Applied Geotechnology Inc.

May 30, 1990

15,452.002

Mr. Dan Cagle
Special Projects Coordinator
Pierce County Office of the County Executive
930 Tacoma Avenue South, Room 733
Tacoma, Washington 98402

Dear Dan:

Preliminary Report
Phase 2 Environmental Assessment
South 37th Street and Pacific Avenue
Tacoma, Washington

INTRODUCTION

This letter presents the results of Applied Geotechnology Inc.'s (AGI) Phase 2 Environmental Assessment at property located near the intersection of South 37th Street and Pacific Avenue in Tacoma, Washington. The property location relative to major area features is shown on Figure 1.

The subject property includes the east 50 feet of the south 175 feet of the north 397.185 feet of the west one-half of Block 71, First School Land Addition and Lot 1 of Short Plat 86-02-050-313, together with Easements and Restrictions of Record as records of Pierce County, Washington.

AGI performed a Phase 1 Environmental Assessment of the site in February 1990. Results of that study are presented in a letter dated February 6, 1990 and are not reiterated herein.

PURPOSE AND SCOPE OF SERVICES

This study was performed to assess the possible presence of soil contamination at the property. Specifically, our scope of services included:

- Three (3) soil borings to depths up to 99 feet.
- Six (6) test pits.
- Acquisition of soil samples for chemical analyses.
- Data compilation and interpretation.

The results of our assessment are described in the following sections. Supporting information is provided in the Attachments. Results of our geotechnical study will be submitted under separate cover.

P.O. Box 3885 Bellevue, WA 98009 FAX 206/646-9523 Telephone 206/453-8383

BACKGROUND

The site is situated in a mixed residential, medical, commercial, and light industrial area. Medical businesses include Pierce County Hospital and medical offices. Commercial businesses include service stations, banks, and Tacoma-Pierce County Health Department offices. A Tacoma City Light company (TCL) substation is located northwest of the site.

The site is bounded on the west by Pacific Avenue, to the north by a TCL substation, to the east by vacant lots and residential area, and to the south by BN West Credit Union and South 37th Street. Between 1981 and 1985, a TCL facility was constructed north of the subject property; and sometime after 1985, the BN West Credit Union was constructed south of the site.

The site was originally part of a steep drainage ravine which led to Commencement Bay; the ravine was filled over a period of several years. Original site topography is shown on Figure 2. The site currently slopes gently down to the west and north. Surface cover consists of grass, bramble, scattered patches of soil and gravel, and piles of construction rubble comprised of concrete, reinforcing steel, and wood.

During our Phase 1 Assessment, we reviewed relevant geologic and hydrogeologic information contained in our files to develop an understanding of probable subsurface conditions beneath the site. On this basis, we anticipated the site was underlain by up to 80 feet of fill which overlies glacially derived soils comprised of sand and silty sand.

Available data indicate the former drainage ravine was almost entirely filled before 1965. Fill placement continued until approximately 1981. The Fill reportedly consists of soil excavated during highway construction, construction rubble, and miscellaneous debris including household wastes.

PHASE 2 FIELD INVESTIGATION

Subsurface conditions were explored by excavating six (6) test pits extending to depths of approximately 10 feet below current site grade, and advancing three (3) soil borings to depths in the range of approximately 25 to 99 feet. Soil samples were obtained form the test pits and borings for analytical testing.

Selected soil samples were submitted to Analytical Technologies Inc. (ATI) of Renton, Washington for analytical testing. Samples were analyzed for total petroleum hydrocarbons (TPH) by Modified EPA Method 8015. One sample was analyzed for volatile organic compounds by EPA Method 8240 and one sample was analyzed for benzene, ethylbenzene, toluene, and total xylenes (BETX) by EPA Method 8020. Analytical testing results are presented in Table 1.

Soil samples were collected following the procedures described in Attachment A.

SITE GEOLOGIC CONDITIONS

Site geology was characterized by interpreting subsurface conditions encountered in soil borings and test pits performed for this study and review of regional geologic and hydrogeologic reports. Boring and test pit logs are presented in Attachment B.

Subsurface deposits encountered in this study may be grouped into three units. From youngest to oldest, these units are as follows:

FILL. Fill, typically consisting of loose to medium dense, brown to gray brown, sand to silty sand. Miscellaneous debris was noted in the Fill including concrete chunks, asphalt, wood and glass fragments, and pieces of brick. Fill extended to a depth of greater than 99 feet in Boring 1 near the center of the former ravine and to approximately 76 feet in Boring 2.

GLACIAL TILL. Glacial Till consisting of medium dense to very dense, silty sand to silty gravel was encountered in Test Pits 1 and 2. The Till extends to the depths explored in these test pits.

GLACIAL OUTWASH. Sand to silty sand was encountered in Boring 2 at a depth of approximately 76 feet. Glacial Outwash was medium dense and variable in silt content.

GROUNDWATER

Several water bearing zones were encountered within the Fill during drilling. These zones are believed to be localized occurrences of perched water within the Fill. Static groundwater was not encountered.

SOIL CHEMISTRY

Sixty-four (64) soil samples were collected from the borings and test pits. Samples from the soil borings were collected at 5 foot intervals and from selected zones within the test pits according to procedures described in Attachment A; specific sample intervals are shown on boring logs presented in Attachment B.

Selected samples were analyzed for TPH using Modified EPA Method 8015. One sample was analyzed for volatile organic compounds using EPA Method 8240; a complete list of analytes quantified by EPA Method 8240 is presented in Table 2. One sample was analyzed for BETX using EPA Method 8020. Chemical analyses results are presented in Table 1. Original laboratory data sheets are presented in Attachment C.

TPH concentrations ranged from less than the laboratory detection limit (5 mg/kg) to 440 mg/kg, reported as diesel. TPH was detected in Boring 2 at concentrations of 70 and 19 mg/kg at depths of approximately 12.5 and 27.5, feet respectively. Test Pits 4 and 5 had TPH detections of 440 and 400 mg/kg, respectively, at depths of approximately 6 feet below ground surface.

Chromatographs for the samples with TPH contamination were reviewed. In general, the hydrocarbons encountered appear to be long chain hydrocarbons (C12 to C24+) suggesting contamination may be due to motor oil or bunker C type hydrocarbons.

Volatile organic compounds and BETX were not detected in the samples analyzed; a complete list of analytes and analytical detection limits are summarized in Table 2.

FINDINGS AND CONCLUSIONS

Based on the information presented in the previous sections, we offer the following findings and conclusions:

- Four soils samples contained detectable TPH concentrations. TPH contamination was observed to at least a depth of approximately 28 feet in Boring 2.

- TPH contamination in Test Pit 4 may be due to small pieces of asphalt within the fill. No olfactory or visual evidence of contamination was observed during excavation. However, small pieces of asphalt (generally less than 1/4 inch diameter) were observed upon closer examination of the soil. The observed contamination may be the result of localized dumping or placement of contaminated Fill.

- TPH contamination in Test Pit 5 appears to have a limited extent, based on visual and olfactory observations during excavation.

- Washington State Department of Ecology (Ecology) Cleanup Standards for hydrocarbon contamination are as follows:

Contaminant	Parameter	Soil Cleanup Level
Gasoline	Benzene	660 ppb
	Toluene	143 ppm
	Ethylbenzene	14 ppm
Diesel	TPH	200 ppm

Notes:
TPH Total Petroleum Hydrocarbons
ppb parts per billion (ug/kg)
ppm parts per million (mg/kg)

- Two soil samples, from Test Pits 4 and 5, exceed Ecology Cleanup Standards for diesel contamination.

- The regional groundwater table is anticipated to be greater than 100 feet below ground surface.

- Based on the undocumented filling of the former ravine beneath the site, and the presence of confirmed contamination, potential risks exist to the environment.

RECOMMENDATIONS

Based on the assessment findings and conclusions presented in the previous sections, we provide the following recommendations for potential future site activities and considerations:

- We recommend the requirements of the Model Toxic Control Act (MCTA) be considered in planning future sampling, testing, and uses of the site. This act could require that contaminated site soils be remediated to 200 ppm in the future.

- We recommend additional test pits, soil borings, and analytical testing be completed to further estimate contamination concentrations and extent. The additional data would be used to provide conceptual cleanup alternatives and costs. We wish to emphasize, however, that delineation of contamination, without uncertainty, is difficult if not impossible for this site in view of Fill thickness, variable Fill origins, and the complex nature of contaminant fate and transport. You should be aware, therefore, some residual risk to human health or the environment may exist even after site remediation is complete. The cost of performing additional assessment would be approximately $ 8,000 to $ 12,000; a detailed cost estimate and scope of services for the additional assessment can be provided at your request.

- If Pierce County chooses to purchase the subject property, several options concerning site remediation might be appropriate, including:

  - No Action. A no action approach may be chosen if a Risk Assessment describing potential risks associated with leaving contaminants on-site is prepared and accepted by the appropriate agencies.

  - Excavate contaminated soil and treat on-site before construction.

  - Excavate contaminated soil and transport off-site for disposal.

  - Remediate soil in-situ.

LIMITATIONS

The site assessment reported herein is based on conditions encountered at the time of our investigation, and our experience and professional judgement. Our conclusions regarding the extent and impacts of observed contamination are based on a limited sampling and analysis program. The behavior and migration of contaminants are a complex phenomenon, and conditions can vary between explorations and with time.

The subject property is located over a former ravine with at least 99 feet of Fill originating from several sources, some of which are unknown. The properties of the Fill could significantly alter the contaminant migration pathways. Because of the variability of the Fill, delineation of contamination is a difficult task that requires substantial judgement. Data from the three borings, six test pits and analytical testing provide a basis for estimating contamination concentrations and extent at the site; variations in these conditions may be found during subsequent investigations.

Our services were performed in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under regulatory requirements. No other warranty, express or implied, is made.

Sincerely,

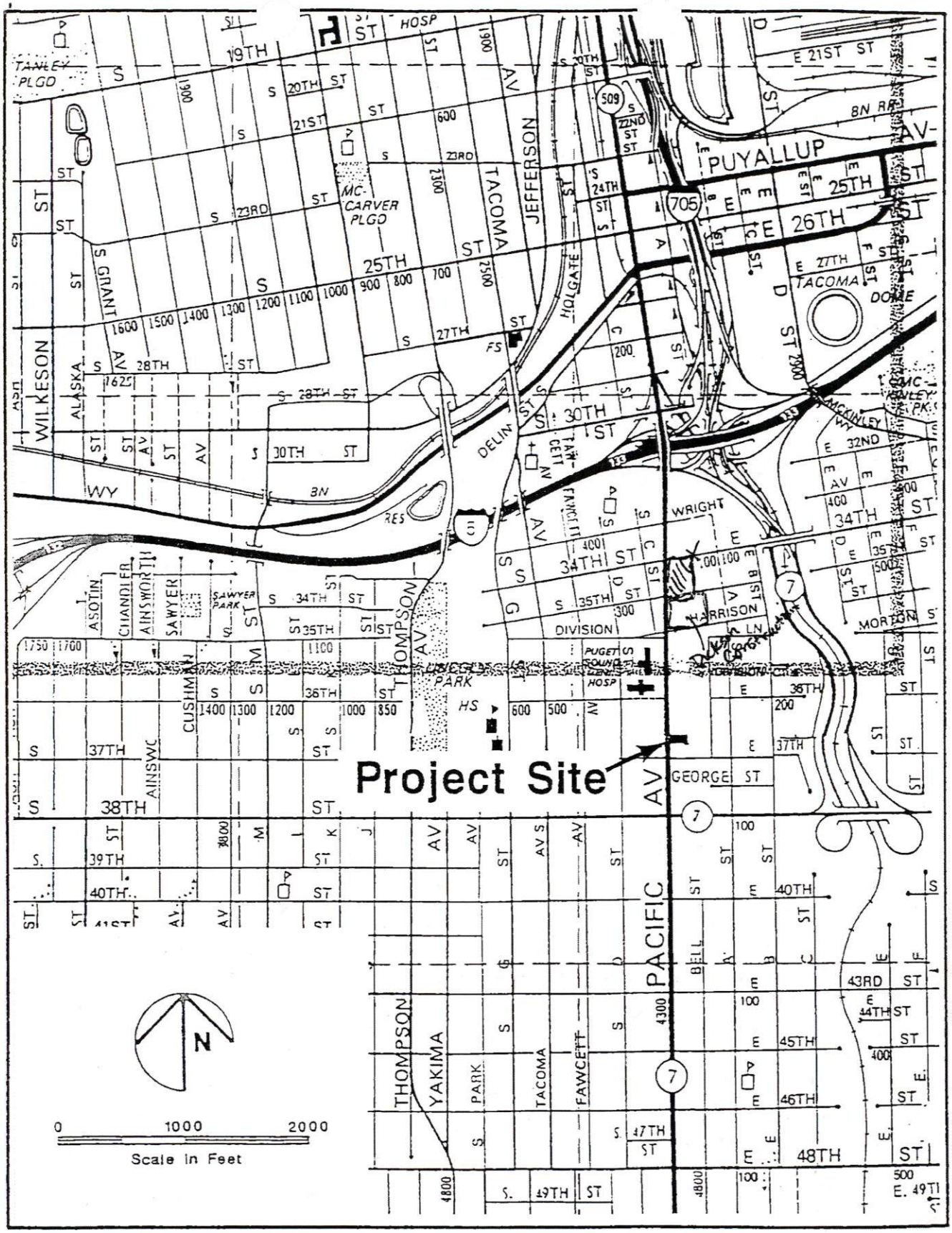
APPLIED GEOTECHNOLOGY INC.

Rodney G. Struck
Hydrogeologist

James B. Harakas, P.E.
Associate Engineer

RGS/JBH/cgl

Attachments



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Vicinity Map

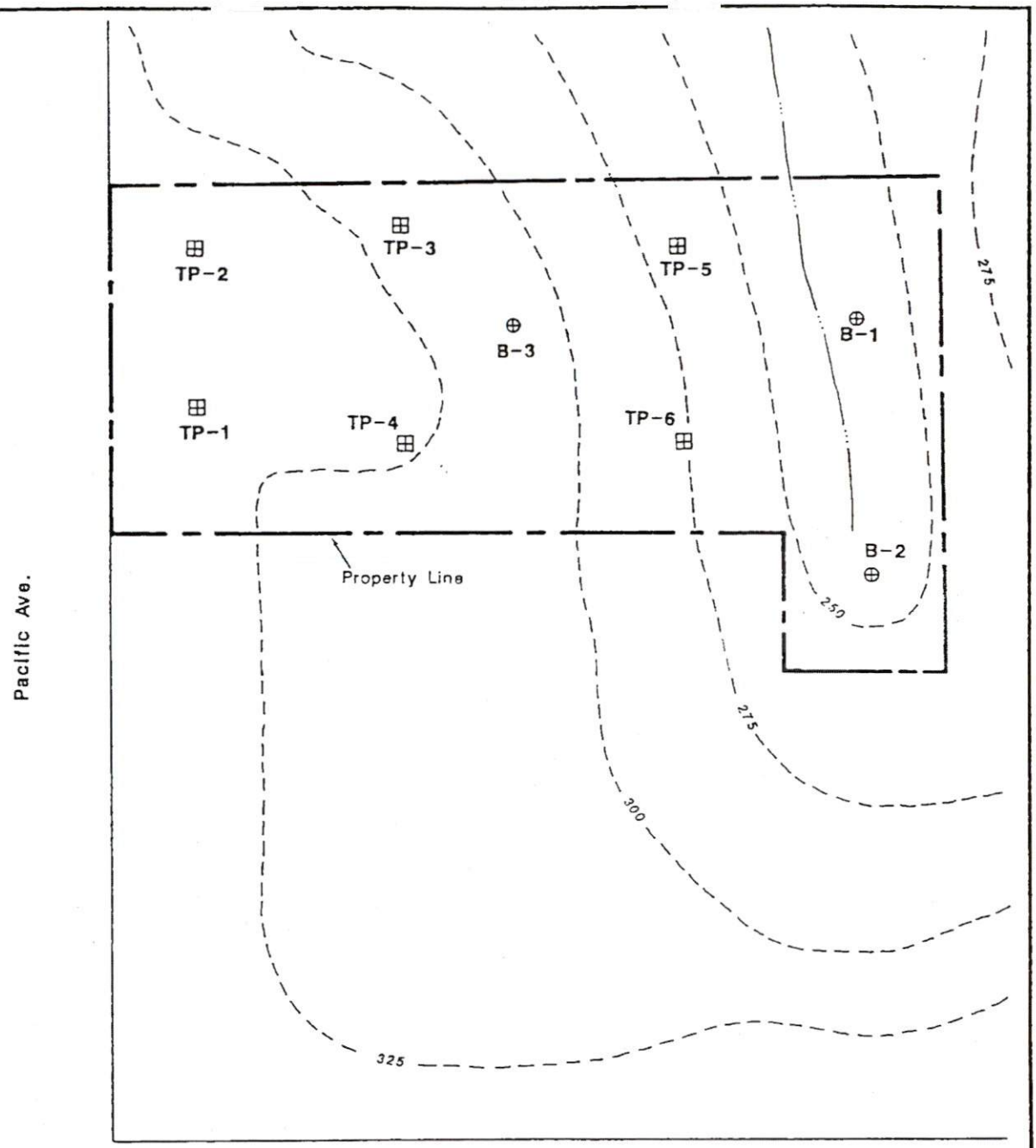
Pierce County/Phase II Assessment

Tacoma, Washington

FIGURE **1**

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,452.002	DFF		11 May 90		

Location T [illegible] R3E NW SEC 16



LEGEND

- Original topography
- B-2 ⊕ Number and approximate location of Soil Boring
- TP-2 ⊞ Number and approximate location of Test Pit

N

0 50 100

Approximate Scale in Feet

Reference: Previous topography from untitled, undated plat map provided by Pierce County. Contour interval is 5 foot.

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Site Plan

Pierce County/Phase II Assessment
Tacoma, Washington

FIGURE 2

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,452.002	DFF	RWJ	16 May 90		

Table 1
Soil Chemistry Results
South 37th Street and Pacific Avenue
Tacoma, Washington

Location	Approximate Depth (ft)	TPH (mg/kg)	Probable Fuel Type	Volatile Organic Compounds (EPA 8240)	BETX (EPA 8020)
Boring 1	12.5	ND		--	--
	42.5	ND		--	--
	75.5	ND		--	--
	92.5	ND		--	--
Boring 2	12.5	70	Diesel	--	--
	27.5	19	Diesel	--	--
	72.5	ND		ND	--
	97.5	ND		--	--
Boring 3	7.5	ND		--	--
	17.5	ND		--	--
	22.5	ND		--	--
Test Pit 1	9.0	ND		--	--
Test Pit 4	6.0	440	Diesel	--	--
Test Pit 5	5.5	400	Diesel	--	ND

Notes:

ND = not detected; analytical detection limits for BETX and Volatile Organic compounds are presented in Table 2. TPH detection limit is 5 mg/kg.
-- = not analyzed.

Table 2
Analytical Detection Limits
South 37th Street and Pacific Avenue
Tacoma, Washington

Volatile Organic Compounds Quantified
By EPA Method 8240

COMPOUNDS	Soil Detection Limit (mg/kg dry wt)
Benzene	0.05
Chlorobenzene	0.05
Ethylbenzene	0.05
Styrene	0.05
Toluene	0.05
Total Xylenes	0.05
Acetone	1.0
Bromodichloromethane	0.05
Bromoform	0.25
Bromomethane	0.5
2-Butanone (MEK)	0.5
Carbon Disulfide	0.05
Carbon Tetrachloride	0.05
Chloroethane	0.05
2-Chloroethylvinyl Ether	0.05
Chloroform	0.05
Chloromethane	0.5
Dibromochloromethane	0.05
1,1-Dichloroethane	0.05
1,2-Dichloroethane	0.05
1,1-Dichloroethene	0.05
trans-1,2-Dichloroethane	0.05
1,2-Dichloropropane	0.05
trans-1,3-Dichloropropene	0.05
cis-1,3-Dichloropropene	0.05
2-Hexanone (MBK)	0.5
Methylene Chloride	0.25
4-Methyl-2-Pentanone (MIBK)	0.5
1,1,2,2-Tetrachloroethane	0.05
Tetrachloroethene	0.05
1,1,1-Trichloroethane	0.05
1,1,2-Trichloroethane	0.05
Trichloroethene	0.05
Vinyl Acetate	0.5
Vinyl Chloride	0.05

Volatile Organic Compounds Quantified
By EPA Method 8020

COMPOUNDS	Soil Detection Limit (mg/kg dry wt)
Benzene	0.025
Ethylbenzene	0.025
Toluene	0.025
Total Xylenes	0.025

Note:

Source: Analytical Technologies Inc.

ATTACHMENT A

Field Exploration and Sampling Procedures

ATTACHMENT A

Field Exploration and Sampling Procedures

Test Pits

We explored subsurface conditions at the site on May 4, 1990, by excavating a total of six (6) test pits to a maximum depth of 11 feet below the existing site grade at the approximate locations indicated on Figure 2. The test pits were excavated using a Case 580A backhoe.

The test pit excavations were located in the field by our field engineer using a 100 foot fiber glass tape. Pit elevations were estimated by interpolation between contour lines shown on an untitled topographic map provided by Pierce County. The locations and elevations should only be considered accurate to the degree implied by the method used.

The test pits excavations were monitored by our engineer who examined and classified materials encountered, obtained representative soil samples and recorded pertinent information including soil samples, stratigraphy, soil engineering characteristics, and groundwater occurrence. Representative soil samples were obtained and classified in accordance with the Unified Soil Classification System which is presented, with a key to the test pit logs, on the Soil Classification/Legend, Plate 1.

All samples were sealed to limit moisture loss, labeled, and returned to our laboratory for further examination and testing. The test pit logs, modified to reflect the results of laboratory examination and testing, are presented on Plates 2 through 4. The stratification lines, shown on the individual logs, represent the approximate boundaries between soil types; actual transitions may be either more gradual or more severe. The conditions depicted are for the date and locations indicated only, and it should not necessarily be expected that they are representative of conditions at other locations and times.

Soil Borings

We explored subsurface conditions at the site May 2 through 4, 1990, by drilling a total of three (3) borings to a maximum depth of 99 feet below the existing site grade at the approximate locations indicated on Figure 2. The borings were drilled using a truck-mounted, Mobile B-61 hollow-stem auger drill. For this project, to obtain better quality soil samples for laboratory testing purposes, we used a split barrel sampler with a larger diameter than the standard SPT split spoon. For engineering analyses, it is necessary to correct the number of blows per foot obtained with the modified sampler to obtain an equivalent "N-value." The number of blows per foot actually recorded with the modified assembly, however, are the values shown at the appropriate sample depth on the boring logs. Their locations are indicated on the initial boring logs by the symbol for an "undisturbed sample" which is shown in the sample designation box on Plate 1, Soil Classification/Legend.

The boring locations were measured in the field by taping from existing curb lines. The locations and elevations should only be considered accurate to the degree implied by the location method used.

The borings were monitored by our engineer who examined and classified the materials encountered, obtained representative soil samples and recorded pertinent information including soil sample depths, stratigraphy, soil engineering characteristics, and groundwater occurrence.

Groundwater levels, where recorded, are those existing at the time drilling was completed. Representative soil samples were obtained and were classified in accordance with the Unified Soil Classification System which is presented, with a key to the Boring Logs, on the Soil Classification/Legend, Plate 1.

All samples were sealed to limit moisture loss, labeled, and returned to our laboratory for further examination and testing. The Boring Logs, modified to reflect the results of laboratory examination and testing, are presented on Plates 3 through 11. The stratification lines, shown on the individual logs, represent the approximate boundaries between soil types; actual transitions may be either more gradual or more severe. The conditions depicted are for the date and location indicated only, and it should not necessarily be expected that they are representative of conditions at other locations and times.

All drilling equipment was thoroughly decontaminated prior to drilling the first boring, between subsequent borings, and after completing the final boring. Drilling equipment was decontaminated using a high-pressure steam cleaner.

Air quality surveillance was performed at the test pit and borings sites. An organic vapor meter equipped with a photoionization detector was used to check ambient air quality at exploration locations sites and soil samples, as described below.

Soil samples were collected for both physical description and chemical testing at approximate 5 foot intervals. The samples were collected with a heavy duty, 2.4-inch inside diameter split barrel sampler lined with stainless steel and brass rings. The sampler and liner rings were decontaminated between each sampling.

The stainless steel rings were submitted to the analytical laboratory for subsequent testing. The rings were immediately sealed with Teflon sheeting, plastic caps, and protective tape for a final seal. All samples were immediately cooled on blue ice to 4^{o} C.

Soil samples were checked for organic vapors in a systematic manner. Samples (approximately the same amount each time) were placed in a plastic Ziplock bag immediately after removal from the sampler. The OVM probe was then inserted through the bag into the headspace above the soil. OVM readings were then recorded.

Sample collection and possession is traceable from collection through analyses. A Chain-of-Custody Record form was completed and accompanied every sample and every shipment of samples to the laboratory. The Chain-of-Custody form was used to indicate what analyses were required. The analytical laboratory has internal record keeping and Chain-of-Custody procedures.

ATTACHMENT B

Boring and Test Pit Logs

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS					TYPICAL NAMES
COARSE GRAINED SOILS (MORE THAN HALF IS LARGER THAN NO. 200 SIEVE)	GRAVELS (MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE)	CLEAN GRAVELS WITH FINES LESS THAN 5%	GW		WELL GRADED GRAVELS, GRAVEL SAND MIXTURES
			GP		POORLY GRADED GRAVELS, GRAVEL SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM		SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES
			GC		CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
	SANDS (MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE)	CLEAN SANDS WITH LESS THAN 5% FINES	SW		WELL GRADED SANDS, GRAVELLY SANDS
			SP		POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM		SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
			SC		CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
FINE GRAINED SOILS (MORE THAN HALF IS SMALLER THAN NO. 200 SIEVE)	SILTS AND CLAYS (LIQUID LIMIT LESS THAN 50)		ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL		ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (LIQUID LIMIT GREATER THAN 50)		MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH		ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt		PEAT AND OTHER HIGHLY ORGANIC SOILS

LEGEND

SAMPLE

- "Undisturbed"
- Bulk/Grab
- Not Recovered

CONTACT BETWEEN UNITS

- Well Defined Change
- Gradational Change
- Obscure Change
- End of Exploration

BLOWS/FOOT

Hammer is 140 pounds with 30 inch drop, unless otherwise noted

S - SPT Sampler (2.0 Inch O.D.)

T - Thin Wall Sampler (2.8 Inch Sample)

H - Split Barrel Sampler (2.4 Inch Sample)

MOISTURE DESCRIPTION

Dry - Considerably less than optimum for compaction

Moist - Near optimum moisture content

Wet - Over optimum moisture content

Saturated - Below water table, in capillary zone, or in perched groundwater

LABORATORY TESTS

Consol - Consolidation

LL - Liquid Limit

PL - Plastic Limit

Gs - Specific Gravity

SA - Size Analysis

TxS - Triaxial Shear

TxP - Triaxial Permeability

Perm - Permeability

Po - Porosity

MD - Moisture/Density

DS - Direct Shear

VS - Vane Shear

Comp - Compaction

UU - Unconsolidated • Undrained

CU - Consolidated • Undrained

CD - Consolidated • Drained

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Soil Classification/Legend

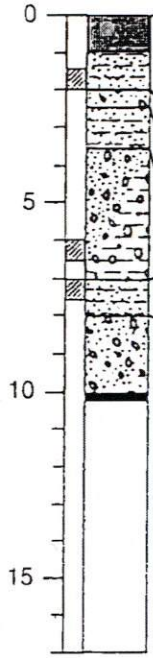
Pierce County/Phase II Assessment
Tacoma, Washington

PLATE 1

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,452.002	DFF		30 May 90		

Test Pit Number 1

Date 5/4/90 Elevation ~335 feet



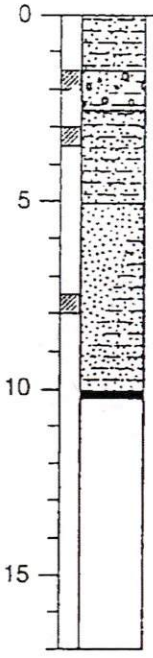
Topsoil.
BROWN SILTY SAND (SM) medium dense, moist; medium grained, with some concrete and asphalt.
BROWN GRAVEL (GP) medium dense, moist.
BROWN SILTY SAND (SM) medium dense, moist; with some gravel.
BROWN SILTY GRAVEL (GP/GM) medium dense to dense, moist.
BROWN SILTY SAND (SM) dense, moist; fine to medium grained.
BROWN SILTY GRAVEL (GP) dense, moist to wet; with some sand.

Test pit terminated at approximately 10 feet.

No groundwater encountered.

Test Pit Number 2

Date 5/4/90 Elevation ~335 feet



DARK BROWN SILTY SAND (SM) medium dense to dense, moist; with some gravel (Fill).
BROWN SILTY GRAVEL (GP-GM) dense, moist; with some sand.
BROWN SILTY SAND (SM) dense to very dense, moist; fine grained, with trace gravel.
GRAY BROWN SAND (SP-SM) medium dense, moist; fine grained, with some silt.

Test pit terminated at approximately 10 feet.

No groundwater encountered.

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Log of Test Pits 1 and 2

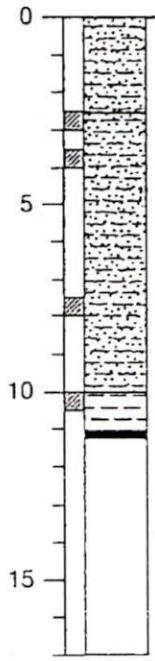
Pierce County/Phase II Assessment
Tacoma, Washington

PLATE 2

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15.452.002	SES		16 May 90		

Test Pit Number 3

Date 5/4/90 Elevation ~334 feet



BROWN SILTY SAND (SM) medium dense, wet; fine to medium grained, with some gravel (Fill).

DARK BROWN TO BLACK SILTY SAND (SM) medium dense, moist to wet; fine grained, with some gravel, and trace organics (Fill).

With occasional brick fragments, concrete and wood.

Becoming wet to saturated.

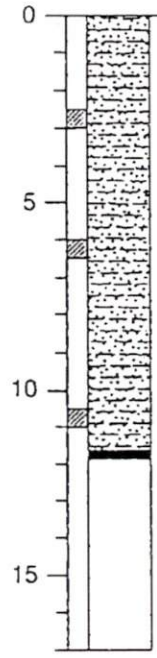
LIGHT BROWN SANDY SILT (ML) medium stiff, wet (Fill).

Test pit terminated at approximately 11 feet.

No groundwater encountered.

Test Pit Number 4

Date 5/4/90 Elevation ~334 feet



BROWN SILTY SAND (SM) medium dense, moist to wet; with some gravel, concrete, asphalt and brick fragments (Fill).

TPH 410 TP @ 5'

Test pit terminated at approximately 12 feet.

No groundwater encountered.

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Log of Test Pits 3 and 4

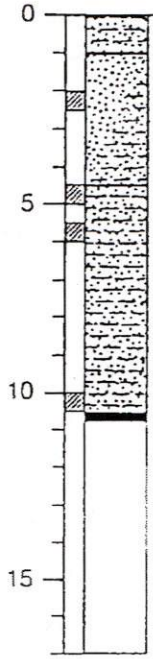
Pierce County/Phase II Assessment
Tacoma, Washington

PLATE 3

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,452.002	SES		16 May 90		

Test Pit Number 5

Date 5/4/90 Elevation ~332 feet



BROWN SILTY SAND (SM) medium dense, moist; fine to medium grained, some gravel (Fill).

BROWN SAND (SP-SM) medium dense to dense, wet; medium grained, with some silt, and trace gravel (Fill).

BROWN SILTY SAND (SM) dense, moist to wet; medium grained, with some gravel (Fill).
Becomes gray, with petroleum and hydrocarbon odor at 5.5 feet. TPH 7000 ppm

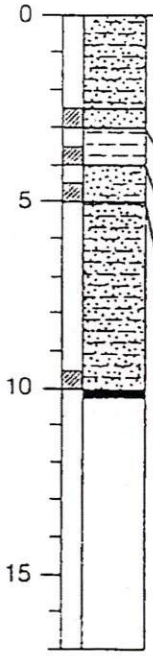
Decreasing odor with depth.

Test pit terminated at approximately 10.5 feet.

No groundwater encountered.

Test Pit Number 6

Date 5/4/90 Elevation ~332 feet



BROWN SILTY SAND (SM) medium dense, moist; medium grained, with some gravel (Fill).

DARK GRAY SILTY SAND (SM) dense, moist; fine to coarse grained, with some gravel (Fill).

BROWN SILT (ML) medium stiff to stiff, moist to wet (Fill).

BROWN SAND (SP-SM) medium dense, wet; fine to coarse grained, with some silt and gravel (Fill).

BROWN SILTY SAND (SM) medium dense to dense, moist; medium grained, with some gravel and occasional concrete block (Fill).

Test pit terminated at approximately 10 feet.

No groundwater encountered.

Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

Log of Test Pits 5 and 6

Pierce County/Phase II Assessment
Tacoma, Washington

PLATE 4

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15.452.002	SES		16 May 90		

Equipment Mobile B-61

Land Surface Elevation ~330 feet Date 5/2/90

Laboratory Tests	Moisture Content (%)	Dry Density (pcf)	Blows per Foot	Depth (feet)	Sample	
				0		Topsoil.
			65			BROWN SILTY SAND (SM) dense, moist; fine to medium grained, with some gravel (Fill).
				5		
			27			
				10		DARK GRAY BROWN SANDY GRAVEL (GP) dense, moist; medium grained (Fill).
			50/6"			
				15		BROWN SILTY SAND (SM) dense to very dense, wet; fine to medium grained, with some gravel (Fill).
	10.1	117	82			
				20		
	8.0	134	40			
				25		
			20			Becomes medium dense.
				30		
			19			Becomes gray to brown.
				35		
			16			Becomes dark brown, with glass fragments.
				40		

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Geology & Hydrogeology

Log of Boring 1

Pierce County/Phase II Assessment
Tacoma, Washington

PLATE 5

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,452.002	SES		16 May 90		

Equipment Mobile B-61

Land Surface Elevation ~330 feet Date 5/2/90

Laboratory Tests	Moisture Content (%)	Dry Density (pcf)	Blows per Foot	Depth (feet)	Sample	
				40		GRAY SILTY SAND (SM) medium dense, wet to saturated; fine grained, with some gravel (Fill).
	10.7	130	16	45		
						Becomes brown, moist, fine to medium grained.
			21	50		
	16.8	117	6			Becomes gray, loose, wet to saturated.
				55		
			33			Becomes medium dense, saturated.
				60		
						GRAY SILTY SAND (SM) medium dense, wet; fine grained, mixed with occasional gray silt and asphalt fragments (Fill).
			26	65		
						GRAY BROWN SILTY SAND (SM) medium dense, wet; medium grained, with some gravel and silt clasts (Fill).
	15.3	113	22	70		
	22.6	100	30			Becomes gray, with charcoal fragments.
				75		
						Mixed with gray silt, and occasional wood fragments.
				80		

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Geotechnical Engineering
Geology & Hydrogeology

Log of Boring 1, cont.

Pierce County/Phase II Assessment
Tacoma, Washington

PLATE 6

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,452.002	SES		16 May 90		

Equipment Mobile B-61

Land Surface Elevation ~330 feet Date 5/2/90

Laboratory Tests	Moisture Content (%)	Dry Density (pcf)	Blows per Foot	Depth (feet)	Sample	
				80		
			24			
				85		
	18.8	107	22			Becomes wet to saturated, with some wood, brick fragments and silt clasts.
				90		GRAY SANDY SILT (ML) stiff, wet; fine grained with occasional pieces of wood (Fill).
	19.6	105	27			
				95		
	18.1	110	27			BROWN SILTY SAND (SM) medium dense, saturated (Fill?).
				100		Boring terminated at 99 feet on 5/2/90.
						Groundwater encountered at approximately 87 feet during drilling.
				105		
				110		
				115		
				120		

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Geotechnical Engineering
Geology & Hydrogeology

Log of Boring 1, cont.

Pierce County/Phase II Assessment
Tacoma, Washington

PLATE 7

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,452.002	SES		16 May 90		

Equipment Mobile B-61

Land Surface Elevation ~330 feet Date 5/3/90

Laboratory Tests	Moisture Content (%)	Dry Density (pcf)	Blows per Foot	Depth (feet)	Sample	
				0		Topsoil.
			14			BROWN SILTY SAND (SM) medium dense, moist; fine grained, with some gravel (Fill).
				5		GRAY SILTY SAND (SM) loose to medium dense, moist; fine to medium grained, with some gravel and pieces of asphalt and brick (Fill).
			16			
				10		
			6			With layers and lenses of soft brown silt.
				15		
			27			
				20		
	12.3	116	27			Becomes wet.
				25		
						BROWN SILTY SAND (SM) loose to medium dense, wet; fine to medium grained, with some gravel (Fill).
			10			
				30		
			22			
				35		
			22			
				40		

Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

Log of Boring 2

Pierce County/Phase II Assessment
Tacoma, Washington

PLATE 8

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,452.002	SES		16 May 90		

Equipment Mobile B-61

Land Surface Elevation ~330 feet Date 5/3/90

Laboratory Tests	Moisture Content (%)	Dry Density (pcf)	Blows per Foot	Depth (feet)	Sample	
				40		
				45		BROWN SAND (SP) medium dense, moist; fine grained, with trace to some silt (Fill).
	10.5	106	24			
				50		
			46			GRAY SILTY SAND (SM) medium dense to dense, wet; fine grained, with some gravel (Fill).
				55		
			20			With gray silt clasts.
				60		
	13.9	110	24			GRAY SILTY SAND (SM) medium dense, wet; fine to medium grained, with some gravel (Fill).
				65		
			33			Becomes more silty.
				70		
			23			
				75		BROWN SAND (SP-SM) medium dense, moist; medium grained, with some gravel and silt (Fill?).
	5.8	122	24			
				80		

Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

Log of Boring 2, cont.

Pierce County/Phase II Assessment
Tacoma, Washington

PLATE 9

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15.452.002	SES		16 May 90		

Equipment Mobile B-61

Land Surface Elevation ~330 feet Date 5/3/90

Laboratory Tests	Moisture Content (%)	Dry Density (pcf)	Blows per Foot	Depth (feet)	Sample
				80	
			51		
				85	
	15.3	86	23		
				90	
			36		
				95	
			21		
				100	
				105	
				110	
				115	
				120	

MOTTLED GRAY BROWN SILTY SAND (SM) medium dense, wet; fine grained, with trace gravel (Fill?).

BROWN SAND (SP-SM) medium dense, wet; medium grained, with gravel (Fill?).

GRAY SILTY SAND (SM) medium dense, wet; medium grained, with some silt and gravel and pieces of wood (Fill?).

Boring terminated at 99 feet on 5/3/90.

No groundwater encountered.

Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

Log of Boring 2, cont.

Pierce County/Phase II Assessment
Tacoma, Washington

PLATE 10

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,452.002	SES		16 May 90		

Equipment Mobile B-61

Land Surface Elevation ~334 feet Date 5/4/90

Laboratory Tests	Moisture Content (%)	Dry Density (pcf)	Blows per Foot	Depth (feet)	Sample	
				0		Topsoil.
			26			GRAY BROWN SAND (SP-SM) medium dense, moist; fine to medium grained, with some silt and gravel (Fill).
				5		BROWN SILTY SAND (SM) loose to medium dense, moist; fine grained, with silt lenses (Fill).
			6			
				10		
	11.0	107	15			With some charcoal fragments.
				15		LIGHT BROWN SILTY SAND (SM) medium dense, moist; with trace gravel.
	10.9	124	16			
				20		
	13.3	111	5			Boring terminated at 23.5 feet on 5/4/90.
				25		No groundwater encountered.
				30		
				35		
				40		

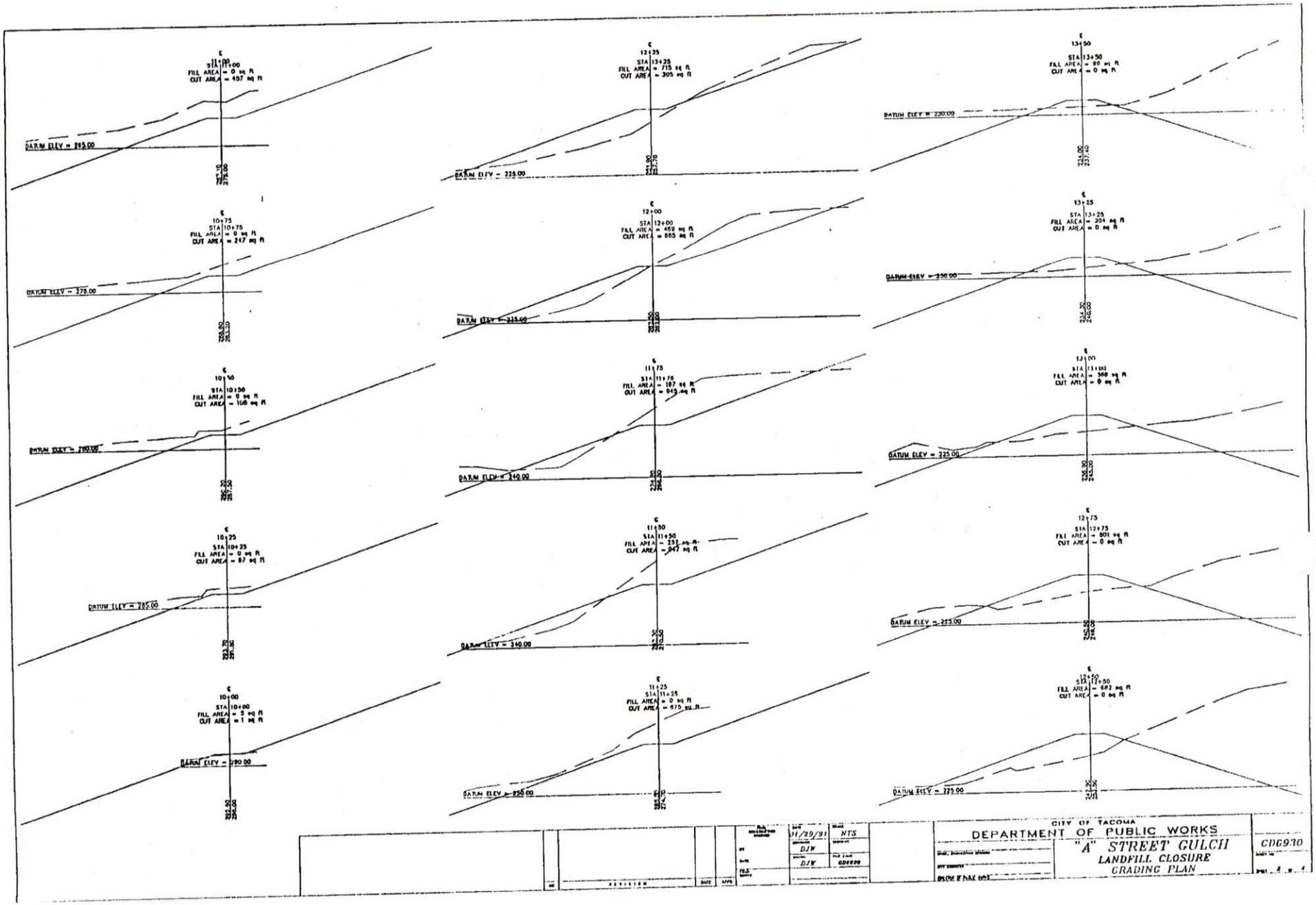
Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

Log of Boring 3

Pierce County/Phase II Assessment
Tacoma, Washington

PLATE 11

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,542.002	SES		16 May 90		

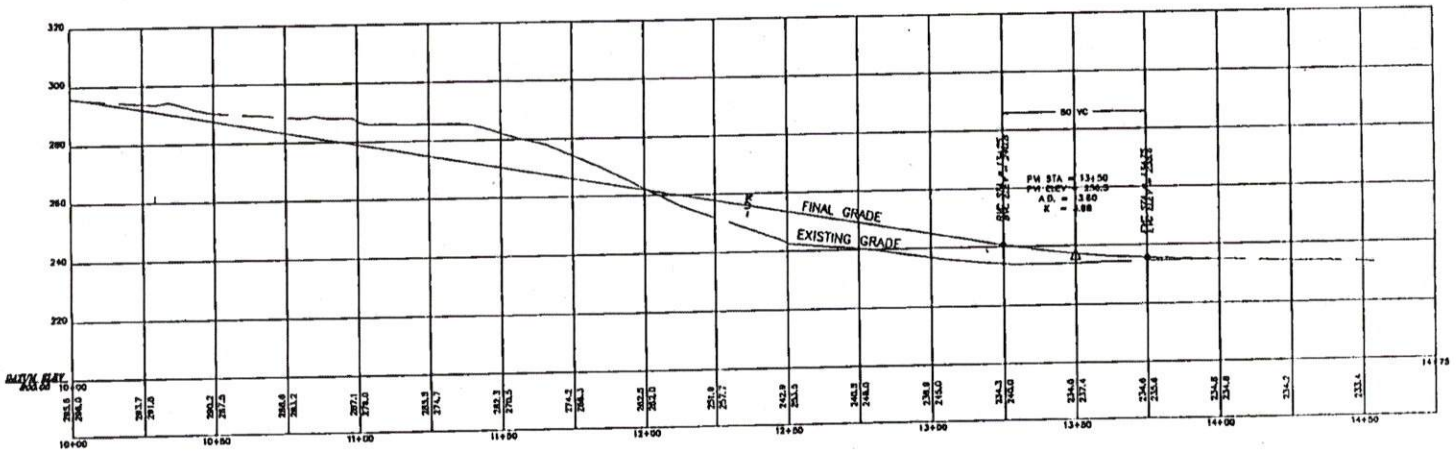


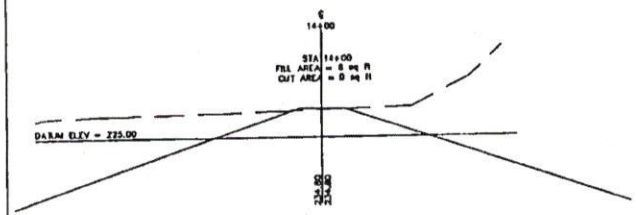
				01/29/91	NTS	
				DJW		
				DJW	CD6930	

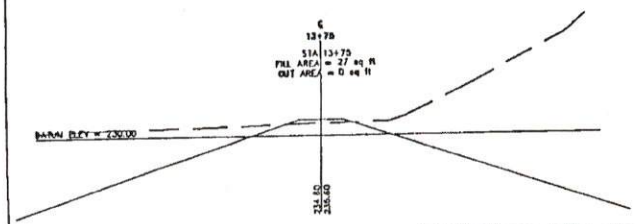
CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

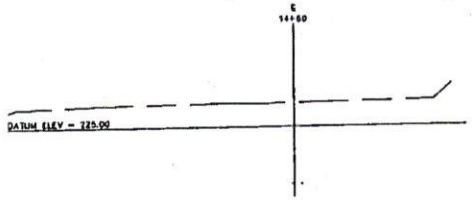
"A" STREET GULCH
LANDFILL CLOSURE
GRADING PLAN

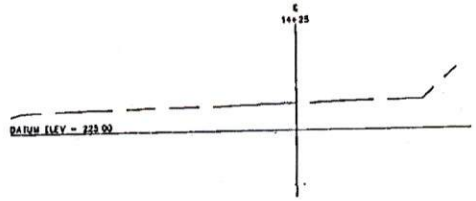
CD6930











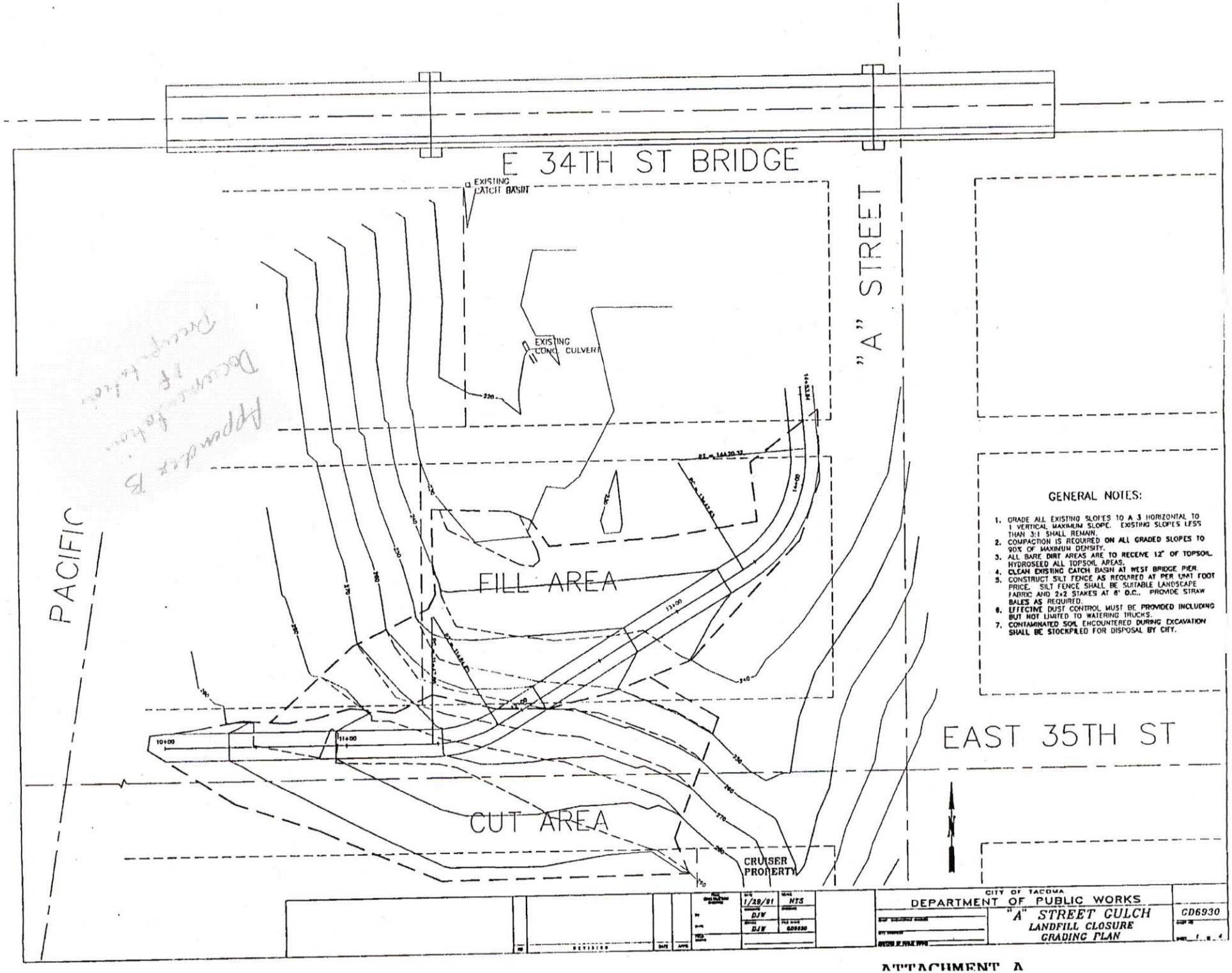
STATION	AREAS in SQ FT		VOLUMES in CUBIC YDS	
	CUT	FILL	CUT	FILL
10+00	1	5	31	3
10+25	87	0	81	8
10+50	108	0	184	0
10+75	247	0	326	0
11+00	457	0	524	0
11+25	675	0	751	118
11+50	947	257	870	198
11+75	949	187	748	393
12+00	669	468	448	548
12+25	306	713	141	847
12+50	0	682	0	846
12+75	0	501	0	612
13+00	0	388	0	271
13+25	0	204	0	136
13+50	0	90	0	34
13+75	0	27	0	13
14+00	0	6	4099	3147

				01/29/91	NTS	
				DJV		
				DJV	GD6930	

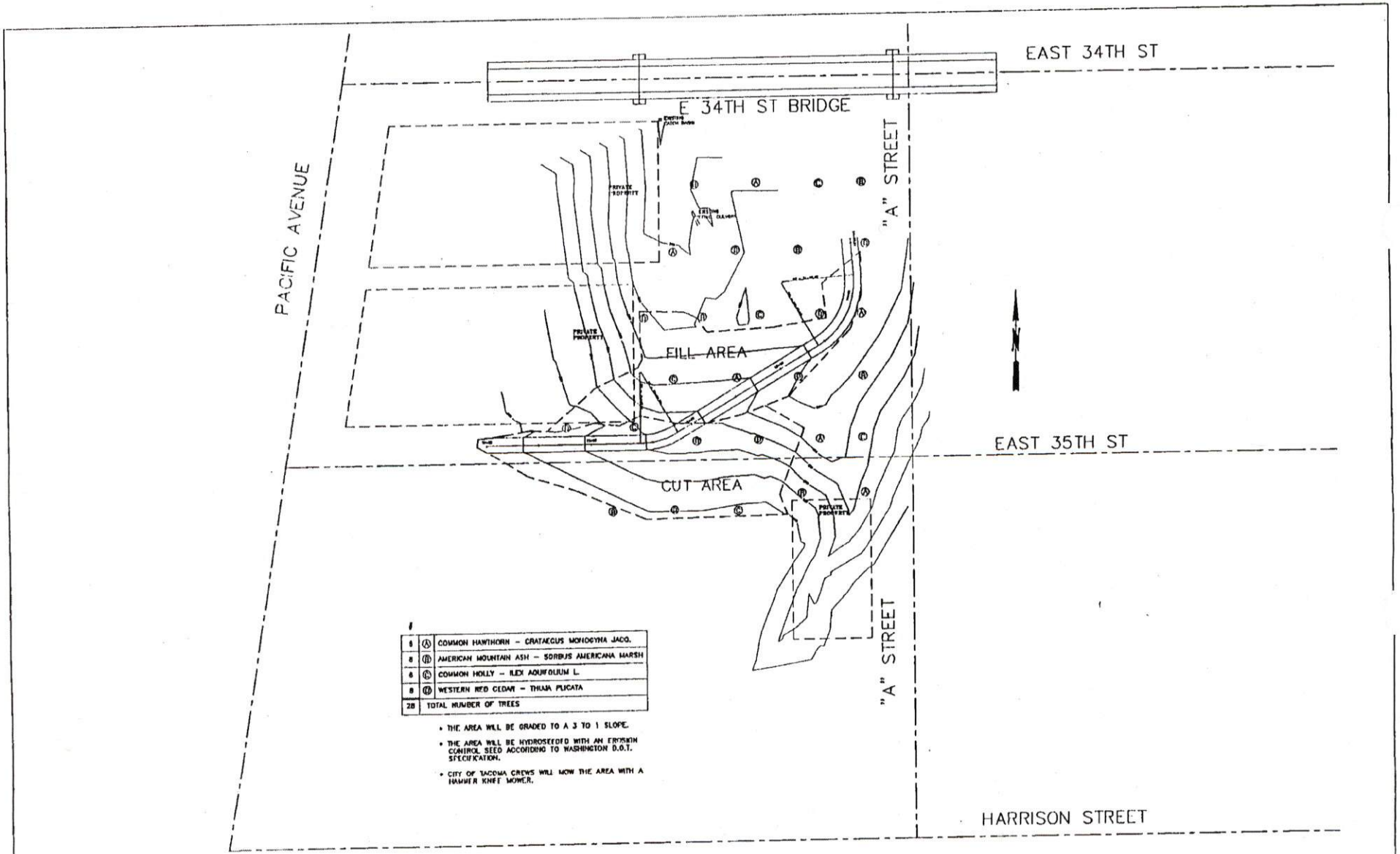
CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

"A" STREET GULCH
LANDFILL CLOSURE
GRADING PLAN

GD6930



ATTACHMENT A



6	Ⓐ	COMMON HAWTHORN – CRATAEGUS MONOGYNA JACQ.
8	Ⓑ	AMERICAN MOUNTAIN ASH – SORBUS AMERICANA MARSH
6	Ⓒ	COMMON HOLLY – ILEX AQUIFOLIUM L.
8	Ⓓ	WESTERN RED CEDAR – THUJA PLICATA
28		TOTAL NUMBER OF TREES

- THE AREA WILL BE GRADED TO A 3 TO 1 SLOPE.
- THE AREA WILL BE HYDROSEEDED WITH AN EROSION CONTROL SEED ACCORDING TO WASHINGTON D.O.T. SPECIFICATION.
- CITY OF TACOMA CREWS WILL MOW THE AREA WITH A HAMMER KNIFE MOWER.

			01/29/91	NTS	CITY OF TACOMA DEPARTMENT OF PUBLIC WORKS	
			DJV		"A" STREET GULCH LANDFILL CLOSURE PLANTING PLAN	CD6930
			DJV			

~~EXHIBIT 11~~

ATTACHMENT C

Laboratory Analyses

AnalyticalTechnologies,Inc. 560 Naches Avenue, S.W., Suite 101, Renton, WA 98055, (206) 228-8335

ATI I.D. # 90D055

May 25, 1990

Applied Geotechnology, Inc.
P. O. Box 3885
Bellevue, WA 98009

Attention : Rod Struck

Project Number : 15,452.002

Project Name : Pierce County Phase 2 Env. Audit

On May 4, 1990 Analytical Technologies, Inc. received 11 soil samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and the quality control data are enclosed.

Mary C. Silva
Senior Project Manager

Frederick W. Grothkopp/mg
Frederick W. Grothkopp
Technical Manager

FWG/elf

ANALYTICAL SCHEDULE

CLIENT : APPLIED GEOTECHNOLOGY, INC.
PROJECT # : 15,452.002
PROJECT NAME : PIERCE CO. PHASE 2 ENV. AUDIT

ANALYSIS	TECHNIQUE	REFERENCE	LAB
BETX	GC/PID	EPA 8020	R
FUEL HYDROCARBONS	GC/FID	EPA 8015 MODIFIED	R
MOISTURE	GRAVIMETRIC	METHOD 7-2.2	R

R = ATI - Renton
SD = ATI - San Diego
T = ATI - Tempe
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

A I.D. # 9005-055-10

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 05/04/90
PROJECT #	: 15,452.002	DATE RECEIVED	: 05/04/90
PROJECT NAME	: PIERCE CO. PHASE 2 ENV.	DATE EXTRACTED	: 05/09/90
CLIENT I.D.	: TP-5 @ 5 1/2	DATE ANALYZED	: 05/16/90
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

RESULTS BASED ON DRY WEIGHT

COMPOUND	RESULT
BENZENE	<0.025
ETHYLBENZENE	<0.025
TOLUENE	<0.025
TOTAL XYLENES	<0.025

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	57

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,452.002	DATE RECEIVED	: N/A
PROJECT NAME	: PIERCE CO. PHASE 2 ENV.	DATE EXTRACTED	: 05/11/90
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 05/13/90
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	DIESEL

A I.D. # 9005-055-4

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 05/04/90
PROJECT #	: 15,452.002	DATE RECEIVED	: 05/04/90
PROJECT NAME	: PIERCE CO. PHASE 2 ENV.	DATE EXTRACTED	: 05/11/90
CLIENT I.D.	: B3 - 17 1/2	DATE ANALYZED	: 05/13/90
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	DIESEL

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 05/04/90
PROJECT #	: 15,452.002	DATE RECEIVED	: 05/04/90
PROJECT NAME	: PIERCE CO. PHASE 2 ENV.	DATE EXTRACTED	: 05/11/90
CLIENT I.D.	: TP-1 @ 9.0'	DATE ANALYZED	: 05/13/90
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	DIESEL

A' [.D. # 9005-055-10

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 05/04/90
PROJECT #	: 15,452.002	DATE RECEIVED	: 05/04/90
PROJECT NAME	: PIERCE CO. PHASE 2 ENV.	DATE EXTRACTED	: 05/11/90
CLIENT I.D.	: TP-5 @ 5 1/2	DATE ANALYZED	: 05/14/90
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

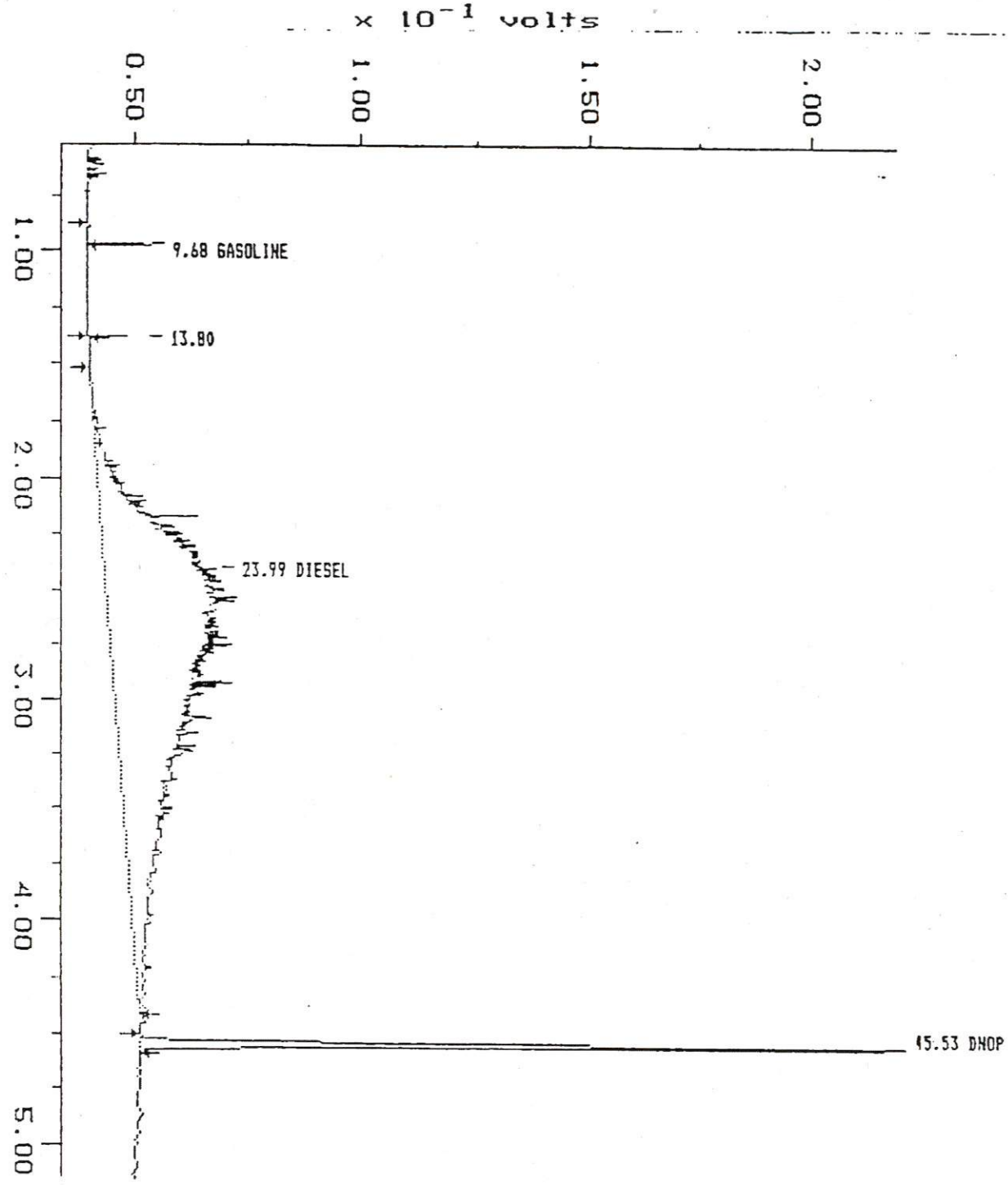
COMPOUND	RESULT
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	400
HYDROCARBON RANGE	C8 - C24
HYDROCARBONS QUANTITATED USING	DIESEL

GENERAL CHEMISTRY RESULTS

CLIENT : APPLIED GEOTECHNOLOGY, INC. SAMPLE MATRIX : SOIL
PROJECT # : 15,452.002
PROJECT NAME : PIERCE CO. PHASE 2 ENV. UNITS : %

ATI I.D.#	CLIENT I.D.	MOISTURE
9005-055-10	TP-5 @ 5 1/2	7.6

Sample: 9005-055-9 Channel: FID REAR-B Filename: OPR01559
Acquired: 14-MAY-90 10: Method: M:\MAXDATA\PACK-R\FUEL5I3R Operator: LAL
Comments: 8015 FUEL FINGERPRINT/ 3 ul INJECT ON PACKIE



Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

CHAIN OF CUSTODY

9005-055

Date 5/4/90 Page 1 of 1

Project Manager: Rod Stroeh
Project Name: Pierce County Phase 2 Env. Mgt
Project Number: 15,452.002
Site Location: Tacoma, WA
Phone: 453-8383 Sampled By: Brian

Laboratory Number:

SAMPLE DISPOSAL INSTRUCTIONS

☐ Lab Disposal ☑ Return ☐ Pickup (will call)

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
B3 - 2½	5/4/90	1040	SOIL	-1
B3 - 7½	"	1050	"	-2
B3 - 12½	"	1100	"	-3
B3 - 17½	"	1115	"	-4
B3 - 22½	"	1130	"	-5
TP-1 @ 9.0'	"	1118	"	-6
TP-2 @ 1½	"	1340	"	-7
TP-3 @ 3½	"	1355	"	-8
TP-4 @ 6.0'	"	1420	"	-9
TP-5 @ 5½	"	1515	"	-10
TP-6 @ 2½	"	1545	"	-11

SAMPLE ID	TCL Metals (23)	Priority Pollutant Metals (13)	EPTOX Metals (8) Total	EP TOX Metals (8) EP EXT	TCLP Metals	EP TOX Pesticides (5)	TCLP - Volatiles	8010 Halogenated Volatiles	8020 Aromatic Volatiles	BETX ONLY	8240 GCMS Volatiles	8270 GCMS BNA	8310 HPLC PNA	8080 OC Pesticides & PCB's	PCB's ONLY	8140 Phosphate Pesticides	8150 Herbicides	WDOE PAH/HH (WAC 173)	418.1 (TPH)	413.2 Grease & Oil	8015M Fuel Fingerprint	TOC 9060	TOX 9020	% Moisture				NUMBER OF CONTAINERS
B3 - 2½																												
B3 - 7½																					X							
B3 - 12½																												
B3 - 17½																					X							
B3 - 22½																					X							
TP-1 @ 9.0'																					X							
TP-2 @ 1½																												
TP-3 @ 3½																												
TP-4 @ 6.0'																					X							
TP-5 @ 5½										/											X		1					
TP-6 @ 2½																												

LAB INFORMATION

Lab Name:	
Lab Address:	
Via:	

SAMPLE RECEIPT

Total Number of Containers:	11
Chain of Custody Seals: Y/N/NA	N
Intact?: Y/N/N	Y
Received in Good Cond./Cold:	Y/Y

TAT: ☐ 24hr. ☐ 48 hr. ☐ 72 hr. ☐ 1 wk. ☑ 2 wks. (normal)

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH DATA

Special Instructions: On ice but not cold yet.
Will be analysis have called in by Rod Stroeh

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Time: 1535	Signature: Time:	Signature: Time:
Printed Name: Date: 5/4/90	Printed Name: Date:	Printed Name: Date
Company: AGI	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: 3.**
Signature: Time: 545	Signature: Time:	Signature: Time:
Printed Name: Date: 5/4/	Printed Name: Date:	Printed Name: Date:
Company: ATT	Company:	Company:

AGI OFFICES: Bellevue: (206)453-8383 Tacoma: (206)383-4380 Portland: (503)222-2820

DISTRIBUTION: White, Canary = Analytical Laboratory; Pink = AGI Files

Analytical Technologies, Inc. 560 Naches Avenue, S.W., Suite 101, Renton, WA 98055, (206) 228-8335

ATI I.D. # 9005-039

May 25, 1990

Applied Geotechnology, Inc.
P.O. Box 3885
Bellevue, WA 98009

Attention : Rod Struck

Project Number : 15,452.002

Project Name : Pierce County Phase II Env. Audit

On May 3, 1990 Analytical Technologies, Inc. received 19 soil samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and the quality control data are enclosed.

Karen L. Mixon
Project Manager

Karen L. Mixon for FWG
Frederick W. Grothkopp
Technical Manager

FWG/tc

ANALYTICAL SCHEDULE

CLIENT : APPLIED GEOTECHNOLOGY, INC.
PROJECT # : 15,452.002
PROJECT NAME : PIERCE COUNTY PHASE II ENV. AUDIT

ANALYSIS	TECHNIQUE	REFERENCE	LAB
VOLATILE ORGANIC COMPOUNDS	GCMS	EPA 8240	SD
FUEL HYDROCARBONS	GC/FID	EPA 8015 MODIFIED	R
MOISTURE	GRAVIMETRIC	METHOD 7-2.2	SD

R = ATI - Renton
SD = ATI - San Diego
T = ATI - Tempe
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

VOLATILE ORGANICS ANALYSIS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,452.002	DATE RECEIVED	: N/A
PROJECT NAME	: PIERCE COUNTY PHASE II	DATE EXTRACTED	: 05/11/90
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 05/16/90
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8240	DILUTION FACTOR	: 1

RESULTS BASED ON DRY WEIGHT

RESULTS BASED ON DRY WEIGHT

COMPOUND	SCAN NUMBER	ESTIMATED CONCENTRATION

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD.

VOLATILE ORGANICS ANALYSIS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 05/03/90
PROJECT #	: 15,452.002	DATE RECEIVED	: 05/03/90
PROJECT NAME	: PIERCE COUNTY PHASE II	DATE EXTRACTED	: 05/11/90
CLIENT I.D.	: B2-72 1/2	DATE ANALYZED	: 05/16/90
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8240	DILUTION FACTOR	: 1

RESULTS BASED ON DRY WEIGHT

RESULTS BASED ON DRY WEIGHT

COMPOUND	SCAN NUMBER	ESTIMATED CONCENTRATION

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD.

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,452.002	DATE RECEIVED	: N/A
PROJECT NAME	: PIERCE COUNTY PHASE II	DATE EXTRACTED	: 05/09/90
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 05/12/90
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	DIESEL