

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF ENVIRONMENTAL TOXICOLOGY

REC'D 4 1994

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENTAL QUALITY

**UNDERGROUND STORAGE TANK
CLOSURE REPORT
FORMER H & S LUMBER SITE
CHARLOTTE, NORTH CAROLINA**

Prepared for:

**H & S LUMBER
4115 Monroe Road
Charlotte, North Carolina 28205**

Prepared by:

**GEO-ENVIRONMENTAL CONSULTANTS, INC.
1016 McClelland Court
Charlotte, North Carolina 28206**

June, 1994



**GEO-ENVIRONMENTAL
CONSULTANTS, INC.**

June 15, 1994

Mr. Rob Boland
H & S Lumber
4115 Monroe Road
Charlotte, North Carolina 28205

Re: Closure Report
Underground Storage Tank (UST) Removal
Former H & S Lumber Site
520 West Summit Avenue
Charlotte, North Carolina
GCI File No. 94037

Dear Mr. Boland:

Geo-Environmental Consultants, Inc. (GCI) is pleased to submit this closure report for the underground storage tank (UST) removal performed by Enviro-Tank at the above-referenced site. GCI's was retained to provide engineering support services to the tank removal contractor.

PURPOSE OF TANK REMOVAL

It is our understanding that the purpose of the tank closure was to remove the existing steel tanks from the property and replace them with fill material. The steel tanks had previously been utilized for the storage of gasoline and diesel fuel.

SCOPE OF SERVICES

Our scope of services for this project include the following:

- Observation and documentation of tank removal and resulting excavation
- Screening of the excavated material and sample preparation for laboratory analysis
- Photographic documentation of the condition of the tank and resulting excavation

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1016 McClelland Court, Charlotte, NC 28206 • 704-332-2060 • FAX: 704-334-0405

- Provide a written report including assessment of the tank removal procedure, laboratory tests results and a preliminary opinion as to whether additional work is required under existing NCDEHNR UST regulations

Services provided by others on this project included:

- Excavation, removal and disposal of underground storage tankage
- Stockpiling of excavated material as needed in accordance with applicable State regulations
- Any necessary permitting

The following services were not included in GCI's Scope of Service: laboratory analytical, surveying for line and grade, quantity and cost estimates; detailed plans and specifications, waste characterization and treatment schemes, attendance at meetings or services not specially defined herein. These services may be provided as an expansion of our services, if so desired.

SITE DESCRIPTION

The USTs were located at the former H & S Lumber site on West Summit Avenue in Charlotte, North Carolina, as shown in Figure 1, Appendix A. The site is currently vacant and is located in a predominantly urbanized area.

TANK REMOVAL

GCI personnel observed the removal of the USTs on April 19, 1994. A summary of tank volumes, dimensions, last contents, and the date the tank was taken out of service is presented in Table I. Information provided by Rob Boland suggests the tanks were approximately 15 years old.

TABLE I - TANK SUMMARY					
TANK NO.	TANK VOLUME (GALLONS)	TANK DIMENSIONS		LAST CONTENTS	YEAR NO LONGER IN SERVICE
		LENGTH (FEET)	DIAMETER (FEET)		
1	1,000	12	3.75	DIESEL	1992
2	4,000	24	5.5	GASOLINE	1992

Upon arrival at the site, GCI environmental personnel observed the location of the USTs, as shown in Figure 2. The soils covering the tops of the tanks were screened with an HNu photoionization detector (PID) as they were removed. Based on PID readings and visual observations, there were some indications of petroleum related contamination in the soils covering the tops of the tanks. Observations made by GCI personnel indicated a large amount of spillage around the product fill pipes on both USTs which appeared to run down the sides of the tanks. Approximately two feet of soil material covered both tanks.

The soils surrounding the sides of the tanks were removed resulting in an estimated 20 cubic yards of soil which was stockpiled adjacent to the excavation. A total of two composite soil samples were obtained from the stockpiled soils as depicted in Figure 2, Appendix A. The stockpiled soils appeared to be stained and organic vapors were detected in the soil grab samples SP1 and SP2 obtained from the stockpile by GCI personnel.

Visual observations of the soils in the bottom of the tank excavation, gave no indications of ground water. Bedrock was encountered at a depth of 8-10 feet throughout the UST excavation. The tanks were visually inspected for evidence of holes, scaling and pitting of the outer metal surface. Based on visual observations, scaling and pitting of the tank surface appeared to be minimal and no holes or cracks were observed in the tank metal surfaces. A total of five (5) soil samples were obtained from the bottom of the excavation at the locations noted in Figure 2, Appendix A.

Due to the short distance between the tank excavation and the pump island (i.e. less than 5 feet) no soil samples were obtained beneath the product lines. Based on visual observations, the product lines leading to the pump island appeared to be in good condition. No indications of corrosion were noted at the exposed joint connections.

All samples taken at the project site during tank removal activities were collected in duplicate from each sample location so that field and laboratory evaluations could be performed for each sample location. The sample container for field evaluation with a PID meter was filled to one half full, sealed, and allowed to stabilize for approximately 15-20 minutes. After stabilization the seal of the container was punctured with the probe of the PID meter and a reading of the head space within the sample container was taken to determine the presence or absence of volatile organic vapors. The presence of volatile organic vapors may indicate the presence of petroleum products in the soil pore voids. The PID readings for each sample collected are found in Table II. The 5 soil samples obtained from the bottom of the excavation were stored in a cooler with ice and subsequently transported to a certified laboratory for chemical analysis.

CHEMICAL ANALYSIS

Total Petroleum Hydrocarbon (TPH) levels for soil samples TP1-A, TP1-B, TP2-B, and TP2-C, analyzed according to EPA Method 5030, indicated TPH levels below the NCDEHNR "action limit" of 10 ppm for gasoline. Samples of TP1-A and TP1-B were also analyzed according to EPA Method 3550 and were found to be below the NCDEHNR "action limit" of 40 ppm for diesel. Soil samples TP2-A and SP-1, analyzed according to EPA Method 5030, indicated TPH levels exceeding the NCDEHNR "action limits".

A summary of the chemical test results is presented in Table II below while the Certificate of Analysis and Chain of Custody Form are presented in Appendix B.

TABLE II				
SUMMARY OF CHEMICAL TEST RESULTS				
SAMPLE NUMBER	SAMPLE DEPTH, FT. ⁽¹⁾	EPA METHOD 5030*	EPA METHOD 3550*	FIELD PID READINGS (ppm)
TP1-A	8	1.5	ND	10
TP1-B	8	3.3	17.0	12
TP2-A	8	378.0	NA	275
TP2-B	8	1.2	NA	2
TP2-C	8	ND	NA	0
SP-1		391.7	NA	250
SUMMARY OF STOCKPILE SCREENING				
SAMPLE NUMBER	SAMPLE DEPTH, FT. ⁽¹⁾	FIELD PID READINGS (ppm)		
SP-1	1	250		
SP-2	2	60		

NOTES:

- * - All sample results are listed in mg/kg (ppm)
- (1) - Depth below ground surface
- ND - Non-Detect - concentrations below laboratory minimum quantification limit
- NA - Test not applicable

ADDITIONAL EXCAVATION OF CONTAMINATED SOIL

Based on the laboratory analysis of soil sample TP2-A and observations of the UST excavation at the time of tank removal, it was determined that additional contaminated soil should be excavated in order to establish the horizontal and vertical extent of soil contamination. This decision was made in lieu of a site assessment based on GCI's opinion that the source of contamination was excessive overspillage and not from a leaking underground storage tank. It was GCI's opinion that the bulk of the contaminated soil could be removed within the reasonable UST excavation limits established by the NCDEHNR.

On May 25, 1994, approximately 100 tons of contaminated soil were removed from the UST excavation and transported to an NCDEHNR regulated landfarm in Union County, North Carolina for treatment. The excavated material was screened with a PID meter as it was removed to segregate the non-contaminated soil from the contaminated soil.

Upon completion of the excavation, soil samples were obtained from the sides of the excavation and one from the center as shown in Figure 2. All samples were collected at or near the bedrock interface and were subsequently transported to a certified laboratory for chemical analysis.

Upon completion of all necessary sampling, the excavation was backfilled with intermittent layers of sand and fill material to allow for the passive biodegradation of any remaining contamination in the soil and top of bedrock.

CHEMICAL ANALYSIS OF POST EXCAVATION SAMPLING

Total Petroleum Hydrocarbon (TPH) levels for soil samples A-1A, A-3, and A-4, analyzed according to EPA Method 5030, were below the laboratory detection limit. TPH levels for soil samples A-2, A-5, and SP-1, also analyzed using EPA Method 5030, were found to be above the NCDEHNR "action limit" of 10 ppm for gasoline.

A summary of chemical test results is presented in Table III below while the Certificate of Analysis and Chain of Custody form is presented in Appendix B.

TABLE III				
SUMMARY OF POST EXCAVATION CHEMICAL TEST RESULTS				
SAMPLE NUMBER	SAMPLE DEPTH, FT.(1)	EPA METHOD 5030*	EPA METHOD 3550*	FIELD PID READINGS (PPM)
A-1A	9	ND	NA	10
A-2	9	15.6	NA	1
A-3	9	ND	NA	9
A-4	9	ND	NA	1
A-5	9	67.6	NA	185
SP-1		433.2	NA	245

NOTES:

- * - All sample results are listed in mg/kg (ppm)
- (1) - Depth below ground surface
- ND - Non-Detect - concentrations below laboratory minimum quantification limit
- NA - Test not applicable

ANALYSIS AND CONCLUSIONS

Information provided by Rob Boland to GCI suggested the tanks located at the site were approximately 15 years old, and that the tanks have not been in use since 1992. Based upon our field observations, it appears the tank closure and subsequent stockpile screening have been performed in accordance with applicable NCDEHNR regulations.

At the time of excavation, samples A1A through A5 were obtained to delineate the horizontal and vertical extent of soil contamination. Laboratory results for soil samples A-2 and A-5 obtained beneath the bottom of the enlarged UST excavation indicated TPH levels were above the "action limit" of 10 ppm as established by the NCDEHNR for gasoline.

Field observations and field screening of the stockpiled soils with the PID meter, indicated that the stockpiled soils contained levels of organic vapors above the NCDEHNR "action limit" of

10 ppm and will require remediation. PID meter readings from the field screening of the stockpiled material were supported by the laboratory tests results of sample SP-1 which indicated TPH levels above the "action limit" of 10 ppm. Approximately 100 tons of contaminated soil required treatment in accordance with NCDEHNR standards and was transported to an NCDEHNR regulated landfarm.

Based upon our understanding of the State regulations concerning USTs and assessment activities of impacted areas, it appears that the in-place soils have contamination levels less than the final cleanup level established by a preliminary Site Sensitivity Evaluation. The preliminary Site Sensitivity Evaluation for the H&S site indicated a final cleanup level of 180 ppm which is well above the TPH levels in the samples taken after the additional excavation work was completed. The horizontal extent of soil contamination has been established by soil samples A1A through A4, and the vertical extent of soil contamination has been established by the bedrock encountered during the enlarged UST excavation. Based on the laboratory analysis of the soil samples and the results of the preliminary SSE, it is GCI's professional opinion that no further action be taken concerning the USTs at the former H & S Lumber project site.

The former H & S Lumber site is currently on the market and any assistance the DEM could give in expediting the movement of the USTs toward permanent closure would be greatly appreciated.

LIMITATIONS

These environmental services have been performed for the exclusive use of H & S Lumber and their agents for specific application to the referenced project. These services have been performed in accordance with generally accepted environmental practices. No other warranty, expressed or implied is made.

Although we cannot be responsible for the accuracy of the data provided to us by others, we have no reason to suspect that any of the information provided is inaccurate unless it has been otherwise noted. Our observations are based upon conditions readily visible at the site at the time of our site visit.

Chemical analyses were performed on selected samples to determine the presence and concentrations of chemicals and associated parameters. Selection of specific chemical test parameters is based upon information supplied by the client concerning the type of raw materials, processing products and wastes including typical degradation products used or disposed of at the site.

Geo-Environmental Consultants, Inc., by virtue of providing the services described in this report, does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, State or Federal public agencies as required by law, or otherwise to disclose, in a timely manner, any information that may be necessary to prevent any danger to public health, safety or the environment.

If you should have any questions concerning this report, or any aspect of this project, please contact us. We appreciate the opportunity to work with you as your environmental consultant.

Sincerely,

GEO-ENVIRONMENTAL CONSULTANTS, INC.

Michael J. Scaringella

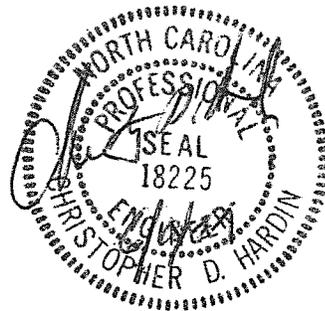
Michael J. Scaringella
Environmental Technician

Christopher D. Hardin

Christopher D. Hardin, P.E.
Environmental Project Engineer

BERIBOLAND.UST

- (A) Site Location Plan, Figure 1
General Site Plan, Figure 2
- (B) Certificate of Analysis
Chain of Custody
Site Sensitivity Evaluation Form
- (C) Log of Photographs

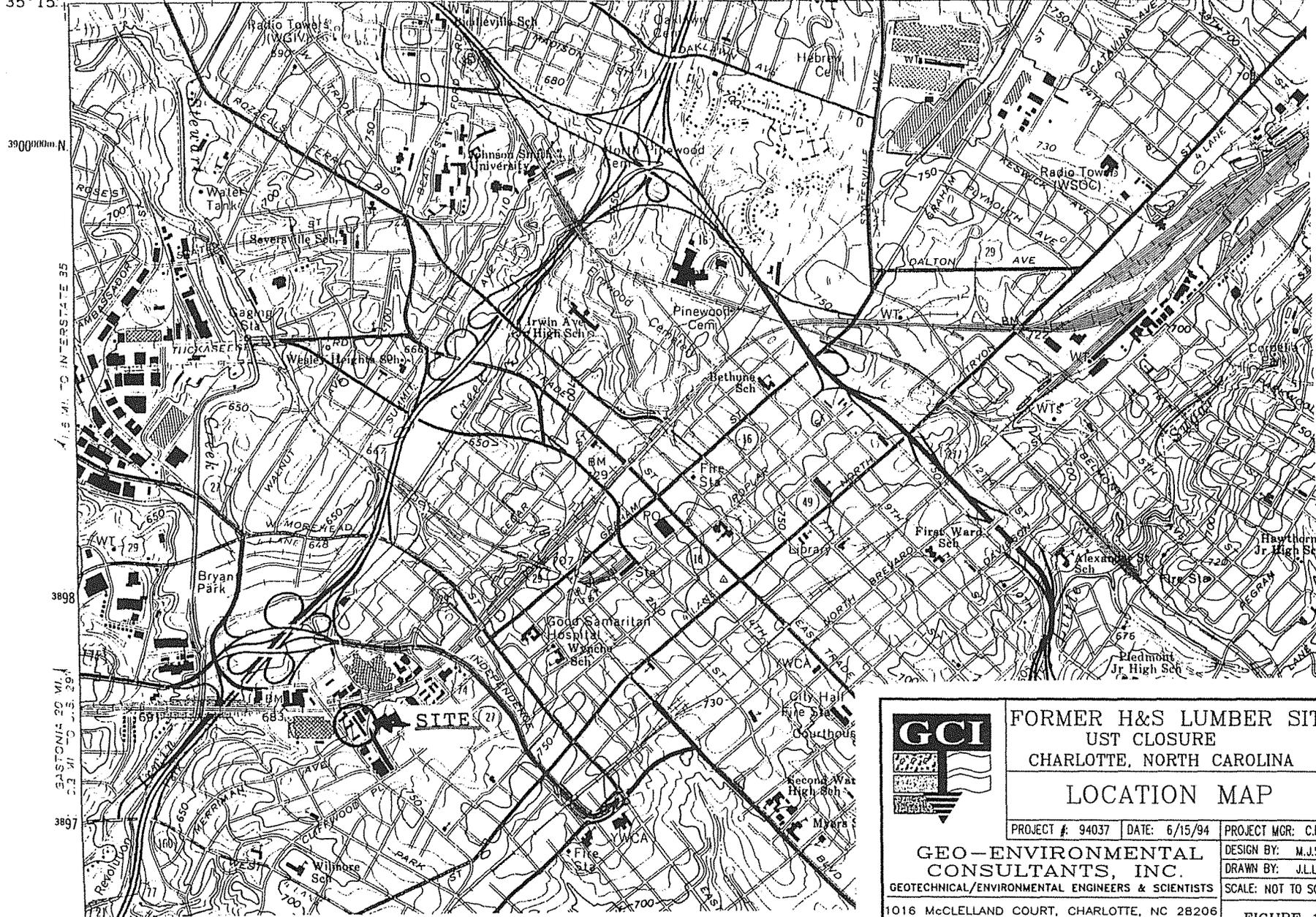


4834 N. 51 W.
MTR. ISLAND LAKE

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

80° 52' 30"
35° 15'

HOME \$1 AD. 3.4 MI. 5130000 E. 914 STATEVILLE 40 MI. 1.8 MI. 10 HILLESSTAIL 495 915 50' 916 4 MI. 10 INTERSTAL CONCORD 1



FORMER H&S LUMBER SITE
UST CLOSURE
CHARLOTTE, NORTH CAROLINA

LOCATION MAP

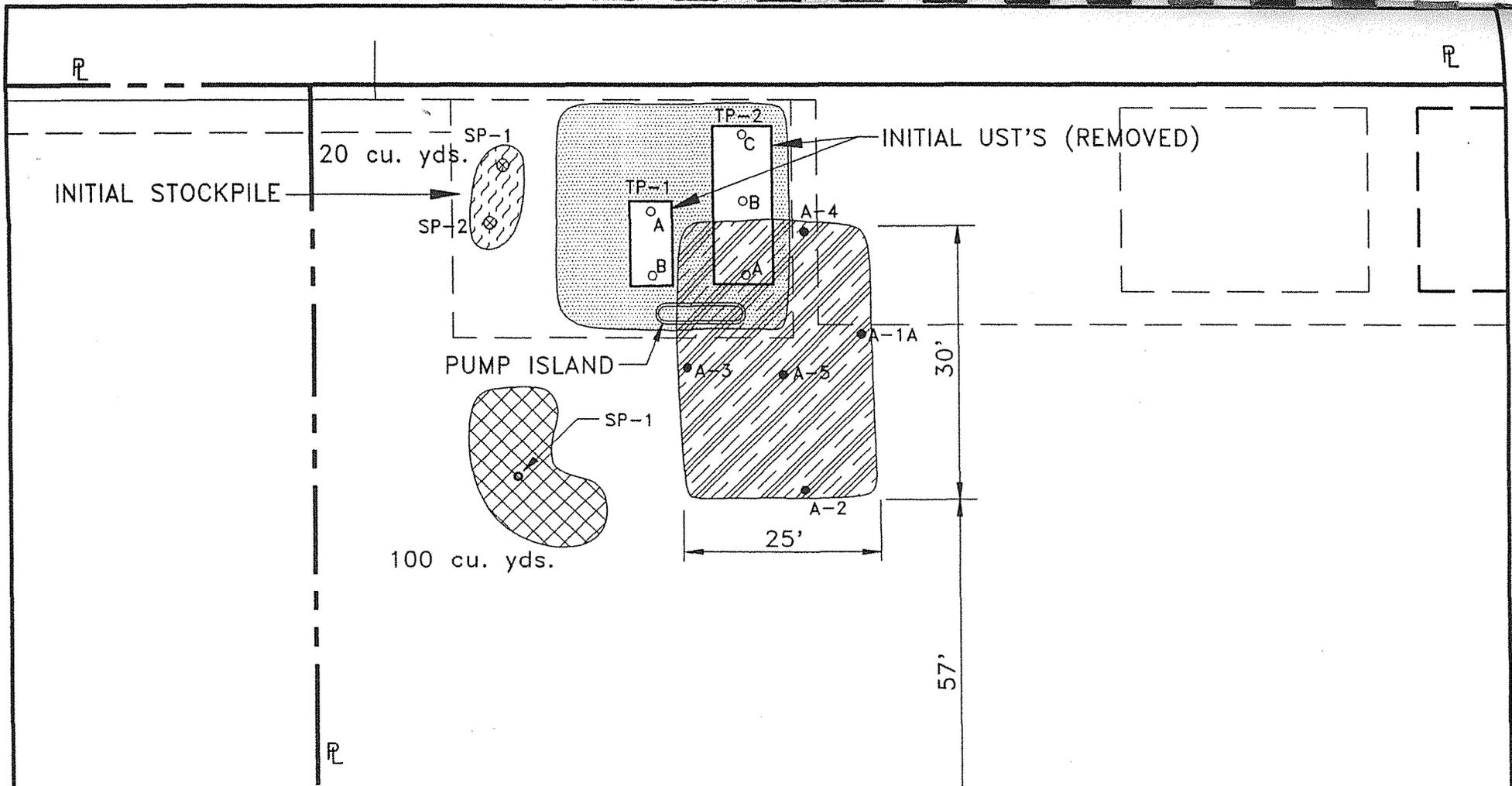
PROJECT #: 94037 DATE: 6/15/94 PROJECT MGR: C.D.H.

GEO-ENVIRONMENTAL
CONSULTANTS, INC.
GEOTECHNICAL/ENVIRONMENTAL ENGINEERS & SCIENTISTS

DESIGN BY: M.J.S.
DRAWN BY: J.L.L.
SCALE: NOT TO SCALE

1016 McCLELLAND COURT, CHARLOTTE, NC 28206
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FIGURE 1



LEGEND

- TP-# INITIAL UST SAMPLE LOCATION
- SP-# INITIAL STOCKPILE SAMPLE LOCATION
- A POST-EXCAVATION SAMPLE LOCATION
- SP-# STOCKPILE SAMPLE LOCATION
-  LIMITS OF EXCAVATION
-  LIMITS OF STOCKPILE
-  INITIAL LIMITS OF EXCAVATION
-  INITIAL LIMITS OF STOCKPILE

OFFICE BUILDING



FORMER H&S LUMBER SITE
UST CLOSURE
CHARLOTTE, NORTH CAROLINA

SITE MAP

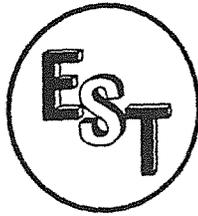
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FIGURE 2



ENVIRO-SOIL TESTING

(Division of Enviro-Soil, Inc.)

P.O. BOX 2212, MATTHEWS, NORTH CAROLINA 28106

To: Mr. Mike Scaringella
GCI
1016 McLellan Court
Charlotte, NC 28206

June 02, 1994
GCI Job #94037
Boland UST Closure

Dear Sir,

The results for your samples submitted on 05-27-1994 are as follows:

<u>Client Designation</u>	<u>EST #</u>
A-1A	372 a
A-2	372 b
A-3	372 c
A-4	372 d
A-5	372 e
SP-1	372 f

<u>SAMPLE #</u>	<u>TEST</u>	<u>MOQ</u>	<u>RESULT</u>	<u>DATE ANALYZED</u>
372 a	5030	1 µg/ml	*****	06-01-94
372 b	5030	1 µg/ml	15.6	06-01-94
372 c	5030	1 µg/ml	*****	06-01-94
372 d	5030	1 µg/ml	*****	06-01-94
372 e	5030	1 µg/ml	67.6	06-01-94
372 f	5030	1 µg/ml	433.2	06-01-94

Please note that ***** indicates that the value is less than the MOQ and all these data are reported in µg/ml (ppm).

Thank-you,

Pat Cook
Pat Cook



ENVIRO-SOIL TESTING

(Division of Enviro-Soil, Inc.)

P.O. BOX 2212, MATTHEWS, NORTH CAROLINA 28106

To: Mr. Mike Scaringella
GCI
1016 McLellan Court
Charlotte, NC 28206

May 03, 1994
GCI Job #94037
Boland UST

Dear Sir,

The results for your samples submitted on 04-21-1994 are as follows:

Client Designation	EST #
TP1-A	358 a
TP1-B	358 b
TP2-A	358 c
TP2-B	358 d
TP2-C	358 e
SP-1	358 f

SAMPLE #	TEST	MOQL	RESULT	DATE ANALYZED
358 a	5030	1 µg/ml	1.5	05-02-94
	3550	5 µg/ml	*****	05-02-94
358 b	5030	1 µg/ml	3.3	05-02-94
	3550	5 µg/ml	17.0	05-02-94
358 c	5030	1 µg/ml	378.0	05-02-94
358 d	5030	1 µg/ml	1.2	05-02-94
358 e	5030	1 µg/ml	*****	05-02-94
358 f	5030	1 µg/ml	391.7	05-02-94

Please note that ***** indicates that the value is less than the MOQL and all these data are reported in µg/ml (ppm).

Thank-you,

Pat Cook
Pat Cook
Lab Director