

701 Corporate Center Drive Suite 475 Raleigh, NC 27607 P 919.854.6200 F 919.854.6259 earthtech.com

January 19, 2006

Mr. Greg Smith North Carolina Department of Transportation Geotechnical Engineering Unit 1589 Mail Service Center Raleigh, North Carolina 27699-1589



Reference: Preliminary Site Assessment William Sheppard Property 2461 US 17 North Washington, Beaufort County, North Carolina NCDOT Project R-2510C WBS Element 34440.1.1 Earth Tech Project No. 90389

Dear Mr. Smith:

Earth Tech of North Carolina, Inc., (Earth Tech) has completed the Preliminary Site Assessment conducted at the above-referenced property. The work was performed in accordance with the Technical and Cost proposal dated November 17, 2005, and the North Carolina Department of Transportation's (NCDOT's) Notice to Proceed dated November 22, 2005. Activities associated with the assessment consisted of collecting soil and groundwater samples for laboratory analysis, and reviewing applicable North Carolina Department of Environment and Natural Resources (NCDENR) records. The purpose of this report is to document the field activities, present the laboratory analyses, and provide recommendations regarding the property.

Location and Description

The William Sheppard Property is located at 2461 US 17 North in Washington, North Carolina. The property is situated on the west side of US 17 approximately 1600 feet south of the intersection of US 17 and Cherry Run Road (Figure 1). Based on information supplied by the NCDOT and the site visit, Earth Tech understands from the tenant that the site is a former gas station, but the number of USTs used at the site and their status was unknown. The tenant was able to confirm the location of an underground propane tank at a location on the northwest side of the building. The property consists of a single-story commercial-type building and a residential dwelling with a gravel-covered drive and parking area (Figure 2). Because of the unknown status of potential USTs, the NCDOT requested a Preliminary Site Assessment to evaluate the soils on the property.



Mr. Greg Smith January 19, 2006 Page 2

Earth Tech reviewed the North Carolina Department of Environment and Natural Resources (NCDENR) Incident Management database and no incident number was listed for this location. Earth Tech also reviewed the UST registration database to evaluate if USTs were present at the location. No USTs were registered for this address.

Geophysical Survey

Prior to Earth Tech's mobilization to the site, Schnabel Engineering conducted a geophysical survey to evaluate if USTs were present on the property. The geophysical survey consisted of an electromagnetic survey with a follow up with a ground penetrating radar (GPR) survey.

Several anomalies were detected in the geophysical survey. Three anomalies were attributed to possible USTs. One anomaly was located approximately 20 feet northwest of the building and coincided with the known underground propane tank. Two anomalies were located between the building and US 17. The GPR results indicated two potential USTs, each about 3 feet in diameter and 5 feet long. These measurements suggest tanks equivalent to 250-gallons in size each and at a depth of about 1.5 feet below ground surface (Figure 2). The locations of the borings for the site assessment were based on this information. A detailed report of the geophysical survey is presented in Attachment A.

Site Assessment Activities

On December 21, 2005, Earth Tech mobilized to the site to conduct a Geoprobe[®] direct push investigation to evaluate soil conditions on the property. Continuous sampling using direct push technology (Regional Probing of Wake Forest, North Carolina) resulted in generally good recovery of soil samples from the direct-push holes. Soil samples were collected and contained in 4-foot long acetate sleeves inside the direct push sampler. Each of these sleeves was divided in half for soil sample screening. Each 2-foot interval was placed in a resealable plastic bag and the bag was set aside for a sufficient amount of time to allow volatilization of organic compounds from the bag and the reading was recorded. After terminating the sample hole, the soil sample from the depth interval with the highest FID reading was submitted to Paradigm Analytical Laboratories, Inc., in Wilmington, North Carolina, using standard chain-of-custody procedures. The laboratory analyzed the soil samples for total petroleum hydrocarbons (TPH) using extraction methods 3550 (diesel range organics) and 5030 (gasoline range organics).

Eight direct-push holes (HP-1 through HP-8) were advanced at the site to a depth of 6 feet as shown in Figure 2 and Attachment B. The borings were located to evaluate the areas where the geophysical survey identified potential USTs (Attachment C). Borings HP-1 and HP-2 were located to evaluate the anomaly northwest of the building. Borings HP-3 through HP-6 were located to assess the anomalies in front of the building. Borings HP-7 and HP-8 were located to sample soils in the potential pump island area. The lithology encountered by the direct-push samples generally was consistent throughout the site. The ground surface for the boring locations



Mr. Greg Smith January 19, 2006 Page 3

was covered with about 4 inches of topsoil or gravel. Below the surface treatment to a depth of 2 feet was a medium to dark gray silt and sand. From a depth of 2 to 6 feet, the soil consisted of a medium brown to medium gray fine-grained sand. Groundwater was encountered in the initial boring at a depth of about 6.5 feet. As a result the remaining borings were terminated at a depth of 6 feet. Based on field screening, soil samples were submitted for laboratory analysis, which are summarized in Table 1.

The shallow groundwater depth suggests that any contamination present in the soil would impact the groundwater. To evaluate the groundwater conditions, a water sample was collected from boring HP-4 (Figure 2), which was in a location that appeared to be representative of subsurface conditions in the UST area in front of the building. The groundwater sample was collected using the direct-push equipment. The direct push probe was advanced into the groundwater and the screen exposed. The water sample was collected with a peristaltic sampling pump. After purging the well to reduce turbidity, the water sample was transferred directly into laboratory-supplied containers. The containers were placed on ice and transported to the laboratory for analysis of volatile organic compounds using EPA Method 6230D and semivolatile organic compounds using EPA Method 625.

Analytical Results

Based on the soil laboratory reports, summarized in Table 1 and presented in Attachment D, no petroleum hydrocarbon compounds were detected in any of the eight soil samples collected from the site (Figure 3). According to the North Carolina Underground Storage Tank Section's Underground Storage Tank Closure Policy dated August 24, 1998, the action level for TPH analyses is 10 mg/kg for both gasoline and diesel fuel. However, that agency's "Guidelines for Assessment and Corrective Action," dated April 2001, does not allow for use of TPH analyses for confirmation of the extent of petroleum contamination or its cleanup. As a result, while TPH concentrations are no longer applicable in determining if soil contamination is present, this analysis is a legitimate screening tool. Based on the TPH action level for UST closures, the assumed action level for this report is 10 mg/kg. None of the soil samples collected from the site contained a TPH concentration above the 10 mg/kg assumed action level.

Based on the groundwater analytical reports, summarized in Table 2 and presented in Attachment D, no target compounds were detected above the method detection limit. As <u>a result</u>, no compounds were detected above the groundwater quality standards.

Conclusions and Recommendations

A Preliminary Site Assessment was conducted to evaluate the William Sheppard Property located at 2461 US 17 North in Washington, Beaufort County, North Carolina. Eight soil borings were advanced to evaluate the soil and groundwater conditions on the property. The laboratory reports of the soil samples from these borings indicate that none of the samples contained TPH concentrations above the assumed action level. The laboratory report of the groundwater sample



Mr. Greg Smith January 19, 2006 Page 4

from one of these borings indicates that no compounds were present in concentrations above the groundwater quality standard.

Earth Tech appreciates the opportunity to work with the NCDOT on this project. No contamination was detected at the site and, as such, the NCDOT is not required to submit a copy of this report to the NCDENR. If you have any questions, please contact me at (919)854-6238.

Sincerely,

Michae W. Bronson

Michael W. Branson, P.G. Project Manager

Attachments

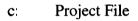




TABLE 1

FIELD SCREENING AND ANALYTICAL RESULTS SHEPPARD PROPERTY WASHINGTON, BEAUFORT COUNTY, NORTH CAROLINA NCDOT PROJECT NO. 9.689002T (R-967CA) EARTH TECH PROJECT NO. 90389

LOCATION	DEPTH (m)	OVA READING	SAMPLE ID	ANALYTICAL	ACTION
		(ppm)		RESULTS	LEVEL
				(mg/kg)	(mg/kg)
IP-1	0 - 2	1.09			
	2 - 4	1.52	HP-1	DRO (BQL)	10
				GRO (BQL)	10
	4 - 6	1.18			
HP-2	0 - 2	1.21			
	2 - 4	1.43			
	4 - 6	1.76	HP-2	DRO (BQL)	10
				GRO (BQL)	10
HP-3	0 - 2	1.47			
	2 - 4	1.6			
	4 - 6	2.07	HP-3	DRO (BQL)	10
				GRO (BQL)	10
HP-4	0 - 2	2.16		· ·	
	2 - 4	1.75			
	4 - 6	2.79	HP-4	DRO (BQL)	10
				GRO (BQL)	10
HP-5	0 - 2	2.13			
	2 - 4	1.85			
	4 - 6	2.52	HP-5	DRO (BQL)	10
				GRO (BQL)	10
HP-6	0 - 2	2.16			
	2 - 4	1.94			
	4 - 6	2.83	HP-6	DRO (BQL)	10
				GRO (BQL)	10
HP-7	0 - 2	1.63			
	2 - 4	2.4			
	4 - 6	2.43	HP-7	DRO (BQL)	10
				GRO (BQL)	10
HP-8	0 - 2	1.2			
	2 - 4	1.42			
	4 - 6	1.55	HP-8	DRO (BQL)	10
				GRO (BQL)	10

DRO - Diesel range organics

GRO - Gasoline range organics

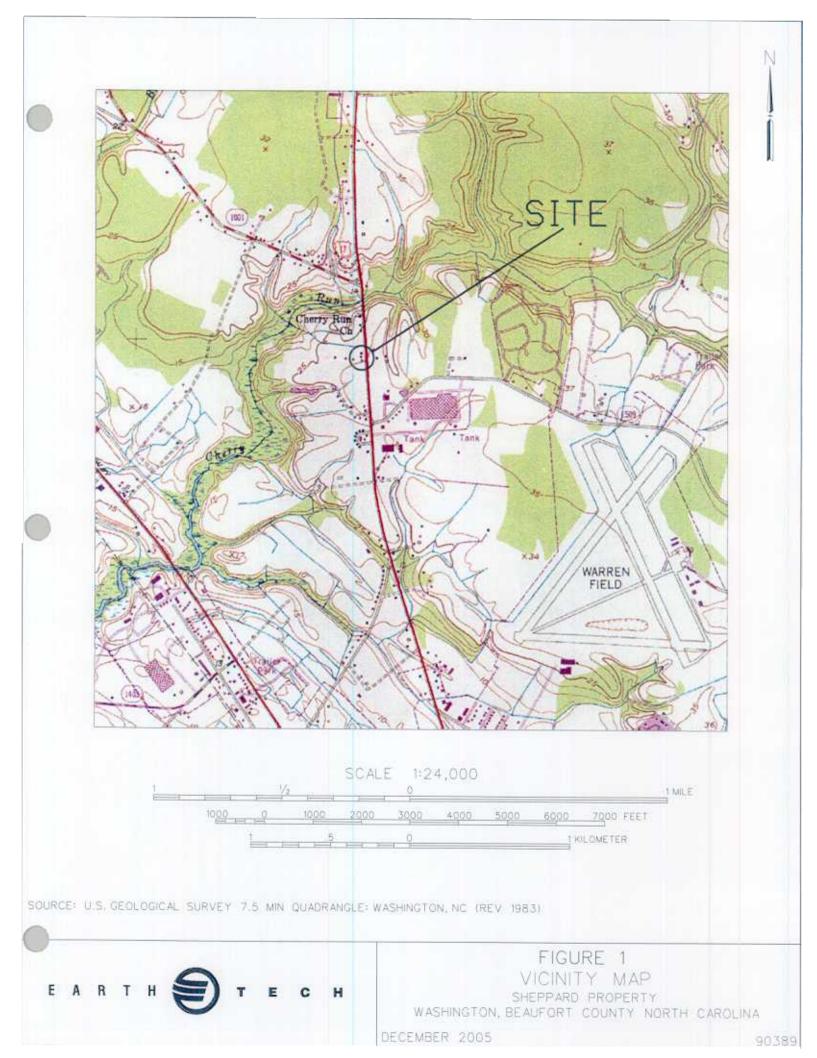
BQL - Below quantitation limit.

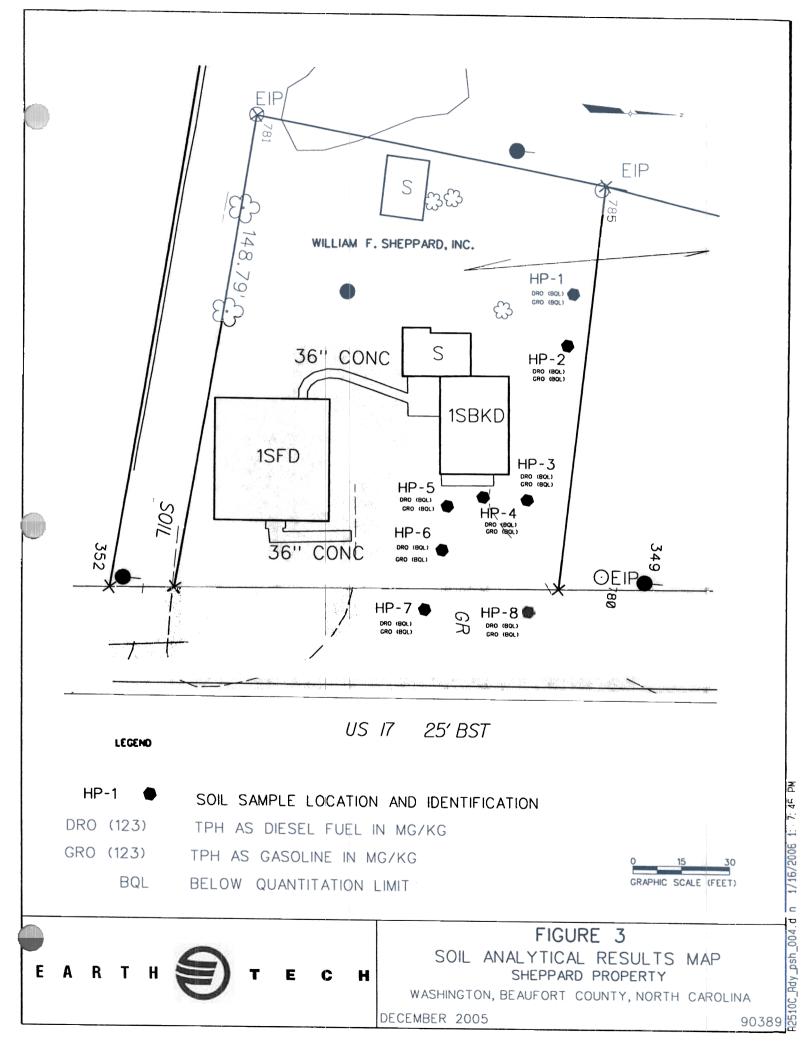
ppm - parts per million. (Note: OVA measurements above 10,000 ppm are expressed as a percentage) mg/kg - milligrams per kilogram.

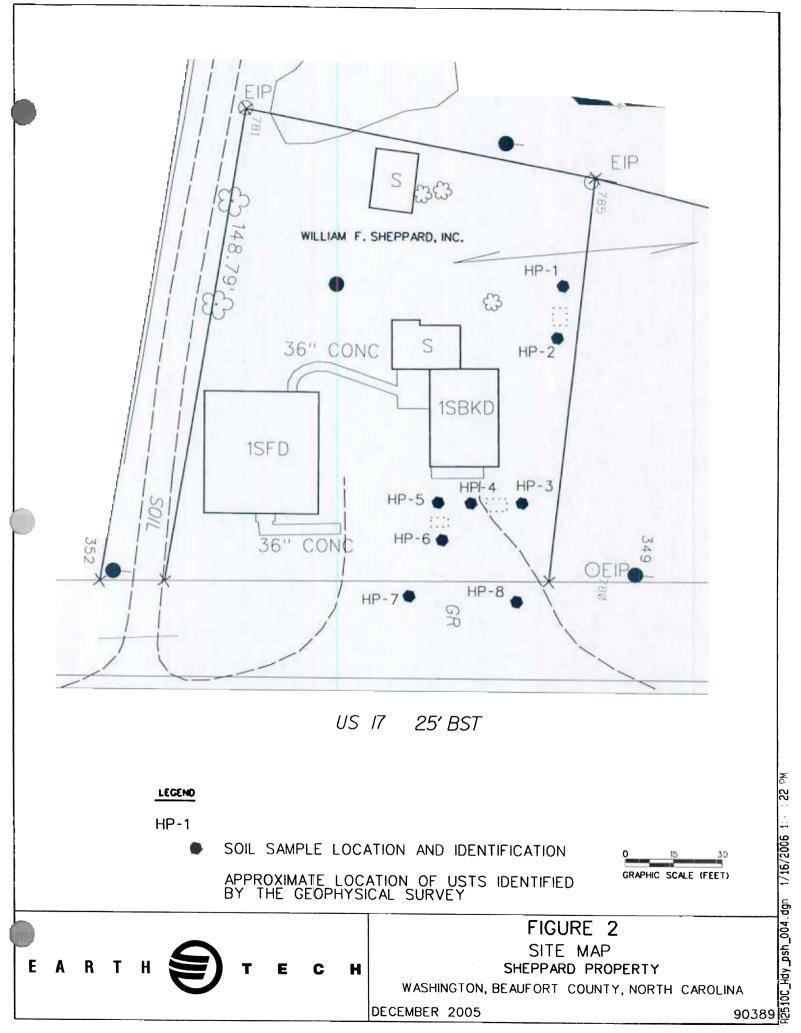
TABLE 2 GROUNDWATER ANALYTICAL RESULTS SHEPPARD PROPERTY WASHINGTON, BEAUFORT COUNTY, NORTH CAROLINA NCDOT PROJECT NO. 9.689002T (R-967CA) EARTH TECH PROJECT NO. 90389										
		GROUNDWATER								
COMPOUND	CONCENTRATION	QUALITY STANDARD								
Benzene	<0.5	1								
Toluene	<0.5	1000								
Ethylbenzene	<0.5	550								
Xylenes	<0.5	530								
MTBE	<0.5	70								
1,3,5-Trimethylbenzene	<0.5	350								
1,2,4-Trimethylbenzene	<0.5	350								
Isopropyl ether	<0.5	70								
Naphthalene	<10	21								

All concentrations expressed as micrograms per liter.

FIGURES





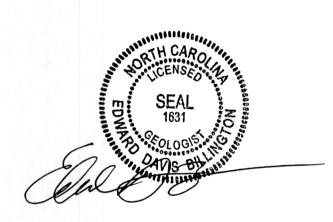


ATTACHMENT A

North Carolina Department of Transportation

GEOPHYSICAL SURVEYS FOR RIGHT-OF-WAY PROPERTIES

State Project R-2510C, WBS Element 34440.1.1 US 17 from South of SR 1001 to North of NC 171 Beaufort County, North Carolina



January 12, 2006 Project Number 05210014.01-04



11-A Oak Branch Drive, Greensboro, North Carolina 27407 Phone (336) 274-9456; Fax (336) 274-9486

INTRODUCTION

No

ork des be T} thi port ucte hnabel Engi under contrac NCDOT The ork 'as ed the locati nd cated sui port tal of the sm. ject parcel The purpose the cop ivs al sui rev as to DOS stal unde round storag tank (ST ted netal product he ble t les

chnabe Engrieer conducted eop ysi al reys No ber & 30 and Decembe & 14 2005, in the accessible areas of the proposed sections of the parcels owned by William Sheppard (2459 Highway 17 North), North

Photographs of these properties and the UST'S markouts are included on Figures 1 and

The cophysical ati ed EM luci urvey G EN -MK2 The EM6 al rume used ate tal ject buried to abou fee belo round irfa G id-penetral radar GPR est gati of selected EM anc were ond Geop al rvey lyster IR 000 syster eq ippe 400H: ant A she Gemi the nductio nde ice posed rent pipes nd produc es. hotographs these hown tru its gu

2.1 FIELD METHODOLOGY

Location Control

Loca ion: ophysi al at po and ite feature btai ed ib-meter T mble Pro-XR DGPS syste References direction ocatio thi port based the tate Pl: vstei North C 00 Zon he NAD 83 da its feet The of loc: feat (bui di ng curbs gns etc. recorde for late correlatio th he geophysical for fe ice the NCDOT dr in:

2. Data Collection

The Mi at er offected als para by ics spices approfite feet apart. The EM and DGP lata rided ital fiel pu later ferred des too come da roces. The G lata collited alon spaced to feet art go al dimensiver allo EM read that not ppear to be caused by kn objec. The GPR ed he fite rath the possi presence of 'T. The GPR also be conditioned and the fite of posed pipe rod and the he location the ed pipe out the the ref.

Pre ary sei Mike Br ion Eart Tec Dec mbe 6, 00

3. DISCUSSION OF RESULTS

 The to ed EM ata are
 Figure: hr
 The 16 arl
 sult

 ph ed
 Fi
 The arly im ga
 de ti
 sei
 tection

 al ob
 targets
 gur
 and sho
 ffe
 betw

 respo
 op and bo im
 of
 EM
 trui
 iffe
 all ponse
 The ffe

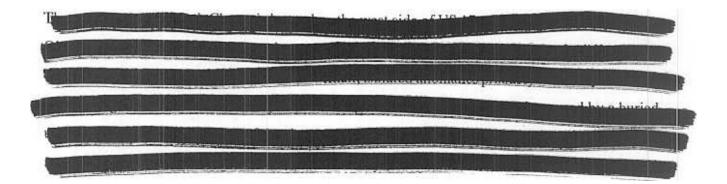
 taken
 iffect of Jrfi
 iry iall
 ed
 tal objects Typi all
 forentii
 response mpha
 anomal
 fro
 deeper ind arger object
 as UST

William She pard Property

T pare when W ep and loca ed he Ul approximately 600 fee south of Ch road Wash NC The EM6 for this par Fille mendate Fille ferential. The saily real show ser al sale roba gn ed met: and sed bur Ul ser an sali ture se ral nassoci ted anomal emaining anomalies he differ ial data et attributed to km cul ral ture resti further ith GPR The GPR data indicated the presence hl UST sho Figure hree Ai ex ipli G R mage sho iflect iron the orthern ost U!'T incl ded figu The GPR dat idicate that these bree T acl bou three feet ier and abo fi le ix th, approximat aci 250 00 gal. The appear to be ed abo feet he the gro irf:

T				
d l				
	PERSON		1000 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100	
a				
at				
			1100 at 14 14 at 1	
		and the second second second		
C				
	 	эна он ше-рассол		

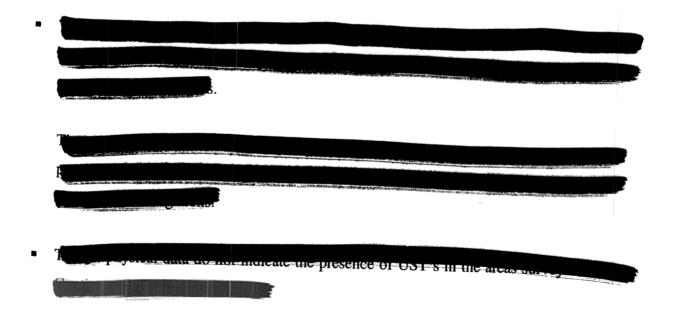
rty





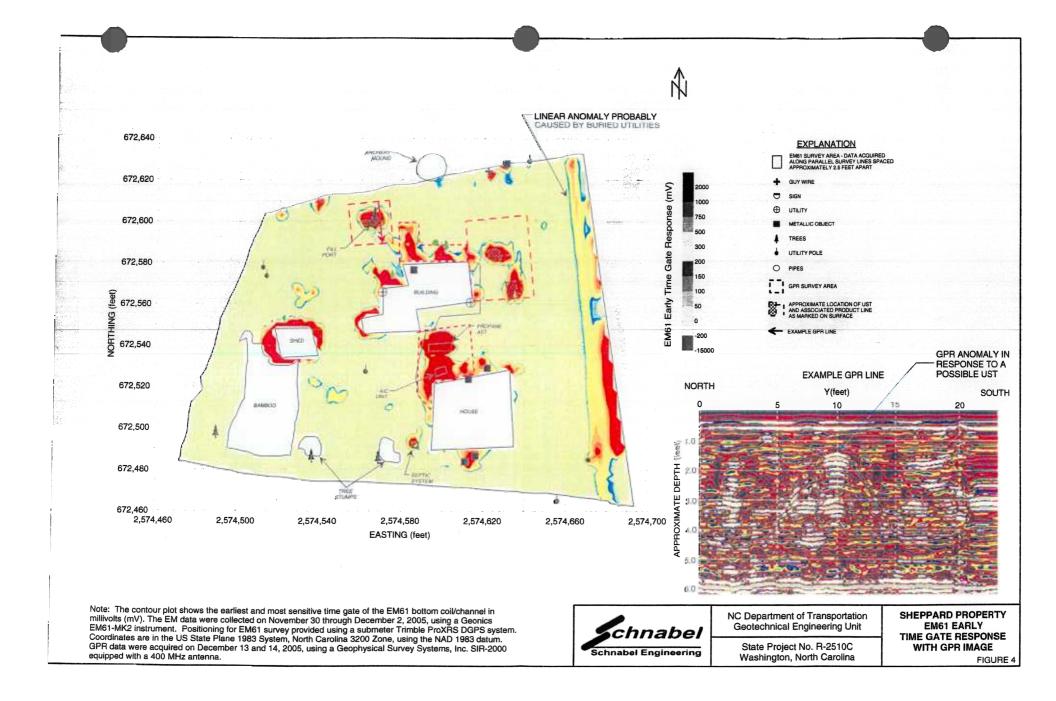
Our evaluation of the geophysical data collected over the five parcels on State Project R-2510-C in Beaufort County, NC indicate the following:

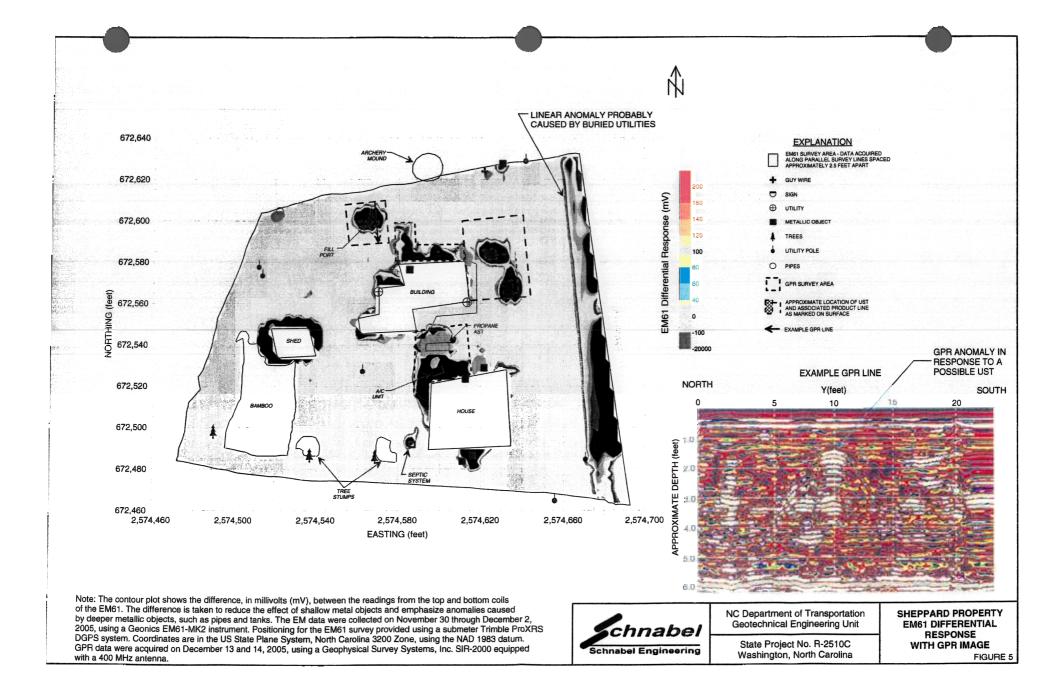
- The geophysical data indicate the presence of possible UST's within the survey areas on the Sheppard, Incompared as detailed below.
- The geophysical data indicate the presence of three possible UST's on the Sheppard Property. Each possible UST is about three feet in diameter and about five to six feet in length, with approximate capacities of 250-300 gallons.



5.0 LIMITATIONS

These services have been performed and this report prepared for the North Carolina Department of Transportation in accordance with generally accepted guidelines for conducting geophysical surveys. It is generally recognized that the results of geophysical surveys are non-unique and may not represent actual subsurface conditions.





ATTACHMENT B

	T NCDOT		010 011		BORING NUMBER HP-1 PAGE 1
	CT NUM		39		ELEVATION
	RACTOR			NG	DATE 12/21/05
	MENT G				DATE INFO
	_				PREPARED BY BRANSON
DEPTH IN FEET	OVA (ppm)	BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	1.09				4" TOPSOIL, MEDIUM TO DARK GRAY SILT/SAND, DRY, NO ODOR.
	1.52				MOTTLED MEDIUM BROWN AND MEDIUM GRAY SILT/SAND, MOIS NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
5.0	1.18				AS ABOVE, MOIST, NO ODOR.
					GROUNDWATER AT 6 FEET. BORING TERMINATED AT 6 FEET.
10.0					
15.0					
20.0			1		
	L	L	1		

6

	CT WASH		PSAs - SHI	EPPARD P	BORING NUMBER <u>HP-2</u>
		BER 9038	39		PAGE 1
		REGION/		IG	ELEVATION
		EOPROBE			DATE 12/21/05
EQUIP		LOF KOBL	, 		DRILLER OPPER
					PREPARED BY BRANSON
DEPTH IN FEET	OVA (ppm)	BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	1.21				4" TOPSOIL, MEDIUM TO DARK GRAY SILT/SAND, DRY, NO ODOR.
	1.43				MEDIUM GRAY FINE-GRAINED SAND, MOIST, NO ODOR.
5.0	1.76				AS ABOVE, MOIST, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
					BORING TERMINATED AT 6 FEET.
10.0					
15.0					
20.0			1		

7

1

1

	CT WASH			n na hain an	PROPERTY BORING NUMBER <u>HP-3</u> PAGE 1
	CT NUM		89		ELEVATION
	RACTOR			NG	DATE 12/21/05
	MENT G				DRILLER OPPER
-			ana minakina jarihan panain	an pilan mining i sa	PREPARED BY BRANSON
DEPTH IN FEET	OVA (ppm)	BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	1.47				MEDIUM TO DARK GRAY SILT/SAND, DRY, NO ODOR.
	1.6				MEDIUM GRAY FINE-GRAINED SAND, MOIST, NO ODOR.
	2.07				AS ABOVE, MOIST, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
_ 5.0					ANAL I SIS.
					BORING TERMINATED AT 6 FEET.
		1			
			4		
_ 10.0					
			1		
			4		
			1		
_ 15.0			1		
- 15.0			1		
			1		
]		
_ 20.0	1	<u> </u>	1		그는 이는 것은 활동한 듯 하면서 가슴이 있는 것이 같이 가지 않는 것이 같이 하는 것이다.

	CT WASH		PSAs - SHI	EPPARD P	ROPERTY BORING NUMBER <u>HP-4</u>
	T NCDOT				PAGE 1
	CT NUM				ELEVATION
	RACTOR			NG	DATE 12/21/05
QUIP	MENT G	EOPROBE			DRILLER OPPER
					PREPARED BY BRANSON
EPTH IN FEET	OVA (ppm)	BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	2.16				MEDIUM TO DARK GRAY SILT/SAND, DRY, NO ODOR.
					MEDIOM TO DARK GRAT SIET/SAND, DRT, NO ODOR.
	1.75				MEDIUM GRAY FINE-GRAINED SAND, MOIST, NO ODOR.
	2.79				AS ABOVE, MOIST, NO ODOR. SUBMIT TO LABORATORY FOR
5.0					ANALYSIS.
			{		
			1		BORING TERMINATED AT 6 FEET.
]		
			4		
			1		あった。 「「「「」」
10.0			1		
. 10.0			1		
			4		
			1		
			1		
			4		
			{		
			1		
15.0			4		
			1		
			1		
			4		
			{		
			1		
			4		
. 20.0		<u> </u>	4		

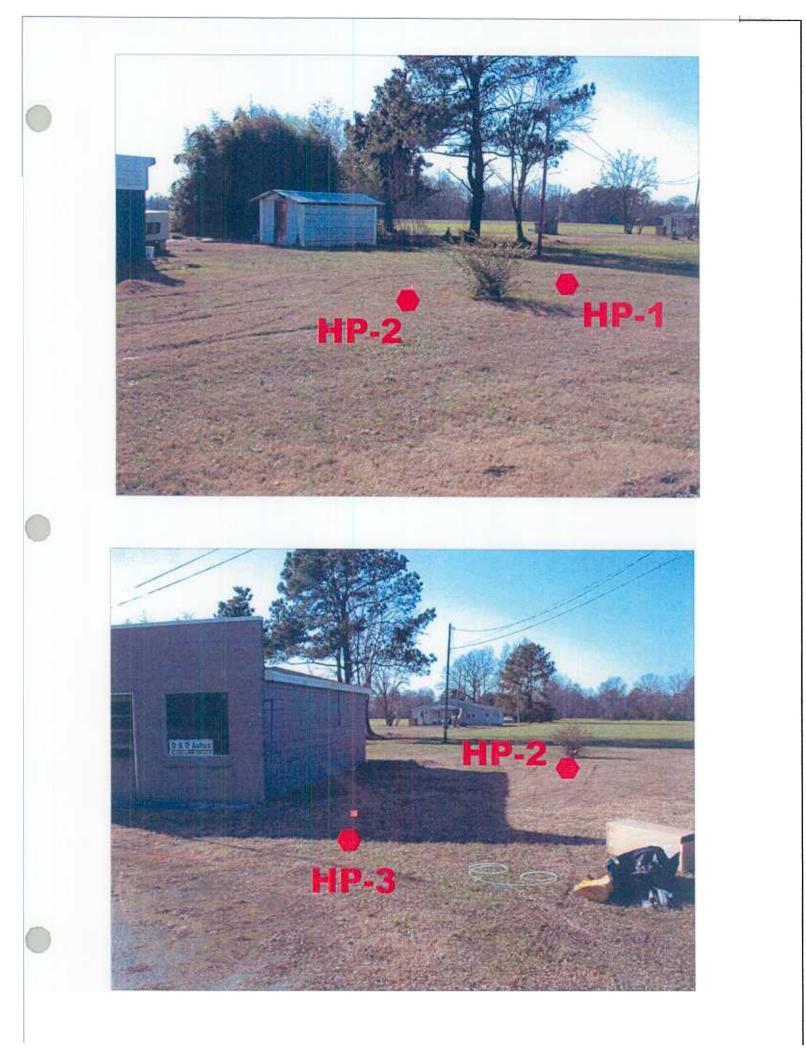
			PSAs - SHE	PPARD PI	ROPERTY BORING NUMBER HP-5
	T NCDOT				PAGE 1
	CT NUM				ELEVATION
			AL PROBIN	١G	DATE 12/21/05
EQUIP	MENT G	EOPROBE			DRILLER OPPER
					PREPARED BY BRANSON
DEPTH IN	OVA (ppm)	BLOWS PER	SAMPLE NUMBER	SAMPLE DEPTH	
IN FEET		PER 6 INCHES	MOMBER	DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	2.13				MEDIUM TO DARK GRAY SILT/SAND, DRY, NO ODOR.
			1	1	
	1.07				
	1.85				MEDIUM BROWN TO MEDIUM GRAY FINE-GRAINED SAND, MOIST, NO ODOR.
			1		
	2.52				AS ADOUT DOU NO ODOD OVER STATES
5.0	2.52				AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
_ 5.0					
	ļi				POPDIC TERMINATED AT C PETE
			1		BORING TERMINATED AT 6 FEET.
		<u>-</u>	1		
			1		
10.0			1		
			1		
		+	1		
			1		
			1		
		+	4		
15.0			1		
			4		
		+	1		
			1		- 이 이상(영양) - 이 이상 이 이 이 이 이 이 이 이 가지 않는 것이다.
			4		
		+	-		
			1		
]		
20.0	L	1	1	i and	

			PSAs - SHI	EPPARD P	· · · · · · · · · · · · · · · · · · ·
	T NCDOT				PAGE 1
	CT NUM				ELEVATION
	RACTOR	· · · · · · · · · · · · · · · · · · ·	a second s	NG	DATE 12/21/05
EQUIP	MENT G	EOPROBE			DRILLER OPPER
					PREPARED BY BRANSON
DEPTH IN	OVA (ppm)	BLOWS PER	SAMPLE NUMBER	SAMPLE DEPTH	
FEET		6 INCHES	NUMBER	RANGE	FIELD CLASSIFICATION AND REMARKS
	2.16				MEDIUM TO DARK GRAY SILT/SAND, DRY, NO ODOR.
	1.94				MEDIUM BROWN FINE-GRAINED SAND, MOIST, NO ODOR.
					ALLE TO ME DROWN THINK ON ANY OF A THINK OF
	2.83		1		AS ABOVE, MOIST, NO ODOR. SUBMIT TO LABORATORY FOR
_ 5.0					ANALYSIS.
			1		
					BORING TERMINATED AT 6 FEET.
			1		
			 		
			1		
_ 10.0					
			1		
				5	
			1		
			1		
15 0					
_ 15.0			1		
]		
			4		
			1		이 같은 것 같은
			1		
			1		
_ 20.0			4		

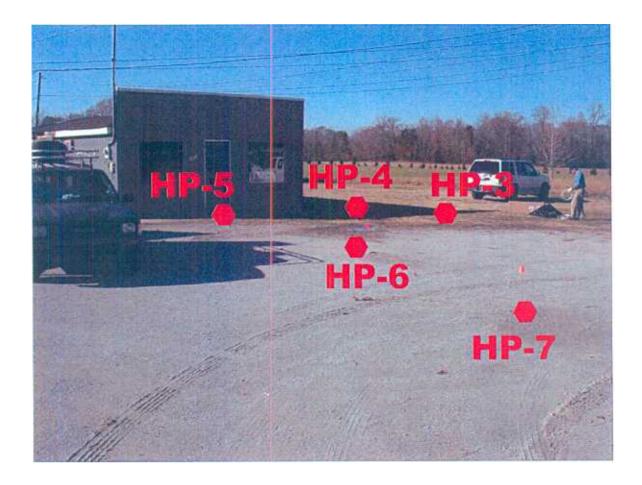
TIEN	r NCDOT	IINGTON I			
	CT NUM		0		PAGE 1
	ACTOR	ADDITIN .		G	ELEVATION
	MENT G	COMPANY AND A DESCRIPTION OF			DATE 12/21/05
					DRILLER OPPER
					PREPARED BY BRANSON
EPTH IN FEET	OVA (ppm)	BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	1.63				MEDIUM TO DARK GRAY SILT/SAND, DRY, NO ODOR.
	2.40				MEDIUM BROWN FINE-GRAINED SAND, MOIST, NO ODOR.
	2.43				AS ABOVE MOIST NO ODOD, SUDVIT TO LADOD TOTAL
5.0	2.43				AS ABOVE, MOIST, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
					BORING TERMINATED AT 6 FEET.
- 10.0					
. 15.0					
			1		
			1		
			ł		
- 20.0			1		

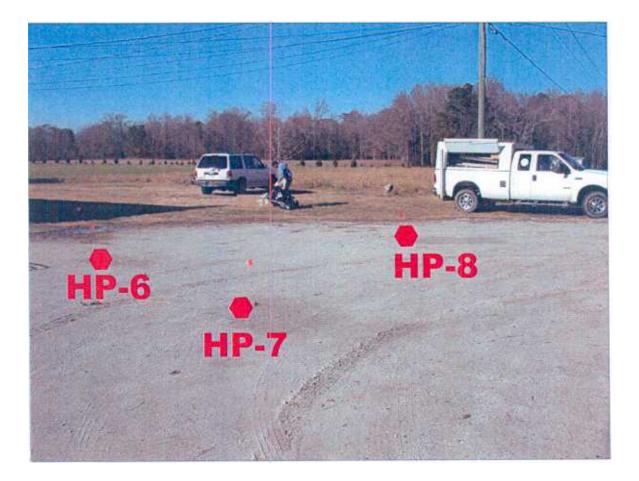
PROJE	CT WASH	INGTON	PSAs - SHI	EPPARD P	ROPERTY BORING NUMBER HP-8
CLIEN	T NCDOT	•			PAGE 1
PROJE	CT NUM	BER 903	89		ELEVATION
CONTI	RACTOR	REGION	AL PROBI	NG	DATE 12/21/05
EQUIP	MENT G	EOPROBE	3		DRILLER OPPER
					PREPARED BY BRANSON
DEPTH IN FEET	OVA (ppm)	BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	1.20				MEDIUM TO DARK GRAY SILT/SAND, DRY, NO ODOR.
	1.42				MEDIUM BROWN FINE-GRAINED SAND, MOIST, NO ODOR.
	1.55				MOTTLED MEDIUM BROWN AND MEDIUM GRAY PLASTIC CLAY,
5.0			•		MOIST, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			1		
					BORING TERMINATED AT 6 FEET.
			1		
			1		
			ļ		
			4		
10.0			1		
			4		
			1		
			1		
			1		
			1		
15.0			Į		
			4		
			1		
]		
			4		
			-		
			1		
			1		
20.0					
	L			<u> </u>	

ATTACHMENT C









ATTACHMENT D

PARADIGM ANALYTICAL LABORATORIES, INC.

5500 Business Drive Wilmington, North Carolina 28405 (910) 350-1903 Fax (910) 350-1557

Mr. Mike Branson Earth Tech 701 Corporate Dr. Suite 475 Raleigh NC 27607

Report Number: G204-501

Client Project: NCDOT-Sheppard

Dear Mr. Branson:

Enclosed are the results of the analytical services performed under the referenced project. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call Paradigm at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely Paradigm Analytical Laboratories, Inc.

alory Director

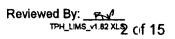
atrick Weaver

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons by GC/FID 8015

Client Sample ID: H	HP-1		Analyzed By: MJC					
Client Project ID: 1	NCDOT-Sheppard	t	Date Collected: 12/21/05 11:30					
Lab Sample ID: (G204-501-1		Date Received: 12/22/05					
Lab Project ID: (G204-501		Matrix: Soil					
Report Basis:	Dry Weight			Solids	81.62			
Analyte		Result MG/KG	Report Limit м G/ кG	Prep Method	Dilution Factor	Date Analyzed		

	MG/KG	MG/KG	Method	Factor	Analyzed
Gasoline Range Organics	BQL	7.35	5030	1	12/30/05
Diesel Range Organics	BQL	7.1	3545	1	12/30/05



PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons by GC/FID 8015

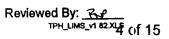
Report Basis: Dry Weight			Solids	85.04	
Lab Project ID: G204-501			Matrix:	Soil	
Lab Sample ID: G204-501-2		Date	e Received:	12/22/05	
Client Project ID: NCDOT-Sheppa	rd	Date	e Collected:	12/21/05 11:45	
Client Sample ID: HP-2	Analyzed By: MJC				

Result	Report Limit	Prep	Dilution	Date
MG/KG	MG/KG	Method	Factor	Analyzed
BQL	7.06	5030	1	12/30/05
BQL	7.32	3545	1	01/03/06
	MG/KG	MG/KG MG/KG	MG/KG MG/KG Method	мg/kg мg/kg Method Factor
	BQL	BQL 7.06	BQL 7.06 5030	BQL 7.06 5030 1



Client Sample ID: HP-3		A	nalyzed By:	MJC	
Client Project ID: NCDOT-Shep	Date Collected: 12/21/05 12:10				
Lab Sample ID: G204-501-3		Date	e Received:	12/22/05	
Lab Project ID: G204-501			Matrix:	Soil	
Report Basis: Dry Weight			81.52		
A	Pocult	Pepert Limit	Pren	Dilution	Date

Analyte	Result MG/⊮G	Report Limit MG/KG	Prep Method	Factor	Date Analyzed
Gasoline Range Organics	BQL	7.36	5030	1	12/30/05
Diesel Range Organics	BQL	7.51	3545	1	01/03/06



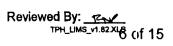
Client Sample ID: H	Analyzed By: MJC							
Client Project ID: N	Client Project ID: NCDOT-Sheppard			Date Collected: 12/21/05 12:20				
Lab Sample ID: C	S204-501-4		Date Received: 12/22/05					
Lab Project ID: C	3204-501		Matrix: Soil					
Report Basis:	Dry Weight		Solids 81.94					
Analyte		Result мс/кс	Report Limit мс/кс	Prep Method	Dilution Factor	Date Analyzed		

	MG/⊮G	MG/KG	Method	Factor	Analyzed
Gasoline Range Organics	BQL	7.32	5030	1	12/30/05
Diesel Range Organics	BQL	7.46	3545	1	01/04/06



Analyte	Result	Report Limit	Prep Method	Dilution Factor	Date Analyzer
Report Basis: Dry W	eight		Solids	80.70	
Lab Project ID: G204-50	1		Matrix:	Soil	
Lab Sample ID: G204-50	1-5	Date Received: 12/22/05			
Client Project ID: NCDOT-	Sheppard	Dat	12/21/05 12:3	0	
Client Sample ID: HP-5		nalyzed By:	MJC		

	MG/KG	MG/KG	Method	Factor	Analyzed
Gasoline Range Organics	BQL	7.43	5030	1	12/30/05
Diesel Range Organics	BQL	7.64	3545	1	01/03/06



Results for Total Petroleum Hydrocarbons by GC/FID 8015

Client Sample ID: HP-6	Sample ID: HP-6 Analyzed By: MJC					
Client Project ID: NCDOT-Sheppa	Client Project ID: NCDOT-Sheppard		Date Collected: 12/21/05 12:40			
Lab Sample ID: G204-501-6		Date Received: 12/22/05				
Lab Project ID: G204-501			Matrix:	Soil		
Report Basis: Dry Weight		Solids 81.97				
Analyte	Res⊔it мg/кg	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed	

BQL

BQL

7.32

7.42

1

1

5030

3545

12/30/05

01/03/06

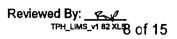
Gasoline Range Organics

Diesel Range Organics

Reviewed By: _____ TPH_LIMS_v1 82 XLS7 Cf 15

Analyte	Result	Report Limit	Prep Mothod	Dilution	Date	
Report Basis: Dry Weight			Solids	83.96		
Lab Project ID: G204-501			Matrix:	Soil		
Lab Sample ID: G204-501-7		Da	te Received:	12/22/05		
Client Project ID: NCDOT-Sheppa	rd	Dat	12/21/05 12:5	50		
Client Sample ID: HP-7	nt Sample ID: HP-7			Analyzed By: MJC		

	MG/KG	MG/KG	Method	Factor	Analyzed
Gasoline Range Organics	BQL	7.15	5030	1	12/30/05
Diesel Range Organics	BQL	7.27	3545	1	01/03/06



Client Sample ID: H	1P-8		A	MJC		
Client Project ID: N	NCDOT-Sheppa	rd	Date Collected: 12/21/05 13:00			00
Lab Sample ID: (3204-501-8		Date Received: 12/22/05			
Lab Project ID: (G204-501		Matrix: Soil			
Report Basis:	Dry Weight		Solids 81.37			
Analyte		Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed

	MG/KG	MG/KG	method	Factor	Analyzed
Gasoline Range Organics	BQL	7.37	5030	1	12/30/05
Diesel Range Organics	BQL	7.55	3545	1	01/03/06

Results for Volatiles

by GC 6230D

Client Sample ID: HP-4-GW Client Project ID: NCDOT-Sheppard Lab Sample ID: G204-501-9A Lab Project ID: G204-501 Analyzed By: MJC Date Collected: 12/21/05 13:15 Date Received: 12/22/05 Matrix: Water

Analyte	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	0.500	1	12/23/05
Bromobenzene	BQL	0.500	1	12/23/05
Bromochloromethane	BQL	0.500	1	12/23/05
Bromodichloromethane	BQL	0.500	1	12/23/05
Bromoform	BQL	0.500	1	12/23/05
Bromomethane	BQL	0.500	1	12/23/05
n-Butylbenzene	BQL	0.500	1	12/23/05
sec-Butylbenzene	BQI.	0.500	1	12/23/05
tert-Butylbenzene	BQL	0.500	1	12/23/05
Carbon tetrachloride	BQL	0.500	1	12/23/05
Chlorobenzene	BQL	0.500	1	12/23/05
Chloroethane	BQL	0.500	1	12/23/05
Chloroform	BQI.	0.500	1	12/23/05
Chloromethane	BQL	0.500	1	12/23/05
2-Chlorotoluene	BQL	0.500	1	12/23/05
4-Chlorotoluene	BQL	0.500	1	12/23/05
Dibromochloromethane	BQL	0.500	1	12/23/05
1,2-Dibromo-3-chloropropane	BQL	0.500	1	12/23/05
1,2-Dibromoethane (EDB)	BQL	0.500	1	12/23/05
Dibromomethane	BQL	0.500	1	12/23/05
1,2-Dichlorobenzene	BQL	0.500	1	12/23/05
1,3-Dichlorobenzene	BQL	0.500	1	12/23/05
1,4-Dichlorobenzene	BQL	0.500	1	12/23/05
Dichlorodifluoromethane	BQL	0.500	1	12/23/05
1,1-Dichloroethane	BQL	0.500	1	12/23/05
1,2-Dichloroethane	BQL	0.500	1	12/23/05
1,1-Dichloroethene	BQL	0.500	1	12/23/05
cis-1,2-Dichloroethene	BQL	0.500	1	12/23/05
trans-1,2-Dichloroethene	BQL	0.500	1	12/23/05
1,2-Dichloropropane	BQI_	0.500	1	12/23/05
2,2-Dichloropropane	BQL	0.500	1	12/23/05
cis-1,3-Dichloropropene	BQL	0.500	1	12/23/05
trans-1,3-Dichloropropene	BQL	0.500	1	12/23/05
Diisopropyl ether (DIPE)	BQL	0.500	1	12/23/05
Ethylbenzene	BQL	0.500	1	12/23/05
Hexachlorobutadiene	BQL	0.500	1	12/23/05
Isopropylbenzene	BQL	0.500	1	12/23/05
p-IsopropyItoluene	BQL	0.500	1	12/23/05
Methyl-tert butyl ether (MTBE)	BQL	0.500	1	12/23/05

Reviewed By: ______ GC_LIMS_v2 0.XLS 10 of 15

Results for Volatiles

by GC 6230D

Client Sample ID: HP-4-GW Client Project ID: NCDOT-Sheppard Lab Sample ID: G204-501-9A Lab Project ID: G204-501 Analyzed By: MJC Date Collected: 12/21/05 13:15 Date Received: 12/22/05 Matrix: Water

Analyte	Result	RL	Dilution	Date	
	ug/L	ug/L	Factor	Analyzed	
Methylene Chloride	BQL	5.00	1	12/23/05	
Naphthalene	BQL	0.500	1	12/23/05	
n-Propylbenzene	BQL	0.500	1	12/23/05	
Styrene	BQL	1.00	1	12/23/05	
1,1,1,2-Tetrachloroethane	BQL	0.500	1	12/23/05	
1,1,2,2-Tetrachloroethane	BQL	0.500	1	12/23/05	
Tetrachloroethene	BQL	0.500	1	12/23/05	
Toluene	BQL	0.500	1	12/23/05	
1,2,3-Trichlorobenzene	BQL	0.500	1	12/23/05	
1,2,4-Trichlorobenzene	BQL	0.500	1	12/23/05	
1,1,1-Trichloroethane	BQL	0.500	1	12/23/05	
1,1,2-Trichloroethane	BQL	0.500	1	12/23/05	
Trichloroethene	BQL	0.500	1	12/23/05	
Trichlorofluoromethane	BQL	0.500	1	12/23/05	
1,2,3-Trichloropropane	BQL	0.500	1	12/23/05	
1,2,4-Trimethylbenzene	BQL	0.500	1	12/23/05	
1,3,5-Trimethylbenzene	BQL	0.500	1	12/23/05	
Vinyl Chloride	BQL	0.500	1	12/23/05	
m/p-Xylene	BQL	1.00	1	12/23/05	
o-Xylene	BQL	1.00		12/23/05	
Surrogate Spike Recoveries		Spike	Spike	Percent	
		Added	Result	Recovery	
Trifluorotoluene		40	38.4	96.1	
1,4-Dichlorobutane		40	42.5	106	

Comments:

All values corrected for dilution. BQL = Below quantitation limit.

Results for Semivolatiles by GCMS 625

Client Sample ID: HP-4-GW Client Project ID: NCDOT-Sheppard Lab Sample ID: G204-501-9E Lab Project ID: G204-501 Analyzed By: MRC Date Collected: 12/21/2005 13:15 Date Received: 12/22/2005 Date Extracted: 12/27/2005 Matrix: Water

	Result	Quantitation	Dilution	Date
Compound	ug/L	Limit ug/L	Factor	Analyzed
Acenaphthene	BQL	10.0	1	12/30/2005
Acenaphthylene	BQL	10.0	1	12/30/2005
Anthracene	BQL	10.0	1	12/30/2005
Benzo[a]anthracene	BQL	10.0	1	12/30/2005
Benzo[a]pyrene	BQL	10.0	1	12/30/2005
Benzo[b]fluoranthene	BQL	10.0	1	12/30/2005
Benzo[g,h,i]perylene	BQL	10.0	1	12/30/2005
Benzo[k]fluoranthene	BQL	10.0	1	12/30/2005
Bis(2-chloroethoxy)methane	BQL	10.0	1	12/30/2005
Bis(2-chloroethyl)ether	BQL	10.0	1	12/30/2005
Bis(2-chloroisopropyl)ether	BQL	10.0	1	12/30/2005
Bis(2-ethylhexyl)phthalate	BQL	10.0	1	12/30/2005
4-bromophenyl phenyl ether	BQL	10.0	1	12/30/2005
Butylbenzylphthalate	BQL	10.0	1	12/30/2005
2-Chloronaphthalene	BQL	10.0	1	12/30/2005
2-Chlorophenol	BQL	10.0	1	12/30/2005
4-Chloro-3-methylphenol	BQL	10.0	1	12/30/2005
4-Chlorophenyl phenyl ether	BQL	10.0	1	12/30/2005
Chrysene	BQL	10.0	1	12/30/2005
Dibenzo[a,h]anthracene	BQL	10.0	1	12/30/2005
Di-n-Butylphthalate	BQL	10.0	1	12/30/2005
1,2-Dichlorobenzene	BQL	10.0	1	12/30/2005
1,3-Dichlorobenzene	BQL	10.0	1	12/30/2005
1,4-Dichlorobenzene	BQL	10.0	1	12/30/2005
3,3'-Dichlorobenzidine	BQL	20.0	1	12/30/2005
2,4-Dichlorophenol	BQL	10.0	1	12/30/2005
Diethylphthalate	BQL	10.0	1	12/30/2005
Dimethylphthalate	BQL	10.0	1	12/30/2005
2,4-Dimethylphenol	BQL	10.0	1	12/30/2005
Di-n-octylphthalate	BQL	10.0	1	12/30/2005
4,6-Dinitro-2-methylphenol	BQL	50.0	1	12/30/2005
2,4-Dinitrophenol	BQL	50.0	1	12/30/2005
2,4-Dinitrotoluene	BQL	10.0	1	12/30/2005
2,6-Dinitrotoluene	BQL	10.0	1	12/30/2005
Diphenylamine *	BQL	10.0	1	12/30/2005
Fluoranthene	BQL	10.0	1	12/30/2005
Fluorene	BQL	10.0	1	12/30/2005
Hexachlorobenzene	BQL	10.0	1	12/30/2005
Hexachlorobutadiene	BQL	10.0	1	12/30/2005
Hexachlorocyclopentadiene	BQL	20.0	1	12/30/2005
Hexachloroethane	BQL	10.0	1	12/30/2005
Indeno(1,2,3-c,d)pyrene	BQL	10.0	1	12/30/2005

Page 1 of 2

8270_LIMS_V1.94

Results for Semivolatiles by GCMS 625

Client Sample ID: HP-4-GW Client Project ID: NCDOT-Sheppard Lab Sample ID: G204-501-9E Lab Project ID: G204-501 Analyzed By: MRC Date Collected: 12/21/2005 13:15 Date Received: 12/22/2005 Date Extracted: 12/27/2005 Matrix: Water

	Result	Quantitation	Dilution	Date
Compound	ug/L	Limit ug/L	Factor	Analyzed
Isophorone	BQL	10.0	1	12/30/2005
Naphthalene	BQL	10.0	1	12/30/2005
Nitrobenzene	BQL	10.0	1	12/30/2005
2-Nitrophenol	BQL	10.0	1	12/30/2005
4-Nitrophenol	BQL	50.0	1	12/30/2005
N-Nitrosodi-n-propylamine	BQL	10.0	1	12/30/2005
Pentachlorophenol	BQL	50.0	1	12/30/2005
Phenanthrene	BQL	10.0	1	12/30/2005
Phenol	BQL	10.0	1	12/30/2005
Pyrene	BQL	10.0	1	12/30/2005
1,2,4-Trichlorobenzene	BQL	10.0	1	12/30/2005
2,4,6-Trichlorophenol	BQL	10.0	1	12/30/2005

	Spike	Spike	Percent	
	Added	Result	Recovered	
2-Fluorobiphenyl	10	7.8	78	
2-Fluorophenol	10	7.2	72	
Nitrobenzene-d5	10	7.4	74	
Phenol-d6	10	7.3	73	
2,4,6-Tribromophenol	10	7.1	71	
4-Terphenyl-d14	10	9.6	96	

Comments:

* N-Nitrosodiphenylamine is reported as the breakdown product Diphenylamine.

Flags:

BQL = Below Quantitation Limits.

Reviewed By: _____

List of Reporting Abbreviations and Data Qualifiers

- B = Compound also detected in batch blank
- BQL = Below Quantitation Limit
- DF = Dilution Factor
- Dup = Duplicate
- D = Detected, but RPD is > 40% between results in dual column method.
- E = Estimated concentration, exceeds calibration range.
- J = Estimated concentration, below calibration range and above MDL
- LCS(D) = Laboratory Control Spike (Duplicate)
- MDL = Method Detection Limit
- MS(D) = Matrix Spike (Duplicate)
- PQL = Practical Quantitation Limit
- RL = Reporting Limit
- RPD = Relative Percent Difference
- mg/kg = milligram per kilogram, ppm, parts per million
- ug/kg = micrograms per kilogram, ppb, parts per billion
- mg/L = milligram per liter, ppm, parts per million
- ug/L = micrograms per liter, ppb, parts per billion
- % Rec = Percent Recovery
- % soilds = Percent Solids

Special Notes:

- 1) Metals and mercury samples are digested with a hot block, see the standard operating procedure document for details.
- 2) Uncertainty for all reported data is less than or equal to 30 percent.

MI34.092205.2

PARADIGM ANALYTICAL LABORATORIES, INC. 5500 Business Drive, Wilmington, NC 28405 Phone: (910)-350-1903 FAX: (910)-350-1557					Chain-of Custody Record & Analytical Request						
lient: EANTH TE ddress: <u>701 Copponent</u> ddress: <u>501 ke 47</u> uote #: <u>PAlceyh</u> ,	Center De										Page of Report To: Mike BAANSON EACTOR FECH
uote #: <u></u>	NO FIG	0/	Prese	rvatives		1			Analyses		Comments: Please specify any special reporting
Sample 10 . Da 19-1 12-(2	ite Tim	e <i>Matrix</i>	Ter		Deo	610	(0520)	629			requirements
HP-1 12/2	165 1130	Sort			r	~					G204-501.
18-2	1145	501			1	~					
+P-3	1210	Sor			V	1					
8-4	12.20	Soic				~					
P-5	(230	Sou			v	/					
48-6	1240	SIL			~	~					
48.7	1250				~	/					
4P-5 4P-6 4P-7 4P-9	1300					/					
11-0		water					rr	/			INVOICE NOTET UNTER
	· *										BLANKest PD
Relinquished By	Dat	7	e	Received	By		Date		Time	Temperatur	re State Certification Requested
Mana	tztu	05 70	U Jac	je	ma		12/22	la	-[330	28°CS 3,6°C	SEE REVERSE FOR TERMS AND CONDITIONS