PRELIMINARY SITE ASSESSMENT
FOR
PARCEL #78 JEFFERY W. SMITH PROPERTY

STATE PROJECT: R-2303A
WBS ELEMENT: 34416.1.1
NC 24 FROM WEST OF SR 1006 (MAXWELL RD./CLINTON RD.) IN CUMBERLAND COUNTY TO SR 1853 (JOHN NUNNERY RD.)

PREPARED FOR:

NCDOT GEOTECHNICAL ENGINEERING UNIT
GEOENVIRONMENTAL SECTION
1589 MSC
RALEIGH, NORTH CAROLINA 27699-1589

JANUARY 7, 2011
REVISED JANUARY 12, 2011

PREPARED BY:

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CATLIN PROJECT NO. 210124

CORPORATE GEOLOGY LICENSE CERTIFICATION NO. C-118
CORPORATE LICENSURE NO. FOR ENGINEERING SERVICES C-0585

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for
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January 7, 2011
Revised January 12, 2011

1.0 PURPOSE OF INVESTIGATION AND DESCRIPTION

CATLIN Engineers and Scientists (CATLIN) were retained by the North Carolina Department of Transportation (NCDOT) Geotechnical Engineering Unit to provide a field investigation concluding with a Preliminary Site Assessment (PSA) for the above referenced properties. In response to a Request for Technical and Cost Proposal (RFP) dated October 22, 2010, and subsequent site reconnaissance and discussions with NCDOT GeoEnvironmental Project Manager Mr. Ethan Caldwell, PE, LG, CATLIN submitted a proposal for conducting an investigation at nine (9) parcels near Stedman, North Carolina. Figure 1 illustrates the general location and the State Project is illustrated on Figure 2.

This report documents our activities and findings at Parcel #78, Jeffery W. Smith Property. The following specific parcel information was provided by NCDOT:

Parcel #78 Jeffery W. Smith Property
Stedman Hair Care
6809 Clinton Rd.
Stedman, NC 28391
Plan Sheet 17/18
Facility ID: None Identified

Property Owner:
Jeffery W. Smith
6809 Clinton Rd.
Stedman, NC 28391

Currently this site operates as a hair care salon. Historically the site operated as a gas station. The site is located on the north side of Clinton Road approximately 180 feet west of Blake Road. According to NCDENR's UST Section registry there are no known Facility IDs or Groundwater Incidents associated with this property. A possible UST was observed in front of the store. The site is illustrated on Figure 3.

According to the RFP:

Acquisition of the right-of-way is necessary for NC 24 roadway

construction (above referenced State Project R-2303A) and specifically at the above referenced parcel. A site investigation is necessary to determine the presence of USTs and/or contaminated soil in the proposed right-of-way and/or easement.

The work scope as requested includes:

- Notify property owners/occupants of intent as applicable.
- Locate all USTs and determine approximate size and contents (if any). Locate all USTs and determine approximate size and contents (if any).
- Locate monitoring wells that may be impacted during construction.
- Determine if contaminated soils are present.
- If contamination is evident, estimate the quantity of impacted soils and indicate the approximate area of soil contamination on a site map.
- Prepare and submit one report of findings including field activities, findings, and recommendations for each site in triplicate and electronically to the NCDOT GeoEnvironmental Section.

In addition to the RFP, NCDOT provided plan sheets associated with the roadway construction. CATLIN and NCDOT personnel agreed to approximate proposed boring and sample locations within the right-of-way and/or easement for soil sample collection and total petroleum hydrocarbons (TPH) diesel and gasoline range organics (DRO and GRO) laboratory analysis during a October 26, 2010 site reconnaissance meeting.

2.0 METHODS

Approximate proposed borings were indicated in the field with NCDOT personnel during initial site reconnaissance and before final Workplan submittal. Per NCDOT request, borings (soil samples) were located near known or suspect UST systems and proposed drainage features (as indicated on NCDOT provided plan sheets).

CATLIN coordinated geophysical activities concurrently with soil boring and sampling. Final sampling activities were completed after the geophysical survey. CATLIN's field activities concluded on November 22, 2010.

2.1 FIELD METHODS

All field work was conducted in general accordance with state and federal guidelines and industry standards.

Underground utility locating was coordinated by CATLIN personnel. The North Carolina One Call Center (NC-1-Call) was contacted for

underground utility location. Proposed boring locations were marked before NC-1-Call personnel were on-site. The areas around the proposed boring locations were checked and found to be clear of any underground utilities or alternate locations were indicated by NC-1-Call personnel.

CATLIN personnel gathered subsurface soil data at the site by Direct Push Technology (DPT) boring advancement using an AMS PowerProbe™ 9600D (PowerProbe). The borings were advanced to depth by static force and a 90-pound hydraulic percussion hammer. Two and one-quarter inch diameter by four-foot length steel is used as casing. Soil samples were continuously collected in four-foot long and one and one-half inch diameter clear liners. Liners are removed from the casing and then cut in half longitudinally to allow for visual/manual classification utilizing the Unified Soil Classification System (USCS). Borings were identified by the parcel number (as indicated by NCDOT) followed by "DPT" and consecutive numbers starting with "01" at each parcel (example: 78DPT-01). Soil samples were collected continuously from near the surface to boring termination. Soils were removed from the liners in two-foot intervals and placed in sealable polyethylene bags for organic vapor analysis (OVA) headspace screening utilizing a photo ionization detector (PID). The USCS and OVA/PID information was recorded on field logs and has been transferred to the Boring Logs provided in Appendix A.

Soil samples were collected for laboratory analysis above the water table using roughly a one-foot interval of the two-foot sample revealing the highest OVA/PID reading. Sample identification was based on the boring identification followed by sample depth in parentheses (example: 78DPT-01 (7-8').

New disposable nitrile gloves were worn during sampling activities. All samples were placed into laboratory provided glassware and packed on ice in an insulated cooler for transportation to the laboratory. Sample integrity was maintained by following proper Chain of Custody procedures. A copy of the Chain of Custody is provided following the analytical report in Appendix B.

Boreholes were abandoned to just below the surface using three-eighth inch bentonite chips. Bentonite and water were poured into the borehole simultaneously to facilitate hydration. Borings located in asphalt or gravel were topped with asphalt cold patch. Final borehole and sample locations were surveyed utilizing a Trimble® GPS survey instrument.

2.2 LABORATORY TESTING

Following boring advancement, selected soils were placed in the appropriately labeled glassware. In an attempt to provide information regarding petroleum impact to soils and groundwater with reasonable analytical expense, soil samples were analyzed for TPH DRO and GRO by Environmental Protection Agency (EPA) Methods 5030 and 3550 with analysis by modified 8015.

A total of 11 soil samples were submitted to SGS North America Inc. (NC Certification # 481). Chain of Custody documentation is included in Appendix B.

3.0 RESULTS

In the event a cut is required for roadway construction or utility installation, any soil samples revealing detectable TPH concentrations will be considered petroleum impacted for handling and disposal purposes. The complete laboratory analytical reports are provided in Appendix B. Results of Schnabel's geophysical investigation including site photographs were submitted directly to NCDOT and a copy is provided in Appendix C. Schnabel's investigation results will be generally discussed in the following section.

Three (3) probable USTs were identified during the geophysical survey. Additionally, one possible UST was identified during geophysical data post-processing. According to the geophysical report, the probable UST Number 1 is about 550-gallon capacity, is approximately two (2) to three (3) feet BLS and located near the southeast corner of the building. A vent pipe was also identified on the east side of the southeast building corner. The probable UST Number 2 is about 560-gallon capacity, is approximately two (2) feet BLS and located south of the Stedman Hair Care building. The probable UST Number 3 is about 270-gallon capacity, is approximately two (2) feet BLS and located east of probable UST Number 2. A probable fill port filled with concrete was also located in the probable UST Number 3 location. Possible UST Number 4 is about 550-gallon capacity, approximately three (3) to four (4) feet BLS, and is located east of probable UST Number 1. Suspected UST locations are illustrated on Figure 3. Photographs of the site including the three (3) probable UST locations are included in the geophysical report provided in Appendix C.

Eleven (11) borings were advanced for soil sample collection and one sample was collected from each boring for laboratory analysis. Borings were advanced near the suspected USTs. Boring/sample locations are illustrated on Figure 3.

Borings were terminated at eight (8) feet BLS except the 78DPT-01 boring, which was advanced to 12 feet BLS and borings 78DPT-08 through 78DPT-11 were terminated at seven (7) feet BLS. Predominately clayey soils were

encountered with some sands. Damp to saturated soils were encountered in the 78DPT-01 boring at approximately 9.5 feet BLS. Soil samples were collected for laboratory analysis from within the two (2) foot interval with the highest OVA/PID reading. Soil samples for laboratory analysis were generally collected from within six (6) to eight (8) feet BLS with the exception of soil sample 78DPT-06 (1-2'). Boring logs including USCS classification and OVA/PID screening results are provided in Appendix A. Summarized analytical results are provided on Table 1 and Figure 3.

Seven (7) of 11 soil samples revealed detectable TPH concentrations. No TPH concentrations were detected in the soil samples collected north of probable UST Number 1, south of possible UST Number 4, west of the Stedman Hair Care Building, or in the southeastern most boring. The estimated extent of TPH impacted soil is illustrated on Figure 3. This area encompasses approximately 1,350 ft^2. Based on an assumed zone of contamination from one (1) foot BLS to the assumed water table depth of nine (9) feet BLS, approximately 400 yds^3 of TPH impacted soils may be in the area. However, it should be noted (as illustrated on Figure 3); there is not a clean soil sample location to the south of the 78DPT-04 boring. Additionally, based on OVA/PID screening results (see Boring Logs in Appendix A), not all soils within the estimated extent of petroleum impacted soils may be impacted near the surface.

4.0 SUMMARY AND RECOMMENDATIONS

A preliminary site assessment was conducted at the subject site as requested by NCDOT. Right-of-Way acquisition for NC 24 roadway construction is proposed at the site. In the event a cut is required for roadway construction or utility installation, any soil samples revealing detectable TPH concentrations will be considered petroleum impacted for handling and disposal purposes. No proposed drainage features were identified on the NCDOT provided plan sheets.

Three (3) probable USTs were identified during the geophysical survey. Additionally, one possible UST was identified during geophysical data post-processing.

Eleven (11) borings were advanced for soil sample collection and one sample was collected from each boring for laboratory analysis. Seven (7) of 11 soil samples revealed detectable TPH concentrations and six (6) of the 11 soil samples revealed TPH concentration above the NCDENR Action Level 10 mg/kg TPH DRO or TPH GRO. The estimated extent of TPH impacted soil encompasses approximately 1,350 ft^2 (+/- 400 yds^3). However, it should be noted, clean soil sample locations do not completely define the estimated extent of petroleum impacted soils and not all soils within the estimated extent of petroleum impacted soils may be impacted near the surface.

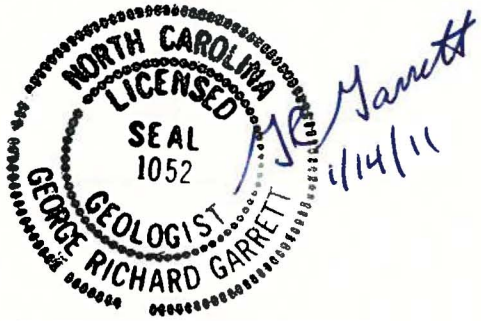
CATLIN recommends forwarding a copy of this report to the NCDENR Fayetteville Regional Office UST Section with a cover letter indicating the presence of TPH impacted soils above NCDENR Action Level at this site. The existing UST system should be removed with efforts to remove all petroleum impacted soils before roadway construction.

5.0 LIMITATIONS

This report is based on the agreed work scope and a review of available data from limited sampling. It is possible that this investigation may have failed to reveal the presence of contamination in the project area where such contamination may exist. Although CATLIN has used accepted methods appropriate for soil and groundwater sampling, CATLIN cannot guarantee that additional soil and/or groundwater contamination does not exist.

6.0 SIGNATURES

Benjamin J. Ashba
Project Manager



G. Richard Garrett, P.G.
Senior Project Manager

TABLES

TABLE 1
SUMMARY OF SOIL LABORATORY RESULTS
EPA METHOD 8015

Parcel #78
Jeffrey W. Smith Property
Stedman Hair Care
6809 Clinton Road

Sample ID	Contaminant of Concern → / Date Collected	Diesel Range Organics	Gasoline Range Organics
78 DPT-01 (7-8')	11/17/2010	<7.14	<4.76
78 DPT-02 (7-8')	11/17/2010	**11.9**	**23.8**
78 DPT-03 (6-7')	11/17/2010	<7.31	<5.12
78 DPT-04 (7-8')	11/17/2010	<7.17	**62.3**
78 DPT-05 (6-7')	11/17/2010	**10.8**	**1,240**
78 DPT-06 (1-2')	11/17/2010	<6.54	<5.33
78 DPT-07 (7-8')	11/17/2010	<7.26	<5.14
78 DPT-08 (6-7')	11/22/2010	**19.6**	**1,370**
78 DPT-09 (6-7')	11/22/2010	**7.95**	<4.79
78 DPT-10 (6-7')	11/22/2010	**38.5**	<5.37
78 DPT-11 (6-7')	11/22/2010	**20.7**	**569**

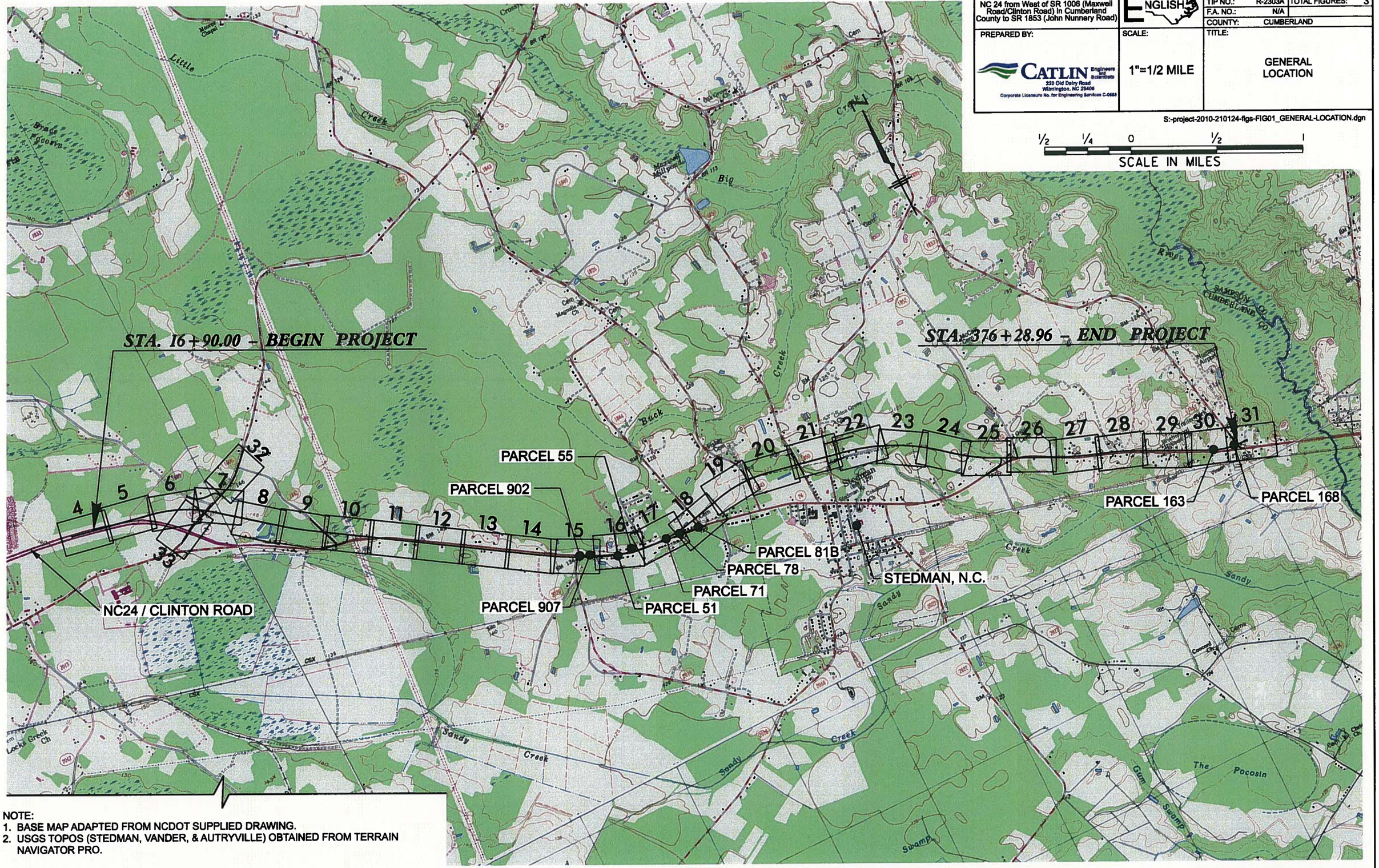
All results in milligrams per kilogram (mg/kg).
Sample depth in feet provide in parenthesis ( ) as part of the Sample ID.
< = Less than reporting limit
Results in bold exceed the reporting limit.

FIGURES

DESCRIPTION: NC 24 from West of SR 1006 (Maxwell Road/Clinton Road) in Cumberland County to SR 1853 (John Nunnery Road)	ENGLISH	WBS ELEM.: 34416.1.1	FIGURE NO. 1
		TIP NO.: R-2303A	TOTAL FIGURES: 3
		F.A. NO.: N/A	
		COUNTY: CUMBERLAND	
PREPARED BY: CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0658	SCALE: 1"=1/2 MILE	TITLE: GENERAL LOCATION	

S:-project-2010-210124-figs-FIG01_GENERAL-LOCATION.dgn

½ ¼ 0 ½ 1
SCALE IN MILES

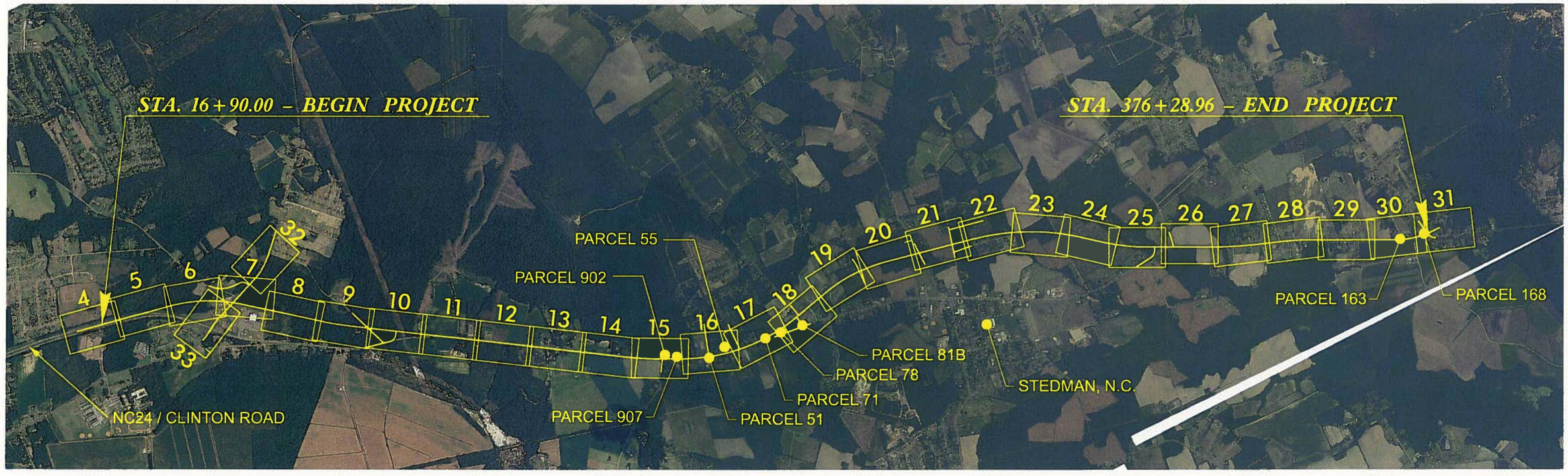


NOTE:
1. BASE MAP ADAPTED FROM NCDOT SUPPLIED DRAWING.
2. USGS TOPOS (STEDMAN, VANDER, & AUTRYVILLE) OBTAINED FROM TERRAIN NAVIGATOR PRO.

DESCRIPTION: NC 24 from West of SR 1006 (Maxwell Road/Clinton Road) in Cumberland County to SR 1853 (John Nunnery Road)	ENGLISH	WBS ELEM.: 34416.1.1	FIGURE NO. 2
		TIP NO.: R-2303A	TOTAL FIGURES: 3
		F.A. NO.: N/A	
		COUNTY: CUMBERLAND	
PREPARED BY: CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0566	SCALE: 1"=1/2 MILE	TITLE: STATE PROJECT R-2303A STA 16+90.00 TO 376+28.96	

S:-project-2010-210124-figs-FIG02_AERIAL-LAYOUT.dgn

½ ¼ 0 ½ 1
SCALE IN MILES



NOTE:
1. BASE MAP ADAPTED FROM NCDOT SUPPLIED DRAWING.
2. AERIAL PHOTOS OBTAINED FROM TERRAIN NAVIGATOR PRO.

DESCRIPTION: NC 24 from West of SR 1006 (Maxwell Road/Clinton Road) in Cumberland County to SR 1853 (John Nunnery Road)	ENGLISH	WBS ELEM.: 34416.1.1	FIGURE NO. 3
		TIP NO.: R-2303A	TOTAL FIGURES: 3
		F.A. NO.: N/A	
		COUNTY: CUMBERLAND	
PREPARED BY: CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0658	SCALE: 1"=20'	TITLE: PARCEL #78 JEFFERY W. SMITH PROPERTY	

20 10 0 20
SCALE IN FEET

S:-project-2010-210124-figs-parcel 78_1.dgn

NAD 83/95

78
JEFFERY W. SMITH
DB 6656 PG 314

82.00'
N 06°39'43" W

260.98'
S 79°52'19" E

2GI

131

ISF
BUS

STEDMAN HAIR CARE
6809 CLINTON RD.

ESTIMATED EXTENT OF
PETROLEUM IMPACTED SOILS

DK

HTR

149

78DPT-01
78DPT-07
78DPT-05
78DPT-09
78DPT-02
78DPT-06
78DPT-10
78DPT-08
78DPT-11
78DPT-04
78DPT-03

1
2
3
4

BST

EXISTING R/W

SS

12 PVC

8" PVC

NC 24 X CLINTON RD.

Sta. 10+00.00

POT

S 83°16'54.7" E

-L- +20
90'

±80
90'
END FULL C/A

-Y6A-

15" CONC

15" CONC

W

159
EIP
N 05°43'05" E
84.90'
+50
115'
GR

EXISTING R/W

SUMMARY OF SOIL LABORATORY RESULTS
EPA METHOD 8015

Sample ID	Contaminant of Concern → Date Collected	Diesel Range Organics	Gasoline Range Organics
78 DPT-01 (7-8')	11/17/2010	<7.14	<4.76
78 DPT-02 (7-8')	11/17/2010	**11.9**	**23.8**
78 DPT-03 (6-7')	11/17/2010	<7.31	<5.12
78 DPT-04 (7-8')	11/17/2010	<7.17	**62.3**
78 DPT-05 (6-7')	11/17/2010	**10.8**	**1,240**
78 DPT-06 (1-2')	11/17/2010	<6.54	<5.33
78 DPT-07 (7-8')	11/17/2010	<7.26	<5.14
78 DPT-08 (6-7')	11/22/2010	**19.6**	**1,370**
78 DPT-09 (6-7')	11/22/2010	**7.95**	<4.79
78 DPT-10 (6-7')	11/22/2010	**38.5**	<5.37
78 DPT-11 (6-7')	11/22/2010	**20.7**	**569**

All results in milligrams per kilogram (mg/kg).
Sample depth in feet provide in parenthesis ( ) as part of the Sample ID.
< = Less than reporting limit
Results in bold exceed the reporting limit.

NOTE:
1. BASE MAP ADAPTED FROM NCDOT SUPPLIED DRAWING.
2. UNDERGROUND UTILITIES IDENTIFIED BY NC-ONE-CALL AND GEOPHYSICAL INVESTIGATION NOT SHOWN.

LEGEND

NEW	DESCRIPTION
◐	SOIL BORING/SAMPLE
▨	SUSPECTED USTS IDENTIFIED DURING GEOPHYSICAL INVESTIGATION
▤	SUSPECTED USTS IDENTIFIED DURING GEOPHYSICAL INVESTIGATION DATA REVIEW

APPENDICES

APPENDIX A

BORING LOGS

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC
WBS Element: 34416.1.1
State Project: R-2303A

PROJECT NO.: 210124	**STATE:** NC	**COUNTY:** Cumberland	**LOCATION:** Stedman
PROJECT NAME: NC 24 from West of SR 1006 in Cumberland County to SR 1853		**LOGGED BY:** Ben Ashba **DRILLER:** Michael D. Mason	**BORING ID:** 78DPT-01
NORTHING: 461,396.00	**EASTING:** 2,087,024.00	**CREW:**	
SYSTEM: NCSP NAD 83 (USft)	**BORING LOCATION:** Near vent @ SE corner of building.		**LAND ELEV.:** NM
DRILL MACHINE: Power Probe	**METHOD:** Direct Push	**0 HOUR DTW:** Dry	**BORING DEPTH:** 12.0
START DATE: 11/17/10	**FINISH DATE:** 11/17/10	**24 HOUR DTW:** N/A	**ROCK DEPTH:** --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0	DIRECT PUSH		▲0.3		SM			Silty, f. SAND. Dark brown.	
2.0	DIRECT PUSH		▲0.3		SC		2.0	Clayey, f. SAND. Dark brown.	
4.0	DIRECT PUSH		▲0.4		CL		4.0	Sandy CLAY.	
6.0	DIRECT PUSH		▲0.4	78 DPT-01 (7-8)	CH		5.0	CLAY. High plast. Mottled orange, brown, and gray. Mottling decreases w/depth.	
8.0	DIRECT PUSH		▲0.3		CL/ CH		8.0	High plast. CLAY w/some Sandy CLAY. Grayish brown grading to tan. Damp to wet @ 9.5ft.	
10.0	DIRECT PUSH		▲0.3				12.0	Boring Terminated at Depth 12.0 ft	
12.0									

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO.LOG 210124_78_NC24-SMITH.GPJ CATLIN.GDT 12/28/10

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC
WBS Element: 34416.1.1
State Project: R-2303A

PROJECT NO.:	210124	**STATE:**	NC	**COUNTY:**	Cumberland	**LOCATION:**	Stedman
PROJECT NAME:	NC 24 from West of SR 1006 in Cumberland County to SR 1853			**LOGGED BY:**	Ben Ashba	**BORING ID:**	78DPT-02
				DRILLER:	Michael D. Mason		
NORTHING:	461,387.00	**EASTING:**	2,087,018.00	**CREW:**			
SYSTEM:	NCSP NAD 83 (USft)	**BORING LOCATION:**	Front of building near SE corner.			**LAND ELEV.:**	NM
DRILL MACHINE:	Power Probe	**METHOD:**	Direct Push	**0 HOUR DTW:**	Dry	**BORING DEPTH:**	8.0
START DATE:	11/17/10	**FINISH DATE:**	11/17/10	**24 HOUR DTW:**	N/A	**ROCK DEPTH:**	--

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0							0.2	Asphalt	
					GW		0.5	Gravel Sub-base	
	DIRECT PUSH		▲0.2						
2.0					SC			Clayey, f. SAND. Light yellowish orange to brown.	
	DIRECT PUSH		▲0.2						
4.0							4.0		
					CL			Sandy CLAY.	
	DIRECT PUSH		▲0.6				5.0		
6.0									
					CH			CLAY. High plast. Gray w/mottling between 6-7 ft. Slight HCO @ 8ft.	
7.0	DIRECT PUSH		▲29.8	78 DPT-02 (7-8)					
8.0							8.0		
								Boring Terminated at Depth 8.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 210124_78_NC24-SMITH.GPJ CATLIN.GDT 12/28/10

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC
WBS Element: 34416.1.1
State Project: R-2303A

PROJECT NO.: 210124	**STATE:** NC	**COUNTY:** Cumberland	**LOCATION:** Stedman
PROJECT NAME: NC 24 from West of SR 1006 in Cumberland County to SR 1853		**LOGGED BY:** Ben Ashba	**BORING ID:** 78DPT-03
		DRILLER: Michael D. Mason	
NORTHING: 461,361.00	**EASTING:** 2,087,017.00	**CREW:**	
SYSTEM: NCSP NAD 83 (USft)	**BORING LOCATION:** South of building, SE corner.		**LAND ELEV.:** NM
DRILL MACHINE: Power Probe	**METHOD:** Direct Push	**0 HOUR DTW:** Dry	**BORING DEPTH:** 8.0
START DATE: 11/17/10	**FINISH DATE:** 11/17/10	**24 HOUR DTW:** N/A	**ROCK DEPTH:** --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0	DIRECT PUSH		▲0.4				0.2	Asphalt	
					GW		0.5	Gravel Sub-base	
2.0	DIRECT PUSH		▲0.3		SC			Clayey, f. SAND. Light yellowish brown.	
4.0	DIRECT PUSH		▲0.3				5.0		
6.0				78 DPT-03 (6-7)	CL			Sandy CLAY. Gray w/gray, orange, and tan mottling between 6-7 ft.	
7.0	DIRECT PUSH		▲0.7				7.0		
					CH			CLAY. High plast.	
8.0							8.0	Boring Terminated at Depth 8.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 210124_78_NC24-SMITH GPJ CATLIN GDT 12/28/10

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC

WBS Element: 34416.1.1
State Project: R-2303A

PROJECT NO.:	210124	**STATE:**	NC	**COUNTY:**	Cumberland	**LOCATION:**	Stedman
PROJECT NAME:	NC 24 from West of SR 1006 in Cumberland County to SR 1853			**LOGGED BY:**	Ben Ashba	**BORING ID:**	78DPT-04
				DRILLER:	Michael D. Mason		
NORTHING:	461,365.00	**EASTING:**	2,086,988.00	**CREW:**			
SYSTEM:	NCSP NAD 83 (USft)	**BORING LOCATION:**	South of SW corner of building.			**LAND ELEV.:**	NM
DRILL MACHINE:	Power Probe	**METHOD:**	Direct Push	**0 HOUR DTW:**	Dry	**BORING DEPTH:**	8.0
START DATE:	11/17/10	**FINISH DATE:**	11/17/10	**24 HOUR DTW:**	N/A	**ROCK DEPTH:**	--

DEPTH	BLOW COUNT (0.5 0.5 0.5 0.5)	MOI.	PID RESULTS (ppm) (0 1000 2000 3000 4000)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0							0.2	Asphalt	
					GW		0.5	Gravel Sub-base	
	DIRECT PUSH		▲1.0						
2.0									
	DIRECT PUSH		▲0.5		SC			Clayey, v.f. to f. SAND. Dark gray (first foot) grading to light yellowish brown.	
4.0									
	DIRECT PUSH		▲0.5				5.0		
6.0					CL			Sandy CLAY. Brown to gray. HCO @ 8ft.	
7.0	DIRECT PUSH		▲7.5	78 DPT-04 (7-8)					
8.0							8.0	Boring Terminated at Depth 8.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 210124 78 NC24-SMITH.GPJ CATLIN.GDT 12/28/10

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC
WBS Element: 34416.1.1
State Project: R-2303A

PROJECT NO.: 210124	STATE: NC	COUNTY: Cumberland	LOCATION: Stedman
PROJECT NAME: NC 24 from West of SR 1006 in Cumberland County to SR 1853		LOGGED BY: Ben Ashba DRILLER: Michael D. Mason	BORING ID: 78DPT-05
NORTHING: 461,390.00	EASTING: 2,086,987.00	CREW:	
SYSTEM: NCSP NAD 83 (USft)	BORING LOCATION: In front of building near SW corner.		LAND ELEV.: NM
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW: Dry	BORING DEPTH: 8.0
START DATE: 11/17/10	FINISH DATE: 11/17/10	24 HOUR DTW: N/A	ROCK DEPTH: --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0							0.2	Asphalt	
					GW		0.5	Gravel Sub-base	
	DIRECT PUSH		▲0.3						
2.0					SC			Clayey, f. SAND. Light yellow/orange brown.	
	DIRECT PUSH		▲0.3						
4.0							4.0		
	DIRECT PUSH		▲0.6		CL			Sandy CLAY.	
							5.5		
6.0				78 DPT-05 (6-7)					
7.0	DIRECT PUSH		▲361		CH			CLAY. High plast. HCO @ 7 ft. No HCO @ base.	
							8.0		
8.0								Boring Terminated at Depth 8.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO_LOG_210124_78_NC24-SMITH.GPJ_CATLIN.GDT_12/28/10

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC
WBS Element: 34416.1.1
State Project: R-2303A

PROJECT NO.:	210124	**STATE:**	NC	**COUNTY:**	Cumberland	**LOCATION:**	Stedman
PROJECT NAME:	NC 24 from West of SR 1006 in Cumberland County to SR 1853			**LOGGED BY:**	Ben Ashba	**BORING ID:**	78DPT-06
				DRILLER:	Michael D. Mason		
NORTHING:	461,381.00	**EASTING:**	2,087,038.00	**CREW:**			
SYSTEM:	NCSP NAD 83 (USft)	**BORING LOCATION:**	East of SE corner of building.			**LAND ELEV.:**	NM
DRILL MACHINE:	Power Probe	**METHOD:**	Direct Push	**0 HOUR DTW:**	Dry	**BORING DEPTH:**	8.0
START DATE:	11/17/10	**FINISH DATE:**	11/17/10	**24 HOUR DTW:**	N/A	**ROCK DEPTH:**	--

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0							0.2	Asphalt	
					GW		0.5	Gravel Sub-base	
1.0	DIRECT PUSH		▲5.1	78 DPT-06 (1-2)	SP			V.f. to f. SAND. Dark brown grading to light brown.	
2.0									
	DIRECT PUSH		▲1.8				3.0		
					SC			Clayey, v.f. to f. SAND. Grayish brown.	
4.0							4.0		
					CL			Sandy CLAY. Brownish gray.	
	DIRECT PUSH		▲0.5				5.0		
6.0									
	DIRECT PUSH		▲0.5		CH			CLAY. High plast. Gray w/orangish mottling.	
8.0							8.0		
								Boring Terminated at Depth 8.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 210124_78_NC24-SMITH.GPJ CATLIN.GDT 12/28/10

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC

WBS Element: 34416.1.1
State Project: R-2303A

PROJECT NO.: 210124	STATE: NC	COUNTY: Cumberland	LOCATION: Stedman
PROJECT NAME: NC 24 from West of SR 1006 in Cumberland County to SR 1853		LOGGED BY: Ben Ashba	BORING ID: 78DPT-07
		DRILLER: Michael D. Mason	
NORTHING: 461,392.00	EASTING: 2,086,978.00	CREW:	
SYSTEM: NCSP NAD 83 (USft)	BORING LOCATION: West of SW corner of building.		LAND ELEV.: NM
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW: Dry	BORING DEPTH: 8.0
START DATE: 11/17/10	FINISH DATE: 11/17/10	24 HOUR DTW: N/A	ROCK DEPTH: --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0					GW		0.5	Gravel Fill	
	DIRECT PUSH		▲0.1						
2.0					SC			Clayey, f. SAND. Yellowish brown.	
	DIRECT PUSH		▲0.5				4.0		
4.0									
	DIRECT PUSH		▲0.6		CL			Sandy CLAY. Light gray. Damp from 5-7 ft.	
6.0							7.0		
7.0	DIRECT PUSH		▲0.9	78 DPT-07 (7-8)	CH			CLAY. High plast. Mottled gray and dark orange. Dry.	
8.0							8.0		
								Boring Terminated at Depth 8.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 210124 78 NC24-SMITH GPJ CATLIN GDT 12/28/10

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC
WBS Element: 34416.1.1
State Project: R-2303A

PROJECT NO.: 210124	**STATE:** NC	**COUNTY:** Cumberland	**LOCATION:** Stedman
PROJECT NAME: NC 24 from West of SR 1006 in Cumberland County to SR 1853		**LOGGED BY:** Ben Ashba	**BORING ID:** 78DPT-08
		DRILLER: Michael D. Mason	
NORTHING: 461,375.00	**EASTING:** 2,087,009.00	**CREW:**	
SYSTEM: NCSP NAD 83 (USft)	**BORING LOCATION:** East of USTs.		**LAND ELEV.:** NM
DRILL MACHINE: Power Probe	**METHOD:** Direct Push	**0 HOUR DTW:** Dry	**BORING DEPTH:** 7.0
START DATE: 11/22/10	**FINISH DATE:** 11/22/10	**24 HOUR DTW:** N/A	**ROCK DEPTH:** --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0							0.2	Asphalt	
					GW		0.5	Gravel Sub-base	
	DIRECT PUSH		▲96.8						
2.0					SP			V.f. to f. SAND. Dark brown grading to light brown.	
	DIRECT PUSH		▲100						
4.0							4.0		
					SC			Clayey, v.f. to f. SAND. Brown.	
	DIRECT PUSH		▲169				5.0		
					CL			Sandy CLAY. Gray.	
6.0							6.0		
	DIRECT PUSH		▲4,505	78 DPT-08 (6-7)	CH			CLAY. High plast. Gray w/some orange mottling. HCO.	
7.0							7.0		
								Boring Terminated at Depth 7.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 210124_78_NC24-SMITH.GPJ CATLIN.GDT 12/28/10

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC
WBS Element: 34416.1.1
State Project: R-2303A

PROJECT NO.: 210124	**STATE:** NC	**COUNTY:** Cumberland	**LOCATION:** Stedman
PROJECT NAME: NC 24 from West of SR 1006 in Cumberland County to SR 1853		**LOGGED BY:** Ben Ashba **DRILLER:** Michael D. Mason	**BORING ID:** 78DPT-09
NORTHING: 461,382.00	**EASTING:** 2,087,002.00	**CREW:**	
SYSTEM: NCSP NAD 83 (USft)	**BORING LOCATION:** North of USTs near center of building front.		**LAND ELEV.:** NM
DRILL MACHINE: Power Probe	**METHOD:** Direct Push	**0 HOUR DTW:** Dry	**BORING DEPTH:** 7.0
START DATE: 11/22/10	**FINISH DATE:** 11/22/10	**24 HOUR DTW:** N/A	**ROCK DEPTH:** --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0							0.2	Asphalt	
					GW		0.5	Gravel Sub-base	
					SP		0.8	F. SAND. Dark brown w/layer of black from .8 to 1 ft. then brown.	
	DIRECT PUSH		▲406		SP		1.0		
2.0									
	DIRECT PUSH		▲178		SP		4.0		
4.0									
	DIRECT PUSH		▲38.9		SC		5.0	Clayey, v.f. to f. SAND. Brown.	
					CL		6.0	V.f. to f. Sandy CLAY. Gray.	
6.0	DIRECT PUSH		3,745▲	78 DPT-09 (6-7)	CH		7.0	CLAY. High plast. Gray w/orange mottling. HCO.	
7.0								Boring Terminated at Depth 7.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 210124_78_NC24-SMITH.GPJ CATLIN.GDT 12/28/10

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC
WBS Element: 34416.1.1
State Project: R-2303A

PROJECT NO.: 210124	STATE: NC	COUNTY: Cumberland	LOCATION: Stedman
PROJECT NAME: NC 24 from West of SR 1006 in Cumberland County to SR 1853		LOGGED BY: Ben Ashba	BORING ID: 78DPT-10
		DRILLER: Michael D. Mason	
NORTHING: 461,378.00	EASTING: 2,086,993.00	CREW:	
SYSTEM: NCSP NAD 83 (USft)	BORING LOCATION: West of USTs.		LAND ELEV.: NM
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW: Dry	BORING DEPTH: 7.0
START DATE: 11/22/10	FINISH DATE: 11/22/10	24 HOUR DTW: N/A	ROCK DEPTH: --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0							0.2	Asphalt	
					GW		0.5	Gravel Sub-base	
	DIRECT PUSH		▲102						
2.0					SP			V.f. to f. SAND. Dark brown grading to light brown.	
	DIRECT PUSH		▲317						
4.0					SC		4.0	Clayey, v.f. to f. SAND. Brown.	
	DIRECT PUSH		▲356				5.0		
					CL			Sandy CLAY. Gray.	
6.0							6.0		
	DIRECT PUSH		▲4,639	78 DPT-10 (6-7)	CH			CLAY. High plast. Gray w/some orange mottling.	
7.0							7.0		
								Boring Terminated at Depth 7.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 210124_78_NC24-SMITH.GPJ CATLIN.GDT 12/28/10

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC
WBS Element: 34416.1.1
State Project: R-2303A

PROJECT NO.: 210124	**STATE:** NC	**COUNTY:** Cumberland		**LOCATION:** Stedman	
PROJECT NAME: NC 24 from West of SR 1006 in Cumberland County to SR 1853		**LOGGED BY:** Ben Ashba		**BORING ID:** 78DPT-11	
		DRILLER: Michael D. Mason			
NORTHING: 461,370.00	**EASTING:** 2,087,000.00	**CREW:**			
SYSTEM: NCSP NAD 83 (USft)	**BORING LOCATION:** South of USTs.			**LAND ELEV.:** NM	
DRILL MACHINE: Power Probe	**METHOD:** Direct Push		**0 HOUR DTW:** Dry	**BORING DEPTH:** 7.0	
START DATE: 11/22/10	**FINISH DATE:** 11/22/10		**24 HOUR DTW:** N/A	**ROCK DEPTH:** --	

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0							0.2	Asphalt	
					GW		0.5	Gravel Sub-base	
	DIRECT PUSH		▲0.0		SP		0.8	F. SAND. Dark brown w/layer of black from .8 to 1 ft. then brown.	
					SP		1.0		
2.0									
	DIRECT PUSH		▲0.0		SP				
4.0							4.0		
	DIRECT PUSH		▲0.0		SC			Clayey, v.f. to f. SAND. Brown.	
							5.0		
6.0					CL			V.f. to f. Sandy CLAY. Gray.	
	DIRECT PUSH		9,999+▲	78 DPT-11 (6-7)	CH		6.0	CLAY. High plast. Gray w/orange mottling. HCO.	
7.0							7.0		
								Boring Terminated at Depth 7.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 210124_78_NC24-SMITH.GPJ CATLIN.GDT 12/28/10

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD

SGS

Ben Ashba
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

Report Number: G128-2619

Client Project: NCDOT Stedman PSAs

Dear Ben Ashba,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. 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 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 services performed during this project, please call Barbara Hager at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America, Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America, Inc.

Barbara Hager 12/2/10

Project Manager
Barbara Hager

Date

List of Reporting Abbreviations
And Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantification Limit (RL or MDL)

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/CL = Reporting Limit / Control Limit

RPD = Relative Percent Difference

UJ = Target analytes with recoveries that are 10% < %R < LCL; # of MEs are allowable and compounds are not detected in the sample.

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.

MI34.021808.4

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-01 (7-8')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2619-34A
Lab Project ID: G128-2619
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 11/17/2010 8:15
Date Received: 11/19/2010
Matrix: Soil
Solids 87.11

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	4.76	mg/Kg	1	11/24/10 20:30

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	95.5	95.5		70-130

Comments:

Batch Information

Analytical Batch: VP112410
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 7.23 g
Final Volume: 5 mL

Analyst: _____

NC Certification #481

Reviewed By: _____

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-02 (7-8')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2619-35A
Lab Project ID: G128-2619
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 11/17/2010 8:40
Date Received: 11/19/2010
Matrix: Soil
Solids 84.03

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	23.8	5.68	mg/Kg	1	11/25/10 00:57

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	100.0	100.0		70-130

Comments:

Batch Information

Analytical Batch: VP112410
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 6.28 g
Final Volume: 5 mL

Analyst: _____

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-03 (6-7')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2619-36A
Lab Project ID: G128-2619
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 11/17/2010 9:30
Date Received: 11/19/2010
Matrix: Soil
Solids 84.23

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.12	mg/Kg	1	11/25/10 01:24

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	92.9	92.9		70-130

Comments:

Batch Information

Analytical Batch: VP112410
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 6.95 g
Final Volume: 5 mL

Analyst: LMC

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-04 (7-8')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2619-37A
Lab Project ID: G128-2619
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 11/17/2010 10:00
Date Received: 11/19/2010
Matrix: Soil
Solids 87.32

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	**62.3**	5.16	mg/Kg	4	11/25/10 01:51

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	100.0	100.0		70-130

Comments:

Batch Information

Analytical Batch: VP112410
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 6.66 g
Final Volume: 5 mL

Analyst: LMC

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-05 (6-7')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2619-38A
Lab Project ID: G128-2619
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 11/17/2010 9:00
Date Received: 11/19/2010
Matrix: Soil
Solids 86.31

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	1240	153	mg/Kg	50	11/25/10 02:17

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	98.7	98.7		70-130

Comments:

Batch Information

Analytical Batch: VP112410
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 7.59 g
Final Volume: 5 mL

Analyst: _____

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-06 (1-2')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2619-39A
Lab Project ID: G128-2619
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 11/17/2010 10:20
Date Received: 11/19/2010
Matrix: Soil
Solids 93.74

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.33	mg/Kg	1	11/25/10 02:44

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	93.5	93.5		70-130

Comments:

Batch Information

Analytical Batch: VP112410
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 6.01 g
Final Volume: 5 mL

Analyst: LMC

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-07 (7-8')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2619-40A
Lab Project ID: G128-2619
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 11/17/2010 10:40
Date Received: 11/19/2010
Matrix: Soil
Solids 85.43

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.14	mg/Kg	1	11/25/10 03:10

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	95.1	95.1		70-130

Comments:

Batch Information

Analytical Batch: VP112410
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 6.83 g
Final Volume: 5 mL

Analyst: LMC

NC Certification #481

Reviewed By:

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-01 (7-8')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2619-34D
Lab Project ID: G128-2619

Date Collected: 11/17/2010 8:15
Date Received: 11/19/2010
Matrix: Soil
Solids 87.11
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.14	mg/Kg	1	11/23/10 22:01

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	32.3	80.7

Comments:

Batch Information

Analytical Batch: EP112310
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17795
Prep Method: 3541
Prep Date: 11/22/10
Initial Prep Wt/Vol: 32.14 G
Prep Final Vol: 10 mL

Analyst: FK

NC Certification #481

Reviewed By:

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-02 (7-8')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2619-35D
Lab Project ID: G128-2619

Date Collected: 11/17/2010 8:40
Date Received: 11/19/2010
Matrix: Soil
Solids 84.03
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	**11.9**	7.44	mg/Kg	1	11/23/10 22:29

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	33	82.4

Comments:

Batch Information

Analytical Batch: EP112310
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17795
Prep Method: 3541
Prep Date: 11/22/10
Initial Prep Wt/Vol: 31.99 G
Prep Final Vol: 10 mL

Analyst: FN

NC Certification #481

Reviewed By:

Results for Total Petroleum Hydrocarbons
by **GC/FID 8015**

Client Sample ID: 78 DPT-03 (6-7')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2619-36D
Lab Project ID: G128-2619

Date Collected: 11/17/2010 9:30
Date Received: 11/19/2010
Matrix: Soil
Solids 84.23
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.31	mg/Kg	1	11/23/10 22:57

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	30.8	77.1

Comments:

Batch Information

Analytical Batch: EP112310
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17795
Prep Method: 3541
Prep Date: 11/22/10
Initial Prep Wt/Vol: 32.48 G
Prep Final Vol: 10 mL

Analyst: FX

NC Certification #481

Reviewed By:

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-04 (7-8')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2619-37D
Lab Project ID: G128-2619

Date Collected: 11/17/2010 10:00
Date Received: 11/19/2010
Matrix: Soil
Solids 87.32
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.17	mg/Kg	1	11/23/10 23:26

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	30.1	75.4

Comments:

Batch Information

Analytical Batch: EP112310
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17795
Prep Method: 3541
Prep Date: 11/22/10
Initial Prep Wt/Vol: 31.95 G
Prep Final Vol: 10 mL

Analyst: FM

NC Certification #481

Reviewed By:

SGS North America, Inc.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-05 (6-7')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2619-38D
Lab Project ID: G128-2619

Date Collected: 11/17/2010 9:00
Date Received: 11/19/2010
Matrix: Soil
Solids 86.31
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	10.8	7.06	mg/Kg	1	11/23/10 23:54

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	27.5	68.8

Comments:

Batch Information

Analytical Batch: EP112310
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17795
Prep Method: 3541
Prep Date: 11/22/10
Initial Prep Wt/Vol: 32.8 G
Prep Final Vol: 10 mL

Analyst: FX

NC Certification #481

N.C. Certification #481

Reviewed By:

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-06 (1-2')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2619-39D
Lab Project ID: G128-2619

Date Collected: 11/17/2010 10:20
Date Received: 11/19/2010
Matrix: Soil
Solids 93.74
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.54	mg/Kg	1	11/24/10 00:21

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	31.5	78.6

Comments:

Batch Information

Analytical Batch: EP112310
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17795
Prep Method: 3541
Prep Date: 11/22/10
Initial Prep Wt/Vol: 32.6 G
Prep Final Vol: 10 mL

Analyst: _____

NC Certification #481

Reviewed By: _____

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-07 (7-8')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2619-40D
Lab Project ID: G128-2619

Date Collected: 11/17/2010 10:40
Date Received: 11/19/2010
Matrix: Soil
Solids 85.43
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.26	mg/Kg	1	11/24/10 01:45

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	32.6	81.6

Comments:

Batch Information

Analytical Batch: EP112310
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17802
Prep Method: 3541
Prep Date: 11/22/10
Initial Prep Wt/Vol: 32.24 G
Prep Final Vol: 10 mL

Analyst: FM

NC Certification #481
N.C. Certification #481

Reviewed By: CM

210-124

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099555

(1)
CLIENT: CATLIN / NCDOT
CONTACT: Ben Ashba @CATLIN PHONE NO: 910) 452-5861
PROJECT: NCDOT Stedman PSATS STATE/WORK#: State Proj# R-2303A WBS: 34416.1.1
REPORTS TO: Ben @ CATLIN NCDOT email: ben.ashbae catlinusa.com FAX NO: ( )
INVOICE TO: ~~QUOTE#~~ Cumberland County NCDOT GeoEnviro ~~stak~~ P.O. NUMBER: 6300025660

SGS Reference: G128-2619

PAGE 1 OF 9

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP, G=GRAB)	Preservatives Used	Analysis Required (3)	REMARKS
	907 DPT-01 (2-3')	11.15.10	1330	SOIL	3	G	MeOH ICE	GRO DRO	
	907 DPT-02 (2-3')		1400						
	907 DPT-03 (1-2')		1415						
	907 DPT-04 (2-3')		1430						
	907 DPT-05 (2-3')		1445						
	907 DPT-06 (1-2')		1500						
	907 DPT-07 (1-2')		1515						
	907 DPT-08 (2-3')		1530						
	51 DPT-01 (2-3')	11.16.10	815						
	51 DPT-02 (2-3')		1000						

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
Ben Ashba	11/19/10	1455	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:
Shipping Ticket No:
Samples Received Cold? (Circle) YES NO
Temperature°C: 5.8, 5.8, 5.5, 5.6
Special Deliverable Requirements: Summary EDD
Chain of Custody Seal: (Circle) INTACT BROKEN (ABSENT)
Special Instructions:
Requested Turnaround Time:
☐ RUSH _____ Date Needed
☒ STD 2 Week

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099554

(1) CLIENT: CATLIN / NCDOT

CONTACT: Ben Ashba@CATLIN PHONE NO:(910) 452-5864

PROJECT: NCDOT Stedman P5/15 DIVISION#: State Proj #: R-2303A WBS: 34416.1.1

REPORTS TO: Ben @CATLIN NCDOT email: ben.ashba@catlinusa.com FAX NO:

INVOICE TO: NCDOT GeoEnviro QUOTE#: Cumberland County DoT P.O. NUMBER: 6300025660

SGS Reference: G128-2619

PAGE 2 OF 9

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE C=COMP G=GRAB	Preservatives Used: Meoh / ICE	Analysis Required (3): GRO / DRO	REMARKS
✓	51 DPT-03 (2-3')	11.16.10	930	SOIL	3	G	✓	✓	
✓	51 DPT-04 (2.5-3.5')		915						
✓	51 DPT-05 (2-3')		900						HOT
✓	51 DPT-06 (2-3')		845						
✓	51 DPT-07 (3-4')		830						
✓	51 DPT-08 (2.5-3.5')	↓	945						
✓	51 DPT-09 ([redacted])	11.19.10	745						HOT
✓	51 DPT-10 (2-3')		800						HOT
✓	51 DPT-13 (1-2')		850						maybe Hot
✓	51 DPT-14 (2-3')	↓	905	↓	↓	↓	↓	↓	maybe Hot

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
Ben Ashba	11/19/10	1455	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature°C: 5.8, 5.8, 5.5, 5.6

Special Deliverable Requirements: Summary EDD

Chain of Custody Seal: (Circle) INTACT BROKEN (ABSENT)

Special Instructions:

Requested Turnaround Time:

☐ RUSH _____ Date Needed

☒ STD 2 Week

☐ 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
☒ 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

White - Retained by Lab

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099556

(1) CLIENT: CATLIN / NCDOT

CONTACT: Ben Ashba @ CATLIN PHONE NO: (910) 452-5861

PROJECT: NCDOT Stedman PSAS STATE PROJECT: State Proj. # R-2303A WBS: 34416.1.1

REPORTS TO: Ben @ CATLIN NCDOT email: benashba@catlinusa.com FAX NO: (---)

INVOICE TO: NCDOT GeoEnviro QUOTE #: Cumberland County DOT P.O. NUMBER: 6300025660

SGS Reference: G128-2619

PAGE 3 OF 9

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP, G=GRAB)	Preservatives Used	Analysis Required (3)	REMARKS
							Meth / Ice	GRO / DRO	
✓	51 DPT-15 (2-3')	11.19.10	920	SOIL	3	G	✓	✓	maybe Hot
✓	51 DPT-16 (2-3')	11.19.10	940						maybe Hot
✓	51 DPT-17 (1-2')	11.19.10	1000						maybe Hot
✓	71 DPT-01 (4-5')	11.16.10	1125						
✓	71 DPT-02 (6-7')		1145						
✓	71 DPT-03 (6-7')		1215						
✓	71 DPT-04 (6-8')		1240						
✓	71 DPT-05 (4-6')		1300						
✓	71 DPT-06 (3-4')		1315						
✓	71 DPT-07 (5-6')	↓	1400	↓	↓	↓	✓	✓	

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
Ben Ashba	11/19/10	1455	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature °C: 5.8, 5.8, 5.5, 5.6

Special Deliverable Requirements: Summary EDD

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Special Instructions:

Requested Turnaround Time: ☐ RUSH _____ Date Needed ☒ STD 2 week

☐ 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
☒ 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

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099557

(1) CLIENT: CATLIN / NCDOT

CONTACT: Ben Ashley @ CATLIN PHONE NO: (910) 452-5861

PROJECT: NCDOT Stedman PSAs ~~STATE PROJ #~~ R-2303A WBS: 34416.1.1

REPORTS TO: Ben @ CATLIN NC DOT FAX NO: ( )

INVOICE TO: NC DOT Geo Enviro ~~QUOTE #~~ Cumberland County DOT P.O. NUMBER: 6300025660

SGS Reference: G128-2619

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(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP, G=GRAB)	Preservatives Used: Meoh, ICE	Analysis Required (3): GRO, DRO	REMARKS
✓	71 DPT-08 (7-8')	11.16.10	1420	SOIL	3	G	✓	✓	
✓	71 DPT-09 (5-6')		1440						
✓	71 DPT-10 (3-4')		1500						
✓	78 DPT-01 (7-8')	11.17.10	815						
✓	78 DPT-02 (7-8')		840						Maybe Hot
✓	78 DPT-03 (6-7')		930						
✓	78 DPT-04 (7-8')		1000						
✓	78 DPT-05 (6-7')		900						HOT
✓	78 DPT-06 (1-2')		1020						
✓	78 DPT-07 (7-8')		1040						

(5)

Collected/Relinquished By: (1)	Date	Time	Received By:
Ben Ashley	11/19/10	1455	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature °C: 5.8, 5.8, 5.5, 5.6

Special Deliverable Requirements: Summary EDD

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Special Instructions:

Requested Turnaround Time:

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(1) CLIENT: CATLIN / NCDOT

CONTACT: BenAshba@CATLIN PHONE NO: (910) 452-5861

PROJECT: NCDOT Stedman PSAs STIP Proj # R-2303A WBS: 34416.1.1

REPORTS TO: Ben Ashba@CATLIN NCDOT email: benashba@catlinusa.com FAX NO: ( )

INVOICE TO: NCDOT QUOTE #: Cumberland County Geo ENVIRO DOT P.O. NUMBER: 6300025660

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(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP, G=GRAB)	Preservatives used: Meth 10G	(3) Analysis Required: GRO DRO	REMARKS
✓	81B DPT-01 (7-8')	11-18-10	1130	SOIL	3	G	✓ ✓		HOT
✓	81B DPT-02 (6-7')		1210						maybe Hot
✓	81B DPT-03 (4-5')		1230						maybe Hot
✓	81B DPT-04 (1-2')		1250						
✓	81B DPT-05 (1-2')		1315						~~maybe~~ Hot
✓	81B DPT-06 (1-2')		1340						maybe Hot
✓	81B DPT-07 (2-3')		1400						maybe Hot
✓	81B DPT-08 (1-2')		1420						
✓	81B DPT-09 (1-2')		1440						
✓	81B DPT-10 (1-2')		1500						

(5)

Collected/Relinquished By: (1)	Date	Time	Received By:
Ben Ashba	11-19-10	1455	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature °C: 5 8 5 8 5 5 5 6

Special Deliverable Requirements: Summary EDD

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Special Instructions:

Requested Turnaround Time:

☐ RUSH _____ Date Needed

☒ STD 2 Week

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(1) CLIENT: CATLIN / NCDOT

CONTACT: Ben Ashby @ CATLIN PHONE NO: (910) 452-5861

PROJECT: NCDOT Stedman PSAs STIP/WSIP#: R-2303A WBS: 34416.1.1

REPORTS TO: Ben @ CATLIN NCDOT email: ben.ashby@catlinusa.com FAX NO: ( )

INVOICE TO: NCDOT Geo Enviro QUOTE #: Cumberland County DOT P.O. NUMBER: 6300025660

SGS Reference: G129-2619

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(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE C=COMP G=GRAB	Preservatives used: Methanol	Analysis Required (3): GRO, DRO	REMARKS
	81B DPT-11 (1-2')	11.18.10	1520	SOIL	3	G	✓	✓	
	81B DPT-12 (1-2')		1530						
	81B DPT-13 (2-3')		1545						
	81B DPT-14 (1-2')		1600						
	81B DPT-15 (1-2')		1620						
	81B DPT-16 (2-3')		1640						
	81B DPT-17 (2-3')	↓	1700						
✓	163 DPT-01 (3-4')	11.17.10	1230						
✓	163 DPT-02 (4-5')		1245						
✓	163 DPT-03 (5-6')	↓	1310	↓	↓	↓	↓	↓	

(5)

Collected/Relinquished By: (1)	Date	Time	Received By:
Ben Ashby	11.19.10	1455	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature °C: 5.8, 5.8, 5.5, 5.6

Special Deliverable Requirements: Summary EDD

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Special Instructions:

Requested Turnaround Time:

☐ RUSH _____ Date Needed

☒ STD 2 Week

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(1) CLIENT: CATLIN / NCDOT

CONTACT: Ben Ashbee @ CATLIN PHONE NO: (910) 452-5861

PROJECT: NCDOT Stedman PSAS ~~SITE/PWSID#~~ State Proj # R-2303A WBS: 34416.1.1

REPORTS TO: Ben @ CATLIN email: ben.ashbee@catlinusa.com
NCDOT ~~FAX NO:~~

INVOICE TO: NCDOT ~~QUOTE #~~: Cumberland County
GeoEnviro DOT P.O. NUMBER: 6300025660

SGS Reference: G128-2619

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(2) (3)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP, G=GRAB)	Preservatives Used: Melt ICE	Analysis Required: GRO, DRO	REMARKS
✓	163 DPT-04 (2-3')	11.17.10	1330	SOIL	3	G	✓	✓	
✓	163 DPT-05 (1-2')		1400						maybe Hot
✓	163 DPT-06 (1-2')		1420						maybe Hot
✓	163 DPT-07 (2-3')		1440						HOT
✓	163 DPT-08 (2-3')		1530						HOT
✓	163 DPT-09 (1-2')		1600						maybe Hot
✓	163 DPT-10 (1-2')		1610						maybe Hot
✓	163 DPT-11 (3-4')	↓	1620						
	163 DPT-12 (6-7')	11.17.10	1645						
	163 DPT-13 (6-7')	11.18.10	715	↓	↓	↓	↓	↓	

(5)

Collected/Relinquished By: (1)	Date	Time	Received By:
Ben Ashbee	11.19.10	1455	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature °C: 5.8, 5.8, 5.5, 5.6

Special Deliverable Requirements: Summary EDD

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Special Instructions:

Requested Turnaround Time:

☐ RUSH _____ Date Needed

☒ STD 2 Week

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5500 Business Drive Wilmington, NC 28405 Tel. (910) 350-1903 Fax: (910) 350-1557

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Pink - Retained by Client

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(1) CLIENT: CATLIN / NCDOT

CONTACT: Ben Ashby @ CATLIN PHONE NO: (910) 452-5861

PROJECT: NCDOT Stedman PSA ~~State Proj #~~ R-2303A WBS: 34416.1.1

REPORTS TO: Ben @ CATLIN NCDOT email: ben.g.ashby@catlinusa.com ~~FAX NO:~~

INVOICE TO: ~~QUOTE #:~~ Cumberland County NCDOT GeoEnviro DOT P.O. NUMBER: 6300025660

SGS Reference: G128-2619

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(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE C=COMP G=GRAB	Preservative Used: MeOH HCl	Analysis Required (3): GRO DRO	REMARKS
FS (3-4') 11/9/10	✓ 163 DPT-14 (6-7')	11.18.10	740	SOIL	3	G	✓		
	✓ 163 DPT-15 (2-3') or (3-4')		805						check sample label
	✓ 163 DPT-16 (1-2')		820						maybe Hot
	✓ 163 DPT-17 (5-6')		850						
	✓ 163 DPT-18 (6-7')		920						Maybe Hot
	✓ 163 DPT-19 (6-7')	↓	940						maybe Hot
	✓ 168 DPT-01 (3-4')	11.15.10	1630						check sample label ID maybe (2-4') not (3-4')
	✓ 168 DPT-02 (3-4')		1645						
	✓ 168 DPT-03 (3-4')		1700						
FS	✓ 168 DPT-04 (3-4')	↓	1715	↓	↓	↓	↓	↓	

(5)

Collected/Relinquished By: (1)	Date	Time	Received By:
Ben Ashby	11.19.10	1455	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature °C: 5.8, 5.8, 5.5, 5.6

Special Deliverable Requirements: Summary EDP

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Special Instructions:

Requested Turnaround Time:

☐ RUSH _____ Date Needed

☒ STD 2 Weeks

☐ 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
☒ 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

White - Re

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(1)
CLIENT: CATLIN / NCDOT
CONTACT: Ben Ashby @ CATLIN PHONE NO: 910) 452-5861
PROJECT: NCDOT Stedman PSAs State Proj # R-2303A WBS: 34416.1.1
REPORTS TO: Ben @ CATLIN NCDOT email: ben.ashby@catlinusa.com FAX NO.: ( )
INVOICE TO: NCDOT GeoEnviro DOT QUOTE #: Cumberland County P.O. NUMBER: 6300025660

SGS Reference: G128-2619

PAGE 9 OF 9

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE C=COMP G=GRAB	Preservatives Used											REMARKS
							None	ICE			HCl	ICE						
(3) Analysis Required							GRO	DRO		8260		8270						
✓	168 DPT-05 (3-4')	11.15.10	1730	SOIL	3	G	✓	✓										
✓	168 DPT-06 (0-2')	11.15.10	1735	SOIL	3	G	✓	✓										
✓	813 DPT-02	11.18.10	1730	H2O	4	G				X		X						NO LABELS maybe HCl

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
Ben Ashby	11.19.10	1455	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:
Shipping Ticket No:
Samples Received Cold? (Circle) YES NO
Temperature °C: 5.8, 5.8, 5.5, 5.6
Special Deliverable Requirements: Summary EDP
Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT
Special Instructions: Please report any 8260/8270 Low Runs, screening OK
Requested Turnaround Time:
☐ RUSH _____ Date Needed
☒ STD 2 Week

☐ 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
☒ 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

White - Retained by Lab

N.C. Certification #481

SGS North America, Inc.

SGS

Ben Ashba
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

Report Number: G128-2622

Client Project: NCDOT Stedman PSAs

Dear Ben Ashba,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. 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 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 services performed during this project, please call Barbara Hager at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America, Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America, Inc.

Barbara Hager 12/2/10

Project Manager
Barbara Hager

Date

List of Reporting Abbreviations
And Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantification Limit (RL or MDL)

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/CL = Reporting Limit / Control Limit

RPD = Relative Percent Difference

UJ = Target analytes with recoveries that are 10% < %R < LCL; # of MEs are allowable and compounds are not detected in the sample.

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.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-08 (6-7')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2622-2A
Lab Project ID: G128-2622
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 11/22/2010 14:10
Date Received: 11/23/2010
Matrix: Soil
Solids 84.18

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	**1370**	342	mg/Kg	100	12/01/10 17:24

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	101.0	101.0		70-130

Comments:

Batch Information

Analytical Batch: VP120110
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 6.94 g
Final Volume: 5 mL

Analyst: _____

NC Certification #481

Reviewed By: _____

SGS North America, Inc.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-09 (6-7')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2622-3A
Lab Project ID: G128-2622
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 11/22/2010 14:30
Date Received: 11/23/2010
Matrix: Soil
Solids 86.60

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	4.79	mg/Kg	1	12/01/10 17:51

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	95.9	95.9		70-130

Comments:

Batch Information

Analytical Batch: VP120110
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 7.23 g
Final Volume: 5 mL

Analyst: _____

NC Certification #481

Reviewed By: _____

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-10 (6-7')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2622-4A
Lab Project ID: G128-2622
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 11/22/2010 15:00
Date Received: 11/23/2010
Matrix: Soil
Solids 80.00

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.37	mg/Kg	1	12/01/10 18:17

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	95.6	95.6		70-130

Comments:

Batch Information

Analytical Batch: VP120110
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 6.98 g
Final Volume: 5 mL

Analyst: _____

NC Certification #481

Reviewed By: _____

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-11 (6-7')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2622-5A
Lab Project ID: G128-2622
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 11/22/2010 15:20
Date Received: 11/23/2010
Matrix: Soil
Solids 80.00

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	569	139	mg/Kg	40	12/01/10 18:44

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	95.9	95.9		70-130

Comments:

Batch Information

Analytical Batch: VP120110
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 7.2 g
Final Volume: 5 mL

Analyst: LMC

NC Certification #481

Reviewed By:

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-08 (6-7')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2622-2D
Lab Project ID: G128-2622

Date Collected: 11/22/2010 14:10
Date Received: 11/23/2010
Matrix: Soil
Solids 84.18
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	19.6	7.45	mg/Kg	1	11/30/10 03:59

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	29.4	73.4

Comments:

Batch Information

Analytical Batch: EP112910
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17812
Prep Method: 3541
Prep Date: 11/24/10
Initial Prep Wt/Vol: 31.9 G
Prep Final Vol: 10 mL

Analyst: _____ NC Certification #481 Reviewed By: _____

SGS North America, Inc.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-09 (6-7')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2622-3D
Lab Project ID: G128-2622

Date Collected: 11/22/2010 14:30
Date Received: 11/23/2010
Matrix: Soil
Solids 86.60
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	**7.95**	7.27	mg/Kg	1	11/24/10 23:12

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	29.4	73.5

Comments:

Batch Information

Analytical Batch: EP112410
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17817
Prep Method: 3541
Prep Date: 11/24/10
Initial Prep Wt/Vol: 31.78 G
Prep Final Vol: 10 mL

Analyst: FX

NC Certification #481

Reviewed By: CW

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-10 (6-7')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2622-4D
Lab Project ID: G128-2622

Date Collected: 11/22/2010 15:00
Date Received: 11/23/2010
Matrix: Soil
Solids 80.00
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	**38.5**	7.50	mg/Kg	1	11/24/10 23:40

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	27.8	69.5

Comments:

Batch Information

Analytical Batch: EP112410
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17817
Prep Method: 3541
Prep Date: 11/24/10
Initial Prep Wt/Vol: 33.35 G
Prep Final Vol: 10 mL

Analyst: _____

NC Certification #481

Reviewed By: _____

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 78 DPT-11 (6-7')
Client Project ID: NCDOT Stedman PSAs
Lab Sample ID: G128-2622-5D
Lab Project ID: G128-2622

Date Collected: 11/22/2010 15:20
Date Received: 11/23/2010
Matrix: Soil
Solids 80.00
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	**20.7**	7.69	mg/Kg	1	11/25/10 00:08

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	24	60

Comments:

Batch Information

Analytical Batch: EP112410
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17817
Prep Method: 3541
Prep Date: 11/24/10
Initial Prep Wt/Vol: 32.52 G
Prep Final Vol: 10 mL

Analyst: FX

NC Certification #481

Reviewed By:

210124.

CHAIN OF CUSTODY RECORD
SGS North America Inc.

Locations Nationwide
- Alaska
- Maryland
- New Jersey
- New York
- North Carolina
- Ohio

www.us.sgs.com

099711

(1) CLIENT: CAPTLN / NCDOT

CONTACT: Ben Ashe-CAPTLN PHONE NO: (910) 4525861

PROJECT: NCDOT Stedman PSAs ~~STATE PROJ #~~ R-2303A ~~SITE/PWSID#~~ WBS: 34416.1.1

REPORTS TO: Ben@CAPTLN NCDOT email: benashe@captlnusa.com ~~FAX NO.:( )~~

INVOICE TO: NCDOT ~~QUOTE #:~~ Cumberland County

Geo ENVIRO State P.O. NUMBER: 6300025660

SGS Reference: G128-2622

PAGE 1 OF 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP, G=GRAB)	Preservatives Used: MeOH, Ice	Analysis Required (3): GRO, DRO	REMARKS
	907 DPT-09 (2-3')	11.22.10	1550	SOIL	3	G	✓	✓	
	78 DPT-08 (6-7')		1410						HOT
	78 DPT-09 (6-7')		1430						HOT
25.53	78 DPT-10 (6-7')		1500						HOT
	78 DPT-11 (6-7')		1520						HOT
	81B DPT-18 (1-2')		1200						HOT
	81B DPT-19 (2-3')		1230						HOT
	81B DPT-20 (2-3')		1300						HOT
	168 DPT-07 (3-4')	↓	1715	↓	↓	↓	↓	↓	

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
Ben Ashe	11.23.10	1100	Barbara Hager
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) (YES) NO

Temperature °C: 2.0

Special Deliverable Requirements: Summary EDD

Chain of Custody Seal: (Circle) INTACT BROKEN (ABSENT)

Special Instructions:

Requested Turnaround Time:

☐ RUSH _____ Date Needed

☒ STD 2 week

☐ 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301

☒ 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

White - Retained by Lab
Pink - Retained by Client

SGS North America, Inc.

APPENDIX C

SCHNABEL GEOPHYSICAL REPORT

Schnabel
ENGINEERING

December 14, 2010

Mr. Richard Garrett, LG
Catlin Engineers and Scientists, Inc.
P.O. Box 10279
Wilmington, NC 28404-0279

RE:
State Project: R-2303A
WBS Element: 34416.1.1
County: Cumberland
Description: Stedman – NC 24 from West of SR 1006 (Maxwell Road/Clinton Road) in Cumberland County to SR 1853 (John Nunnery Road)

Subject: **Project 09210013.31 Report on Geophysical Surveys**
Parcel 78, Cumberland County, North Carolina

Dear Mr. Garrett:

SCHNABEL ENGINEERING SOUTH, PC (Schnabel) is pleased to present this report on the geophysical surveys we conducted on the subject property. We understand this letter report will be included as an appendix in your report to the NCDOT. The report includes two 11x17 color figures and three 8.5x11 color figures.

INTRODUCTION

The work described in this report was conducted on November 11 and 18, 2010, by Schnabel under our 2009 contract with the NCDOT. The work was conducted over the accessible areas of the parcel as indicated by the NCDOT to support their environmental assessment of the subject property. Photographs of the parcel are included on Figure 1. The property is located on the north side of Clinton Road approximately 180 feet west of Blake Road in Stedman, NC. The purpose of the geophysical surveys was to locate possible metal underground storage tanks (UST's) in the accessible areas of the right-of-way and/or easement.

The geophysical investigation consisted of electromagnetic (EM) induction surveys using a Geonics EM61-MK2 instrument. The EM61 metal detector is used to locate metal objects buried up to about eight feet below ground surface. Ground-penetrating radar (GPR) investigations of selected EM61 anomalies, including areas of reinforced concrete, were conducted using a Geophysical Survey Systems SIR-3000 system equipped with a 400 MHz antenna. Photographs of the equipment used are shown on Figure 2.

FIELD METHODOLOGY

Locations of geophysical data points were obtained using a sub-meter Trimble Pro-XRS DGPS system. References to direction and location in this report are based on the US State Plane 1983 System, North Carolina 3200 Zone, using the NAD 83 datum, with units in US survey feet. The locations of existing site features (monitoring wells, signs, etc.) were recorded for later correlation with the geophysical data and for location references to the NCDOT drawings.

The EM61 data were collected along parallel survey lines spaced approximately 2.5 feet apart. The EM61 and DGPS data were recorded digitally using a field computer and later transferred to a desktop computer for data processing. The GPR data were collected along survey lines spaced one to two feet apart in orthogonal directions over areas of reinforced concrete and anomalous EM readings not attributed to cultural features. The GPR data were reviewed in the field to evaluate the possible presence of UST's. The GPR data also were recorded digitally and later transferred to a desktop computer for further review.

DISCUSSION OF RESULTS

The contoured EM61 data collected over Parcel 78 are shown on Figures 3 and 4. The EM61 early time gate results are plotted on Figure 3. The early time gate data provide the more sensitive detection of metal objects. Figure 4 shows the difference between the response of the top and bottom coils of the EM61 instrument (differential response). The difference is taken to remove the effect of surface and very shallowly buried metallic objects. Typically, the differential response emphasizes anomalies from deeper and larger objects such as UST's.

The early time gate and differential results show anomalies apparently caused by reinforced concrete, buried utilities, or known site features (Figures 3 and 4). The GPR data collected near the southeastern corner of the western building on Parcel 78 indicated the presence of three probable UST's and a possible UST located within approximately 20 to 30 feet of the southeastern corner of the western building. The UST's are inside the limits of the planned right-of way and/or easement. Example GPR images showing the reflections from the probable and possible UST's on Parcel 78 are shown on Figures 3 and 4. Figures 3 and 4 also include the location of the probable and possible UST's as marked in the field. Probable UST No. 1 is located approximately 10 feet northeast of the southeastern corner of the western building. The GPR data indicate that probable UST No. 1 on Parcel 78 is buried approximately 2.0 to 3.0 feet below ground surface and is about 4 feet in diameter and about 6 feet long, equivalent to a capacity of about 550 gallons. Probable UST No. 2 is the westernmost probable UST and is located approximately 20 feet west of the southeastern corner of the western building; probable UST No. 3 is located immediately east of probable UST No. 2 and is located approximately 10 feet southwest of the southeastern corner of the western building. The GPR data indicate that probable UST Nos. 2 and 3 on Parcel 78 are buried approximately 1.5 to 2.5 feet below ground surface. The GPR data indicate that probable UST No. 2 on Parcel 78 is about 42 inches in diameter and about 8 feet long, equivalent to a capacity of about 560 gallons. The GPR data indicate that the probable UST No. 3 on Parcel 78 is about 3 feet in diameter and about 5 feet long, equivalent to a capacity of about 270 gallons. Possible UST No. 4 is located approximately 25 feet east of the southeastern corner of the western building. UST No. 4 is designated as a possible UST because it cannot be fully delineated due to the presence of a planter and bush, which limit the amount of EM and GPR data that could be collected in that area. The GPR data

indicate that possible UST No. 1 on Parcel 78 is buried approximately 3.0 to 4.0 feet below ground surface and is about 4 feet in diameter and about 6 feet long, equivalent to a capacity of about 550 gallons. Photographs of the probable UST locations, as marked in the field, are included on Figure 5. Possible UST No. 4 was interpreted to be a possible UST during review of GPR data in the office. Therefore, the possible UST was not marked on the ground and is not shown in Figure 5.

CONCLUSIONS

Our evaluation of the geophysical data collected on the subject property on Project R-2303A in Stedman, NC indicates the following:

The geophysical data indicate the presence of three probable UST's on Parcel 78 located within approximately 20 to 30 feet of the southeastern corner of the western building. The UST's are inside the planned right-of-way and/or easement. Probable UST No. 1 is about 550-gallon capacity and is buried about 2.0 to 3.0 feet below ground surface. Probable UST No. 2 is about 560-gallon capacity and is buried about 1.5 to 2.5 feet below ground surface. Probable UST No. 3 is about 270-gallon capacity and is buried about 1.5 to 2.5 feet below ground surface. Possible UST No. 4 is about 550-gallon capacity and is buried about 3.0 to 4.0 feet below ground surface.

LIMITATIONS

These services have been performed and this report prepared for Catlin Engineers and Scientists, Inc. and 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.

We appreciate the opportunity to have provided these services. Please call if you need additional information or have any questions.

Sincerely,

SCHNABEL ENGINEERING SOUTH, PC

Jeremy S. Strohmeyer, LG
Project Manager

Edward D. Billington, LG
Senior Vice President

JW:JS:NB
Attachments: Figures (5)
FILE: G:\2009 PROJECTS\09210013 (NCDOT 2009 GEOTECH UNIT SERVICES)\09210013.31 (R-2303A, CUMBERLAND CO.)\REPORT\PARCEL 78\SCHNABEL GEOPHYSICAL REPORT ON PARCEL 78 (R-2303A).DOCX

Parcel 78 – Jeffery W. Smith Property, looking northeast

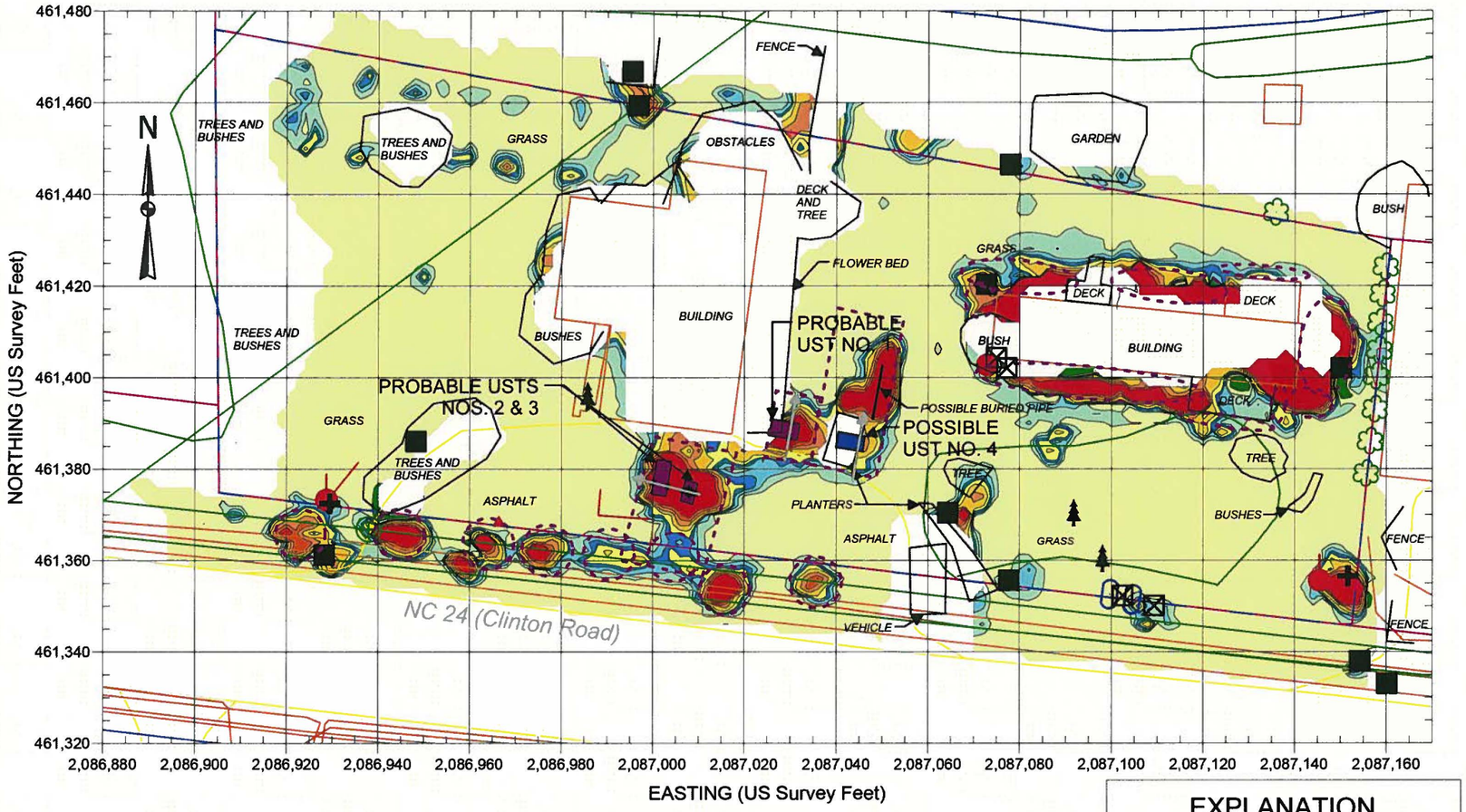
Parcel 78 – Jeffery W. Smith Property, looking west

Schnabel ENGINEERING	STATE PROJECT R-2303A NC DEPT. OF TRANSPORTATION CUMBERLAND CO., NORTH CAROLINA PROJECT NO. 09210013.31	PARCEL 78 SITE PHOTOS FIGURE 1

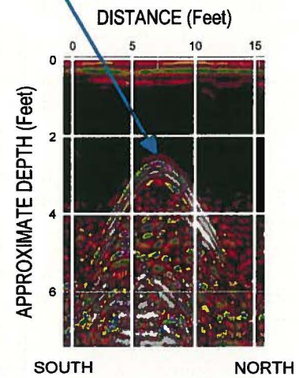
Geonics EM61-MK2

GSSI SIR-3000

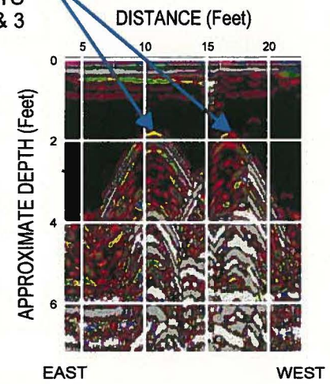
Schnabel ENGINEERING	STATE PROJECT R-2303A NC DEPT. OF TRANSPORTATION CUMBERLAND CO., NORTH CAROLINA PROJECT NO. 09210013.31	PHOTOS OF GEOPHYSICAL EQUIPMENT USED FIGURE 2



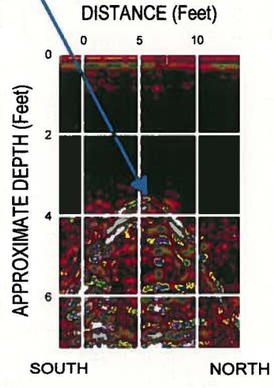
EXAMPLE GPR RESPONSE FROM PROBABLE UST NO. 1



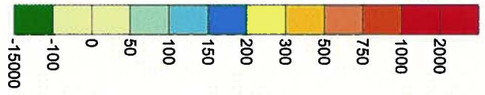
EXAMPLE GPR RESPONSES FROM PROBABLE USTS NOS. 2 & 3



EXAMPLE GPR RESPONSE FROM POSSIBLE UST NO. 4



EM61 Early Time Gate Response (mV)



Scale in US Survey Feet

EXPLANATION

- SIGN
- UTILITY POLE
- GUY WIRE
- MISCELLANEOUS METALLIC OBJECT
- UTILITY MANHOLE, METER, BOX, ETC.
- LIGHT POLE
- STORM SEWER INLET
- UST LID
- DOT PROPOSED R/W
- DOT PROPOSED UTILITY EASEMENT
- PROPERTY LINE
- UTILITY (AS MARKED BY OTHERS OR AS PROVIDED BY NCDOT [VARIOUS COLORS])
- EXAMPLE GPR LINE LOCATION
- GPR SURVEY AREA
- LOCATION OF SUSPECT UST MARKED ON SITE
- LOCATION OF SUSPECT UST DETERMINED AFTER REVIEWING DATA IN OFFICE

REF.: NCDOT FILE: r2303a_rdy_psh_16.dgn (FOR SOME SITE FEATURES)

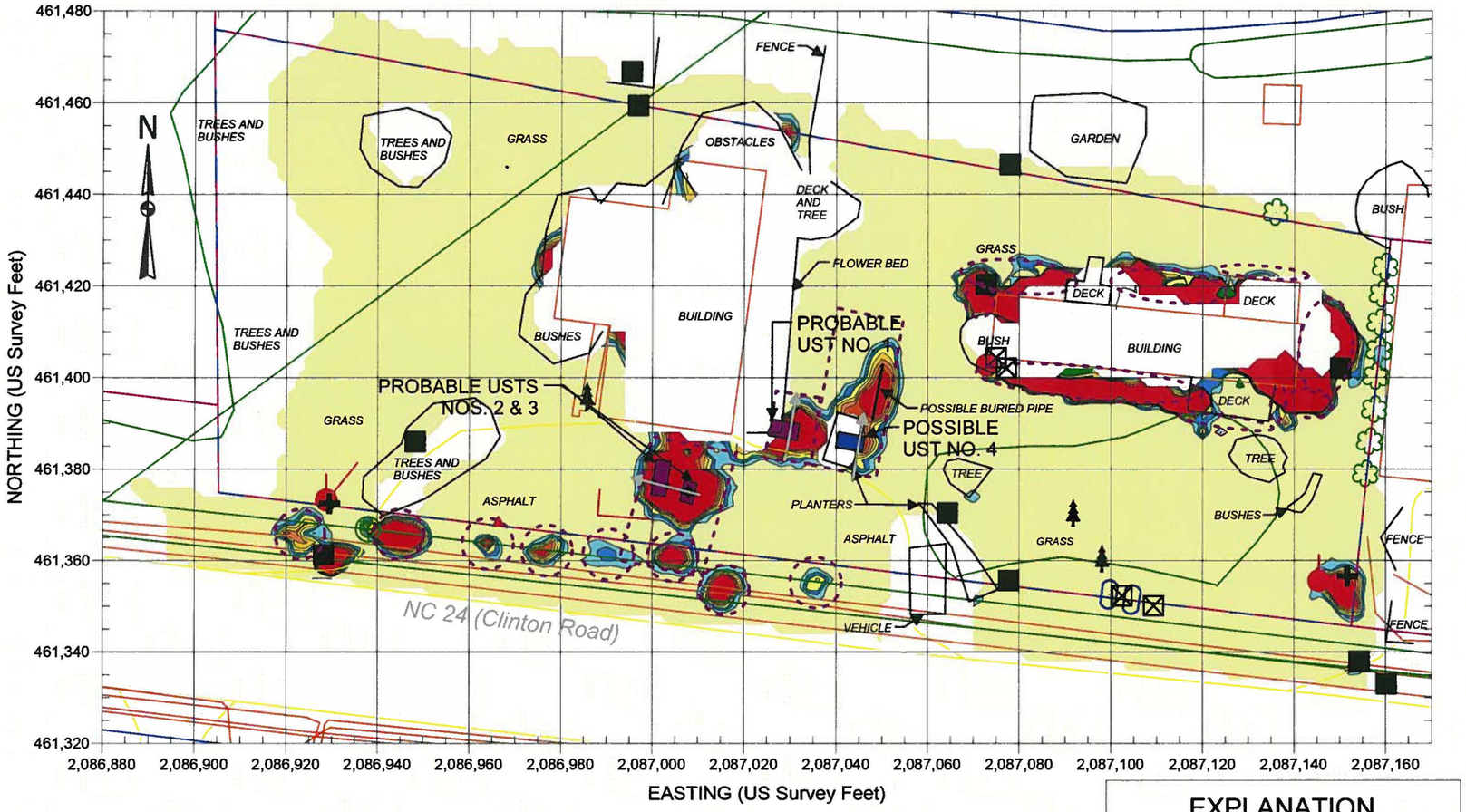
Note: The contour plot shows the earliest and most sensitive time gate of the EM61 bottom coil/channel in millivolts (mV). The EM data were collected on November 11, 2010, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina Zone 3200, using the NAD 1983 datum. GPR data were acquired on November 18, 2010, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.

Schnabel ENGINEERING

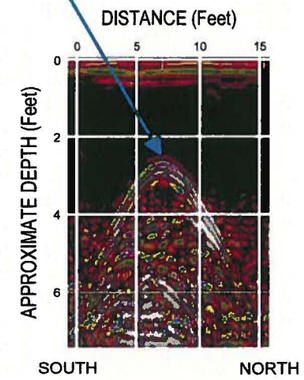
STATE PROJECT R-2303A
CUMBERLAND COUNTY, NC
NC DEPARTMENT OF TRANSPORTATION
PROJECT NO. 09210013.31

PARCEL 78
EM61 EARLY TIME GATE RESPONSE

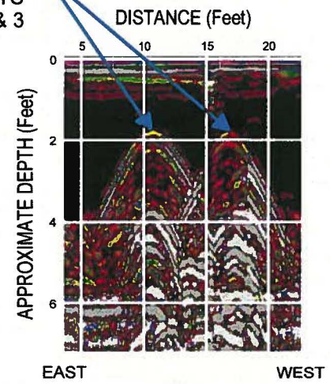
FIGURE 3



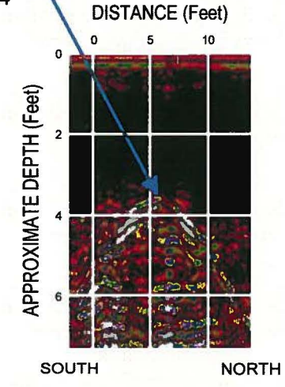
EXAMPLE GPR RESPONSE FROM PROBABLE UST NO. 1



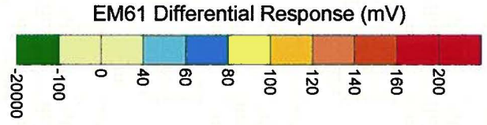
EXAMPLE GPR RESPONSES FROM PROBABLE USTS NOS. 2 & 3



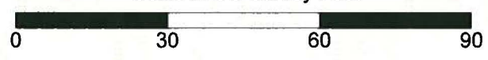
EXAMPLE GPR RESPONSE FROM POSSIBLE UST NO. 4



EM61 Differential Response (mV)



Scale in US Survey Feet



EXPLANATION

- SIGN
- UTILITY POLE
- GUY WIRE
- MISCELLANEOUS METALLIC OBJECT
- UTILITY MANHOLE, METER, BOX, ETC.
- LIGHT POLE
- STORM SEWER INLET
- UST LID
- DOT PROPOSED R/W
- DOT PROPOSED UTILITY EASEMENT
- PROPERTY LINE
- UTILITY (AS MARKED BY OTHERS OR AS PROVIDED BY NCDOT [VARIOUS COLORS])
- EXAMPLE GPR LINE LOCATION
- GPR SURVEY AREA
- LOCATION OF SUSPECT UST MARKED ON SITE
- LOCATION OF SUSPECT UST DETERMINED AFTER REVIEWING DATA IN OFFICE

Note: The contour plot shows the difference, in millivolts (mV), between the readings from the top and bottom coils of the EM61. The difference is taken to reduce the effect of shallow metal objects and emphasize anomalies caused by deeper metallic objects, such as drums and tanks. The EM data were collected on November 11, 2010, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina 3200 Zone, using the NAD 1983 datum. GPR data were acquired on November 18, 2010, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.

REF.: NCDOT FILE: r2303a_rdy_psh_16.dgn (FOR SOME SITE FEATURES)

Schnabel ENGINEERING

STATE PROJECT R-2303A
CUMBERLAND COUNTY, NC
NC DEPARTMENT OF TRANSPORTATION
PROJECT NO. 09210013.31

PARCEL 78
EM61 DIFFERENTIAL RESPONSE

FIGURE 4

Parcel 78 – Jeffery W. Smith Property, looking north. Photo shows approximate marked location of probable UST No. 1 near the southeastern corner of the western building.

Parcel 78 – Jeffery W. Smith Property, looking northeast. Photo shows approximate marked locations of probable UST's Nos. 2 and 3 near the front of the western building.

Schnabel ENGINEERING	STATE PROJECT R-2303A CUMBERLAND CO., NORTH CAROLINA NC DEPT. OF TRANSPORTATION PROJECT NO. 09210013.31	PHOTOS OF PROBABLE UST LOCATIONS FIGURE 5