(ug/L)	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane(ug/L)	ND		ND	ND	ND	ND	ND
Tetrachloroethene(ug/L)		0.5	1.2	0.4	0.68	0.8	1.6
Chlorobenzene(ug/L)				ND			

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.

MONITORING WELL 9

	Feb-91	Apr-91	Jul-91	Oct-91	Jan-92	Apr-92	Jul-92
Gasoline(mg/L)	6	4.2	1.9	0.88	0.38	2.9	4.4
Diesel(mg/L)	1.6	*0.41	*0.18	*0.3	*0.12	*0.7	*1.3
Benzene(ug/L)	180	520	190	160	14	510	860
Ethylbenzene(ug/L)	19	130	12	31	7.6	80	210
Toluene(ug/L)	170	410	52	44	2.2	260	340
Xylenes(ug/L)	200	580	77	83	14	260	640
1,2-Dichloroethane(ug/L)	13	26	12	10	9.6	11	22
Tetrachloroethene(ug/L)		ND	6.5	ND	ND	ND	ND
Chlorobenzene(ug/L)				ND			

MONITORING WELL 10

	Jan-92	Apr-92(1)	Apr-92(2)	Jul-92
Gasoline(mg/L)	13	15	13	8.1
Diesel(mg/L)	*3.7	*5.0	*7.5	*4.4
Benzene(ug/L)	130	180	240	74
Ethylbenzene(ug/L)	580	ND	490	360
Toluene(ug/L)	110	18	65	ND
Xylenes(ug/L)	3000	2700	2500	1100
1,2-Dichloroethane(ug/L)	33	20	22	29
Tetrachloroethene(ug/L)	ND	ND	ND	ND

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.

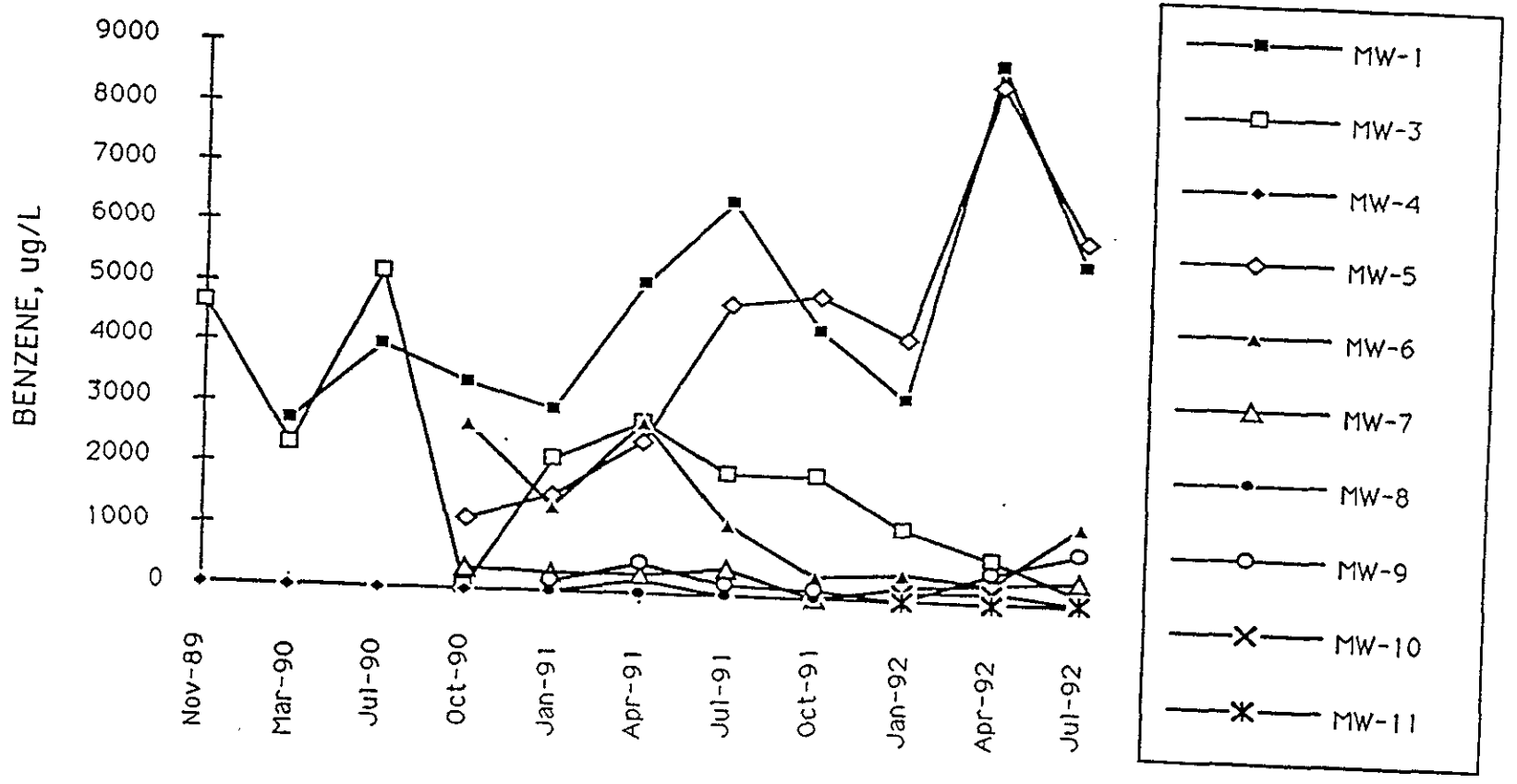
MONITORING WELL 11

	Jan-92	Apr-92	Jul-92
Gasoline(mg/L)	8.2	0.16	2.1
Diesel(mg/L)	*3.2	*1.2	*0.71
Benzene(ug/L)	23	ND	39
Ethylbenzene(ug/L)	250	ND	100
Toluene(ug/L)	ND	ND	2.3
Xylenes(ug/L)	1100	ND	53
1,2-Dichloroethane(ug/L)	ND	ND	ND
Tetrachloroethene(ug/L)	ND	ND	ND

ABANDONED WELL

	Dec-89
Gasoline(mg/L)	1.8
Benzene(ug/L)	200
Ethylbenzene(ug/L)	24
Toluene(ug/L)	18
Xylenes(ug/L)	34
1,2-Dichloroethane(ug/L)	1.5

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.



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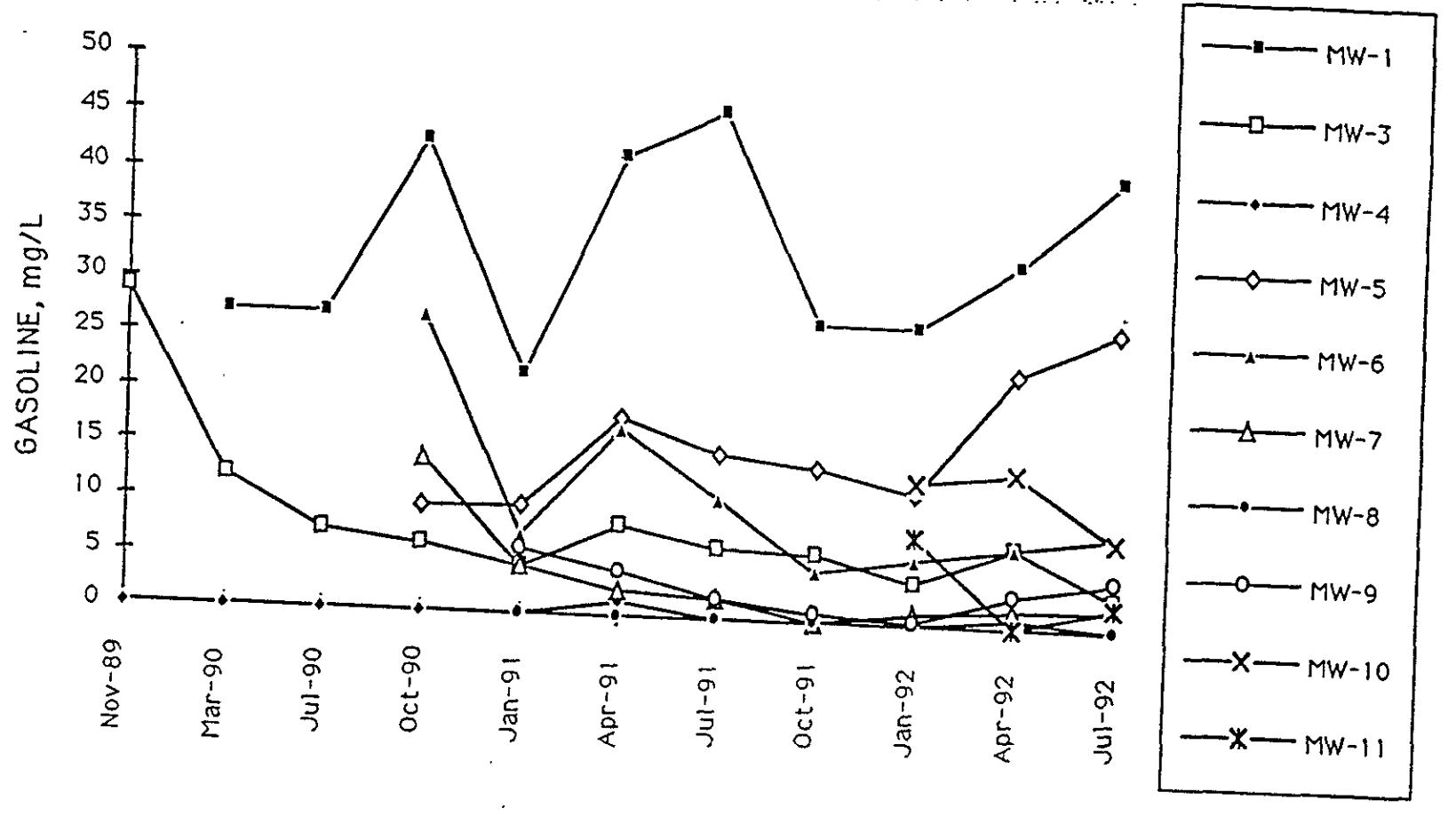
Benzene (ug/L) in Groundwater
Durham Transportation
Meekland Avenue, Hayward, California



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Gasoline (mg/L) in Groundwater
Durham Transportation
Meekland Avenue, Hayward, California

APPENDIX F

FALCON ENERGY'S PORTABLE SOIL REMEDIATION UNIT FOR HYDROCARBON CONTAMINATED SOILS:

PROCESS DESCRIPTION

AFTER A NUMBER OF YEARS IN THE PERMITTING PROCESS, FALCON ENERGY HAS RECEIVED PERMIT NUMBER: AP 90-287ABCD TO OPERATE ITS PORTABLE SOIL REMEDIATION UNIT FROM SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT LOCATED AT P.O. BOX 2009, 2321 W. WASHINGTON STREET, SUITE ONE, STOCKTON, CALIFORNIA 95201. THE FALCON SOIL REMEDIATION UNIT CAN PROCESS APPROXIMATELY 25 TONS PER HOUR THROUGHPUT DEPENDING ON CONTAMINATE LEVELS, MOISTURE CONTENT AND OTHER VARIABLES.

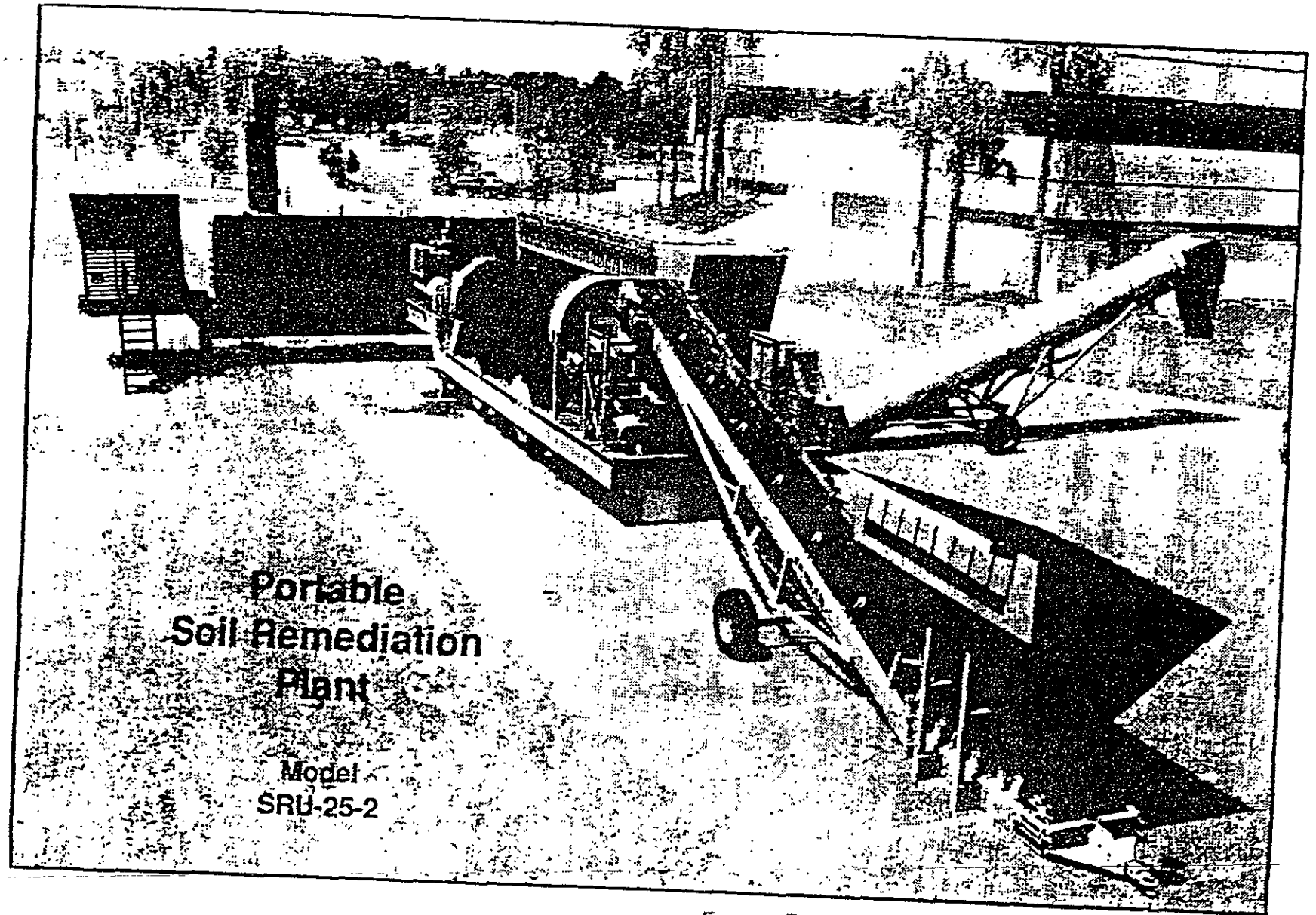
THE FALCON UNIT IS DESIGNED TO REMEDIATE SOIL CONTAMINATED WITH LIGHT DISTILLATE PETROLEUM HYDROCARBONS INCLUDING GASOLINE, DIESEL, JET FUEL, STODDARD SOLVENT (A NON-HALOGENATED LIGHT PETROLEUM DISTILLATE), KEROSENE (#1 FUEL OIL) AND SIMILAR PRODUCTS. UNTIL INITIAL TESTING IS COMPLETED AND RESULTS SUBMITTED TO APCD, FALCON IS UNABLE TO ACCEPT SOILS CONTAMINATED WITH WASTE OILS. THE SYSTEM OPERATES BY RAPIDLY VOLATILIZING PETROLEUM HYDROCARBONS FROM THE SOIL AND THEN THERMALLY DESTROYING THEM IN THE DISCHARGE AIR STREAM. THE UNIT CONSISTS OF A ROTARY DRYER WITH FEED SYSTEM, DISCHARGE AND COMBUSTION CONTROL SYSTEMS, A DUST COLLECTOR, A MODULAR THERMAL OXIDIZER AND ASSOCIATED FUEL AND DELIVERY SYSTEMS.

SOIL TEMPERATURE AT DRYER INLET:	60 DEGREES F
SOIL TEMPERATURE AT DRYER OUTLET:	600 DEGREES F
AIR TEMPERATURE AT DRYER INLET:	60 DEGREES F
AIR TEMPERATURE AT DRYER OUTLET:	350 DEGREES F
% CONTENT LIGHT DISTILLATE HYDROCARBON PRODUCTS IN SOIL AT DRYER INLET:	1.7% BY WEIGHT - MAXIMUM (APPROXIMATELY 17,000 PARTS PER MILLION, PPM)
% MOISTURE IN SOIL, DRYER INLET:	12%
% MOISTURE IN SOIL, DRYER OUTLET:	ZERO %
***WATER ADDED TO SOIL AFTER EXITING DRYER FOR COOLING PURPOSES	WATER ADDED FUNCTIONS TO COOL AND CONTROL FUGITIVE DUST (PARTICULATE MATTER)
PRODUCT TREATMENT RATE:	25 TONS PER HOUR WET INPUT 21 1/2 TONS PER HOUR DRY OUTPUT (APPROXIMATE)
FUEL USED:	PROPANE
BTU'S IN DRYER (HEAT)	FIFTEEN MILLION (MM) BTU/HR.
BTU'S REQUIRED IN THERMAL OXIDIZER (AFTER BURNER):	TWELVE MILLION (MM) BTU/HR @ 1400 DEG. F

THE UNIT IS DESIGNED FOR A MAXIMUM PEAK SOIL DISCHARGE TEMPERATURE OF 850 DEGREES F FROM THE DRYER AND A MAXIMUM AFTERBURNER PEAK OUTLET TEMPERATURE AT 1850 DEGREES F. OPERATING SETPOINT MAXIMUMS OF 800 DEGREES F AND 1800 DEGREES F RESPECTIVELY ARE RECOMMENDED.

SOIL IN NEED OF TREATMENT IS LOADED ONTO THE FEED HOPPER WHICH DISCHARGES THE SOIL ONTO A VARIABLE SPEED FEEDER BELT. THE FEEDER BELT CONVEYS THE SOILS TO A VIBRATING SCREEN AND THEN ONTO A BELT WEIGH SCALE WHICH PROVIDES SOIL FEED RATE AND TOTAL WEIGHTS TO THE UNIT'S ELECTRONIC CONTROL PANEL. THE BELT THEN FEEDS THE CONTAMINATED SOIL INTO A COUNTERFLOW ROTARY DRUM DRYER WHERE VOLATILE COMPOUNDS AND MOISTURE IN THE SOIL ARE EVAPORATED BY THE HEAT WHICH IS SUPPLIED BY THE DIRECT FIRING BURNER. HEAT TRANSFER TO THE SOIL IN THE ROTARY DRYER IS MAXIMIZED BY THE VEILING ACTION OF SPECIALLY DESIGNED LIFTING FLIGHTS AND PATENTED COMBUSTION VOLUME FLIGHTS.

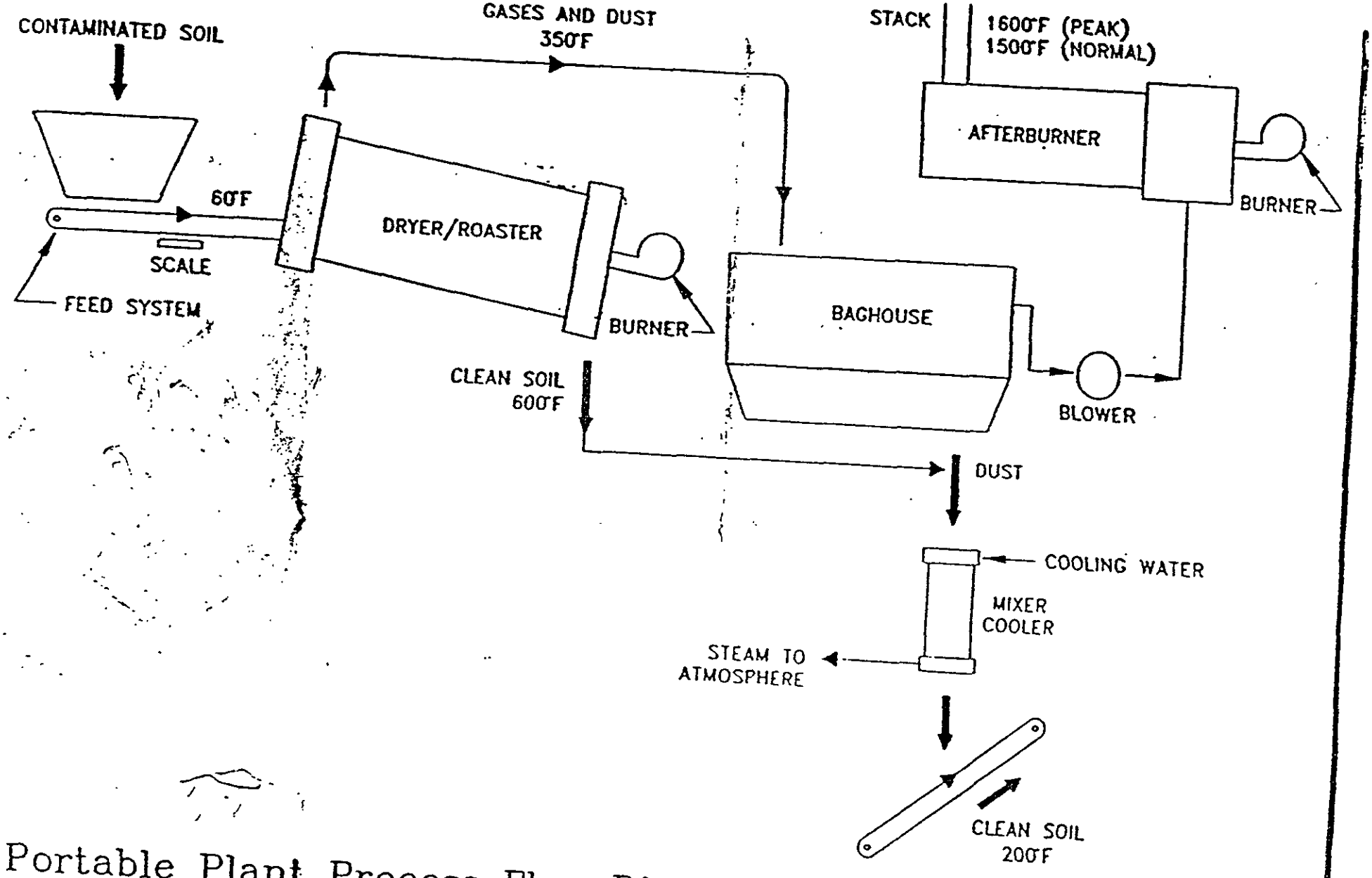
THE HEATED, DRY SOIL IS THEN DISCHARGED INTO THE MIXER COOLER. THE EVAPORATED VOLATILES AND WATER, ALONG WITH DUST RELEASED BY THE DRYING PROCESS ARE CARRIED OVER THE DRYER'S EXHAUST GASES INTO A KNOCKOUT BOX IN THE BAGHOUSE WHERE THE LARGE PARTICLES DROP OUT IN THE GAS STREAM. THESE PRE-CLEANED GASES ARE THEN ROUTED THROUGH THE BAGHOUSE. DUST COLLECTED FROM THE KNOCKOUT BOX AND BAGHOUSE ARE CARRIED TO THE DRYER'S MIXER COOLER AND BLENDED INTO THE CLEAN SOIL OUTPUT. OUTPUT FROM THE BAGHOUSE IS ROUTED THROUGH AN EXHAUST FAN INTO A MODULAR THERMAL OXIDIZER/STACK UNIT WHICH REDUCED THE HYDROCARBON CONTENT OF THE GAS STREAM.



FALCON ENERGY
ASSOCIATES

FALCON ENERGY'S PORTABLE SOIL REMEDIATION UNIT FOR HYDROCARBON CONTAMINATED SOILS. CONTACT:

FALCON ENERGY - PORT OF STOCKTON, STOCKTON, CALIFORNIA
(209) 463 7108 FAX (209) 463 2/12



Portable Plant Process Flow Diagram

FALCON ENERGY'S PORTABLE SOIL REMEDIATION UNIT
FOR HYDROCARBON CONTAMINATED SOILS

FALCON ENERGY - PORT OF STOCKTON
STOCKTON, CALIFORNIA
(209) 462 7108 FAX (209) 463 2712

APPENDIX G

ORO LOMA SANITARY DISTRICT

2600 GRANT AVENUE
SAN LORENZO, CALIFORNIA 94580
TELEPHONE (415) 276-4700
FAX (415) 276-1528

January 3, 1991

Ms. Lisa Palos
Toxic Technology Services
P.O. Box 515
Rodeo, CA 94572

Subject: Special Discharge Permit Information

Dear Lisa:

To follow up on our telephone conversation today, I've enclosed a copy of the Oro Loma Sanitary District Special Discharge Conditions and a copy of the Standard Discharge Conditions.

They outline the conditions that will be applied to the treated ground water wastestream you have requested to discharge into the Oro Loma Sanitary District System. I hope this information is of some assistance.

One other issue needs clarification. Please note on page 7 of 9. In Special Conditions the TPH limit is 15 mg/L not 10 mg/L as stated in our letter dated 12/12/90.

Please feel free to call us at 278-1747 with any other questions or comments.

Sincerely,

Douglas Humphrey
Director of Operations and Maintenance

Susan M Keach

Susan M. Keach
Industrial Waste Inspector

DH:SK:bh

Enclosures

DH/DISCHARGE.LTR/bh

Discharge Standards

Benzene, Toluene, Ethylbenzene and Xylene levels in discharged water shall be non-detectable.

Total Petroleum Hydrocarbons(TPH) in discharged water shall be a maximum of 15 mg/L.

GENERAL

The permittee shall notify the District's Chemist (278-1747) no less than 2 hours prior to commencement of any pumping activity and request an inspection of the site No pumping shall occur until District staff has inspected the site, piping, pumping set-up, metering and discharge points.

There shall be no bypassing of any treatment process or unit or direct discharge into the sewer system at any time.

The permittee assumes full responsibility for any and all damages to the collection system or to the Publicly Owned Treatment Works (P.O.T.W) otherwise known as the Oro Loma/Castro Valley Treatment Plant, that can be directly attributed to the discharge of treated groundwater from the operation at the site.

BILLING AND PERMIT EXTENSIONS

The permittee will pay all District fees for sampling, monitoring, inspections, loading charges, as well as any other related District expenses billed prior to the expiration of this permit.

The District will not consider an extension of this permit until all fees and reimbursable costs have been paid by the permittee.

PRE-PUMPING AND EMERGENCY NOTIFICATION

In the event of any explosive condition or other potentially harmful situation which may affect either the collection system or the P.O.T.W., the permittee shall contact the District at 278-1747 immediately (operators are on duty 24 hours per day).

The Eden Regional Fire Department shall be notified of the clean-up operation.

If air stripping is part of the treatment process, the Bay Area Air Quality Control Board shall be notified of the process. If a permit is issued by the Air Board, a copy of that permit and subsequent extensions shall be submitted to the District.

SAMPLING AND MONITORING

GENERAL

The permittee shall provide easily accessible sampling points for both pre and post treatment samples.

The District reserves the right to sample at will for any constituents it deems necessary on the groundwater samples collected on both pre and post treatment samples.

During the entire treatment process the Total Petroleum Hydrocarbons (TPH) concentration shall not exceed 15 mg/L at any time in the water discharged to the sewer system.

Sampling frequency will increase if test results show discharge levels are bordering on the 15 mg/L limit for Total Petroleum Hydrocarbons.

INITIAL SAMPLING

During the initial 3 hour start-up pumping period, the effluent discharge from the treatment process shall not be sewered. The total volume will be contained in a tank. The system will be shut down and analysis performed to determine TPH level. Further processing of the groundwater shall only be allowed after analyses indicate that the contents of the tank meet all of the limitations set forth in this permit.

Constituents to be analyzed for on the initial sample include:

a. Metals (see page 2), Phenols, & Cyanide
b. General Analysis (COD, SS, PH)
c. Total Petroleum Hydrocarbons (EPA 8015)
d. BTEX (EPA 8020)

METERING

The permitee shall submit specifications of the proposed flow meter to the District for approval. The meter must be appropriate for all anticipated conditions of flow and pressure, and must include a non-resetable totalizer and fittings to allow for a "fill-up" test to verify the accuracy of the meter. This can also serve as the sampling point for discharge.

PROPOSED SAMPLING AFTER INITIAL TESTS

One week after discharge begins analyze for TPH.

If TPH levels are above 10 mg/L on first week's sample, another sample will be grabbed immediately upon receipt of lab results from first sample. This will continue as long as the District deems it necessary.

When the District staff is convinced that TPH levels have stabilized, one general analysis, one TPH, and one BTEX per month for the duration of the of the pumping operation.

Results of these analyses will be transmitted to the District on a timely basis. Monthly flow data will be transmitted to the District no later than the 10th day of the following month.

FEES

An annual permit fee of $400 is charged with the issuance and any subsequent renewals of this discharge permit.

Sewer service and use charges will be $1.472/hcf or $1.97 per thousand gallons of water discharged.

dh/spec.con/ja

ORO LOMA SANITARY DISTRICT

WASTEWATER DISCHARGE PERMIT

COMPANY NAME: _____

MAILING ADDRESS: _____

_____

FACILITY ADDRESS: _____

_____

The above named company is authorized to discharge wastewater to the Oro Loma Sanitary District sanitary sewerage system in compliance with the District's Ordinance No. 39 (as amended) titled:

"AN ORDINANCE REGULATING THE USE OF PUBLIC AND PRIVATE SEWERS AND DRAINS, REGULATING THE DISCHARGE OF WATERS AND WASTES INTO THE PUBLIC SEWER SYSTEM, PROVIDING FOR WASTEWATER DISCHARGE PERMITS AND FIXING PERMIT AND MONITORING FEES, AND PROVIDING FOR FOR LIABILITIES AND PENALTIES FOR THE VIOLATION OF THE PROVISIONS THEREOF."

and in compliance with any Federal or State regulations that apply, and in accordance with effluent limitations, monitoring requirements and with any standard or special conditions set forth in this permit or modified during the term of this permit.

This permit is granted in accordance with the application filed on _____, 19__ in the office of the Oro Loma Sanitary District and in conformity with specifications and information submitted to the District in support of the above referenced application.

PERMIT NO._____ EFFECTIVE DATE:_____

EXPIRATION DATE:_____

APPROVED: _____

GENERAL MANAGER, ORO LOMA SANITARY DISTRICT

The following sections (when checked) are attached and made a part of this permit:

__Standard Conditions I
__Standard Conditions II
__Special Conditions

EXAMPLE ONLY

I. STANDARD CONDITIONS (ALL USERS)

A. Definitions. See Section 1.2, Ordinance 39-1, attached.

B. General

The User shall comply with all the general prohibitive discharge standards in Article II of Ordinance No. 39-1.

C. Right of Entry

The User shall allow the District or its representatives to enter upon the premises of the User, at all reasonable hours, for the purposes of inspection, sampling or records inspection. Reasonable hours in the context of inspection and sampling includes any time the User is operating any process which results in a process wastewater discharge to the District's sewerage system.

D. Records Retention

The User shall retain and preserve for no less than three (3) years any records, books, documents, memoranda, reports, correspondence and any and all summaries thereof, relating to monitoring, sampling and chemical analyses made by or on behalf of the user in connection with its discharge. Records shall be made available for inspection and copying by representatives of the District, the California Regional Water Quality Control Board or the Environmental Protection Agency. All records that pertain to matters that are the subject of special orders or any other enforcement or litigation activities brought by the District shall be retained and preserved by the User until all enforcement activities have concluded and all periods of limitation with respect to any and all appeals have expired.

E. Confidential Information

Except for data determined to be confidential under the provisions of Ordinance No. 39-1, all reports required by this permit shall be available for public inspection at the District Office, 2600 Grant Avenue, San Lorenzo, California.

F. Dilution

No User shall increase the use of potable or process water or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in this permit.

G. Proper Disposal of Pretreatment Sludges and Spent Chemicals

The disposal of sludges and spent chemicals generated shall be done in accordance with all applicable State and Federal regulations.

H. Signatory Requirement

All reports required by this permit shall be signed by a principal executive officer of the User, or his designee.

I. Revocation of Permit

The permit issued to the User by the District may be revoked when, after inspection, monitoring or analysis it is determined that the discharge of wastewater to the sanitary sewer is in violation of Federal, State or Local laws, ordinances, or regulations. Additionally, falsification or intentional misrepresentation of data or statements pertaining to the permit application or any other required reporting form shall be cause for permit revocation.

J. Limitation on Permit Transfer

Wastewater Discharge permits are issued to a specific user for a specific operation and are not assignable to another user or transferable to any other location without the prior written approval of the District. Sale by a User shall obligate the purchaser to seek prior written approval of the District for continued discharge to the sewerage system and issuance of new permit.

K. Falsifying Information or Tampering with Monitoring Equipment

Knowingly making any false statement on any report or other document required by this permit or knowingly rendering any monitoring device or method inaccurate may result in punishment in accordance with District Ordinances or other applicable laws.

L. Modification or Revision of the Permit

The terms and conditions of this permit may be subject to modification by the District at any time as limitations or requirements as identified in the District Ordinance No. 39 (as amended) are modified, or if other just cuase exists.

This permit may also be modified to incorporate special conditions resulting from the issuance of a special order by an agency which regulates the District's discharge.

The terms and conditions may be modified as a result of Environmental Protection Agency promulgating a new federal pretreatment standard.

Any permit modifications which result in new conditions in the permit shall include a reasonable time schedule for compliance if necessary.

M. Duty to Reapply

The District shall notify a User prior to the expiration of the User's Permit. Within thirty (30) days of the notification, the User shall reapply for reissuance of the permit on a form provided by the District.

N. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

O. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any invasion of personal rights, nor any infringement of Federal, State or Local regulations.

P. Permit Duration

The wastewater discharge permit will remain in effect for one year from the effective date of the permit. Users who are issued a wastewater discharge permit or renew a wastewater discharge permit shall pay the permit fee set forth in the current schedule of fees as adopted in the most current ammendment to Ordinance No. 39.

Q. Wastewater Charges and Fees

The User shall pay to the District all sewer service charges, permit fees, monitoring charges and laboratory analysis charges levied in accordance with current District Ordinances. All charges are due and payable upon receipt of statement of charges. Failure to pay fees within 30 days may result in revocation of wastewater discharge permit and termination of service. Overdue fees shall be assessed a 10% penalty plus interest of 1-1/2% per month until fees have been paid.

R. Reporting Requirements

1. In order that employees of Users be informed of District requirements, Users shall make available to their employees copies of the District's Discharge Regulations together with other wastewater information and notices which may be furnished by the District. User shall permanently post a notice advising employees whom to call in case of spill or accidental discharge.

2. The User shall notify the District immediately upon any accidental or slug discharge to the sanitary sewers as outlined in the Discharge Regulations. Formal written notification discussing circumstances and remedies shall be submitted to the District within 5 days of the occurrence. The User shall work with the District to resolve any problems caused by such accidental or slug discharge.

3. The User shall notify the District prior to the introduction of new wastewater or pollutants or any substantial change in the volume of characteristics of the wastewater being introduced into the POTW from the User's industrial processes. Formal written notification shall follow within 30 days of such introduction.

4. Any upset experienced by the User of any of its treatment processes that places the User in a temporary state of noncompliance with wastewater discharge limitations contained in this permit or other limitations specified in the District's Ordinance shall be reported to the District within 24 hours of first awareness of the commencement of the upset. A detailed report shall be filed with the District within five days of the start of the upset.

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

RAFAT A. SHAHID, ASST. AGENCY DIRECTOR
DEPARTMENT OF ENVIRONMENTAL HEALTH
State Water Resources Control Board
Division of Clean Water Programs
UST Local Oversight Program
80 Swan Way, Rm 200
Oakland, CA 94621
(510) 271-4530

November 18, 1992

Mr. Dave Delamotte
Durham Transportation
P.O. Box 948
Rosemead, CA 91770

STID 1879

RE: Work plan addressing soil and ground water remediation at 19984 Meekland Avenue, Hayward, California

Dear Mr. Delamotte,

This office has received and reviewed the work plan, dated November 1, 1992, for the above site. The work plan meets with the approval of this office with the addition of the following:

- Soil samples collected from the treated soil should be analyzed for Volatile Organic Compounds (VOCs) in addition to TPHg, TPHd, and BTEX.

- Ground water samples collected from the holding tanks in the ground water remediation system should be analyzed for VOCs in addition to TPH and BTEX.

Per the phone conversation with Lisa Polos, CTTS, Inc., and myself on November 18, 1992, confirmatory soil samples collected from the sidewalls and bottom of the waste oil tank pit will be analyzed for TPHg, TPHd, BTEX, heavier hydrocarbons to detect waste oil, and VOCs. Additionally, the analysis of samples collected from the other tank pit should include VOCs since VOCs have been detected in former soil and ground water samples collected from the site.

Per the phone conversation between Lisa Polos and myself, subsequent to the County's approval of this work plan, permits will be acquired for the treatment unit. It is the understanding of this office that all the necessary permits will be acquired for this treatment unit before work begins at the site. The site is expected to obtain a permit from the Bay Area Air Quality Management District (BAAQMD) for thermal treatment of the soil, and a ground water discharge permit from Oro Loma Sanitary District. Additionally, use of an on-site treatment unit usually requires a permit from the Department of Toxic Substances Control.

With the addition of the above requirements, the work plan meets with the approval of this office. Field work should commence within 60 days of the receipt of this letter. Please notify this office 48 hours in advance before field work begins. A report documenting the results from work performed is due to this office within 45 days of completing activities.

Thank you for your cooperation. If you have any questions or comments, please contact me at (510) 271-4530.

Sincerely,

Juliet Shin
Hazardous Materials Specialist

cc: Eddy So, RWQCB

Hugh Murphy, Hayward Fire Dept.

Lisa Polos
Toxic Technology Services
P.O. Box 515
Rodeo, CA 94572

Edgar Howell-File (JS)

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

RAFAT A. SHAHID, ASST. AGENCY DIRECTOR
DEPARTMENT OF ENVIRONMENTAL HEALTH
State Water Resources Control Board
Division of Clean Water Programs
UST Local Oversight Program
80 Swan Way, Rm 200
Oakland, CA 94621
(510) 271-4530

June 11, 1993

Mr. Dave Delamotte
Durham Transportation
P.O. Box 948
Rosemead, CA 91770

STID 1879

Re: Amendment to the Proposed Remediation System for the site located at 19984 Meekland Avenue, Hayward, California

Dear Mr. Delamotte,

This office has reviewed the amendments to the work plan that was submitted in November 1992, dated February 26, 1993. Included in these amendments is a CTTS, Inc. letter, dated June 10, 1993, which discusses the origin of the fill materials that will be used to backfill the excavation pits at the site. These amendments are acceptable to this office with the following reminders/changes:

- The clean-up goal for the excavation of the contaminated soil should be down to <10 ppm, instead of <100 ppm as proposed in the amended work plan.
- Per a conversation with Ms. Polos on March 8, 1993, this office found it acceptable for your site to analyze for Diesel and Oil and Grease together, as long as Method 3550 GCFID (i.e., Modified 8015) was implemented.
- Also per the discussion in March 1993, Ms. Polos inquired as to whether or not it was acceptable to collect one sample per every 200 cubic yards of stockpiled soil. Due to the great amount of stockpiled soil that will be generated from the excavation, this request is acceptable to this office on the condition that this soil is disposed of off-site, the samples are analyzed for the appropriate constituents, and that this number of samples meets with the requirements of the disposal facility.

Field work shall commence **within 60 days** of the date of this letter. A report documenting the work shall be prepared and submitted to this office within 45 days after completing the field work.

If you have any questions or comments, please contact me at (510) 271-4530.

Sincerely,

Juliet Shin
Hazardous Materials Specialist

cc: Sumadhu Arigala, RWQCB

Lisa Polos
Toxic Technology Services
P.O. Box 515
Rodeo, CA 94572

Gil Jensen, Alameda County District Attorney's Office

Hugh Murphy, Hayward Fire Dept.

Edgar Howell-File(JS)

LEVINE•FRICKE

ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

September 7, 1993

Mr. David Delamontte
Durham Transportation, Inc.
9171 Capital of Texas Highway North
Travis Building, Suite 200
Austin, Texas 78759-7252

Subject: Site: 19984 Meekland Avenue
Hayward, California

Dear Mr. Delamontte:

We appreciate your consideration but we regret to advise Levine-Fricke will not be able to bid on the Corrective Action Plan for the above site. Your Request for Proposal arrived on September 3, 1993 and due to the press of business, we were unable to respond in a timely fashion.

We are, however, giving your RFP to Mr. Dan Henniger of Applied Geotechnology, Inc. who will be contacting you.

Please keep us in mind for future business and thanks again for your consideration.

Sincerely,

Ben Hance
Business Development Manager

cc: Mr. Dan Henniger
Applied Geotechnology, Inc.
827 Broadway, Suite 210
Oakland, California 94612

DTIDelan.BMH

1900 Powell Street, 12th Floor
Emeryville, California 94608
(510) 652-4500
Fax (510) 652-2246

Other offices in Irvine, CA; Sacramento/Roseville, CA; Tallahassee, FL; Honolulu, HI

Applied Geotechnology Inc.

November 10, 1993

93-4033

Mr. David Delamontte
Durham Transportation, Inc.
9171 Capital of Texas Highway North
Travis Building, Suite 200
Austin, Texas 78759

Dear Mr. Delamontte:

Proposal
Development of Site-Specific Risk-Based Cleanup Goals
Former Fuel Facility
Hayward, California

This letter presents Applied Geotechnology Inc.'s (AGI) proposed scope of services to develop site-specific risk-based cleanup goals at the Durham Transportation Former Fuel Facility (Facility), 19984 Meekland Avenue, Hayward, California. Risk-based cleanup goals will be developed under Alameda County Health Agency - Division of Hazardous Materials. This letter identifies specific tasks necessary in the development of cleanup goals. Proposed costs associated with each task are provided as guidance.

BACKGROUND

The subject site is owned by Durham and is currently a vacant lot. The site is located at the northeast corner of the intersection of Meekland Avenue and Blossom Way in an unincorporated area of Alameda County, near the City of Hayward. The site is in a mixed use commercial and residential area. It is surrounded by single-family homes and multi-family complexes. Located at the four corners of Meekland/Blossom intersection are the subject site; a liquor store; an auto repair shop; and a strip center with grocery store, hair salon, and comics/trading card shop. Both the liquor store and auto repair shop had operated at one time as gas stations. We understand that fuel tanks have been removed from both locations.

During the 1940's and 1950's, the subject site operated as a family owned service station. Later, Harbert Transportation purchased the site and operated it as a vehicle fueling and maintenance yard. In 1986, Durham purchased the site and operated it as a fuel and maintenance facility until 1989. In August 1989, 1-4,000 gallon, 1-5,000 gallon, and 1-6,000 gallon gasoline underground storage tanks (UST's), and 1-500 gallon waste oil UST were removed from the site.

The site is underlain by fine grained alluvial fan and flood plain deposits derived from the hills located approximately 2 miles east of the site. Three to four feet of fill overlies the site. The fill consists of clayey to sandy gravel. The native deposits underlying the fill consist of silty clay to

clayey silt with minor and varying amounts of sand and gravel. Lenses of silty sand and gravel approximately 3 to 4 inches thick were encountered during installation of the wells that currently exist on-site. No other significant bedding or stratification of the units were reported to a depth of approximately 40 feet below ground surface (bgs), and the deposits were reported to be homogeneous for hydrologic consideration. There are currently 8 groundwater monitor wells on-site, and 2 groundwater monitor wells off-site that were installed during previous investigations. Ground water flow is to the west and was reported at 28 feet bgs.

Previous assessment results of indicate that petroleum hydrocarbons including gasoline, and benzene, ethylbenzene, toluene and xylenes (BETX) have been detected in soil samples from 12 to 28 feet bgs in the area of the 3 former gasoline UST's. A soil gas survey of the site indicated petroleum hydrocarbons as gasoline and BETX from 20 to 28 feet bgs throughout most of the site. Groundwater samples from the on- and off-site wells indicate dissolved petroleum hydrocarbons as gasoline, BETX , and low levels of halogenated volatile organic compounds (VOCs). We understand the lateral extent of impacted groundwater has not been delineated during the previous assessments.

It is our understanding that Alameda County Health Agency - Division of Hazardous Materials has established that soil is to be remediated to less than 10 parts per million Total Petroleum Hydrocarbons (TPH) by EPA Method 8015 Modified for gasoline and 1 parts per billion (ppb) benzene in groundwater.

It appears that a more realistic approach to setting BETX cleanup levels in groundwater and soil is by conducting a risk-based analysis. On behalf of Durham Transportation, AGI has contacted Alameda County Environmental Health - Hazardous Materials Division; they are aware of Durham Transportation is considering developing site-specific risk-based cleanup goals applicable to the Facility.

SCOPE OF SERVICES

The scope of our services will be to develop site-specific risk-based cleanup goals for the Former Fuel Facility under Alameda County guidance. Tasks necessary to develop these cleanup goals include:

- Compile chemical and geophysical data collected during RI
- Identify chemicals of potential concern (COPCs)
- Evaluate COPCs against hazardous waste criteria
- Evaluate COPCs against preliminary risk-based screening criteria
- Conduct site-specific Risk Assessment
- Prepare site-specific health risk-based cleanup goals
- Conduct leachability studies; model potential leaching attenuation
- Prepare site-specific leachability-based cleanup goals
- Establish site-specific overall cleanup goals

These tasks are discussed in more detail below and will be performed in accordance with Alameda County guidance. Costs associated with each task are also listed.

Task 1: Compile chemical and geophysical data collected during RI; $1,500

Chemical data collected previous to and during the RI will be used to estimate site-specific risks. Data base will assessed for analytical method detection limits, presence of common analytical reagents (i.e., laboratory contamination), contaminant population distribution (i.e., normal versus log-normal), maximum contaminant concentrations, and, if necessary, calculation of reasonable maximum exposure concentration using the 95 percent confidence interval approach. Chemicals detected at less that 5 percent frequency of detection will be eliminated from data base consistent with standard risk assessment guidance. Geophysical data (i.e., groundwater flow characteristics, water-bearing zone geology) will be evaluated and used to provide accurate site-specific information.

Task 2: Identify COPCs; $1,000

COPCs will be identified from compiled chemical data. Toxicological information including cancer slope factors and oral reference doses (RfDs) will be compiled for all applicable COPCs. In addition applicable or relevant and appropriate regulations (ARARs) will be identified for COPCs.

Task 3: Evaluate COPCs against hazardous waste criteria; $1,000

COPCs will be evaluated against Federal, California State, and Alameda County hazardous waste regulations. this will provide guidance during removal, treatment and/or disposal of contaminated environmental media.

Task 4: Evaluate COPCs against risk-based screening concentrations; $2,500

COPCs will be quantitatively evaluated against default risk-based screening concentrations. Innocuous inorganic constituents will be eliminated from further consideration following standard risk assessment guidance. Concentrations of COPCs will be evaluated with respect to natural or area background levels. Remaining COPCs are those considered as potentially presenting unacceptable risk; they will be retained and evaluated by conducting a site-specific Risk Assessment

Chemicals that are detected on-site but that do not possess appropriate regulatory criteria (i.e., toxicological factors, ARARS) will be evaluated qualitatively; uncertainty with their presence will be addressed.

Task 5: Conduct site-specific Risk Assessment; $3,500

The site-specific RA will characterize retained COPCs for their potential to present unacceptable risk or hazard during exposure to human or ecological receptors. Relevant human populations and

ecological receptors that have the potential for greatest exposure to on-site contaminants will be identified. Contaminant fate and transport will be investigated and used to refine the assessment of potential exposure.

Quantitative cancer risk estimates and hazard quotients will be calculated for each COPC. The sum of risk and hazard will be evaluated for "acceptability". Any uncertainties associated with the estimation of risk will be discussed appropriately.

Task 6: Prepare site-specific health risk-based cleanup goals; $3,000

Site-specific health risk-based cleanup goals are developed from RA results. COPC concentrations are calculated to be protective of human health at a given risk or hazard level (i.e., 1×10^{-5} for carcinogens). Additivity of carcinogenic and noncarcinogenic responses are also taken into consideration during development of risk-based cleanup levels.

Task 7: Conduct leaching studies; model leaching attenuation; $2,500

Sufficient soil samples will be collected to adequately estimated contaminant leaching potential. Initially, TCLP will be used to estimate leaching potential. If results indicate that current soil concentrations are not protective of groundwater quality, then other leaching tests will be performed. These may include modified TCLP or other ASTM leaching tests.

TCLP methodology is not an accurate predictor of true leaching potential; TCLP results overestimate leaching potential due to the harsh analytical methodology (i.e., acidic extraction, agitation). The more robust methodologies offer more realistic conditions for assessing accurate leaching potential. Soil leaching attenuation may also be modeled if laboratory results indicate the need.

All leaching studies will be conducted in AGI's Environmental Technology Laboratory or will be contracted to other analytical laboratories.

Task 8: Prepare site-specific leachability-based cleanup goals; $2,000

Results from leaching studies will be used to develop leachability-based cleanup goals. Soil levels protective of groundwater resources (i.e., ARARs) will be calculated and used as cleanup goals.

Task 9: Establish site-specific overall cleanup goals; $1,500

Both health-based and leachability-based cleanup levels will be compared. The most appropriate concentration from each analysis will be selected as the overall cleanup goal. Rationale will be provided for selection of appropriate cleanup goal.

SCHEDULE

We expect the development of risk-based cleanup goals will take approximately 1 month to complete after all RI work is completed. This includes laboratory leaching studies. Our draft report should be available approximately 2 weeks after all tasks are completed.

FEE BASIS

We propose providing the services described above on a time and expense fee basis. From the scope of services describe herein, we estimate our fee will not exceed $16,000, excluding laboratory leaching studies estimated at between $2,500 and $6,500, depending on the level of effort necessary.

We appreciate the opportunity to submit this proposal. As you may be aware, Alameda County is currently formulating it's procedures for conducting risk-based approach to cleanup levels. Results of this project will likely be used in refining Alameda County's approach; therefore, Durham Transportation has an excellent opportunity to present state-of-the-art risk-based methodology for development of cleanup levels.

If you have any questions regarding this proposal, please do not hesitate to call Howard Marks at (206) 453-8383 or Dan Henninger at (510) 238 4595.

Sincerely,

APPLIED GEOTECHNOLOGY

(for:)
Howard S. Marks Ph.D.
Project Toxicologist

Daniel T. Henninger
Senior Construction Manager

HSM/DTH

Applied Geotechnology Inc.

AGI

September 21, 1993

93-4033

Mr. David Delamontte
Durham Transportation, Inc.
9171 Capital of Texas Highway North
Travis Building, Suite 200
Austin, Texas 78759

Dear Mr. Delamontte:

Proposal
Groundwater and Soil Remediation
19984 Meekland Avenue
Hayward, California

Applied Geotechnology Inc. (AGI) is pleased to submit this proposal and our qualifications to provide professional services regarding remediation of soil and groundwater at the referenced site. We are very interested and well qualified to perform this work. AGI has substantial practical experience in soil and groundwater remediation as the Statement of Qualifications attached to this proposal demonstrates. AGI is familiar with regulations governing this project and have established working relationships with state and local regulators.

This proposal is in response to your Request For Proposal dated August 20, 1993. Our proposed scope of services and associated cost estimate are based upon:

- The Request For Proposal (RFP) from Durham Transportation, Inc. (Durham) dated August 20, 1993.
- Our understanding of site conditions gained from the Work Plan for the Delineation, Containment, and Remediation of Soil and Groundwater Contamination, by CTTS, Inc., dated November 1, 1992.
- Letters from the Alameda County Health Care Services Agency, dated November 19, 1992 and June 11, 1993.
- Our previous experience with similar projects, and understanding of pertinent State of California and Alameda County regulations.

BACKGROUND

The subject site is owned by Durham and is currently a vacant lot. The site is located at the northeast corner of the intersection of Meekland Avenue and Blossom Way in an unincorporated area of Alameda County, near the city of Hayward. The site is in a mixed use commercial and residential area. It is surrounded by single-family homes and multi-family complexes. Located at the four corners of Meekland/Blossom intersection are the subject site; a liquor store; an auto repair shop; and a strip center with grocery store, hair salon, and comics/trading card shop. Both the liquor store and auto repair shop had operated at one time as gas stations. We understand that fuel tanks have been removed from both locations.

During the 1940's and 1950's, the subject site operated as a family owned service station. Later, Harbert Transportation purchased the site and operated it as a vehicle fueling and maintenance yard. In 1986, Durham purchased the site and operated it as a fuel and maintenance facility until

1989. In August 1989, 1-4,000 gallon, 1-5,000 gallon, and 1-6,000 gallon gasoline underground storage tanks (UST's), and 1-500 gallon waste oil UST were removed from the site.

The site is underlain by fine grained alluvial fan and flood plain deposits derived from the hills located approximately 2 miles east of the site. Three to four feet of fill overlies the site. The fill consists of clayey to sandy gravel. The native deposits underlying the fill consist of silty clay to clayey silt with minor and varying amounts of sand and gravel. Lenses of silty sand and gravel approximately 3 to 4 inches thick were encountered during installation of the wells that currently exist on-site. No other significant bedding or stratification of the units were reported to a depth of approximately 40 feet below ground surface (bgs), and the deposits were reported to be homogeneous for hydrologic consideration. There are currently 8 groundwater monitor wells on-site, and 2 groundwater monitor wells off-site that were installed during previous investigations. Ground water flow is to the west and was reported at 28 feet bgs.

Previous assessment results of previous site assessments indicate that petroleum hydrocarbons including gasoline, and benzene, ethylbenzene, toluene and xylenes (BETX) have been detected in soil samples from 12 to 28 feet bgs in the area of the 3 former gasoline UST's. A soil gas survey of the site indicated petroleum hydrocarbons as gasoline and BETX from 20 to 28 feet bgs throughout most of the site. Groundwater samples from the on- and off-site wells indicate dissolved petroleum hydrocarbons as gasoline, BETX , and low levels of halogenated volatile organic compounds (VOCs). We understand the lateral extent of impacted groundwater has not been delineated during the previous assessments.

PROJECT OBJECTIVE

Our objective will be to assist Durham in effectively remediating the site in compliance with all local, state, and federal rules and regulations. All remediation activities as well as proposed alternatives are designed to meet regulatory action levels set for the site. AGI will provide all labor, materials, equipment, and outside services to design, execute and document soil and groundwater remediation.

SCOPE OF WORK

Task 1: Project Initiation

Within 5 days of executing an agreement, AGI will issue a project schedule for Durham's approval. The project schedule will indicate when each project task will be started and completed.

A Corrective Action Plan (CAP), will be prepared describing in detail the technical approach and methods to be employed during soil and groundwater remediation. The CAP will be submitted to Durham in draft form and then submitted to the Lead Regulatory Agency (LRA) for approval. Included in the CAP, will be a project specific site health and safety plan (SHSP). The SHSP will identify each project task and specified personal protection, monitoring and operations requirements to assure the work is accomplished in a safe manner and according to requirements of 29 Code of Federal Regulations 1910 and 1926, and AGI's health and safety procedures.

Task 2: Permits

Upon approval of the CAP, AGI will apply for the appropriate permits for installation of the soil and groundwater remediation systems. Based on the treatment systems outlined in the RFP, the anticipated permits include: Bay Area Air Quality Management District (BAAQMD) Authority to Construct Permit and Excavation Permit; BAAQMD permit to operate, which will be secured prior to installation and operation of the thermal unit; and a permit to release treated groundwater to the Oro Loma Sanitary District sewer lines, which will be obtained prior to initiating groundwater extraction.

Task 3: Groundwater Remediation

The following paragraphs describe groundwater remediation using a carbon adsorption system as request by the RFP and two reasonable alternatives treatment methods (air stripping/catalytic oxidation, and bioremediation). We have included advantages and disadvantages for each of the methods. Costs associated with each method are provided as part of the fee estimate included with this proposal.

Carbon Adsorption: Contaminated groundwater will be extracted from the existing on-site monitor wells and directed through granulated activated carbon (GAC) units. The treated water will then be discharge to the sanitary sewer system. The system will be designed such that each extraction well will contain a dedicated pump and the output from each will be manifolded into a single pipe. Pumping rates will be determined by conducting a pump test. Extracted water will be directed through 3 GAC canisters. Treated water will then be pumped into a holding tank. After water in the holding tank has been verified clean through chemical analysis, it will be discharged into the Oro Loma Sanitary District sewer system.

Advantages:

- The system is simple to install and operate.
- Carbon adsorption is familiar to and well accepted by the regulatory agencies.

Disadvantages:

- Frequent changing of the GAC canisters. Used carbon will require disposal or regeneration.
- Relatively high treatment costs over the course of the project.

Air Stripping/Catalytic Oxidation: Contaminated groundwater will be extracted from the existing on-site monitor wells and directed through an air stripping unit equipped with a catalytic oxidizer. The air stripping unit will remove the volatile hydrocarbons contaminates within the groundwater. Hydrocarbon laden air from the stripper will then pass through the catalytic oxidizer unit. The stripper would remove the majority of the volatile fuel constituents (gasoline and BETX) and VOCs from the groundwater. From the stripper, treated groundwater would pass through two GAC canisters as a polishing step to remove any contaminant not removed during air stripping.

Advantages:

- The capability of treating a wide range of compounds.
- Relatively low treatment costs over the course of the project.
- Possible to combine treatment process with soil treatment (soil vapor extraction, bioremediation).

Disadvantages:

- Permit requirements, would require longer start-up period.
- Plugging and fouling potential

Bioremediation: Contaminated groundwater would be extracted from the existing on-site monitor wells and directed through an on-site bioreactor. Naturally occurring microorganisms within the groundwater would be enhanced by the introduction of oxygen and nutrients (if necessary), to degrade contaminants within the groundwater. Following the bioreactor two GAC canisters would used as a polishing step to remove any remaining contaminants.

Advantages:

- The capability of treating a wide-range of compounds.
- Possible to combine treatment process with soil treatment (soil vapor extraction, bioremediation).
- Possible to combine treatment with In-situ soil remediation.

Disadvantages:

- Permit requirements, would require longer start-up period.
- Relatively low treatment rates.

Task 4: Soil Excavation

Depending upon the soil remediation method chosen, excavation of contaminated soil may be necessary. Soil excavation will be performed using conventional earth moving equipment and methods. It is anticipated that shoring will be required to excavate contaminated soil to approximately 28 feet bgs. During excavation, soil not containing petroleum hydrocarbons will be segregated from contaminated soil. The contaminated soil will be identified using head space screening. Head space analysis will be performed by collecting a soil sample and placing it in a resealable plastic bag. The bag will be sealed, the sample disaggregated and allowed to equilibrate in the air space (head space) for approximately 5 minutes. The corner of the bag will be opened, and an organic vapor meter equipped with a photo-ionization detector (OVM-PID) probe will be inserted in the bag using care to minimize the potential for loss of volatiles. The OVM-PID display, in parts per million, relative to the calibration standard, will be observed until a peak reading is

obtained. These results will be used to qualitatively assess soil contamination levels and aid in the segregation of the excavated soil. Excavated soil will be placed on plastic sheeting and stockpiled in separated piles.

Task 5: Soil Remediation

Remediation of contaminated soil at the site can be attained via several different methods. The following paragraphs describe soil remediation using a thermal desorption system as outlined in the RFP and two alternative treatment methods (Vapor extraction, and In-situ bioremediation). Included advantages and disadvantages for each of the methods. Costs associated with each method are provided as part of the fee estimate included with this proposal.

Thermal Desorption: The soil in the area of the former fuel tanks would be excavated and stockpiled onsite. The soil would then be treated using a portable thermal desorption system to remove contaminant from the soil. Treated soil would then be re-used as backfill for the soil excavation. Soil samples would be analyzed prior to and after treatment to check system performance and to confirm treatment to LRA requirements.

Advantages:

- High remediation rate.
- Relatively low treatment costs.
- The capability of treating a wide range of compounds.

Disadvantages:

- Pre-treatment of soil will likely be required, which would increase overall soil treatment costs.
- High costs of shoring and excavation.
- Difficult to attain adequate compaction during backfilling.

Vapor Extraction: would be used to remove the volatile fuel constituents (gasoline and BETX, and the VOCs). This method consists of placing extraction well(s) in the vadose zone, applying a vacuum to the wells. Vapors would be treated by GAC canisters to collect contaminants or treated by combining treatment with a groundwater treatment unit on-site (i.e.air stripping/catalytic oxidation or bioremediation). Vapor discharge would be monitored during remediation to verify the effectiveness of treatment. When contaminants are no longer present in the extracted vapors, the system would be shut down for a period of one to two months, restarted, and the vapors would be immediately monitored to detect contaminant vapors which would not be detectable during normal system operation. If no contaminants are detected, the system would be shut down. Soil samples from test boring drilled at the completion of treatment would be analyzed to confirm that LRA clean-up levels are achieved.

Advantages:

- Little or no excavation costs.

- Possible combination with groundwater treatment system.
- High remediation rate.
- Relatively low treatment costs.

Disadvantages:

- Inability to remove low volatility fuels (i.e. diesel, waste oils)
- Additional verification soil sampling following completion of treatment.
- Capability of treating only a narrow range of compounds.

In-Situ Bioremediation: In conjunction with a groundwater treatment system, groundwater would be reintroduced into the soil within the vadose zone in the area of soil contamination to enhance natural biodegradation of the contaminates. Following completion of groundwater treatment, the treated water would be discharged into reintroduction galleries constructed on-site to allow infiltration of the treated water through the contaminated soil. Naturally occurring microorganisms within the groundwater would be enhanced by the introduction of oxygen and nutrients (if necessary), to degrade contaminants within the groundwater. Soil samples from test borings drilled at the completion of treatment would be analyzed to confirm that LRA clean-up levels are achieved.

Advantages:

- Little or no excavation costs.
- Possible combination with groundwater treatment system.
- Relatively low treatment costs.
- Possible to treat a wide-range of compounds.

Disadvantages:

- Permitting requirements would require a longer start-up period.
- Relatively long remediation time.
- Additional verification soil sampling following completion of treatment.

Task 6: Chemical Analyses

During soil and groundwater remediation, and post closure activities, selected soil and/or water samples will be submitted to a California Department of Health Services certified analytical laboratory for testing. Sample handling will be recorded using Chain-of-Custody records. The analytical tests performed on each sample will include one or more of the following:

- TPH as gasoline, and benzene, ethylbenzene, toluene, and xylenes (BETX), sample preparation and analysis using EPA Methods 5030, 8015 (modified), and 8020.

- TPH as diesel and oil, sample preparation and analysis using EPA Methods 3550 and 8015 modified.

- Purgeable halocarbons, sample preparation and analysis using EPA Methods 5030 and 8010.

AGI will review the quality control sample results and prepare a Quality Assurance Report of the final analytical laboratory results.

Task 7: Groundwater Monitoring

Groundwater monitoring of the 10 on- and off-site wells will be performed as follows:

- Prior to soil and groundwater remediation, we will monitor all ten wells during one event to determine pre-remediation contaminant levels.

- During groundwater treatment, three of the wells will be used for groundwater extraction. We will monitor contaminant levels within these three wells as part of the groundwater treatment system monitoring described under Task 3. We will monitor the other seven wells quarterly during groundwater treatment to check the progress of remediation. This proposal is based upon the assumption that groundwater treatment will occur over a period of one year during which 4 monitoring events will be performed. Additional monitoring events may be required if groundwater treatment is not completed in one year.

- After groundwater contaminant levels have reached clean-up levels, the treatment system has been shut down, and when the groundwater levees have stabilized, we will monitor all 10 wells during one event to confirm completion of groundwater remediation.

- After site closure, we will monitor all 10 wells on a quarterly basis for one year (four events).

During each monitoring event, we will measure the depth to groundwater beneath the top of casing of each well using an electric well sounding device. Each well will then be purged until the pH, temperature and specific conductance of the purged water have stabilized. At least 4 well casing volumes of water will be removed. After purging, groundwater samples will be obtained using a clean Teflon sampler. The water will be placed in the appropriate containers, put in an ice chest, and refrigerated until delivery to the analytical laboratory.

All of the samples will be analyzed as described in Task 6.

Task 8: Report Preparation

We will submit monthly progress reports during remediation, reports at the completion of soil and groundwater remediation, and quarterly reports during post-closure monitoring.

The monthly progress reports will include:

- Descriptions of activities performed since the last reporting event.
- Treatment system operation data including treatment rate, and adjustments to improve efficiency.
- Results of monthly groundwater elevation readings, including a site plan showing groundwater elevation contours.
- Results of quarterly groundwater monitoring, including analytical testing.

The report at the completion of soil remediation will include:

- Descriptions of soil excavation; treatment system installation, monitoring, maintenance and removal; and/or disposal (depending on which treatment method is used).
- Results of analytical testing to confirm the soil has been remediated to the required clean-up levels.

The report at the completion of groundwater remediation will include:

- Descriptions of treatment system installation, monitoring, maintenance and removal.
- Results of treatment system monitoring and maintenance, including volume of water treated, and analytical testing to confirm the water has been remediated to the required clean-up levels.

The post-closure monitoring reports will include:

- Results of quarterly groundwater elevation readings, including a site plan showing groundwater elevation contours.
- Results of quarterly groundwater monitoring, including analytical testing.

Depending upon the activities performed, each report will also include logs of test borings, and copies of analytical test data, quality assurance summaries of the chemical analyses, permits, manifests, and chain-of-custody records.

FEE

We propose our services be performed on a time-and-materials fee basis in accordance with our General Conditions and Schedule of Charges, copies of which are attached and form a part of this proposal. Our fee estimate includes the following:

- Preparing a Corrective Action Plan (CAP) to be submitted and approved by Durham, and then the LRA.
- Obtaining necessary permits and performing necessary pilot studies.
- Purchasing (or leasing) all equipment, structures, and materials required to complete the CAP.

- Maintaining and operating all equipment.
- Preparing all monitoring reports.
- Post-closure monitoring and site closure.

Our fee estimate for the soil and groundwater remediation, and monitoring is presented below. For bidding purposes AGI has assumed the following:

- Groundwater remediation (Task 3) will take approximately two years.
- Groundwater Monitoring (Task 7) will take approximately one year.

Soil and Groundwater Remediation as Outlined in the RFP

	TASK	ESTIMATED FEE
Task 1	Project Initiation	$ 2,929.
Task 2	Permits	$ 2,630.
Task 3	Groundwater Remediation by GAC	$ 26,918.
Task 4	Soil Excavation (includes shoring)	$173,639.
Task 5	Soil Remediation by Thermal Desorption	$ 51,974.
Task 6	Chemical Analyses	$ 57,400.
Task 7	Groundwater Monitoring	$ 3,710.
Task 8	Report Preparation	$ 4,151.
Estimated Cost		$323,351.

ALTERNATIVES

Presented below are cost estimates we believe are reasonable remediation alternatives.

Alternative 1: Remediation using; groundwater remediation by air stripper/catalytic oxidation; soil remediation by vapor extraction.

	TASK	ESTIMATED FEE
Task 1	Project Initiation	$ 2,929.
Task 2	Permits	$ 2,630.
Task 3	Groundwater Remediation	$ 46,918.
Task 4	Soil Remediation	$ 51,974.
Task 5	Chemical Analyses	$ 57,400.

Task 6	Groundwater Monitoring	$ 3,710.
Task 7	Report Preparation	$ 4,151.
Estimated Cost (Note: Task 4 Excavation not required)		$169,274.

Alternative 2:

Remediation using; groundwater remediation by bioreactor; soil remediation by In-situ bioremediation.

	TASK	ESTIMATED FEE
Task 1	Project Initiation	$ 2,929.
Task 2	Permits	$ 2,630.
Task 3	Groundwater Remediation	$ 42,918.
Task 4	Soil Remediation	$ 49,974.
Task 5	Chemical Analyses	$ 57,400.
Task 6	Groundwater Monitoring	$ 3,710.
Task 7	Report Preparation	$ 4,151.
Estimated Cost		$163,407.

(Note: Task 4 Excavation not required)

RECOMMENDATION

Based upon our understanding of site conditions, we recommend employing alternatives using Alternative 2 to remediate the site. This recommendation is based upon its technical applicability, significant cost reductions over excavation and above ground treatment methods, and the simplicity of operating one remediation system to clean up both the groundwater and soil. However, should there be time or site use constraints of which we are not currently aware, we will reevaluate our recommendation upon your request.

If you have any questions regarding this proposal, please do not hesitate to call me at (510) 238-4590. We are pleased to have the opportunity to submit this proposal and look forward to your favorable consideration.

Sincerely,

APPLIED GEOTECHNOLOGY INC.

Daniel T. Henninger
Senior Construction Manager

DTH/JBA/wkw

STATEMENT OF QUALIFICATIONS

ENGINEERING AND ENVIRONMENTAL SERVICES

For:

DURHAM TRANSPORTATION, INC.

Prepared by:

APPLIED GEOTECHNOLOGY INC.

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September 1993

APPLIED GEOTECHNOLOGY INC.

Providing services in engineering, earth sciences, and environmental restoration and management.

AGI is a recognized leader in the environmental and engineering consulting field specializing in the following areas:

- Solid and Hazardous Waste Site Evaluation and Remediation
- Environmental Site Assessments, Compliance Audits, and Permitting
- Process Development and Treatability Studies
- Geotechnical Engineering
- Groundwater Development, Management, and Protection
- Petroleum Hydrocarbon and UST Evaluation and Remediation

Our staff of well over 100 employees includes geotechnical, environmental, and civil engineers; geologists; hydrogeologists; chemists; microbiologists; toxicologists; and industrial hygienists. Our expertise enables us to manage projects from initial planning through analyses and site characterization; conceptual and final design; construction management; and testing, performance monitoring, and closure.

AGI was established in Bellevue, Washington in 1983. We have grown steadily in size and capabilities, opening a Tacoma field office in 1984 and a Portland, Oregon branch office in 1988. Offices were established in Oakland, California and Everett, Washington in 1990. Because our structure allows a free flow of concepts and technical personnel between offices and projects, our clients benefit from our firmwide expertise and experience.

CAPABILITIES AND SERVICES

SOLID AND HAZARDOUS WASTE SITE EVALUATION AND REMEDIATION

AGI has conducted regional and site-specific hazardous waste studies throughout the United States. These studies frequently include comprehensive subsurface investigations to define geologic conditions and predict groundwater occurrence and movement and associated contaminant fate and transport. Hazardous waste site evaluations and remediations are usually carried out in response to RCRA, CERCLA, or specific state laws and regulations. Existing site conditions are frequently evaluated to determine the impacts to soil chemistry and water quality resulting from historical or current land use and waste disposal practices. AGI services specifically suited to solid and hazardous waste site evaluation and remediation include:

- Site history evaluation
- Site geology and groundwater characterization
- Nature and extent of contamination characterization
- Drilling program management
- Soil and groundwater monitoring/sampling program development and implementation
- Groundwater and contaminant transport computer modeling
- Solid waste landfill minimum functional standards compliance
- Solid waste landfill closure
- Regulatory agency liaison
- RCRA permitting and compliance
- Expedited response actions
- Multi-task Remedial Investigations/Feasibility Studies under CERCLA/SERA
- Human health and ecological risk assessment
- Remedial alternative identification and evaluation
- Remedial design and construction management

ENVIRONMENTAL SITE ASSESSMENTS, COMPLIANCE AUDITS, AND PERMITTING

Environmental site assessments evaluate potential liabilities to a property owner or buyer resulting from contamination caused by on-site activities or left by previous owners/operators. The overall assessment goal is to determine if hazardous substances are present and if the presence of these substances presents a potential liability. AGI has conducted over 500 environmental site assessments on undeveloped, vacant, or agricultural land; industrial and commercial properties; waterfront facilities (including dredge material quality); and UST sites. AGI services routinely provided for environmental site assessments include:

- Historical map and aerial photograph interpretation
- State and federal database search
- Site historical land use evaluation
- Historical waste management and disposal evaluation
- Site reconnaissance and inspection
- Asbestos assessment

GEOTECHNICAL ENGINEERING

AGI's professional staff has substantial experience in all phases of geotechnical engineering, including site selection, site investigation and evaluation, and construction monitoring on projects involving excavation dewatering, site development earthwork, deep foundations, braced and tied back excavation shoring systems, port and waterfront structures, and borrow source evaluation. AGI's geotechnical engineering services include:

- Subsurface exploration and characterization
- Laboratory evaluation of physical soil properties
- Foundation alternative analysis
- Bulkhead and retaining wall stability evaluation
- Slope stability analysis
- Earthwork recommendations
- Dredge and fill studies for waterfront projects
- Design of dams, dikes, and other earth structures
- Construction and permanent excavation dewatering systems design
- Excavation shoring system evaluation and design
- Seismicity and dynamic response analysis
- Asphalt and concrete pavement analysis and design

GROUNDWATER DEVELOPMENT, MANAGEMENT, AND PROTECTION

AGI's professional staff has considerable hands-on experience in providing groundwater resource evaluation, development, and management services, including design, installation, and testing of high yield production water supply wells. We are thoroughly familiar with available drilling and downhole construction technologies and frequently use sophisticated well completion designs to ensure maximum well efficiency and highest possible sustained yield. AGI services specifically suited to groundwater development and management include:

- Regional and site-specific hydrogeologic studies
- Groundwater availability evaluation
- Aquifer safe yield determination
- Well site selection and well field design
- Computer simulation of aquifer systems
- Evaluation of land use impacts on water quality
- Drilling program planning and management
- Test and production well design and installation
- Production well inspection and rehabilitation
- Well and aquifer testing and hydraulic analysis
- Groundwater monitoring system design and installation

PETROLEUM HYDROCARBON AND UST EVALUATION AND REMEDIATION

Many AGI investigations include assessing site conditions to predict potential impacts from spills or releases of petroleum hydrocarbons to the environment. Studies have also been conducted to determine impacts from past spills or waste disposal practices and to recommend appropriate cleanup technologies as needed. AGI has provided services on numerous petroleum hydrocarbon releases throughout the United States, including 325 assessments, 180 removals, 90 cleanups, and 90 installations. We have provided these services to service stations, bulk fuel storage facilities, railroad fueling facilities, airports and marine fueling facilities, and industrial manufacturing facilities. AGI services specifically suited to underground storage tank (UST) evaluation, removal, and site remediation include:

- Site history evaluation
- Site geology and groundwater characterization
- Drilling program planning and management
- Soil and groundwater monitoring/sampling program development and implementation
- Contamination source and extent characterization
- Groundwater contaminant transport computer modeling
- Risk assessment
- Hydrocarbon product recovery system design, installation, and operation
- Remediation system plans and specifications preparation
- Contractor selection assistance
- Remediation system operations
- Regulatory agency liaison

EXPERIENCE

Our clients include commercial, industrial, and professional service businesses; architects, engineers, developers, and contractors; and federal, state, and local government agencies. We have served more than 2,400 clients and have completed over 7,000 projects.

The following project descriptions provide an overview of our experience.

SOLID AND HAZARDOUS WASTE SITE EVALUATION AND REMEDIATION

Remedial Alternatives Evaluation
Santa Fe Springs, California

AGI developed technical and cost evaluations for UST soil contamination remediation and removal at this former adhesives manufacturing facility. The facility included two farms totalling 20 USTs filled with various volatile organic compounds used in manufacturing sealants and adhesives. Chemical testing indicated soil was contaminated with volatile organic compounds, including chlorinated ethanes, ethenes, and benzenes. Based on site geologic conditions and the nature and extent of soil contamination, AGI evaluated remedial action alternatives and identified soil vapor extraction as the technology best suited for site remediation.

Client: Confidential

Remediation Design and Construction Management
Manufacturing Plant
San Jose, California

AGI provided design and construction management services for rehabilitation of an aging underground storage tank farm at this adhesives, sealants, and wood preservative manufacturing plant. The work included removal of seven badly corroded and leaking USTs (each 10,000-gallon capacity), cleaning up soil and groundwater contaminated with aromatic volatile organic compounds, and installation of new state-of-the-art USTs, and product distribution and leak detection systems. Soil was treated on site using solid phase methods in a lined treatment cell. Based on the results of post-treatment chemical analyses, AGI petitioned the regional water quality control board to allow on-site disposal of the soil, which was granted. Construction management services included full time on-site observation and documentation of the work, sampling and testing, air quality monitoring, and regulatory agency liaison.

Client: Confidential

Solid Waste Assessment and Testing
Plaster City, California

AGI prepared the Solid Waste Assessment and Testing program for this industrial landfill. We conducted the site investigation, including thorough characterization of the site hydrology through groundwater monitoring well installation and sampling and extensive unsaturated zone monitoring. This project included substantial sampling and chemical testing of the landfill itself. In addition, we evaluated waste generation, management, and disposal practices at the plant and provided recommendations for waste minimization and process water treatment and disposal.

Client: Confidential

Remedial Investigation/Risk Assessment/Feasibility Study/Remedial Design/Remedial Action
Pocatello Sludge Pit NPL Site
Pocatello, Idaho

AGI recently completed the RI/RA/FS for this industrial wastewater treatment plant sludge disposal site. The RI included designing, installing, and sampling a groundwater monitoring system comprised of more than 40 new monitor and existing private water supply wells. Water level data were used to characterize the aquifer potentiometric surface and resulting hydraulic relationship with a high yield City of Pocatello water supply well. Groundwater samples were tested for full EPA Target Compound List substances. Monitoring stations in nearby ponds and the Portneuf River were used to determine the hydraulic relationship between shallow groundwater and surface water. The RI also involved extensive characterization of sludge chemical composition and physical properties to aid in treatment system design and evaluation of contaminant transport through the air, groundwater, and direct exposure routes.

Human Health and Ecological Risk Assessments were developed for the site using all exposure routes (ingestion, inhalation, and direct contact) under various exposure scenarios. Detailed comparison of local and regional background metals concentrations in soil and groundwater was also necessary because many of the metals of concern at the site were common constituents of soil and groundwater.

The RI and risk assessments were used in the FS to identify, evaluate, and rank appropriate remedial alternatives. USEPA Region 10 used the alternative selected in the FS, which offers significant waste treatment, to develop a Record of Decision for the site. The project is now in the design phase, which will include extensive aquifer testing, computer modeling, and groundwater treatability studies.

Client: Union Pacific Railroad

SPCC Plan Preparation
Western United States

AGI prepared Spill Prevention Contingency and Countermeasure (SPCC) plans for 55 railroad classification yards and fueling facilities throughout the western United States, including California and Nevada, as part of a national program of SPCC plan preparation and upgrade. Our work included preparing a computerized database, with detailed maps of each facility. The database lists potentially hazardous substances, shows their location at each facility, and presents the locations and types of materials to be used in a spill response. Developing spill response procedures, including appropriate reporting, was also part of this project. AGI is currently assisting the railroad in the design and implementation of improvements to the facilities' spill containment structures identified and required by the plans.

Client: Confidential

Soil and Groundwater Contamination Assessment and Remediation Pilot-Scale Testing
La Mirada, California

AGI assessed soil and groundwater contamination at this adhesives and sealant manufacturing facility. The facility included 20 USTs containing a variety of volatile organic compounds used in the manufacturing process. We negotiated with the local regulatory agencies and prepared appropriate project plans. Our drilling, soil and groundwater sampling, and chemical testing results were used to identify, evaluate, and select an appropriate remedial action.

Client: Confidential

Remedial Investigation/Feasibility Study
Landfill 4/ Solvent Refined Coal Pilot Plant NPL Site
Fort Lewis, Washington

The Seattle District Corps of Engineers (the Corps) is assisting the Department of the Army in technical investigation at two Fort Lewis sites. AGI has been retained by the Corps to conduct the investigations, which comprise a full Remedial Investigation/Risk Assessment/Feasibility Study under CERCLA. One site includes Landfill 4 and the other an historic coal fuel refining and research facility (SRCPP). Both sites are a potential source of contaminants to Sequalitchew Springs, the major drinking water source for Fort Lewis. Landfill 4 has been shown in previous studies to be a source of halogenated volatile organic compound contamination (primarily TCE) to groundwater. SRCPP contaminants include a wide range of fuel hydrocarbons, metals, and polycyclic aromatic hydrocarbons.

To date, the Landfill 4 investigation includes an extensive PETREX soil gas survey, installation of a comprehensive groundwater and soil gas monitoring network consisting of 38 wells totalling more than 3,500 feet of drilling, extensive hydrologic and soil gas monitoring, and surface water and groundwater sampling and chemical analysis. The SRCPP investigation includes, to date, the installation of 14 groundwater monitoring wells, 33 soil borings, 20 test pits, and 9 hand auger borings. Over 150 soil samples have been collected for chemical analysis, and all monitoring wells have been sampled on two occasions. Groundwater modeling is planned for Landfill 4.

Client: U.S. Army Corps of Engineers

Drum Characterization and Disposal
City of Industry, California

Subsequent to assessing and removing three USTs, AGI was retained to inventory a number of stored drums and arrange for their proper disposal in accordance with applicable state and federal regulations. Our services included preparing a Work Plan and a Health and Safety Plan; visually inspecting the drums; sampling and analyzing the contents for total petroleum hydrocarbons, volatile organic compounds, flashpoint corrosivity, and reactivity; preparing a disposal plan; locating a Treatment, Storage, and Disposal facility; managing disposal; verifying final treatment processing as required by RCRA standards; and documenting disposal.

Client: Confidential

Remedial Investigation
Tacoma Tar Pits NPL Site
Tacoma, Washington

AGI completed the first privately funded RI in the State of Washington at the Tacoma Tar Pits, a former manufactured gas site. The study included detailed surface water and groundwater investigations to determine the nature and extent of contamination from a wide variety of organic compounds and metals. An extensive groundwater monitoring network, including 40 monitor wells, was designed and installed to characterize the hydrogeologic system and to calculate contaminant flux off site. A surface water monitoring system, including 14 individual sampling and gaging stations, was operated in conjunction with the shallow groundwater monitoring system to evaluate the hydraulic relationships between shallow groundwater and site surface water features, including 3 fresh water ponds, 2 large perennial ditches, 1 ephemeral ditch, the Puyallup River, and Puget Sound. This project also included drilling 25 individual borings for subsurface soil sampling, excavating 13 backhoe test pits, and collecting approximately 35 surficial soil samples. Approximately 150 surface water and groundwater samples were collected for analyses of a wide variety of EPA Target Compound List analytes. Data developed during the RI was used to support the Risk Assessment and Feasibility Study. The remedial action for this site has been selected and is part of the site Record of Decision.

Client: Douglas B.M. Ehlke

Surface Impoundment Closure
Plaster City, California

AGI assisted in the closure of two former surface impoundments used to evaporate process water. Closure was successfully accomplished according to California Code of Regulations, Title 23, Chapter 15, Article 56. AGI's scope of work included preparing a sampling and analysis plan, liaison with the plant engineer, construction management to assist an excavation contractor in selecting and stockpiling clean and potentially contaminated soil, collecting and chemically analyzing soil samples from the sides and bases of the former impoundments, waste designation testing of stockpiled soil, preparating a summary report for submission to the local Regional Water Quality Control Board, and recommending disposal alternatives. Followup work included preparation of a waste designation report discussing the nature of contaminated soil as compared to RCRA hazardous waste, non-RCRA hazardous waste, or RCRA solid waste.

Client: Confidential

ENVIRONMENTAL SITE ASSESSMENTS, COMPLIANCE AUDITS, AND PERMITTING

Environmental Site Assessment
Stockton, California

AGI conducted an environmental site assessment at this industrial site in preparation for sale of the property. Fuel hydrocarbon contamination was encountered during the assessment. We drilled soil borings, installed monitoring wells, and collected soil and groundwater samples for chemical testing. We determined groundwater quality was not impacted by the soil contamination. The site was remediated through excavation and off-site treatment of contaminated soil. We supervised site excavation and collected soil samples for chemical analysis to verify remediation.

Client: Confidential

Environmental Site Assessment
PG&E Gas Line Relocation
Santa Clara County, California

PG&E relocated a high pressure natural gas line east of San Thomas Aquino Creek. AGI was retained to conduct a site assessment and chemically characterize the area where field crews were expected to excavate soils for the gas line relocation. We explored subsurface conditions by advancing two soil borings. Soil samples were collected continuously from ground surface to depth during drilling. Selected soil samples were submitted for chemical analysis of California List priority pollutant metals, asbestos fibers, volatile organic compounds, semivolatile organic compounds, organochlorine pesticides, and PCBs. We also performed air quality monitoring of the borehole headspace at 3-foot intervals to determine if methane, volatile organic compounds, hydrogen sulfide, and/or hydrogen cyanide were present.

Client: PG&E

Phase I Environmental Site Assessment
Oakland, California

AGI conducted a Phase I environmental site assessment of a 1-city-block urban site (57,000 square feet) containing 7 properties which have been developed since about 1870. AGI investigated past use of the site by reviewing historical aerial photographs, chain-of-title reports, Sanborn Fire Insurance maps, and 10 separate databases of hazardous materials leaks/uses in the area compiled by local, state, and federal agencies. City records and geologic maps and reports were also examined. In addition, AGI reviewed environmental assessment reports maintained in regulatory agency files, conducted site reconnaissances, and interviewed people with knowledge of the site's history. AGI identified 5 minor on-site potential contaminant sources, 3 potential sources across the street, and 45 other potential sources within 2,000 feet of the site. AGI recommended sampling and analyzing soil from beneath the potential on-site source locations, and installing wells to check for groundwater contamination from off-site sources.

Client: Confidential

Environmental Site Assessment
Port of Tacoma
Tacoma, Washington

Northwest Building Corporation developed a 135-acre Port of Tacoma site as an industrial park. AGI investigated the site history as a basis for assessing potential for soil and groundwater contamination. Two potentially serious land uses were identified: a chlorinated solvent sludge dump and an abandoned historic municipal landfill. Potential contamination from these sources was evaluated by drilling soil borings, collecting subsurface soil samples for chemical testing, and installing and sampling groundwater monitoring wells. Soil and groundwater monitoring well borings were also used to generate geotechnical data for foundation and pavement design. Using the same borings for the contamination assessment and geotechnical study resulted in a substantial cost saving.

Client: Northwest Building Corporation

Environmental Site Assessment
Pier 27, Port of Seattle
Seattle, Washington

AGI conducted a fast-track environmental site assessment for the Port of Seattle. Pier 27 has been used as a marine rail terminal since the early 1900s; it is currently unused. The Port was acquiring the site and requested the assessment based on indications of petroleum hydrocarbon, PCBs, and metals contamination. AGI mobilized within days of notice to proceed and completed all site investigations within the one-week period in which the Port had legal access to the property. Investigations included installating and sampling 4 groundwater monitoring wells, collecting 24 surface and subsurface soil samples for chemical analysis, and tidal response monitoring in all monitoring wells and the Waterway with a transducer network. Site data were analyzed and remedial alternatives selected and evaluated in terms of Washington Model Toxic Control Act (MTCA) requirements. Site-specific cleanup levels were also developed under MTCA.

Client: Port of Seattle

Environmental Site Assessment
Livermore, California

AGI conducted an environmental assessment at this commercial site for acquisition of the property for future development. During the assessment AGI identified historical and current uses of the property and of nearby properties by reviewing historical aerial photographs, chain-of-title reports, Sanborn Fire Insurance maps, and databases of hazardous materials leaks/uses in the area compiled by local, state, and federal agencies. AGI also reviewed environmental assessment reports supplied by the client and conducted site reconnaissances.

Client: Golden West Development

Environmental Site Assessment
Rubber Products Manufacturing Plant
Seattle, Washington

AGI conducted a Phase I Environmental Assessment (EA) at a rubber products manufacturing plant. The process and associated equipment use several hazardous substances, including methyl ethyl ketone (MEK), trichloroethylene (TCE), toluene, xylene, paint thinner, various solvents and lubricating oils, and carbon black. MEK, toluene, xylene, and paint thinner were stored in underground storage tanks which had been removed prior to the EA. While the majority of the material used at the site is completely contained in the final product, a certain percentage of the spent solvent waste is stored on site in DOT-approved 55-gallon drums for subsequent off-site disposal by a licensed hazardous disposal firm. The EA was conducted to establish historical and current uses of the subject property and nearby properties as a basis for assessing potential for environmental contamination. The results of the EA indicated a potential for soil and groundwater contamination beneath the site from several on-site and off-site sources. We recommended conducting a Phase II Environmental Assessment to confirm or deny the presence of suspected surface and subsurface contamination.

Client: Scougal Rubber Company

Stormwater Pollution Control Plan
Boeing of Portland
Portland, Oregon

AGI was commissioned by Boeing to develop a stormwater pollution control plan (SWPCP) for their rapidly growing Portland facility. The 80-acre industrial site drains to the Columbia Slough, a water quality limited stream. Work included compiling available civil drawings and developing a master Autocad storm drain plan. A sampling and anlysis program addressing metals and volatile organic compounds was developed in accordance with Oregon requirements. In addition, a review of the facility and its existing National Pollutant Discharge Elimination System (NPDES) permits was completed. Appropriate sampling locations were determined based on the facility drainage and material storage. Stormwater sampling was initiated in the fall of 1992.

Client: The Boeing Company

GEOTECHNICAL ENGINEERING

Geotechnical Investigation
Parcels 1A and 2
PASSCO Site
Union City, California

AGI conducted a geotechnical investigation of a 20.6-acre former steel plant site to be developed with single-family residences and appurtenant access roads. AGI investigated the site with 4 borings 30 feet deep, supplementing existing data from a previous environmental study. Soil samples were tested for shear strength, Atterberg Limits, moisture/density, and settlement characteristics. Major considerations were existing slag containing heavy metals, expansive soils, and the 100-year flood elevation. Solutions included removing the slag to an adjacent area and placing at least 3 feet of select fill to bring site grade to above the 100-year flood elevation and provide a moisture barrier to prevent expansive soil volume changes. The residential structures are to be supported on conventional shallow spread footings.

Client: Chemical Waste Management, Inc.

Preliminary Geotechnical Investigation and Limited Phase II Environmental Site Assessment
Oakland, California

AGI conducted a preliminary geotechnical investigation and limited Phase II environmental site assessment of a 1-city-block urban site to be developed with a 12-story building with 2 below-grade parking levels. Environmental concerns included documented and undocumented on- and off-site contaminant sources identified in a previous Phase I environmental site assessment performed by AGI. AGI investigated the site with 3 borings, each 100- to 120-feet-deep. The borings were drilled using hollow-stem augers until groundwater was encountered approximately 30 feet below ground surface. Fluid rotary techniques were then used below groundwater to limit heaving of sands and to obtain samples for geotechnical testing. All soil cuttings from the drilling operations were collected, analyzed for contaminants, and disposed of at a Class III landfill. Standard Penetration Tests were performed to check for liquefaction potential. Soil samples were tested for geotechnical properties, including shear strength (triaxial and direct shear), Atterberg Limits, settlement characteristics, grain-size distribution, and moisture/density. Soil samples from the borings and drill cuttings were analyzed for gasoline and diesel, volatile hydrocarbons, and total lead; all concentrations were below detection limits or within typical background levels. Major considerations were heavy building loads, settlement, seismic forces, construction below the groundwater level, and temporary excavation retention. Solutions included supporting the structure on a deep foundation (driven piles or drilled piers) or mat foundation, and limiting the excavation depth to above the groundwater level.

Client: Confidential

Geotechnical Investigation
1280 63rd Street
Emeryville, California

AGI conducted a geotechnical investigation of an urban city lot to be developed with 6 residential units. AGI investigated the site with 3 borings, each 20 feet deep. Soil samples were tested for shear strength, Atterberg Limits, and moisture/density. Major considerations were loose near-surface soils and expansive soil. Solutions included compacting the near-surface soils and supporting the structure on a deepened continuous perimeter spread footing foundation bearing below the depth of seasonal moisture changes.

Client: Emeryville Redevelopment Agency

Excavation Support System
San Jose, California

AGI provided recommendations for design of an excavation support system for a hazardous waste site remediation. The project involved removing seven 10,000-gallon underground chemical storage tanks and contaminated soil and groundwater. The 20-foot-deep excavation was located within an operating chemical plant and directly adjacent to several operating above-ground storage tanks and a tanker truck loading/unloading ramp. A cantilevered steel soldier pile and lagging system was used to support the excavation for over 4 months. AGI monitored the system installation and its successful performance over the duration of the project.

Client: Confidential

Geotechnical Engineering Services
City of Seattle
Seattle, Washington

AGI has provided geotechnical engineering services to the City of Seattle since 1986 under a Biannual Consultant Agreement. Project assignments have included review and comment on design and construction aspects of the Westlake Mall Project (including the Westlake Station of the Metro Downtown Tunnel Project) for the Department of Construction and Land Use, assisting the Parks Department with emergency evaluation and repair of a landslide at the West Seattle Golf Course, and review of conventional soldier pile/tieback and soil nail excavation retention system designs for mid- and high-rise projects in Seattle.

Client: Seattle Engineering Department

Geotechnical Investigation
Sea-Tac Airport
SeaTac, Washington

HNTB was selected to provide all required professional design services necessary for reconstructing Taxiway B North and the overlay of Runway 16L/34R. AGI was the geotechnical consultant for the project. Our project role included:

- Comprehensive subsurface exploration in conjunction with nondestructive deflection testing as a basis for delineating areas below which unsuitable soils may be present
- Soil stratigraphy evaluation and identification of pertinent engineering characteristics of soil units encountered throughout the project area
- Evaluation of pavement section strengthening requirements in conjunction with replacement of the main runway (16L/34R) porous friction course
- Recommendations for design and construction of PCC pavements, including construction methods to mitigate unsuitable subgrade support conditions
- Slope stability evaluation
- Preparation of a final written report detailing findings, conclusions, and recommendations

AGI also provided geotechnical design drawings and specifications for reconstruction of Taxiway A South and the South Holding Apron, and a new hardstand in the Northeast Cargo Area. AGI's project involvement included:

- Identifying soil stratigraphy and pertinent engineering characteristics of the soil units encountered
- Correlating soil characteristics with nondestructive deflection test data as a basis for evaluating possible variations in subsurface conditions
- Providing recommendations that focus on construction operations for inclusion in project specifications

A written report detailing findings, conclusions, and recommendations was submitted. The project involved close liaison with Port of Seattle and FAA personnel to avoid interference with airport operations.

Client: Howard Needles Tammen & Bergendoff

Landslide Consultation
Tiburon Division II
Redmond, Washington

AGI conducted a landslide consultation for the City of Redmond. The scope of work included visiting the site, located in a residential subdivision of Redmond, and reviewing existing documents. Based on the review and observations, AGI provided opinions regarding possible future landslide activity and potential threat to residential owners and their property. AGI presented results in a report and attended a meeting with the city to discuss report conclusions.

Client: City of Redmond

GROUNDWATER DEVELOPMENT, MANAGEMENT, AND PROTECTION

Groundwater Resource Evaluation and Well Design, Installation, and Testing
Mono Lake, California

AGI evaluated groundwater conditions, including water supply availability to augment streamflows at a destination fly fishing resort. In addition to reviewing existing water rights and groundwater use, we identified test drilling locations and target aquifers. Our field investigations included detailed geologic mapping and thorough analysis of the complex surface water system. We also designed, installed, and tested a production well to supply the growing recreational community.

Client: Triad Engineering

Water Supply Well Design and Installation
Hawthorne, Nevada

AGI staff assisted in the design of a 200-gallon-per-minute water supply well for the Hawthorne Army Ammunition plant in Hawthorne, Nevada. The project included installing one 400-foot-deep fluid rotary test boring and preparing well design criteria based on the hydrogeologic conditions encountered. We inspected the drilling and collected numerous samples for grain size distribution analysis. The final well design was based on the aquifer particle size analysis and the conditions observed during drilling.

Client: U.S. Army

Consulting Services
Washington Groundwater Planning Handbook
Washington State

AGI, in association with Hall & Associates, prepared a groundwater planning handbook for the Washington Department of Ecology. The handbook (Ground Water Resource Protection: A Handbook for Local Planners and Decision Makers in Washington State) describes groundwater occurrence and movement in Washington State and illustrates common groundwater contamination sources. The handbook also outlines groundwater management and protection strategies for implementation throughout the state.

Client: King County Planning Department

Hydrogeologic Assessment and Groundwater Use
Muckleshoot Indian Reservation
Auburn, Washington

AGI's hydrogeologic assessment was the first phase of a multi-phase effort designed to identify and protect groundwater resources at the Muckleshoot Indian Reservation near Auburn, Washington. Evaluation of Tribal groundwater resources required that a 30-square-mile study area be characterized. The effort included comprehensive compilation and review of existing data, geologic mapping and well inventory, and initiation of groundwater monitoring. Major aquifers and aquitards were identified, as well as current and potential threats to groundwater quality and quantity.

Client: Muckleshoot Indian Tribe

Supplemental Hydrologic Evaluation and Groundwater Management Plan Concepts
Muckleshoot Indian Reservation
Auburn, Washington

This was the second phase of AGI's multi-phase effort to characterize the groundwater resources of Tribal lands. The study had four goals: an enhanced understanding of the hydrogeologic system, identification of existing and future threats to MIR groundwater, finalization of aquifer protection zones, and establishment of aquifer protection priorities and initial management plan concepts. The achievement of these goals required further characterization of the MIR hydrogeologic system through a reconnaissance study of springs and their discharge, development of a water budget, assessment of potential contamination loading through a mapping of sources, development of a vulnerability map, and definition of aquifer protection zones.

Client: Muckleshoot Indian Tribe

Groundwater Availability Study
Hidden Acres Water Supply
Kitsap County, Washington

AGI evaluated groundwater availability for this 40-acre development in southern Kitsap County. Our evaluation identified a well site location and determined preliminary well design, anticipated drilling depth, and potential yield. We prepared drilling specifications, assisted in drilling contractor selection, supervised drilling, designed the well, supervised construction and development, and conducted an aquifer test. The well is currently on line supplying the developing community.

Client: Penwest Real Estate

Groundwater Resource Evaluation
Cle Elum River Project
Kittitas County, Washington

AGI evaluated groundwater availability for this 7,000-acre site in western Kittitas County for potentially developing surface water and/or groundwater as a water supply resource. AGI analyzed existing geological and hydrogeological data and performed a site reconnaissance to map geology. Our evaluation included recommendations for test drilling, including well locations and design criteria. The project included base map preparation; existing data analysis, including geology, hydrogeology, and mining information; aerial photograph interpretation; site reconnaissance and geological mapping; hydrogeological characterization and evaluation; and report preparation.

Our evaluation identified a potentially large (yielding thousands of gallons per minute) water resource and we subsequently implemented a drilling and testing program to evaluate the resource. A three-well drilling program identified two undeveloped aquifers; testing of the potentially prolific upper aquifer indicates a well field could potentially yield more than two million gallons per day from wells producing over 1,000 gallons per minute each. Implementation of the drilling and testing program required attainment of a preliminary water right permit from the Washington State Department of Ecology. Evaluation of the resource is being conducted as part of a comprehensive planning process to classify the site under Washington State's Growth Management Act. AGI also conducted geological, geotechnical, and mine hazard surveys of the entire 7,000-acre site as part of the planning process.

Client: Plum Creek Timber Company

PETROLEUM HYDROCARBON AND UST EVALUATION AND REMEDIATION

UST Assessment and Removal
City of Industry, California

In 1988, AGI observed and documented removal of three USTs from a facility leased to a transportation and warehousing company. Our services included obtaining appropriate permits and acquiring a tank removal contractor. We directed the tank removal and sampled soils surrounding the tanks to verify that no releases of petroleum hydrocarbons had occurred. Soil chemical analysis was accomplished using an on-site mobile laboratory to expedite the removal process.

Client: Confidential

Environmental Remediation - Design and Construction
City of Santa Rosa - Old Corporation Yard
Santa Rosa, California

AGI, in conjunction with Envirodyne Corporation, provided full-service design and construction to remediate approximately 22,000 cubic yards of petroleum contaminated soil and associated groundwater at a former city corporation yard. The site is underlain by fill and alluvial sediments. The depth to groundwater is typically less than 10 feet. Contaminants included petroleum hydrocarbons, semivolatiles, and metals. AGI's responsibilities for the project included:

- Preparing a Phase II environmental site assessment to evaluate the limits of known contamination.
- Preparing construction documents including a state-of-the-art solid phase treatment facility incorporating a double 40-mil, high-density polyethylene liner, leachate collection and detection systems, a leachate treatment system, and an irrigation system.
- Providing bench-scale treatability studies to refine treatment efficiencies and operational parameters.
- Providing on-site construction management personnel to oversee project implementation and provide technical oversight.
- Conducting sampling and chemical testing to verify treatment adequacy and assisting Envirodyne with identifying and selecting disposal sites for the treated soil.

AGI's services also included evaluating groundwater at the site and identifying potential upgradient off-site contaminant sources that may affect the site in the future. AGI provided regulatory liaison and successfully negotiated with the Regional Water Quality Control Board and Sonoma County to develop a cleanup level that allowed the treated soil to be disposed of locally, saving the City of Santa Rosa approximately $500,000.

Client: Envirodyne Corporation

UST Assessment and Remediation
Concord, California

AGI performed a soil and groundwater contamination assessment at a site in Concord following removal of a 1,000-gallon gasoline storage tank. This project included on-site solid phase treatment of contaminated soils and groundwater extraction and treatment. Contaminated soils were excavated, aerated on site, sampled, chemically tested, and disposed of at a Class III landfill. During soil remediation, a sump was installed in the excavation to recover contaminated groundwater. Three groundwater monitoring wells were installed, developed, sampled, and analyzed. The groundwater treatment system uses granular activated carbon and discharges into the sanitary sewer. Groundwater is sampled and tested quarterly.

Client: Envirodyne Corporation

UST Assessment and Remediation
Newark, California

AGI provided observation and hydrocarbon contamination assessment services associated with removal of four USTs and associated underground piping. During removal, the contaminated soil was excavated, stockpiled on site, and covered to prevent uncontrolled contaminant migration. Our assessment included reviewing published information concerning subsurface geological and hydrogeological conditions, drilling and logging soil borings and completing several borings as groundwater monitoring wells, collecting soil samples during drilling and performing on-site analysis, developing and sampling groundwater monitoring wells, and submitting selected soil and groundwater samples for analysis to quantify subsurface contamination. Based on the findings, AGI developed a Work Plan providing recommendations for remediation.

Client: Envirodyne Corporation

Hydrocarbon Contamination Remediation
Newark, California

AGI developed a Work Plan to remediate hydrocarbon contaminated soil and groundwater at this former UST site. The Work Plan follows the LUFT manual remedial guidelines set forth in regional guidance documents. Remediation activities being performed on site include treating contaminated soil using solid phase bioremediation techniques and groundwater extraction and treatment. Soil and groundwater samples are collected for laboratory analysis and to document remediation progress.

Client: Silvey Transportation, Inc.

Hydrocarbon Excavation and Treatment
Santa Rosa, California

AGI is providing technical assistance and field oversight during excavation of petroleum hydrocarbon contaminated soils encountered during excavation of an underground utility line. AGI provided regulatory liaison to obtain permits necessary to transport contaminated soils to an off-site treatment facility. Treatment of soils is being accomplished under supervision and technical direction of AGI field representatives.

Client: Envirodyne Corporation

UST Assessment and Removal
Midland, California

AGI provided observation and hydrocarbon contamination assessment services associated with the removal of USTs and hydraulic hoists. Our services included obtaining permits, acquiring a tank removal contractor, directing the tank and hydraulic hoist removal and disposal, collecting selected soil samples, and providing regulatory liaison. Our assessment of the site included reviewing available information concerning previous activities at the site, excavating tests pits, and collecting soil samples for chemical analysis to quantify subsurface conditions.

Client: Confidential

UST Replacement/Upgrade Program
California, Washington, Oregon, Idaho, and Montana

AGI is providing full UST removal and upgrade engineering services to GTE Northwest for over 250 sites with standby generator or vehicle fuel requirements in 5 states. These services include:

- Developing a complete Construction Specifications Institute (CSI) format specification for tank removal, tank disposal, and soil cleanup
- Preparing a new generic design for GTE Northwest's USTs to meet current regulations, including selection of the optimum system, full design drawings, and construction specifications
- Preparing and administering the bid documents and contractor selection
- Observing and testing UST removal and installation as GTE Northwest's on-site representative

Client: GTE Northwest

REFERENCES

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PERSONNEL

Our professional staff has considerable hands-on experience providing geotechnical and environmental engineering services. These services are directed by registered professionals. Qualifications for several of our senior professional staff members are presented below.

Mr. John Newby, P.E., AGI President, is a registered professional engineer with more than 19 years of experience in the geotechnical aspects of civil design and construction. His experience includes participation in groundwater studies and contamination evaluations. He has successfully scheduled, budgeted, and managed numerous hazardous waste projects. Mr. Newby has overall responsibility for AGI's quality assurance/quality control program (QA/QC) and has served as QA manager for contamination investigations in Washington, Oregon, California, Montana, Idaho, and Texas.

Mr. Patrick Kelly, P.E., Vice President, has been project leader of over 700 geotechnical studies during his 26 years of experience. He has been involved with a wide range of projects from planning through construction, including exploration, testing, engineering analysis, and quality control. Mr. Kelly has also been QA manager for soil and groundwater contamination projects.

Mr. Mackey Smith, C.E.G., Vice President and Principal Hydrogeologist, manages AGI's groundwater and geological services. He is a certified engineering geologist with over 20 years of experience in geology, hydrogeology, soil and groundwater contamination evaluation, water supply development, and aquifer testing and evaluation. In recent years, he has concentrated on identifying impacts of municipal, mining, industrial, and landfill projects on surface and groundwater systems and the practical mitigation or correction of soil and groundwater contamination.

Mr. Robert Strazer, P.E., Vice President, has over 27 years of geotechnical engineering experience. He has managed numerous projects, including foundation investigations for industrial, commercial, municipal, and professional clients. He has a broad range of experience in the evaluation and design of shoring systems, port and waterfront structures, and special foundations for large buildings.

Mr. Donald Bruggers, P.E., Principal Engineer, has more than 16 years of practical experience as a civil and geotechnical engineer. His responsibilities as manager of AGI's geotechnical engineering services include overall project planning, engineering management, technical direction, quality assurance, and quality control. His areas of expertise include geotechnical field and laboratory investigations, foundation engineering analysis and design, geotechnical consultation for complex construction, and construction management.

Mr. Vincent Lascko, P.E., Principal Engineer, has 13 years of professional experience. As principal investigator or manager for major hazardous waste projects, he has had significant involvement in investigation planning, engineering analyses, design, and construction control. Mr. Lascko has been responsible for personnel allocation, budget, and timeliness. He has been project manager for remedial investigations conducted under CERCLA at Superfund sites in Idaho and Montana and managed major site evaluations and cleanups in Washington, Texas, California, Ohio, Maryland, and New York.

Mr. William Wikander, P.E., Associate Engineer, is a registered civil and geotechnical engineer with more than 13 years of practical experience participating in and managing geotechnical and environmental projects. His geotechnical experience includes investigations and services during construction for industrial facilities, high-rise structures, sanitary landfills, roadways, and large commercial and residential developments. Mr. Wikander's environmental experience includes preparing Phase I assessments, investigating the presence and extent of soil and groundwater contamination, negotiating cleanup levels with regulatory agencies, determining remediation methods, managing site remediation, and monitoring groundwater wells and treatment systems.

Mr. Mark Adams, P.G., Associate Geologist, has more than 14 years of experience in geology, hydrogeology, and hazardous waste evaluation and remediation. He has managed or been principal investigator for numerous groundwater contamination investigations and environmental assessments. He has also managed large multidisciplinary Remedial Investigation/Feasibility Study projects under CERCLA at municipal landfills and industrial facilities.

Mr. Richard Fejta, P.E., Associate Engineer, has 10 years of experience in geotechnical engineering, including investigation and design for driven piling, slope stability, pavements, containment ponds, preloading, and instrumentation. Mr. Fejta is responsible for project management, report preparation, and quality assurance.

Ms. Teri Floyd, Ph.D., Associate Environmental Chemist, has over 15 years of experience in project management, environmental and aqueous chemistry, and chemical statistics. Her chemical experience includes organic and inorganic contaminant chemistry, quantitative analysis and quality control, and the application of numerical methods to chemical analyses. She has managed RCRA and CERCLA projects dealing with the fate and transport of hazardous organic chemicals and metals in the environment. Dr. Floyd has developed a contaminant fate and transport in groundwater model based on chemical partitioning.

Mr. Daniel Henninger, Remedial Construction Manager, has over 9 years of experience in project and construction management, including remedial design, engineering and system operations, subcontractor oversight, regulatory compliance, and construction inspection. Mr. Henninger has managed soil bioremediation and groundwater extraction and treatment projects in California, Texas, North Dakota, Washington, and Oregon. Several of these remediations were on federal Superfund sites.

Mr. Gary Laakso, Remediation Services Manager, has over 13 years of experience in project management, including hazardous waste site assessments, Remedial Investigations/Feasibility Studies, and site remediations. He is responsible for technical and contractual direction of projects and has conducted contamination assessments and remediation programs at UST sites and chemical manufacturing and storage facilities.

Mr. David Rankin, P.G., Associate Geologist, with more than 10 years of professional experience, has conducted numerous soil and groundwater investigations. Mr. Rankin has been project engineering geologist and assisted in geotechnical analyses relating to foundation design, subdrainage, settlement analysis, force main/gravity sewer design, site grading, slope stability, sump/dry well feasibility, and pavement design. He has conducted environmental assessments and UST site evaluations and cleanups throughout Oregon and Washington.

Mr. Geoffrey Compeau, Ph.D., Senior Scientist, is a microbiologist with more than 12 years of field and laboratory experience developing and implementing remediations at industrial facilities throughout the United States. His efforts in developing microorganisms to remediate waste are recognized nationally. Dr. Compeau leads AGI bioremediation projects and oversees the AGI bench-scale treatability studies laboratory.

Mr. Robert C. Palmquist, Ph.D., Senior Geologist, has over 25 years of research and consulting experience in groundwater and surficial geology in the western United States. He is responsible for landfill siting, groundwater contamination studies, and aquifer evaluation, including characterization of contaminant plumes and aquifer vulnerability analysis. His surficial geology experience includes research on glacial and alluvial deposits, karst development, landslides, and application of geological and soils data to site evaluation and land use planning.

Other professionals on AGI's staff include geotechnical, civil, and environmental engineers; engineering geologists; geologists; and hydrogeologists. Members of the professional staff are listed in the following Personnel Table.

AGI's support staff includes administration, accounting, clerical, graphics, marketing, word processing, and laboratory personnel.

PERSONNEL TABLE

AGI PROFESSIONAL STAFF

Name	Degree	Registrations
Scott Adamek	MA, Geology	
John Adams	BA, Environmental Studies	
Mark Adams	MS, Geology	P.G. (OR)
Peter Barry	MS, Geology	
Monica Beckman	BS, Industrial and Operations Engineering	
Glen Bobnick	MS, Civil Engineering	P.E. (MI,WA)
Kathy Bourbonais	BS, Clinical Chemistry	
Bart Bretherton	MS, Hydrology	
Steven Bruce	BS, Geology	P.G. (VA, WY, ID)
Donald Bruggers	MS, Civil Engineering	P.E. (AK,CA,OR,WA) Geotech. Engr. (CA)
Alan Carey	BS, Geology	
Martin Carlson	MS, Geotechnical/ Environmental Engineering	P.E. (WA)
Lief Christenson	MS, Geology	P.G. (ID)
Rebecca Clodfelter	MS, Hydrogeology	
Geoffrey Compeau	Ph.D., Environmental Microbiology	
Jessie Compeau	BS, Biology/Chemistry	
Laurene Compton	BA, Geology	
Glenn Cotter	BS, Civil Engineering	
Edward Crow	MS, Hydrogeology/Geology	
David Dawson	BS, Environmental Geology	
Jan Deick	MS, Hydrogeology	
Wesley DeKlotz	MS, Geotechnical Engineering	
Richard Fejta	BS, Civil Engineering	P.E. (WA,OR,TX)
Teri Floyd	Ph.D., Environmental Engineering/Chemistry	
David Gabler	BS, Soil Science	
Andrew Harvey	MS,Geology	P.E. (AZ, OR)
Dan Henninger	BS, Zoology	
Doug Hutchinson	BS, Geological Sciences	
Jim Imbrie	BS, Geological Engineering	P.E. (OR,CA)
Annette Jakubiak	MS, Geochemistry	
Don Kaizen	BS, Environmental Science Engineering	
Patrick Kelly	MS, Soil Mechanics and Foundation Engineering	P.E. (OR)
Nancy Kraushaar	BS, Civil Engineering	P.E. (OR,CO)
Gary Laakso	BA, Zoology	
Don Lance	MS, Geology	P.G. (CA,ID,OR)
Vince Lascko	MS, Civil Engineering	P.E. (WA,OH,ID)

PERSONNEL TABLE (cont.)

AGI PROFESSIONAL STAFF

Name	Degree	Registrations
Lee MacClellan	BA, Geology	
Howard Marks	Ph.D., Env. Toxicology	
Lauren McCann	BS, Geology	P.G. (OR,CA) C.E.G. (OR)
Thomas McFarlane	MS, Geotechnical Engineering	P.E. (WA)
Thomas Mercer	BS, Geology	
Thomas Meyer	MS, Hydrology	
Allen Moore	MS, Geology	
Roy Moore	MS, Soil Mechanics	P.E. (OR,CA) Geotech. Engr. (CA)
Pamila Morrill	BS, Soils	
John Newby (WA,CA,MT,ID,OK,KS,TX)	MS, Civil Engineering	P.E.
Robert Palmquist	Ph.D., Geology	Geotech. Engr. (CA)
Susan Penoyar	MS, Civil Engineering	P.G. (WY)
Lance Peterson	MS, Hydrogeology	P.E. (WA)
Christopher Pressey	BS, Civil Engineering	P.E. (WA)
Barbara Portwood	BS, Geology	P.G. (OR)
David Rankin	MS, Geology	P.G. (OR)
Stephen Reimers	MS, Civil Engineering	P.E. (CA,MS)
Ray Sadowski	MS, Geochemistry	
Peter Sajer	MS, Geotechnical Engineering	
Jim Schmidt	MS, Civil Engineering	P.E. (WA,CA)
John Schwartz	BA, Geography/Geology	
Jim Seaberg	MS, Hydrogeology	
Tom Short	BS, Education	
Russ Simonson	BS, Chemistry	
Mackey Smith	MS, Geology	C.E.G. (OR)
Chuck Soule	MS, Hydrogeology	P.G. (CA)
Garry Squires	MS, Civil Engineering	P.E. (WA)
Ross Stainsby	BS, Geology & Earth Science	
Robert Strazer	MS, Civil Engineering	P.E. (WA,OR)
Jeff Thompson	MS, Engineering Geology	

PERSONNEL TABLE (cont.)

AGI PROFESSIONAL STAFF

Name	Degree	Registrations
Jeffrey Uding	AAS, Hazardous Materials Management	
P.J. Vanasten	MS, Environmental Engineering	P.E. (WA,WI)
Scott Ward	MS, Civil Engineering	P.E. (OR)
William Wikander	MS, Civil Engineering	P.E. (CA)
Cara Wright	MS, Geology	Geotech. Engr. (CA)

HEALTH AND SAFETY

AGI believes health and safety is the first and foremost consideration in successful operations. Operations typically involve some degree of risk; AGI is concerned about job-related hazards and makes concerted efforts to reduce risks. Consequently, a corporate Health and Safety Program meeting the requirements of 29 Code of Federal Regulations (CFR) 1910, 29 CFR 1926, and state-specific requirements for those states in which we conduct work has been prepared and implemented to provide AGI employees with information to perform their jobs in a safe manner.

AGI has approximately 10 years of experience providing health and safety-related services at both noncontaminated and contaminated sites, including hazardous waste investigation and remediation projects. We have written and implemented Health and Safety Plans for more than 300 projects, including several USEPA Superfund projects. Health and safety services include:

- Writing and implementing site-specific Health and Safety Plans
- Performing construction observation services in compliance with OSHA regulations
- Managing construction and hazardous waste sites to ensure compliance with applicable health and safety rules and regulations
- Performing field investigation and remediation services at sites requiring Levels A through D personal protective equipment
- Performing air monitoring utilizing flame ionization detectors, photoionization detectors, and combustible gas meters to ensure the safety of site employees and the general public
- Collecting air samples utilizing organic vapor diffusion badges, colorimetric tubes, and personal air sampling pumps equipped with the appropriate sampling media to document employee exposures and off-site emissions of hazardous chemicals
- Providing training for employees working at hazardous waste sites, including 40- and 24-hour basic training, 8-hour supervisor training, and 8-hour annual refresher training
- Conducting specialized training for specific sites and operations, including confined space entries
- Conducting compliance audits to ensure facilities meet applicable state and federal regulations
- Conducting health-based risk assessments
- Ensuring compliance with state and federal Clean Air Act laws and regulations

AGI's health and safety services are supported by personnel specifically trained in the areas of industrial hygiene, toxicology, and engineering. Our areas of safety expertise include general construction, underground storage tank, and landfill sites; our chemical safety expertise includes petroleum hydrocarbons, metals, polycyclic aromatic hydrocarbons, volatile organic compounds pesticides and PCBs, and dioxins. Health and safety activities are fully documented. Upon project completion, information is summarized and forwarded to the client.

PROJECT SUPPORT

SOILS LABORATORY

AGI maintains well-equipped physical soil properties testing laboratories at our offices in Bellevue, Washington and Portland, Oregon. Our laboratories support in-house projects and provide routine on-call testing services for several Pacific Northwest engineering companies. The labs include state-of-the-art equipment for testing both clean and contaminated samples. Soil pore water pressure and volume change can be measured during triaxial or consolidation testing. Various permeants can be used, including landfill leachates and groundwater contaminated with inorganic and organic compounds. All testing is performed in accordance with current ASTM standards. The equipment is automated for electronic data acquisition; this allows rapid and accurate data collection and analysis. Where applicable, final reports include computer generated graphics and statistics. More commonly performed testing procedures include:

- Index and Classification Tests
  - Visual classification of soil samples
  - Moisture and density determinations
  - Particle size (both sieve and hydrometer)
  - Atterberg Limits
  - Specific gravity
  - Electrical properties
  - Compaction
- Strength Tests
  - Strain controlled direct shear on partly or fully saturated and consolidated specimens
  - Stress or strain controlled triaxial
  - Vane shear testing
- Consolidation Tests
- Permeability Tests
  - Constant or falling head
- Falling Wright Deflectometer Testing
- Specialized Tests
  - Triaxial cell and permeameter permeability using leachate or simulated leachate for hazardous waste and groundwater studies
  - To model the behavior of dredged soils and underwater slopes, two 8-inch-diameter water sedimentation columns are used to estimate rates of sedimentation and densities for dredged fill and suspended solids concentrations in the discharge water
- Data Acquisition and Reduction

Digital or analog electronic devices are used whenever possible to enhance test accuracy and efficiency. LVDTs, load cells, and pressure transducers are used to measure displacements, loads, and pore pressures in consolidation, permeability, and strength tests. These devices are connected to an automatic, 10-channel data logger which monitors all or any combination of channels at specified time intervals and provides a printout of the data. Where applicable, computer programs are used to reduce test data.

ENVIRONMENTAL TECHNOLOGY LABORATORY

AGI's Environmental Technology Laboratory contains instrumentation to conduct organic, inorganic, and microbiological analyses necessary to address remediation issues. These same techniques are used in monitoring support for site investigations and full-scale remediation projects, including field hydrocarbon analysis during soil excavation. The 900-square-foot laboratory is equipped with refrigerated storage space, ventilation systems, and fume hoods required to maintain and evaluate contaminated samples safely. The laboratory is also equipped with Ph meters, dissolved oxygen apparatus, specific conductance meters, reciprocating shakers, an autoclave, and other general laboratory equipment. Specific analyses and testing include:

- Infrared analysis of petroleum hydrocarbons
- Microbiological analysis of hydrocarbon-degrading organisms
- Nutrient analyses and other wet chemistry analyses
- Soil leaching and flushing apparatus
- Bench-scale vapor phase bioreactors
- Bench-scale liquids/solids contact reactors

LIBRARY AND FILES

AGI maintains technical libraries in our corporate office and all branch offices. All offices have access to the resources in these libraries. Resources include:

- Local, state, and federal codes and regulations
- U.S. Government daily Federal Registers
- U.S. Code of Federal Regulations
- Technical reference books, papers, maps, and reports
- Technical periodicals
- U.S. Geological Survey geologic and hydrologic maps
- Topographic maps
- Aerial photos
- Project files dating back to 1974 (includes projects conducted by AGI predecessor firms)

AGI's libraries are recognized as technical libraries and therefore maintain borrowing privileges with university, public, and technical libraries throughout the United States. AGI also has access to numerous online databases.

INFORMATION MANAGEMENT AND REPORTING SYSTEM

AGI's facilities include more than 50 microcomputers linked via a multi-branch Local Area Network (LAN) in each office. The office LANS are linked through high speed modems. Departmental Servers and system resources are shared through a peer-to-peer network operating system which combines 10-Net and Windows for Workgroups. Computer work centers are maintained in the following departments:

- Graphics: Utilizes AutoCad, desktop publishing, and other graphics software to prepare logs, tables, and illustrations for reports and to prepare project-specific specifications and drawings
- Word and Data Processing: Responsible for report preparation, data management, and archiving
- Accounting: Utilizes an in-house jobcost accounting system that manages and tracks payroll, project charges, billing, and invoices
- Marketing: The Marketing Department utilizes the network to prepare proposals, track project histories, and maintain marketing-related records.

Individual work stations located throughout AGI's offices are linked to this network and have access to all data.

AGI's computer hardware and software allows us to:

- Prepare, manage, track, and archive all technical reports efficiently
- Produce CAD drawings, tables, charts, and figures utilizing digitizing, scanning, color pen plotting (A to E size), and laser printing
- Collect, reduce, plot, and evaluate laboratory test data
- Collect soil and water test data and perform routine to complex geotechnical, hydrogeological, and geochemical analysis and modeling
- Manage and track project charges, billing, and invoicing efficiently
- Transfer reports and data between clients and our other offices quickly

Our documented software library includes many applications for project management, engineering, hydrology, statistical analysis, graphics, word processing, and data management. In addition, we have in-house programming capability which allows us to enhance off-the-shelf software, develop our own applications, and create data management systems. Internal programming capability includes C, C++, Fortran, Basic, and Pascal. Database capabilities include Dbase III and IV+, Btrieve, C-tree, Raima, db_Vista, and SQL. AGI is a Beta site for Windows for Workgroups and Windows NT.

EXCEL

ENVIRONMENTAL AND GENERAL ENGINEERING Lic #371497

Underground Fuel Tank Management
Exploratory Drilling & Monitoring Wells
Hazardous Waste Site Assessments
Bioremediation
Remedial Design
Vapor Extraction Systems

Analytical Testing
Hydrogeologic Testing
Asbestos Surveys
Environmental Audits
Regulatory Permitting
Soil Gas Investigations

November 11, 1993

Durham Transportation
9171 Capital of Texas Highway North
Travis Building, Suite 200
Austin, Texas 78759-7252
Attention: Mr. David Delamotte

SUBJECT: DURHAM SITE LOCATED IN HAYWARD, CALIFORNIA.

Dear Mr. Delamotte:

Per your request I've researched the use of a Risk Based Assessment (RBA) for the Hayward, California site. The purpose of the RBA would be to establish higher remediation levels than exist currently.

To provide assistance in this matter I contacted Mr. David Glick, an independent Hydrologist located in the bay area ((408) 987-0210). We discussed the use of a RBA and it's acceptance by the regulatory agencies. He stated that the RBA should only be conducted after; (1) the source of the contamination (ie. tanks, soil, etc.) has been removed and posses no further threat, (2) an attempt has been made to mitigate the contaminate plume and the mitigation operations are asymptotic, and thus further cost spent on remediation would not be beneficial. If these points are addressed completely the regulatory agency will most likely reject the RBA and the proposal to increase the levels for remediation and closure purposes.

The estimated cost to complete an RBA is between $4,000.00 and $8,000.00.

In conclusion the use of a RBA is currently limited due the inexperience of those reviewing the RBA and methodology used to generate the RBA. Also submittal of a RBA prior to

conducting any site remediation would not be advantages to setting remediation levels for the site.

Should you require any further assistance in this or any other environmental matter please contact our office at (310) 529-2511.

Sincerely,

Klaus P. Wojak

Klaus P. Wojak, R.E.H.S.,R.E.A.
KPW/tw
3COR01DH

EXCEL

ENVIRONMENTAL AND GENERAL ENGINEERING Lic #371497

Underground Fuel Tank Management
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Hazardous Waste Site Assessments
Bioremediation
Remedial Design
Vapor Extraction Systems

Analytical Testing
Hydrogeologic Testing
Asbestos Surveys
Environmental Audits
Regulatory Permitting
Soil Gas Investigations

September 16, 1993

Durham Transportation, Inc.
9171 Capitol of Texas Highway North
Travis Building, Suite 200
Austin, Texas 78759
Attention: Mr. David Delamotte

SUBJECT: RESPONSE TO THE REQUEST FOR PROPOSAL DATED AUGUST 20, 1993.

Dear Mr. Delamotte:

Excel Environmental and General Engineering (EEGE) is pleased to respond to the Request for Proposal (RFP) dated August 20, 1993 for the remediation of the Durham Transportation, Inc. (DTI) located at 19984 Meekland Avenue Hayward, California. The remediation of the site shall be divided into two phases, that could be addressed at the same time or separately. Based on the information provided to EEGE by DTI a comparison chart was developed to compare the remediation methods that may be feasible for the type of contamination and the physical state of the site (please see Comparisons Charts 1 & 2). Based on the comparison charts the following approaches were listed as possible remediation methods for the site:

REMEDIATION OPTIONS

PHASE I: POSSIBLE SOIL REMEDIATION OPTIONS

A. OFF-SITE INCINERATION: Currently there are no permitted off-site incinerators located in Northern California, but REMCO is expected to be approved some time in late 1993. If REMCO isn't permitted, the material can be transported to the TPS facility in southern California for treatment at an additional cost for the transportation. This method is therefore recommended only if REMCO obtains the required permits to operate.

B. VAPOR EXTRACTION: Vapor Extraction Systems (VES) have been proven to be successful in the treatment of gasoline contaminated soils. The success of the system is dependent upon several properties of the impacted soils such as the soil porosity, soil density, and water content. If the soil porosity is low, such as clay the success of the VES method is moderate to poor. This site is composed of clay type soils and thus the VES approach is not recommended.

C. OFF-SITE RECYCLING: Currently there are two facilities located in the northern California area that will accept the soil to be excavated. The REMCO facility is the most cost effective of the in terms of transportation cost and disposal costs and thus is used to provide DTI with a cost estimate.

PHASE II: PROPOSED GROUND WATER TREATMENT OPTIONS

A. CARBON TREATMENT WITH SEWER DISPOSAL: The ground water will be pumped from the subsurface from two existing ground water monitoring wells and one additional well to be installed, through a series of activated carbon canisters. The treated water will then be stored in a 10,000 gallon poly tank prior to discharge into the sewer system. Prior to discharge the water in the poly tank will be tested as requested by the Oro Loma Sanitary District. The carbon canisters will be required

to be removed from the site and reactivated or larger carbon tanks can be utilized at a greater initial costs but less cost for the regeneration.

B. AIR STRIPPING WITH EFFLUENT DISCHARGE FLOW THROUGH ACTIVATED CARBON AND TREATED WATER DISCHARGE INTO THE SEWER SYSTEM: This system evolves the pumping of the ground water through existing on-site wells and one additional well to be installed. The pumped water will then flow through a low profile air stripper with the effluent air stream treated by activated carbon. The treated ground water will flow through a series of carbon canisters to polish the removal of the contaminates. The treated ground water will then be stored in a 10,000 gallon poly tank prior to disposal into the sewer system. The carbon for both phases of treatment will require regeneration at periodic intervals of break through.

COST ESTIMATES

PHASE I: POSSIBLE SOIL REMEDIATION OPTIONS

OPTION I: OFF-SITE INCINERATION

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
Soil Excavation and Loading		4,225	
Clean Import Fill		8,350	
Bacfilling Equipment/Labor		4,600	
Laboratory Fees		5,600	
Transportation Costs(Local)		9,000	
Disposal Costs (750 Tons)		43,200	
TOTAL		$74,975	

OPTION II: OFF-SITE RECYCLING

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
Soil Excavation and Loading		4,225	
Claen Import Fill		8,350	
Clean Fill Import		4,600	
Laboratory Fees		5,600	
Transportation Costs (Local)		9,000	
Disposal Costs (750 Tons)		43,200	
TOTAL		$74,975	

PHASE II: POSSIBLE GROUND WATER REMEDIATION OPTIONS

OPTION I: ACTIVATED CARBON TREATMENT WITH SEWER DISPOSAL

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
Air Permits		1,500	
Carbon		3,500	9,950
Disposal Costs*			10,200
Estimated Capital Costs for Pumping	15,650		
Estimated Site Preparation		18,600	
Estimated Annual Operating Costs			5,750
Consultant Fees			43,000
Laboratory Fees			20,000
Subtotal	**15,650**	**23,600**	**88,895**
Total			$128,145

OPTION II: AIR STRIPPING WITH DISCHARGE THROUGH ACTIVATED CARBON TREATMENT AND SEWER DISPOSAL

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
Stripping Tower	6,400		
Air Permits		1,500	
Carbon		3,500	9,945
Disposal Costs*			10,200
Estimated Capital Costs for Pumping	15,650		
Estimated Site Preparation		18,600	
Estimated Annual Operating Costs			5,750
Consultant Fees			43,000
Laboratory Fees			20,000
Subtotal	**22,050**	**23,600**	**88,895**
Total			**134,545**

RECOMMENDATIONS

EEGE recommends that DTI proceed with the remediation of the SITE by implementation of Option I for the both the soil and ground water contamination.

Should you require any further assistance, please call me at (310) 529-2511.

Sincerely,

Excel Environmental and General Engineering

Klaus P. Wojak, R.E.H.S./R.E.A.
KPW/tw
B0993056

COMPARISON CHART 1: GROUND WATER REMEDIATION OPTIONS

	Carbon Treatment with Storm Drain Discharge	Carbon Treatment with Sewer Discharge	UV treatment with Storm Drain Discharge	Air Stripping with Sewer Discharge	Air Stripping with Storm Drain Discharge	Air Stripping with Carbon and Sewer Discharge	Air Stripping with Carbon and Storm Drain Discharge
Permitting	HIGH	HIGH	HIGH	LOW	LOW	HIGH	HIGH
Approval	HIGH	HIGH	HIGH	LOW	LOW	HIGH	HIGH
Initial Costs	MODERATE	MODERATE	HIGH	HIGH	HIGH	HIGH	HIGH
Recurring Costs	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE	HIGH	HIGH
Laboratory Costs	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE
Disposal Costs	MODERATE	MODERATE	LOW	LOW	LOW	MODERATE	MODERATE
Sampling and Reporting Costs	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Annual Costs	MODERATE	MODERATE	LOW	LOW	LOW	MODERATE	MODERATE
Feasibility of Method on this Project	LOW	HIGH	LOW	LOW	LOW	HIGH	LOW

DURHAM TRANSPORTATION, INC. MEEKLAND SITE

COMPARISON CHART 2: SOIL REMEDIATION OPTIONS

	Excavation and Class 1 Disposal	Excavation and Off-Site Incineration	Excavation and On-Site Incineration	Excavation and On-Site Chemical Fixation	Vapor Extraction	Excavation and Aeration	Excavation and Off-Site Recycling
Soil Type "Clay"	HIGH	MODERATE	LOW	LOW	LOW	MODERATE	HIGH
Permitting	HIGH	HIGH	LOW	LOW	LOW	LOW	HIGH
Approval	HIGH	HIGH	LOW	LOW	LOW	LOW	HIGH
Initial Costs	LOW	LOW	HIGH	HIGH	HIGH	HIGH	HIGH
Recurring Costs	COULD BE HIGH	LOW	LOW	COULD BE HIGH	LOW	LOW	LOW
Laboratory Costs	MODERATE	MODERATE	MODERATE	HIGH	HIGH	HIGH	LOW
Disposal Costs	HIGH	MODERATE	LOW	LOW	MODERATE	LOW	LOW
Sampling and Reporting Costs	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Annual Costs	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	LOW	LOW	NOT APPLICABLE	NOT APPLICABLE
Feasibility of Method on this Project	LOW	HIGH	LOW	LOW	LOW	LOW	HIGH

DURHAM TRANSPORTATION, INC. MEEKLAND SITE

PAYMENT SCHEDULE

Excel Environmental and General Engineering (EEGE) will require a retainer of twenty percent (20%) of the contract price at the time of acceptance of this proposal, and prior to EEGE beginning work on the project. The remaining eighty percent of the contract will be billed upon completion of each phase or on a monthly bases. Upon the completion the remaining amount of the contract price including any additional costs will be due prior to submittal of the Final Closure Report.

ACCEPTANCE

The undersigned herewith accepts the terms and conditions of EEGE's proposal dated September 16, 1993. The proposal refers to the job known as 19984 Meekland Avenue, Hayward, California. The contract price for the project will be based on the options chosen by DTI.

The undersigned, by having affixed their signature to this acceptance is stating that they are authorized by Durham Transportation, Inc. to enter into this contract with EEGE. The undersigned herewith gives EEGE the authorization to begin work on this project.

Contractors are required by law to be licensed and regulated by the Contractors' State License Board. Any questions concerning a contractor may be referred to the Registrar, Contractors State License Board, P.O. Box 26000. Sacramento,

Signed_____

Title_____

Date_____

CTTS, Inc.
toxic technology services

November 20, 1993

Mr. David Delamotte
Durham Transportation
9171 Capitol of Texas Highway North
Travis Bldg., Suite 200
Austin, Texas 78759

Dear Mr. Delamotte:

RE: PROPOSAL AMENDMENT--RISK BASED ASSESSMENT OF CLEANUP GOALS

Thank you for the opportunity to offer this amendment to my original proposal for remediation of soil and groundwater contamination at the Durham Transportation site on Meekland Avenue in Hayward, California. The original proposal was based on meeting conventionally established soil cleanup goals for the site. These limits were established with Alameda County at the time that the workplan was prepared.

CTTS, Inc., proposes to amend this proposal by working with the Alameda County Department of Environmental Health to derive target cleanup goals for the Meekland site. This will be accomplished by applying a scientific risk based assessment process to the levels of contamination present at the site. This assessment will result in the development of site-specific cleanup goals that provide cost-effective public health and groundwater protection at the site.

This proposal amendment addresses the possible pathways to arrive at risk based cleanup goals that are acceptable to all parties involved. To ensure acceptance of the final product, each phase of the assessment will be carefully coordinated with Alameda County and the State of California Regional Water Quality Control Board (RWQCB). Based on the outcome of each phase, subsequent steps could be modified or eliminated.

The first phase is a screening assessment and development of health and environmental risk based cleanup goals. This will be performed using existing data. It will consist of regulatory coordination, assessment of the data according to County-specified risk assessment models and determination of health and environmental risk based cleanup goals.

Upon completion of the first phase, it will be determined if groundwater protection based cleanup goals should be developed. CTTS, Inc., proposes to derive these goals, if required, by modelling methods utilizing existing data. At this phase, Alameda County may insist that additional soil sampling and leachability analyses be performed. After the completion of the groundwater protection based assessment, site cleanup goals for soil and groundwater remediation will be established.

COST PROPOSAL

Development of Health/Environmental Risk Based Assesment	$4,680.00

ADDITIONAL SERVICES (OPTIONAL, AS REQUIRED BY ALAMEDA COUNTY)

Modelled Groundwater Leachability Assesment	$3,900.00
Field and Laboratory Groundwater Assesment	$6,900.00*

*Includes subcontracted costs for sampling and analysis estimated to be $4,500. Subcontracted services will be charged at 115% of actual invoiced cost.

If the risk based cleanup goals selected are different from those incorporated in the existing proposed workplan, further revision of the cleanup proposal may be necessary. These goals may either expand or condense the scope of site remediation.

I look forward to the opportunity to perform this work for Durham Transportation. If you have any questions, please call me at (510) 799-1140.

Sincerely,

Lisa A. Polos, REA, CHMM
Senior Scientist
Toxic Technology Services
CTTS, Inc.

CTTS, Inc.
toxic technology services

Option ①	Est. Cap Costs ② For Pumping	Est. Site ③ Prep Costs	Est. Annual ④ Operating Costs	Consultant ⑤ Fees	Est Method Cap. Cost	Est. Method Outlay	Est. Method Operating Costs	Disposal Costs	Option Total	10% Contingency	Grand Total
1A	17,000	22,000	7,040	68,300	8,000	9,500	55,000	4,200	191,040	19,104	210,144
1B	17,000	22,000	7,040	68,300	8,000	9,500	55,000	15,000	201,840	20,184	222,024
1C	17,000	22,000	7,040	68,300	8,000	9,500	55,000	10,000	196,840	19,684	216,524
2A	17,000	22,000	7,040	68,300	0	8,500	60,400	4,200	187,440	18,744	206,184
2B	17,000	22,000	7,040	68,300	0	8,500	60,400	15,000	198,240	19,824	218,064
2C	17,000	22,000	7,040	68,300	0	8,500	60,400	10,000	193,240	19,324	212,564
3A	17,000	22,000	7,040	68,300	70,000	10,000	88,000	4,200	286,540	28,634	315,194
3B	17,000	22,000	7,040	68,300	70,000	10,000	88,000	15,000	297,340	29,734	327,074
3C	17,000	22,000	7,040	68,300	70,000	10,000	88,000	10,000	292,340	29,234	321,574
	0	0	0	0	0	12,000	0	49,000	61,000	6,100	67,100
	0	0	0	0	0	21,000	0	55,000	76,000	7,600	83,600
	0	0	0	0	0	19,000	0	82,500	101,500	10,150	111,650
	0	0	0	0	1,500	13,350	11,150	10,000	36,000	3,600	39,600
	0	0	0	0	0	58,000	0	0	66,500	6,650	73,150

mbers in O refer to Appendix

COST ANALYSIS
REMEDIATION ALTERNATIVES

19984 MEEKLAND AVENUE
HAYWARD, CALIFORNIA

Presented To:
Durham Transportation
9171 Capitol of Texas Highway
Travis Building, Suite 200
Austin, Texas 78759

Prepared By:
CTTS, Inc.
Toxic Technology Services
P.O. Box 515
Rodeo, California 94572

September 20, 1993

CTTS, Inc.
toxic technology services

September 20, 1993

Mr. David Delamotte
Durham Transportation
9171 Capitol of Texas Highway North
Travis Bldg., Suite 200
Austin, Texas 78759

Subject: Request For Bid Proposal
19984 Meekland Ave., Hayward, CA

Dear Mr. Delamotte:

CTTS, Inc. (Toxic Technology Services) is pleased to present a cost proposal and estimate for the execution of soil and groundwater remediation services at the above referenced subject site. Our package includes several technological alternatives that were evaluated for the site and our recommendations based on the best available technology for the size of the site, type of contamination and economic feasibility.

The project will be billed on a time and materials basis. The enclosed cost proposal is a realistic estimate given the information that is currently known. However, this project will take some time to complete and the unexpected often happens.

The following are responses directly correlated with the items in the "Request For Bid Proposal" dated August 20 1993.

I PURPOSE

The letter from the LRA dated June 11, 1993 states that the clean-up goal for soil remediation is 10 ppm Total Petroleum Hydrocarbons. To the best our knowledge, no clean-up level for groundwater has been established specifically for the site. CTTS, Inc. will remediate to whatever levels are negotiated by the LRA and CTTS, Inc.

II SITE HISTORY

No additional comment.

III PROPOSED SCOPE OF WORK

A. Soil Remediation

No additional comment

B. Groundwater Remediation

This proposal is for the remediation of the on site groundwater contamination plume. Off site investigation would be proposed under separate cover.

As part of this proposal is a remediation methods evaluation with associated costs. Both on site soil and groundwater remediation is addressed. Remediation methods have been recommended based on the evaluation.

IV PROJECT COST ANALYSIS FOR EACH PROPOSED METHOD

A cost summary is included with the remediation methods evaluation. The cost analysis includes:

1. Preparation of amendments to the November 1, 1992 workplan. This workplan is what was requested by the LRA to commence remediation of the site. The LRA has accepted this plan with the subsequent amendments prepared by CTTS, Inc.. Additional correspondence with the LRA will be needed to confirm the methodology and clean-up levels, but a re-write of the workplan is unnecessary.

2. This cost analysis includes obtaining the proper permits to complete the workplan as approved by the LRA.

3. This cost analysis includes any pilot studies that may be required by the LRA to complete the approved workplan, although none are anticipated or required by the LRA at this time.

4. This cost analysis includes the acquisition of all required equipment, structures and materials to complete the workplan as approved by the LRA.

5. This cost analysis includes equipment operation and maintenance.

6. This cost analysis includes monitoring reports as required by the LRA.

7. It is not known how long groundwater treatment will take and therefore closure costs can not be determined at this time. However, in this proposal and cost analysis makes the assumption that groundwater pumping and treatment will take place for one year. After the period of one year, then verification sampling of the groundwater would take place quarterly for one year. Given that the groundwater was verified "clean", a request for closure would be prepared.

V BIDDING REQUIREMENTS

1. Personnel from CTTS, Inc. have at least three years of experience conducting site remediation work in the State of California. Experience also includes substantial work at the subject site, from tank removals to the preparation of the November 1, 1992 workplan. A Statement of Qualifications is attached as Appendix A.

2. Resumes of key personnel are presented with the Statement of Qualifications in Appendix A.

3. CTTS, Inc. will carry out the approved workplan in a timely, professional, safe and legal manner while maintaining all necessary records and other safeguards to ensure that all items reported to the LRA are true and accurate. All work will be conducted in a manner approved by the LRA.

4. Appendix B presents five references of previous clients for whom similar work has been completed in the last three years.

5. Appendix C presents proof of insurance in the amount of one million dollars for general liability insurance and professional errors and omissions. This will be maintained for the life of the contract. A certificate of insurance is already on file with Durham Transportation.

6. CTTS, Inc. will respond to any reasonable inquiry regarding any claim submitted by Durham Transportation, Inc. in conjunction with this site.

7. No additional comment.

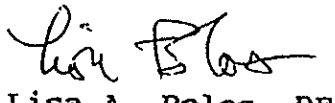
8. No additional comment.

VI INVOICES AND PAYMENTS

CTTS, Inc. agrees to the conditions described in this section.

Thank you for this opportunity to provide Durham Transportation with these environmental services. If you have any questions, please call at (510) 799-1140.

Sincerely,



Lisa A. Polos, REA, CHMM
Senior Scientist
Toxic Technology Services
CTTS, Inc.

INTRODUCTION

In August of 1989, Toxic Technology Services was contracted by Mr. Jack Worthington to remove four underground tanks from 19984 Meekland Avenue in the unincorporated area of Alameda County, near Hayward.

Soil samples collected from the tank excavations at the time of removal, indicated significant contamination from gasoline and its constituents of Benzene, Toluene, Ethylbenzene and Xylenes.

This data prompted the installation of groundwater monitoring wells. The groundwater proved to be contaminated.

During 1990, an investigation was conducted to determine the extent of the contamination and investigate possible shallow sources of contamination. This investigation has prompted the preparation of the November 1, 1992 workplan and now this analysis of remediation methods.

Alameda County has requested additional site investigation, but has agreed to proceed on the remediation concurrently.

The subject site warrants both soil and groundwater remediation. Levels of soil contamination were as high as follows:

TPH as Gasoline - 6200 ug/Gm (ppm)
Benzene - 1900 ug/Kg (ppb)
Toluene - 17000 ug/Kg (ppb)
Ethylbenzene - 36000 ug/Kg (ppb)
Xylenes - 220000 ug/Kg (ppb)

Groundwater has been monitored quarterly since 1990. All wells except the upgradient well, MW-8, have shown varying levels of contamination. The two bad actors have consistently been Benzene and Gasoline. Other constituents in the groundwater are volatile chlorinated organics, Toluene, Ethylbenzene and Xylenes.

The cost analysis presented below contains a main spreadsheet with a series of appendices that explain the individual columns. The first four columns of the spread sheet represent items that must occur regardless of which soil and groundwater remediation methods are chosen. These are:

- Estimated Capital Cost For Groundwater Pumping
- Estimated Site Preparation Costs
- Annual Operational Costs (separate from method operational costs)
- Consultant Fees

Breakdowns of each of these categories are presented in Appendices 2-5.

The remainder of the columns are method specific and are broken down in Appendix 1.

APPENDIX 1

LIST OF ALTERNATIVES

GROUNDWATER TREATMENT AND DISPOSAL

1A - Air Stripping and Liquid Phase Carbon With Sewer Disposal

This involves installing a stripping tower that will purge air through the contaminated water and strip out the majority of the contaminants. The contaminated air is passed through a carbon canister and then to the open environment. The "stripped" water is passed through a series of carbon canisters to give is a final cleaning. Final disposition is into the sanitary sewer.

This is not a recommended method because another layer of bureaucracy, namely the air board, is added to the situation. For the levels of contamination that we are dealing with, it would not be advisable to complicate the treatment by contaminating an air phase that will have to be treated as well the water phase.

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
Stripping Tower	8,000		
Air Permits		1,000	
Carbon		8,500	
Disposal Costs*			15,000
Estimated Capital Costs for Pumping	17,000		4,200
Estimated Site Prep.		22,000	
Estimated Annual Op. Costs			7,040
Consultant Fees			68,300
Laboratory Fees			40,000
TOTAL	25,000	31,500	134,540

Method Option plus 10% Contingency: $210,144

*= Sewer Fees

1B - Air Stripping and Liquid Phase Carbon With Re-Injection

This method is primarily the same as 1A except that final disposition would be back into the groundwater aquifer so that it can replenish and recycle through the system.

To make this method work, additional wells must be installed. The wells would be constructed of steel casing instead of the less expensive PVC, and units would be installed to pressurize each well.

The cost versus the benefits of this method make it unattractive. Additionally, the Water Quality Control Board has historically not allowed re-injection in the East Bay Area. The permit process could therefore be quite lengthy with a high probability of rejection.

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
Stripping Tower	8,000		
Air Permits		1,000	
Carbon		8,500	15,000
Disposal Costs*		15,000	
Estimated Capital Costs for Pumping	17,000		
Estimated Site Prep.		22,000	
Estimated Annual Op. Costs			7,040
Consultant Fees			68,300
Laboratory Fees			40,000
TOTAL	25,000	46,500	130,340

Method Total plus 10% contingency: $222,024

* = This includes two stainless steel cased wells, pumps, etc.

1C - Air Stripping and Liquid Phase Carbon With Disposal Into A Storm Drain

This method is primarily the same as 1A except that final disposition would be into a storm drain. This requires a Federal NPDES Permit for disposal into open surface waters, in this case, San Francisco Bay. This process takes a year, can be quite labor intensive and sometimes results in the preparation of an Environmental Impact Report (EIR). A line would also have to be installed from the site to the nearest storm drain.

This method is not recommended because of the time and expense involved in obtaining the permit, especially given that the local sanitary district is willing to sewer our treated water.

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
Stripping Tower	8,000		
Air Permits		1,000	
Carbon		8,500	15,000
Disposal Costs*		10,000	
Estimated Capital Costs for Pumping	17,000		
Estimated Site Prep.		22,000	
Estimated Annual Op. Costs			7,040
Consultant Fees			68,300
Laboratory Fees			40,000
TOTAL	25,000	41,500	130,340

Method Total plus 10% contingency: $216,524

*= This includes a line to the storm drain and other labor involved in the permitting process.

2-A - Water Phase Carbon With Sewer Disposal

This method consists of pumping groundwater through a series of carbon canisters. The carbon removes the contaminants and the treated water is pumped into a holding tank. After analysis, the water is disposed into the sanitary sewer, or if the discharge requirements of the sanitary district have not been met, the water is recycled through the canisters again. The carbon must be transported as a hazardous waste and either regenerated or disposed.

This alternative is recommended by Toxic Technology Services as the most cost-effective and practical, given the levels of contamination and the size of the subject site.

Carbon treatment is a proven technology that is much easier to fine-tune when in operation. The initial costs are comparatively low and the operational costs are reasonable. This method also offers the most flexibility should it seem necessary to supplement the system with air sparging, air stripping or some other technology.

The Oro Loma Sanitary District currently accepts treated groundwater provided that their treatment standards are maintained.

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
Carbon Canisters		8,500	20,400
Disposal Costs*			4,200
Estimated Capital Costs for Pumping	17,000		
Estimated Site Prep.		22,000	
Estimated Annual Op. Costs			7,040
Consultant Fees			68,300
Laboratory Fees			40,000
TOTAL	17,000	30,500	139,940

Method Total plus 10% contingency: $206,184

* = Sewer Fees

2B - Water Phase Carbon With Re-Injection

As with Alternative 1B, the disadvantage to this method is the additional cost and labor in well installations and the hassle in getting a permit for re-injecting the treated groundwater.

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
Carbon Canisters		8,500	20,400
Disposal Costs*		15,000	
Estimated Capital Costs for Pumping	17,000		
Estimated Site Prep.		22,000	
Estimated Annual Op. Costs			7,040
Consultant Fees			68,300
Laboratory Fees			40,000
TOTAL	17,000	45,500	135,740

Method Total plus 10% contingency: 218,064

*: This includes two stainless steel cased wells, pumps, etc.

2C - Water Phase Carbon With Disposal Into A Storm Drain

As with Alternative 1C, the disadvantage to this method is the time involved in obtaining a NPDES Permit.

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
Carbon Canisters		8,500	20,400
Disposal Costs*		10,000	
Estimated Capital Costs for Pumping	17,000		
Estimated Site Prep.		22,000	
Estimated Annual Op. Costs			7,040
Consultant Fees			68,300
Laboratory Fees			40,000
TOTAL	17,000	40,500	135,740

Method Total plus 10% contingency: 212,564

*= This includes a line to the storm drain and other labor involved in the permitting process.

3A - Chemical Oxidation With Sewer Disposal

This treatment involves pumping the water through a unit that adds hydrogen peroxide to the water and then exposes it to ultra-violet light. The chemical reaction results in converting the hydrocarbons to harmless residual compounds, namely carbon dioxide and water. As with the other "A" alternatives, disposal would be to the sewer.

This alternative was given heavy consideration. In speaking to individuals using this type of system, it was determined that the unit was extremely difficult to fine tune, had a very poor efficiency rate and was extremely expensive. The power consumption for units like this are extremely high and drive up operation costs tremendously. For these reasons, this alternative is not recommended.

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
UV/Redox Unit	70,000		
Electrical Set-up		10,000	
Electricity			24,000
Lamps			24,000
Disposal Costs*			4,200
Estimated Capital Costs for Pumping	17,000		
Estimated Site Prep.		22,000	
Estimated Annual Op. Costs			7,040
Consultant Fees			68,300
Laboratory Fees			40,000
TOTAL	87,000	32,000	167,540

Method Total plus 10% contingency: 315,194

* = Sewer Fees

3B - Chemical Oxidation With Re-Injection

This alternative is not recommended for the same reasons as 3A and 1B.

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
UV/Redox Unit	70,000		
Electrical Set-up		10,000	
Electricity			24,000
Lamps			24,000
Disposal Costs*		15,000	
Estimated Capital Costs for Pumping	17,000		
Estimated Site Prep.		22,000	
Estimated Annual Op. Costs			7,040
Consultant Fees			68,300
Laboratory Fees			40,000
TOTAL	87,000	47,000	163,340

Method Total plus 10% contingency: $327,074

*: This includes two stainless steel cased wells, pumps, etc.

3C - Chemical Oxidation With Disposal Into A Storm Drain

This alternative is not recommended for the same reasons as 3A and 1C.

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
UV/Redox Unit	70,000		
Electrical Set-up		10,000	
Electricity			24,000
Lamps			24,000
Disposal Costs*		10,000	
Estimated Capital Costs for Pumping	17,000		
Estimated Site Prep.		22,000	
Estimated Annual Op. Costs			7,040
Consultant Fees			68,300
Laboratory Fees			40,000
TOTAL	87,000	42,000	163,340

Method Total plus 10% contingency: $321,574

*= This includes a line to the storm drain and other labor involved in the permitting process.

SOIL TREATMENT AND DISPOSAL (estimate 450 cu.yds.)

4 - Off Site Recycling

This consists of excavating the contaminated soil and hauling it away to a facility permitted to accept hydrocarbon contaminated waste and process it. Forward Landfill in Stockton, California is a Class II landfill which accepts gasoline contaminated soil. The soil will be aerated on site and when proved clean by laboratory analysis, is disposed of in a line waste disposal unit. A certificate of recycling is issued after the soil has been remediated and tested. This facility has a tracking and labeling system such that the facility processes the generator's soil through their system to completion.

Durham's liability is greatly reduced because the soil is profiled as a non-hazardous waste and accepted by Forward. It is then treated on site and disposed of after chemical analysis had proven it clean. However, Durham must remember that the generator of a waste material has ultimate and long term liability.

This method is the recommended soil remediation method. It is not necessarily the least expensive, but is certainly the most cost effective when compared to the time that on site methods would take. Soils were profiled in February 1993 and the data indicated that Forward Landfill could accept the waste. Provided that Forward would still accept the February 1993 data, estimated disposal costs would be as described below.

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
Soil Excavation (estimate 3 days with a backhoe)		4,000	
Clean Fill		7,000	
Laboratory Fees		1,000	
Disposal Costs		49,000	
TOTAL		61,000	

Method Total plus 10% contingency: $ 67,100

5 - Off Site Treatment Via Thermal Destruction

This consists of excavating the contaminated soil and hauling it to a facility where it will be thermally destroyed. Port Costa Materials in Port Costa, California operates a rotary kiln. The unit is designed to thermally process shale from the adjacent quarry mixed with hydrocarbon contaminated soil. Soils are crushed, processed through the kiln, then screened for the specifications that it meets and stored to await blending to meet a clients's construction needs. during the thermal process, a soil sample is collected every hour. The samples are composited into one and sent to a state certified hazardous waste laboratory for analysis. Analytical results and a certificate of destruction are issued to the generator.

This method would be quite effective and would all but eliminate the long term liability. However, soil samples collected and analyzed in February, 1993, indicate that the petroleum hydrocarbon as gasoline concentration is higher than what can be accepted at Port Costa Materials. It is possible that the LRA would allow us to re-sample since many months have passed since that last analytical data was obtained, but it would put Durham Transportation in the position of "proving innocence".

There are other thermal destruction plants in the Bay Area, but the soil would probably have to be profiled again to comply with that specific facilities requirements.

There are other treatment technologies that would be quite effective and for this reason, this method is not recommended by CTTS, Inc.

For thermal destruction, an estimate of costs is as follows:

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
Soil Excavation (estimate 3 days with a backhoe)		4,000	
Clean Fill		7,000	
Laboratory Fees		10,000	
Disposal Costs		55,000	
TOTAL		76,000	

Method Total plus 10% contingency: $ 83,600

6 - Chemical Fixation

This consists of excavating the contaminated soil and mixing it with a polymer that will "fix" or encapsulate the contamination and then put the treated soil back in the excavation. This method is costly, especially considering that we are looking at only 500 cubic yards of soil. Another disadvantage is that the polymer probably has a lifetime of twenty years or so. This presents the possibility of having to perform some other treatment, somewhere down the road. Durham would be responsible for this because the liability would not end with remediation, closure and sale of the property. For these reasons, this method is not recommended.

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
Soil Excavation (estimate 3 days with a backhoe)		4,000	
Clean Fill		5,000	
Laboratory Fees		10,000	
Disposal Costs		82,500	
TOTAL		101,500	

Method Total plus 10% contingency: $111,650

7 - Aeration

This consists of excavating the contaminated soil and piling it on thick plastic. Layers of slotted PVC pipe would be placed in the soil. The pile would be enveloped in plastic and a blower would be hooked-up to the manifolded PVC pipe. Exhausted air would go through a carbon canister and then to the atmosphere.

The air board would be notified of these activities, however, we don't think that the levels of soil contamination are high enough to require a permit. Baseline soil samples would have to be collected and analyzed to verify this.

When it has been determined through progressive sampling and analysis that the level of contamination is less that 10 ppm, the soil is can be transported to a Class III (solid waste) Landfill and used as cover.

This method is far more economical that the other alternatives and reduces liability because there would be chemical analysis to prove that the soil was below 10 ppm. However, Durham must remember that the generator of a waste material has ultimate and long term liability.

This is not the recommended method because it will take a number of months to complete and will possibly get in the way of conducting the groundwater remediation. We have also presented other options in which a number of facilities will take responsibility for the contaminated soil and thus share the long term liability.

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
Blower	1,000		
Extra Electricity			300
Small Blower	500		
Carbon		850	850
Misc. Pipe		1,500	
Soil Excavation (estimate 3 days with a backhoe)		4,000	
Clean Fill		7,000	
Laboratory Fees			10,000
Disposal Costs		10,000	
TOTAL	1,500	23,350	11,150

Method Total plus 10% contingency: $39,600

8 - On Site Soil Burning Utilizing A Portable Soil Remediation Unit

A number of companies in California operate a permitted transportable soil burning unit for hydrocarbon contaminated soils. The units are designed to remediate soil contaminated with light distillate petroleum hydrocarbons which include gasoline, diesel and a variety of other fuels. The systems operate by rapidly volatilizing petroleum hydrocarbons from the soil and then thermally destroying them in the discharge air stream. The units generally consist of a rotary dryer with feed system, discharge and combustion control systems, a dust collector, a modular thermal oxidizer and associated fuel and delivery systems.

The treated soil is put back into the excavations, so there are no transportation and disposal costs. Additionally, less clean fill would have to be brought in to bring the excavations to grade.

Distinct advantages to this method include the significant reduction of long term liability of the treated soil, particularly being that the soil is rendered inert and will be disposed of on site. Additionally, the soil remediation will only take seven to ten days to complete.

Disadvantages include the cost and the possible resistance by the locals in the neighborhood. Traditionally, any technology resembling incineration is unpopular. When investigating this method, one company decided against using their unit on the Meekland site because of the fire hazard involved with using large quantities of propane on a small site in a residential area. However, there is at least one other firm with a similar, but smaller unit. This firm is not local and transportation costs could be quite costly.

For the above disadvantages and the fact that there are other effective methods to dispose of the soil, this method is not recommended.

	CAPITAL COSTS ($)	INITIAL OUTLAY ($)	OPERATING $/YEAR
Soil Excavation (estimate 3 days with a backhoe)		4,000	
Clean Fill		2,500	
Laboratory Fees		10,000	
Soil Burning		50,000	
TOTAL		66,500	

Method Total plus 10% contingency: $73,150

APPENDIX 2

ESTIMATED CAPITAL COSTS FOR GROUNDWATER EXTRACTION

The following items are required for extracting the groundwater from the existing wells no matter which groundwater treatment technology is chosen. The recapture costs are marginal, given the life of the equipment and the length of time of service at this site. However, this equipment could be used at other Durham locations, if needed, and that could save from purchasing new equipment.

Item	Estimated Cost
Well Pumps and Plumbing	$ 10,000
Surface Pump	$ 2,000
Safety Equipment	$ 1,500
Miscellaneous Equipment	$ 3,000
TOTAL	$ 17,000

APPENDIX -3

ESTIMATED SITE PREPARATION COSTS

The following items are required to prepare the site for remediation regardless of groundwater and soil treatment options chosen.

Item	Estimated Cost
Tool Sheds	$ 500
Well Abandonment	$ 2,500
Well Installation	$ 2,500
Electrical	$ 5,000
Plumbing	$ 5,000
Well Surging	$ 3,500
Permit Application Fees	$ 2,000
Miscellaneous	$ 1,000
TOTAL	$ 22,000

APPENDIX 4

ESTIMATED OPERATING COSTS

The following are routine operating items required to remediate the site regardless of groundwater and soil remediation options chosen. If a particular technology requires additional outlay over and above what the estimate is here, it is accounted for in the line items for each technology.

Item	Annual Cost
Municipal Water	$ 300
Electricity (PG&E)	$ 2,400
Chemical Toilet	$ 840
Holding Tanks	$ 2,500
Miscellaneous Supplies	$ 1,000
TOTAL	$ 7,040

APPENDIX 5

ESTIMATED LABOR COSTS

The following is an estimated labor cost breakdown based on the recommended options. These estimates include project and site maintenance costs that must occur independently of the remediation. Such items include but are not limited to:

Remediation Coordination
Quarterly Well Sampling
Reports
Miscellaneous Maintenance Activities

We would like to investigate ways of keeping labor costs down. Perhaps utilizing Durham personnel for technician tasks is an option. For purposes of liability, it is strongly recommended that any Durham personnel who will be working on site especially with the contaminated groundwater, complete the OSHA 40-hr. training course and have a complete physical before on site work commences and annually until remediation and closure is completed.

We will be happy to furnish additional information on this if you wish.

As in the past, labor will be billed on a time and materials basis. Estimated costs are broken down as follows:

Senior Scientist @ $60/hr.	$ 31,000
Consulting Geologist @ $90/hr.	$ 23,800
Consulting Engineer @ $90/hr.	$ 11,000
Technician @ $35/hr.	$ 2,500
TOTAL	$ 68,300

RECOMMENDATIONS

It is our recommendation to Durham Transportation to:

> **Treat contaminated groundwater with liquid phase carbon and dispose of the treated water into the sanitary sewer (Option 2A). Excavate contaminated soil and transport to Forward Landfill (Option 4).**

We believe these technologies to be the most cost-effective and practical given the levels of contamination and the size of the subject site.

Carbon treatment is a proven technology that is much easier to fine-tune when in operation. The initial costs are comparatively low and the operational costs are reasonable. There is the flexibility in this method to add on additional remediation techniques if it seems necessary.

The Oro Loma Sanitary District is amenable to taking the treated water provided that their treatment standards are maintained.

Off site soil treatment requires the least time and allows the groundwater remediation to commence without interference. Soil has already be profiled for acceptance at Forward Landfill and hopefully no additional laboratory analysis will be required. Durham Transportation will be issued a certificate of recycling thus reducing liability and bringing Forward Landfill into the responsibility loop.

The cost for the recommended treatments is: $ 273,284.

CLOSURE ACTIVITIES

In keeping with the assumption that groundwater pumping would proceed for one year, closure activities would consist of an additional year of quarterly groundwater monitoring to show that groundwater has been treated and will stay at the clean-up levels required by the LRA.

The costs for this include lab analysis and labor for four quarters of well monitoring for the ten wells. The estimate for this is $ 30,000.

The grand total for the recommended remediation and the closure activities is: $ 303,284.

APPENDIX A

CTTS , Inc.
toxic technology services

STATEMENT OF QUALIFICATIONS

P. O. Box 515 • Rodeo, California 94572 • (510) 799-1140

STATEMENT OF QUALIFICATIONS

Toxic Technology Services (CTTS, Inc.) is a woman-owned corporation specializing in hazardous waste management and environmental compliance. Our staff and associates include Registered Environmental Assessors, Environmental Managers (Nevada Registration), Certified Engineering Geologists, Scientists and Environmental Attorneys.

SERVICES INCLUDE:

Hazardous Waste Planning

Hazardous Materials Management and Business Plans, waste audits, chemical and waste inventories, permitting, hazardous waste management plans, hazardous waste minimization plans, waste reports, small quantity generator and household hazardous waste programs.

Underground Tank Consultation

Oversight and arrangement of tank permitting, testing, removal, installation and agency liaison.

Site Assessments

Evaluations for property transactions to fulfill the requirements of lending institutions and establishing an environmental baseline of a property.

Site Characterizations

Soil and water evaluations, groundwater well installations, agency liaison and other necessary tasks to properly characterize the severity and extent of contamination

Site Remediations

Turnkey operation for the permitting, agency liaison, subsurface geology and hydrology reporting, remediation techniques, site clean-up and closure of a property.

Environmental Impact Reports and Statements

Research and development of information and preparation of documents to fulfill the requirements of the California Environmental Quality Act (CEQA) and the National Environmental Protection Act (NEPA).

SELECTED PROJECT PROFILES

- Prepared a hazardous waste handling plan, hazardous waste minimization statement and Standard Operating Procedures for waste streams generated by a materials testing laboratory in Carson City, Nevada. The project also included a chemical clean-out and disposal. Toxic Technology Services was responsible for preparing the disposal scenarios from which the client chose. Training was also given to personnel in the Carson City and Las Vegas laboratories to inform them on the proper handling and disposal of chemicals and wastes.

- Prepared the Hazardous Waste Source Reduction and Management Plan and Report, required pursuant to California SB 14, for the research center of a major agrichemical laboratory. The documents also servedto fulfill a need for a hazardous waste minimization plan for a local citizens group. This project was particularly challenging with regards to diagraming the process flow of a research facility, when information is the output and not a particular chemical or commodity.

- Prepared the Hazardous Waste Source Reduction and Management Plan and Report, required pursuant to California SB 14, for an agrichemical production plant.

- Toxic Technology Services is currently working on the site investigation of a underground tank release. Service began in 1989 when the firm was contracted to manage the removal of four underground fuel tanks. Toxic Technology Services has since provided turnkey management of on site and off site drilling and well installations, soil gas testing, soil excavation, disposal, agency liaison site plan and health and safety plan development. A draft remediation plan and budget has also been prepared and steps have been taken to have Toxic Technology Services manage and engineer the soil and groundwater remediation.

- Toxic Technology Services has assisted in finalizing the County Hazardous Waste Management Plans for two California counties. This included updating information and writing it into the plans as well as going through the processes needed to have the documents incorporated in the county and city general plans.

- Toxic Technology Services has been contracted to prepare segments of an Environmental Impact Report (EIR) for future activities at a county landfill. Segments include Public Health and Safety and Visual Aesthetics. The project also includes providing liaison services by attending and assisting in the public hearings.

- Toxic Technology Services managed the removal of an underground fuel tank from under a city sidewalk. The project involved more than the routine permitting and inspections. The situation was not routine as the tank was located adjacent to a building and excavation activities could have lead to the undermining of the building foundation. Contaminated soil was removed and aerated on site.

PARTIAL CLIENT LIST

- Durham Transportation - Rosemead, California
- ICI Americas Inc., Western Research Center - Richmond, California
- ICI Americas Inc., Agricultural Products Plant - Richmond, California
- SCS Engineers - Long Beach, California
- Normandeau Associates - Richmond, California
- Yolo County Public Works - Woodland, California
- Stanislaus County Department of Environmental Resources - Modesto, California
- Guarantee Forklift - Oakland, California

LISA A. POLOS, REA, CHMM
Senior Scientist

Education

B.S. Biology, University of San Francisco

Registrations and Certifications

Certified Hazardous Materials Manager (CHMM)
California Registered Environmental Assessor (REA-00749)

Professional Experience

Ms. Polos is Principal and Senior Scientist of CTTS, Inc.

Over twelve years of experience including all aspects of project management, quality control, client contact and dealing with regulatory agencies. Ms. Polos brings a broad knowledge and understanding of Inorganic and Organic Chemical Analyses to CTTS. She is very familiar with local, state and federal hazardous waste regulations.

Key project experience:

- Principal author of a Hazardous Waste Handling Plan, Hazardous Waste Minimization Statement and Standard Operating Procedures for waste streams generated by a materials testing laboratory in Carson City, Nevada.
- Principal author of a Hazardous Waste Source Reduction and Management Plan and Report required pursuant to California SB 14 for a major agrichemical research laboratory in Richmond, California.
- Principal author of a Hazardous Waste Source Reduction and Management Plan and Report required pursuant to California SB 14 for a major agrichemical production facility in Richmond, California.
- Project Manager for a Phase II subsurface investigation at a former gasoline station in Hayward, California
- Project Manager for the update of the Yolo County Hazardous Waste Management Plan
- Assistant Project Manager for the initial preparation of the Yolo County Hazardous Waste Management Plan

- Assistant Project Manager for the preparation of the Environmental Impact Report for the Yolo County Hazardous Waste Management Plan
- Project Manager for the Environmental Impact Report for the Stanislaus County Hazardous Waste Management Plan
- Project Manager for the Stanislaus County Hazardous Waste Management Plan up-date
- Prepared elements of EIR for continuation of activities at Yolo County central landfill. Conducted community involvement, outreach and public information activities.
- Project Consultant for the removal of an underground fuel tank and the remediation of contaminated soil at a forklift company in Oakland, California
- Project Manager of the monitoring program for treatment of contaminated run-off at a freight terminal in Nashville, Tennessee
- Conducted several chemical inventories and responded to local agencies permitting procedures for hazardous materials storage
- Coordinated sampling, analytical activities and Quality Control Program for the Del Norte Superfund site
- Instructor for course on Real Estate Site Assessments through UC Davis University Extension
- Proposal writing and budget management for projects valued at several hundred thousand dollars
- Project Consultant for underground storage tank removals and repairs
- Conducted numerous Phase I Site Assessments for real estate transactions
- Developed marketing plans, responsible for new client base and maintenance of current client base, quotations, coordinate incoming work, track projects, maintain current regulatory file in the environmental field
- As a Program Manager, was responsible for implementing and overseeing projects that involved multidisciplinary lab work, extensive client contact, report writing and project follow-up

JOHN N. ALT CEG, RG
Consulting Geologist

Education

Graduate Studies	Geology, San Jose State University
B.A.	Geology, San Jose State University, San Jose
A.A.S.	Forestry, Paul Smith College, New York

Affiliations

American Geophysical Union Association of Engineering Geologists
Earthquake Engineering Research Institute
International Association of Engineering Geologists
Geological Society of America

Registrations and Certifications

Registered Geologist: California (#3446)
Certified Engineering Geologist: California (#1136)

Professional Experience

Mr. Alt is Consulting Geologist for CTTS, Inc. and brings over twenty years of experience in hydro-geology and engineering geology investigations. Over the past five years, many of these investigations have been directed toward the assessment and mitigation of soil and groundwater contamination.

Key Project Experience

- Project Manager for Preliminary Assessment and Site Characterization Investigations of a State Superfund site located in Mountain View, California. The project involved defining the lateral and vertical extent of several plumes of industrial solvents and required the installation of monitoring, test, and extraction wells screened in various aquifers underlying the site. Soil gas surveys were used to help define the extent of off-site migration of the shallow plume. A part of the project involved evaluating the contribution of up-gradient sources, to the groundwater contamination below the site. Preliminary Feasibility Studies were also carried out to assess cleanup alternatives for both contaminated soil and groundwater.

- Involved in a Feasibility Study of a site in Sunnyvale, California that contained shallow groundwater contaminated with various solvents. The project involved the layout of extraction wells and the technical and economic review of various cleanup technologies. Two were selected for pilot testing.

- Involved in a project to review the use of oils and solvents and help design procedures for recycling at the Subic Bay Naval Base in the Philippines.

- Served as engineering geologist for the preparation of groundwater SWAT and closure reports for landfill sites in Monterey, Calaveras, and Placer Counties.

- Directed the installation of numerous vadose and groundwater monitoring wells. Collected soil and groundwater samples following quality control protocol in the collection and handling of the samples.

- Carried out numerous environmental site assessments related to the conversion of agricultural or industrial property to residential and/or commercial use. Assessments included review of historical records, interpretation of aerial photographs, interview, field reconnaissance, and sampling.

- Managed a number of underground storage tank removals and conducted sampling according to state and local regulations.

- Investigation and inventory of landslide damage in Northern California resulting from intense rain storms during winter of 1986 for Allstate Insurance.

- Member of a team to investigate seismic hazards for High Aswan Dam in Egypt. Worked on coastal deformation along Red Sea Coast. Project funded by U.S. AID.

- Investigations of regional geology and soils for the proposed Calima III dam and reservoir near Cali, Colombia.

- Mapping of faults and landslides and investigation of soils within the reservoir area of the La Honda Dam, Venezuela.

- Project Manager for the investigation of seismic and volcanic hazards for Agoyan water diversion project, Eastern Andes, Ecuador.

- Review of volcanic risk along the coast on the west flank of Mt. Cameroons, Cameroon, for a proposed LNG site.

- Project Manager for investigation of seismic hazards at proposed Salado dam and reservoir on east flank of Andes, Ecuador.

- Investigation of coastal deformation and active fault studies for the proposed Boruca dam and reservoir on the southwest coast of Costa Rica.

LESLIE C. GOLDSMITH
Senior Scientist

Education

B.S. Agriculture, University of Wisconsin, River Falls, Wisconsin

Professional Experience

Ten years of experience in regulatory, academic and private sector environmental programs. Hands-on and teaching experience in emergency response and hazardous waste site health & safety. Extensive work in development and implementation of state environmental protection programs.

Key project experience:

- Member of State of Minnesota Hazardous Materials Response Team. Responded to hazardous chemical incidents at fixed facilities and during transportation. Directed investigation and cleanup of numerous chemical spills.
- Served on the State of Minnesota Emergency Response Commission for the implementation of the Emergency Planning and Community Right-to-Know Act of 1986 (SARA Title III).
- Prepared reports to the Governor's Commission on Pipeline Safety and the National Transportation Safety Board in response to a gasoline pipeline explosion in Moundsview, Minnesota.
- Presented the Advanced Site Monitoring Course for Federal Emergency Management Agency (FEMA) Region V Hazardous Materials Specialist annual refresher course.
- Provided customized hazardous materials specialist training for the cities of Minneapolis, St. Paul and other Minnesota Fire Department Hazardous Materials Emergency Response Teams.
- Selected by the Minnesota Department of Emergency Management to teach Hazardous Materials Emergency Planning courses offered to Minnesota Communities and Local Emergency Planning Committees under the Federal SARA Title III training grant program.
- Contributor to a Hazardous Waste Source Reduction and Management Plans and Reports required pursuant to California SB 14.
- Implemented a two year effort to expand Minnesota's Statewide Household Hazardous Waste Management Program from 14 counties to 80 counties, effectively providing a coordinated statewide Household Hazardous Waste Management program. Managed biennial budget for the program in excess of two million dollars.

- Worked with state legislators to develop laws for the management of hazardous problem wastes, such as batteries and fluorescent lamps.

- Led a multi-disciplinary technical work group that developed functional and program design specifications for the Minnesota Integrated Ground Water Information System, a database to manage and integrate ground water data collections among state agencies, contractors and responsible parties. Researched and analyzed computer and and data systems.

- Participated in the EPA Office of Information Resources Management (OIRM) work group that developed the current standards for the accuracy and representation of locational data.

- Worked on inter-agency team that developed and tracked the Minnesota Comprehensive Ground Water Protection Act of 1989.

- Worked with numerous Minnesota communities of all sizes to achieve compliance with the requirements of the Clean Water Act and Minnesota Water Quality protection laws. Negotiated returns to compliance, facilitated public meetings and conducted hearings on controversial NPDES permit issuances.

APPENDIX B

APPENDIX B

CLIENT REFERENCES

1. Esan Fanjung
   Zeneca Ag Products
   1415 S. 47th Street
   Richmond, Ca 94804
   (510) 231-1371

2. Mark Borsuk
   Attorney At Law
   1626 Vallejo Street
   San Francisco, Ca 94123-5116
   (415) 922-4740

3. Robert Rosen
   Guarantee Forklift
   699-4th Street
   Oakland, Ca 94607
   (510) 834-2490

4. Jack Worthington
   Durham Transportation
   2713 North River Avenue
   Rosemead, Ca 91770

5. John Cummings (This is a reference for John Alt, CEG)
   John Cummings and Assoc.
   P.O. Box 2847
   Fremont, Ca 94536
   (510) 505-0722

APPENDIX C

ACORD. CERTIFICATE OF INSURANCE

ISSUE DATE (MM/DD/YY)
04-27-93

PRODUCER

ENVIRONMENTAL PROFESSIONAL
RISK PURCHASING GROUP
15851 DALLAS PKY #865
DALLAS, TX 75248

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

COMPANIES AFFORDING COVERAGE

COMPANY LETTER A — CREDIT GENERAL INSURANCE COMPANY
COMPANY LETTER B
COMPANY LETTER C
COMPANY LETTER D
COMPANY LETTER E

INSURED

CTTS, INC. DBA
TOXIC TECHNOLOGY SERVICES
PO BOX 515
RODEO, CA 94572

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
	GENERAL LIABILITY					
A	X COMMERCIAL GENERAL LIABILITY				GENERAL AGGREGATE	$ 1,000,000
	X CLAIMS MADE OCCUR.	EOC800-183-00	01-10-93	01-10-94	PRODUCTS-COMP/OP AGG.	$ 1,000,000
	OWNER'S & CONTRACTOR'S PROT.				PERSONAL & ADV. INJURY	$ 1,000,000
	X PROFESSIONAL LIABILITY				EACH OCCURRENCE	$ 1,000,000
	X POLLUTION LIABILITY				FIRE DAMAGE (Any one fire)	$ 50,000
					MED. EXPENSE (Any one person)	$ 5,000
	AUTOMOBILE LIABILITY					
	ANY AUTO				COMBINED SINGLE LIMIT	$
	ALL OWNED AUTOS					
	SCHEDULED AUTOS				BODILY INJURY (Per person)	$
	HIRED AUTOS					
	NON-OWNED AUTOS				BODILY INJURY (Per accident)	$
	GARAGE LIABILITY					
					PROPERTY DAMAGE	$
	EXCESS LIABILITY				EACH OCCURRENCE	$
	UMBRELLA FORM				AGGREGATE	$
	OTHER THAN UMBRELLA FORM					
	WORKER'S COMPENSATION				STATUTORY LIMITS	
	AND				EACH ACCIDENT	$
	EMPLOYERS' LIABILITY				DISEASE—POLICY LIMIT	$
					DISEASE—EACH EMPLOYEE	$
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

CERTIFICATE HOLDER

THIS IS A SAMPLE CERTIFICATE FOR BIDDING & INFORMATION PURPOSES.

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL XXXX DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

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