AECOM Technical Services of North Carolina, Inc.
701 Corporate Center Drive, Suite 475, Raleigh, North Carolina 27607
T 919.854.6200 F 919.854.6259 www.earthtech.aecom.com

February 25, 2010

Mr. Terry Fox, PG
North Carolina Department of Transportation
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

Reference: Preliminary Site Assessment
Guilford County and City of Greensboro Property (Parcel #51)
7105 Strawberry Road
Summerfield, Guilford County, North Carolina
NCDOT Tip No. R-2309AB
WBS Element 34418.1.1
AECOM Project No. 60144352

Dear Mr. Fox:

AECOM Technical Services of North Carolina, Inc., (AECOM) 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 December 21, 2009, and the North Carolina Department of Transportation's (NCDOT's) Notice to Proceed dated December 22, 2009. Activities associated with the assessment consisted of conducting a geophysical investigation, collecting soil 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 Guilford County and City of Greensboro Property (Parcel #51) is located at 7105 Strawberry Road in Summerfield, Guilford County, North Carolina. The property is situated on the northeast quadrant of the intersection of US 220 and Strawberry Road (Figure 1). Based on information supplied by the NCDOT and the site visit, AECOM understands that the site at one time housed two gas stations/auto repair shops. The former Simpson's Auto Repair (on the north side of the site) operated five underground storage tanks (USTs) before they were removed in 1990. The former U-Fill'Er-Up (on the south side of the site) operated three USTs before their removal in 1995. No closure report for these closed tanks was reviewed. No permanent structures are on the property; however, a remediation system enclosed by a wooden fence is located just outside the proposed right-of-way (Figure 2). The NCDOT has advised that the right-of-way/easement will affect the area where the former USTs were located. Because of the

proximity of the former USTs, the NCDOT requested a Preliminary Site Assessment. The scope of work as defined in the Request for Technical and Cost Proposal was to evaluate the site with respect to the presence of known and unknown USTs and assess where contamination exists on the property. An estimate of the quantity of impacted soil was to be provided.

AECOM reviewed the on-line NCDENR Incident Management database and Incident Numbers 6119 (WS-2643) and 7188 (WS-2862) have been assigned to the property. Incident Number 6119 covered the Simpson's Auto Parts release and Incident Number 7188 was assigned to the Lake Mart U-Fill'Er-Up part of the site. Based on the Corrective Action Plan and a monitoring report, the USTs at Simpson's Auto Parts included one 250-gallon fuel oil tank, three 1000-gallon gasoline tanks, and one 2,000-gallon gasoline tank; and the Lake Mart U-Fill'Er-Up store included two 5,000-gallon gasoline tanks and one 2,000-gallon kerosene tank. The releases were discovered in 1990 and 1995. The contaminants detected above the groundwater quality standards were benzene, toluene, ethylbenzene, xylenes, and MTBE. The corrective action implemented at the site was air sparging using four sparge wells for groundwater and approximately 1,000 cubic yards of soil was excavated and disposed off-site. No information was available as to the duration of the sparging, but the remediation system, as of the date of this report, was not operating.

AECOM also examined the UST registration database to obtain UST ownership information. According to the database, no USTs are currently registered on the property. The database does show that one 2,000-gallon gasoline UST was closed at the Simpson's Auto Parts site under Facility Number 0-010543, and three USTs were closed at the Lake Mart U-Fill'er-Up under facility Number 0-018019.

Geophysical Survey

Prior to AECOM's mobilization to the site, Pyramid Environmental conducted a geophysical survey as part of this project to evaluate if USTs were present on the proposed right-of-way/easement. The geophysical survey consisted of an electromagnetic survey using a Geonics EM61 time-domain electromagnetic induction meter to locate buried metallic objects, specifically USTs. A survey grid was laid out at the property with the X-axis oriented approximately parallel to US 220 and the Y-axis oriented approximately perpendicular to US 220. The grid was located to cover the accessible portions of the proposed right-of-way. The survey lines were spaced 5 feet apart. Magnetic data was collected continuously along each survey line with a data logger. After collection, the data was reviewed in the field with graphical computer software. Following the electromagnetic survey, a ground penetrating radar (GPR) survey was conducted to further evaluate any significant metallic anomalies if such a survey was considered necessary.

A significant portion of the property was covered with dense vegetation and access was limited. AECOM was allowed to clear parts of the proposed right-of-way, but large trees prevented complete coverage by the geophysical survey. Several anomalies were detected with the survey.

All of these anomalies were attributed to buried utility lines or conduits, miscellaneous surface debris, or monitor/sparge wells. The survey concluded that no metallic USTs were present on the right-of-way/easement. A detailed report of findings and interpretations is presented in Attachment A.

Site Assessment Activities

On February 11, 2010, AECOM mobilized to the site to conduct a Geoprobe® direct push investigation to evaluate soil conditions within the proposed right-of-way/easement. 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 into 2-foot long sections 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 soil to the bag headspace. The probe of a flame ionization detector/photo ionization detector (FID/PID) was inserted into the bag and the reading was recorded. After terminating the sample hole, the soil sample from the depth interval with the highest FID/PID reading was submitted for analysis to SGS North America, Inc. in Wilmington, North Carolina, using standard chain-of-custody procedures. The laboratory analyzed the soil samples for total petroleum hydrocarbons (TPH) in the diesel range organics (DRO) and gasoline range organics (GRO).

Seventeen direct-push holes (SS-1 through SS-17) were advanced within the proposed right-of-way/easement to depths ranging from 2 to 12 feet as shown in Figure 2 and Attachment B. The borings were located to evaluate the entire right-of-way/easement on the property (Attachment C). Borings SS-1 through SS-6 and SS-9 through SS-11 were located to evaluate the former Lake Mart U-Fill'Er-Up area; borings SS-7 and SS-8 were placed to assess the southern portion of the right-of-way; and borings SS-12 through SS-17 were located to evaluate the former Simpson's Auto Parts area. Borings were advanced in areas where access was available. Much of the site was covered in dense vegetation and mowing was conducted, but large trees precluded complete access. The lithology encountered by the direct-push samples generally was consistent throughout the site. The ground surface was covered with about 3 inches of topsoil. Below the surface to a depth of about 4 to 6 feet was a medium brown sand/clay (possibly reworked or fill). Underlying this stratum was a saprolite consisting of a mottled medium brown and white sand/clay. No bedrock was encountered in any of the borings. All the borings were terminated at groundwater, which was variable in depth throughout the site. Borings along the southern portion of the site encountered groundwater at a shallow depth, 2 to 6 feet. The borings on the northern portion of the site encountered groundwater at depths of 10 to 12 feet. The discrepancy is likely due to the presence of Lake Brandt, which is just south of the site. Based on field screening, soil samples were submitted for laboratory analyses, which are summarized in Table 1. Following the completion of each boring, it was backfilled in accordance with 15A NCAC 2C.

Analytical Results

Based on the laboratory reports, summarized in Table 1 and presented in Attachment D, petroleum hydrocarbon compounds identified as DRO and/or GRO were detected in five of the seventeen soil samples collected from the site (Figure 3). The soil samples from borings SS-9, SS-10, SS-13, SS-14, and SS-17 contained GRO and/or DRO concentrations above the method quantitation limit. 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 milligrams per kilogram (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. The GRO concentrations in the soil samples from borings SS-13 (131 mg/kg) and SS-14 (203 mg/kg) were present at a concentration above the 10 mg/kg assumed action level. The DRO concentrations in the soil samples from borings SS-9 (78 mg/kg), SS-10 (15 mg/kg), SS-13 (38.1 mg/kg), SS-14 (3,200 mg/kg), and SS-17 (12.8 mg/kg) were present at a concentration above the 10 mg/kg assumed action level.

Conclusions and Recommendations

A Preliminary Site Assessment was conducted to evaluate the Guilford County and City of Greensboro Property (Parcel #51) located at 7105 Strawberry Road in Summerfield, Guilford County, North Carolina. Seventeen soil borings were advanced to evaluate the soil conditions throughout the site. The laboratory reports of the soil samples from these borings suggest that DRO and GRO concentrations were present above the assumed action level in five of the seventeen soil samples analyzed.

To evaluate the volume of soil requiring possible remediation, the soil samples with TPH concentrations above 10 mg/kg were considered. The analytical results of the soil samples suggest that the soil from borings SS-9, SS-10, SS-13, SS-14, and SS-17 contained a TPH concentration identified as DRO and/or GRO above the assumed action level. A review of the field screening readings (Table 1) and Figure 3 suggests that the thickness of the potentially contaminated soil is about 2 feet. The figure also indicates that three different areas of the site contain contamination. One area is defined by borings SS-9 and SS-10 where surface soil appears to be affected. A second area is defined by borings SS-13 and SS-14 where contamination is present just above the groundwater. The third area affected is defined by boring SS-17 where contamination appears in the surface soil. After estimating the potential contamination geometry using field observations and experience with similar sites and geology, AECOM measured the affected area by using CADD software, which indicated an area of about 1,450 ft^2 at borings SS-9 and SS-10, 6270 ft^2 at borings SS-13 and SS-14, and 360 ft^2 at boring SS-17. Based on a 2-foot contamination thickness, this calculates to a volume of 107 cubic yards

at borings SS-9 and SS-10, 465 cubic yards at borings SS-13 and SS-14, and 13 cubic yards at boring SS-17. The total volume of potentially contaminated soil at the site is estimated to be 585 cubic yards. This volume is estimated from TPH analytical data, which are no longer valid for remediation of sites reported after January 2, 1998. After this date, MADEP EPH/VPH and EPA Method 8260/8270 analyses will likely be required to confirm cleanup. However, these analyses do not correlate exactly with TPH data and, as a result, the actual volume of contaminated soil may be higher or lower.

According to the NCDOT plan sheets, all three potential contamination areas are within cut sections for road improvements. Because the potential contamination at borings SS-9, SS-10, and SS-17 is at ground surface or at a very shallow depth, it is likely that any soil disturbance in these areas may encounter contamination. The potential contamination at borings SS-13 and SS-14, which according to the laboratory reports is the area of highest potential contamination, is at a depth of about 6 feet or more. If the cut section is no deeper than this depth, contact with potential contamination is unlikely.

AECOM appreciates the opportunity to work with the NCDOT on this project. Because compounds were detected above the applicable action levels in the soil samples, AECOM recommends that a copy of this report be submitted to the Guilford County Department of Public Health. This agency has been granted oversight jurisdiction for environmental issues in Guilford County by the NCDENR. If you have any questions, please contact me at (919) 854-6238.

Sincerely,

Michael W. Branson, P.G.
Project Manager

Attachments

c: Project File

TABLE 1

SOIL FIELD SCREENING AND ANALYTICAL RESULTS
OLD SUMMERFIELD SHOPPING CENTER, INC., PROPERTY (PARCEL #79)
SUMMERFIELD, GUILFORD COUNTY, NORTH CAROLINA
NCDOT PROJECT NO. R-2309AB
WBS ELEMENT 34418.1.1
AECOM PROJECT NO. 60144352

LOCATION	DEPTH (ft)	FID READING (ppm)	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)	ASSUMED ACTION LEVEL (mg/kg)
SS-1	0 - 2	0.85			
	2 - 4	0.92			
	4 - 6	0.95	SS-1	DRO (BQL) GRO (BQL)	10 10
	6 - 8	0.84			
SS-2	0 - 2	0.99			
	2 - 4	1.02			
	4 - 6	0.94			
	6 - 8	1.03	SS-2	DRO (BQL) GRO (BQL)	10 10
	8 - 10	0.99			
	10 - 12	0.97			
SS-3	0 - 2	0.91			
	2 - 4	0.81			
	4 - 6	0.84			
	6 - 8	1.53			
	8 - 10	1.77			
	10 - 12	2.15	SS-3	DRO (BQL) GRO (BQL)	10 10
SS-4	0 - 2	0.83			
	2 - 4	0.84			
	4 - 6	0.80			
	6 - 8	0.88	SS-4	DRO (BQL) GRO (BQL)	10 10
	8 - 10	0.81			
	10 - 12	0.79			
SS-5	0 - 2	0.81			
	2 - 4	0.81	SS-5	DRO (BQL) GRO (BQL)	10 10
	4 - 6	0.76			
	6 - 8	0.70			
	8 - 10	0.72			
SS-6	0 - 2	0.69			
	2 - 4	0.70	SS-6	DRO (BQL) GRO (BQL)	10 10
SS-7	0 - 2	0.73			
	2 - 4	0.73			
	4 - 6	1.01			
	6 - 8	2.99	SS-7	DRO (BQL) GRO (BQL)	10 10
SS-8	0 - 2	0.69			
	2 - 4	1.56	SS-8	DRO (BQL) GRO (BQL)	10 10
	4 - 6	0.68			
	6 - 8	0.83			
	8 - 10	0.83			
	10 - 12	0.83			
SS-9	0 - 2	0.86			
	2 - 4	2.02	SS-9	**DRO (78)** GRO (BQL)	10 10
SS-10	0 - 2	0.62	SS-10	**DRO (15)** GRO (BQL)	10 10
SS-11	0 - 2	0.70			
	2 - 4	0.64			
	4 - 6	0.81	SS-11	DRO (BQL) GRO (BQL)	10 10
	6 - 8	0.80			

TABLE 1 (cont)

SOIL FIELD SCREENING AND ANALYTICAL RESULTS
OLD SUMMERFIELD SHOPPING CENTER, INC., PROPERTY (PARCEL #79)
SUMMERFIELD, GUILFORD COUNTY, NORTH CAROLINA
NCDOT PROJECT NO. R-2309AB
WBS ELEMENT 34418.1.1
AECOM PROJECT NO. 60144352

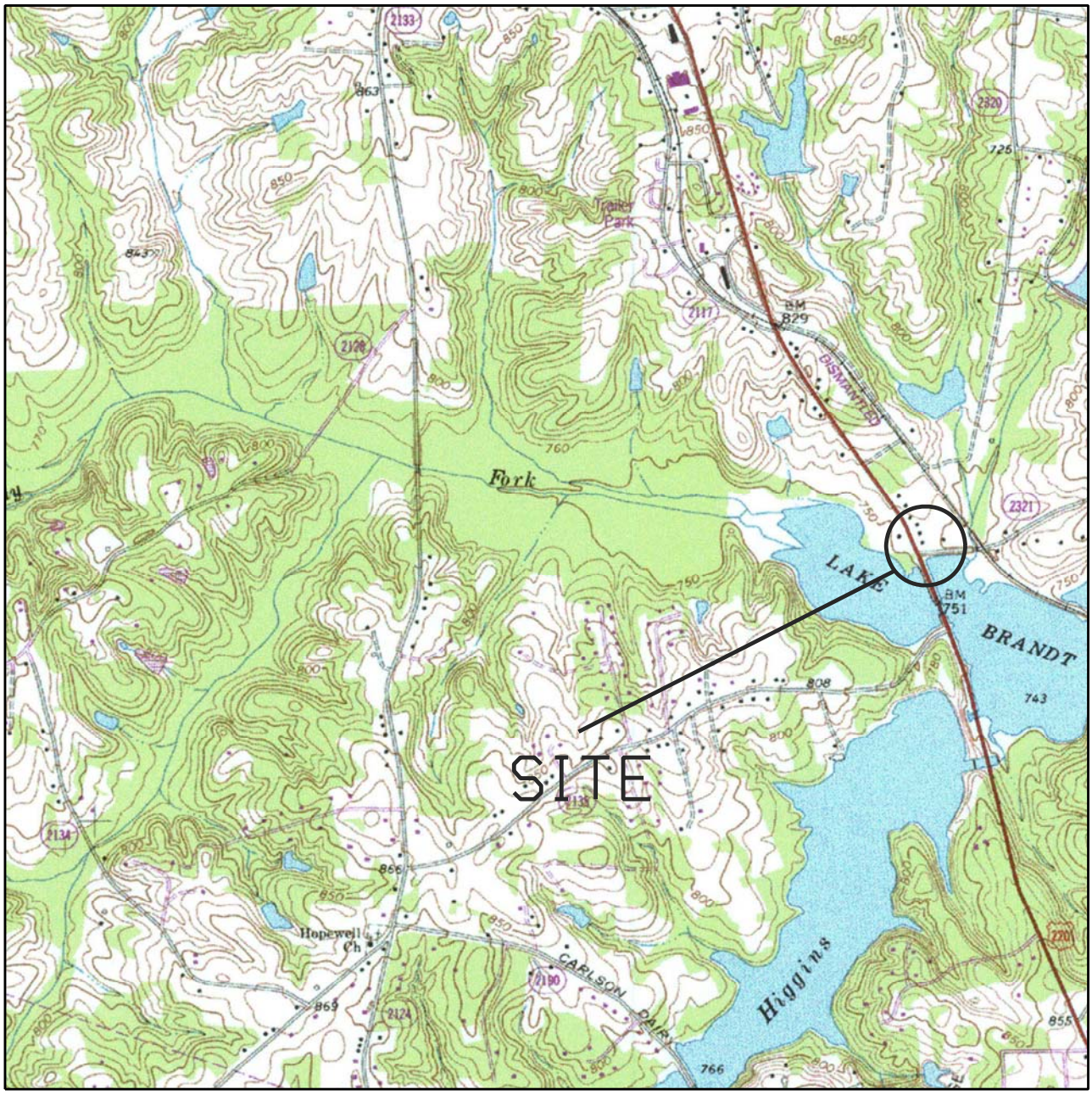
LOCATION	DEPTH (ft)	FID READING (ppm)	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)	ASSUMED ACTION LEVEL (mg/kg)
SS-12	0 - 2	0.41			
	2 - 4	0.44			
	4 - 6	0.47			
	6 - 8	0.48	SS-12	DRO (BQL) GRO (BQL)	10 10
SS-13	0 - 2	0.48			
	2 - 4	1.52			
	4 - 6	11.67			
	6 - 8	8.33			
	8 - 10	8.45			
	10 - 12	2,446	SS-13	**DRO (38.1)** **GRO (131)**	10 10
SS-14	0 - 2	0.58			
	2 - 4	0.64			
	4 - 6	365			
	6 - 8	445	SS-14	**DRO (3200)** **GRO (203)**	10 10
SS-15	0 - 2	0.55			
	2 - 4	0.74			
	4 - 6	0.74			
	6 - 8	0.77	SS-15	DRO (BQL) GRO (BQL)	10 10
	8 - 10	0.69			
SS-16	0 - 2	1.45			
	2 - 4	0.69			
	4 - 6	0.65			
	6 - 8	0.67	SS-16	DRO (BQL) GRO (BQL)	10 10
	8 - 10	0.52			
SS-17	0 - 2	0.93	SS-17	**DRO (12.8)** GRO (BQL)	10 10
	2 - 4	0.69			
	4 - 6	0.59			
	6 - 8	0.61			
	8 - 10	0.57			

Soil samples were collected on February 11, 2010.

DRO - Diesel range organics.
GRO - Gasoline range organics.
BQL - Below quantitation limit.
ppm - parts per million.
mg/kg - milligrams per kilogram.

AECOM

FIGURES



SCALE 1:24,000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

SOURCE: U.S. GEOLOGICAL SURVEY 7.5 MIN QUADRANGLE: SUMMERFIELD, NC (REV 1994)

EARTH TECH

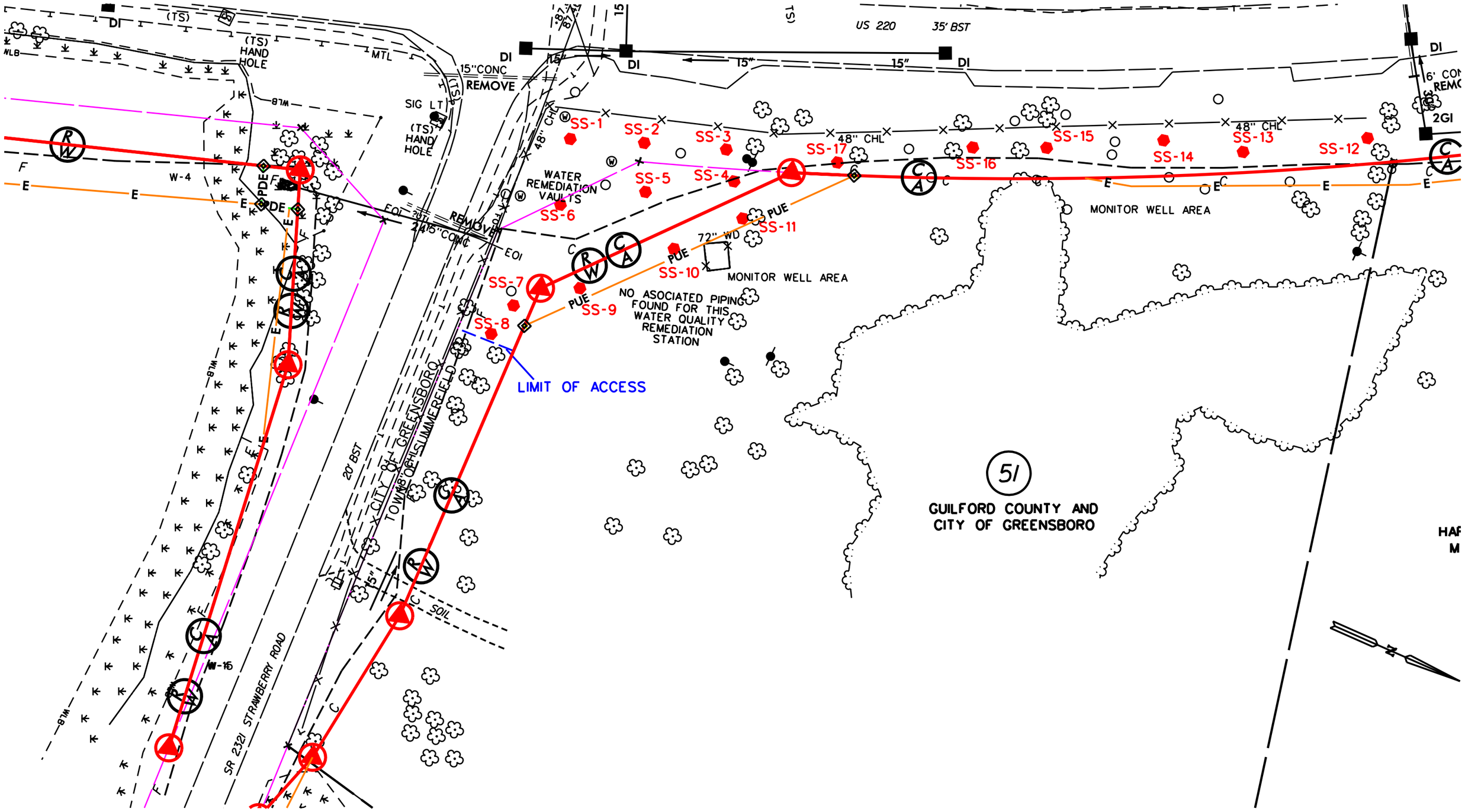
FIGURE 1
VICINITY MAP

GUILFORD COUNTY & CITY OF GREENSBORO PROPERTY (PARCEL #51)
GUILFORD COUNTY NORTH CAROLINA

JANUARY 2010

60144352

Q:\60144352\cadd\usgsbord.dgn 2/23/2010 4:08:22 PM



LEGEND

SS-1 ● SOIL SAMPLE LOCATION AND IDENTIFICATION

GRAPHIC SCALE (feet) 0 25 50

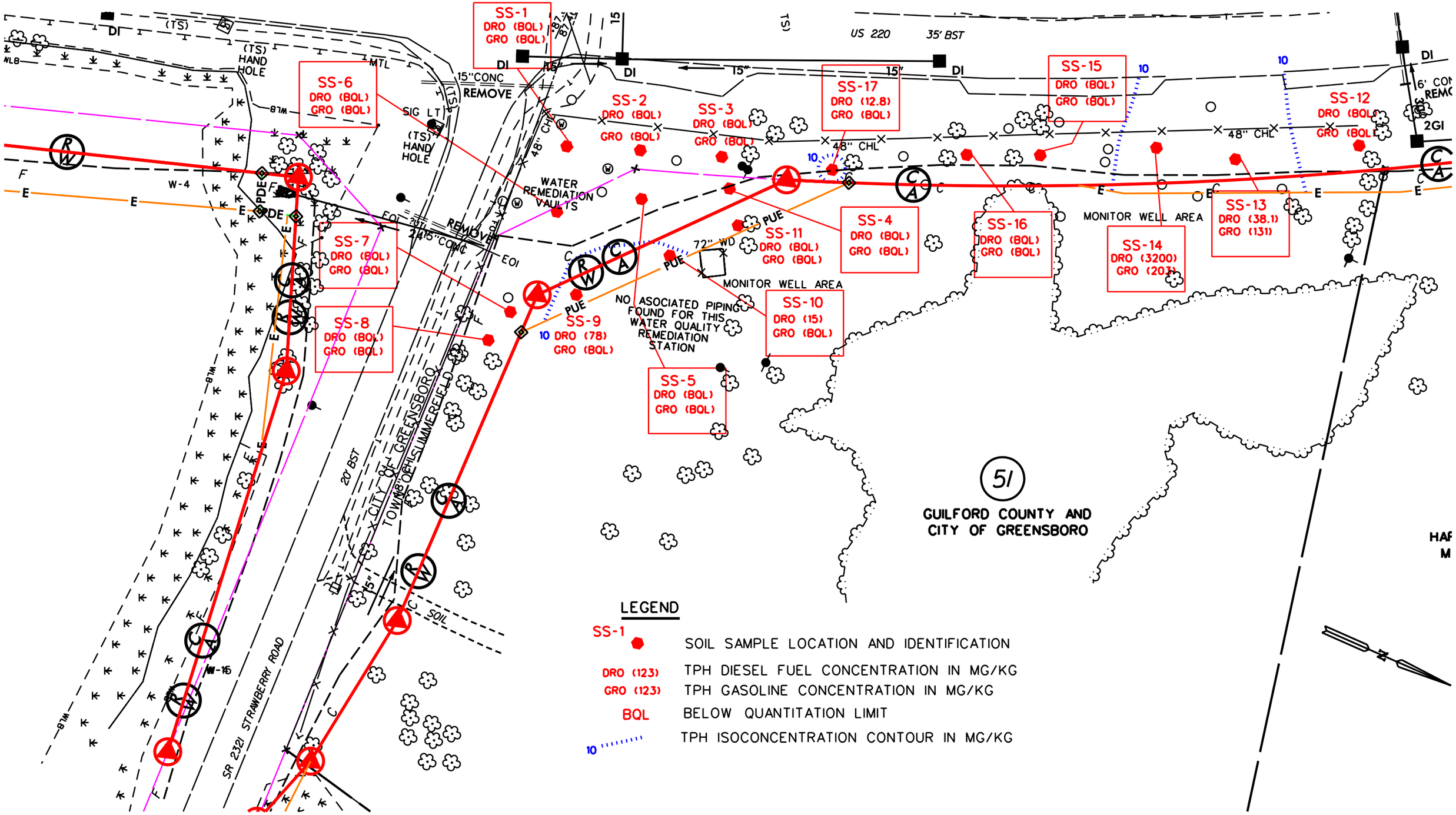
AECOM

FIGURE 2
SITE MAP

GUILFORD COUNTY & CITY OF GREENSBORO PROPERTY (PARCEL 51)
GUILFORD COUNTY, NORTH CAROLINA

JANUARY 2010 60144352

Q:\60144352\cadd\51 fig2.dgn 2/23/2010 4:09:14 PM



AECOM

FIGURE 3
SOIL ANALYTICAL RESULTS MAP

GUILFORD COUNTY & CITY OF GREENSBORO PROPERTY (PARCEL 51)
GUILFORD COUNTY, NORTH CAROLINA

JANUARY 2010 60144352

Q:\60144352\cadd\51 fig3.dgn 2/25/2010 4:13:16 PM

ATTACHMENT A

Pyramid Project # 2009328

GEOPHYSICAL INVESTIGATION REPORT

EM61 SURVEY
GUILFORD COUNTY & CITY OF GREENSBORO PROPERTY
(PARCEL 51)
Summerfield, North Carolina

February 9, 2010

Report prepared for: **Michael W. Branson, PG**
AECOM Environment
701 Corporate Center Drive, Suite 475
Raleigh, North Carolina 27607

Prepared by: _____
Mika Trifunovic

Reviewed by: _____
Douglas Canavello, PG

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.
P.O. Box 16265
GREENSBORO, NC 27416-0265
(336) 335-3174

AECOM Environment
GEOPHYSICAL INVESTIGATION REPORT
GUILFORD COUNTY & CITY OF GREENSBORO PROPERTY
(PARCEL 51)
Summerfield, North Carolina

TABLE OF CONTENTS PAGE

FIGURES

1.0 INTRODUCTION

Pyramid Environmental conducted geophysical investigations for AECOM Environment across the accessible portions of the proposed Right-of-Way (ROW) area of the Guilford County & City of Greensboro property (Parcel 51) located at the intersection of US Highway 220 and Strawberry Road near Summerfield, North Carolina. Much of the proposed ROW area consists of wooden terrain with an open area along the southwest corner of the property. Bush hogging was performed across the open portion of the proposed ROW area, however no trees were cut or removed. Consequently, a significant portion of the proposed ROW area located along Strawberry Road was omitted from the geophysical investigation due to the wooded terrain and swampy conditions. The geophysical survey area at Parcel 51 has a maximum length and width of 480 feet and 120 feet, respectively.

The geophysical investigation was conducted on February 4, 2010 to determine if unknown, metallic USTs were present beneath the proposed ROW area. AECOM Environment representative Mr. Michael Branson, PG identified the geophysical survey area to Pyramid Environmental personnel and provided site maps showing the boundaries of the proposed survey area several weeks prior to conducting the investigation. Photographs of the geophysical equipment used in this investigation and the geophysical survey area at the Guilford County and City of Greensboro property (Parcel 51) are shown in **Figure 1**.

2.0 FIELD METHODOLOGY

Prior to conducting the geophysical investigation, a 10-foot by 20-foot survey grid was established across the geophysical survey area using measuring tapes, pin flags and water-based marking paint. These grid marks were used as X-Y coordinates for location control when collecting the geophysical data and establishing base maps for the geophysical results.

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection surveys using a Geonics EM61-MK1 metal detection instrument. According to the instrument specifications,

the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. All of the EM61 data were digitally collected at approximately 0.8 foot intervals along northerly-southerly, parallel survey lines spaced five feet apart. All of the data were downloaded to a computer and reviewed in the office using the Geonics DAT61W and Surfer for Windows Version 7.0 software programs.

Contour plots of the EM61 bottom coil and differential results are presented in **Figures 2 and 3**, respectively. The bottom coil results represent the most sensitive component of the EM61 instrument and detect metal objects regardless of size. The bottom coil response can be used to delineate metal conduits or utility lines, small, isolated metal objects, and areas containing insignificant metal debris. The differential results are obtained from the difference between the top and bottom coils of the EM61 instrument. The differential results focus on the larger metal objects such as drums and USTs and ignore the smaller insignificant metal objects.

Preliminary geophysical results obtained from Parcel 51 were reported to Mr. Branson on February 5, 2010.

3.0 DISCUSSION OF RESULTS

The linear, EM61 bottom coil anomalies intersecting grid coordinates X=50 Y=60, X=60 Y=140, X=60 Y=360, X=60 Y=420, and X=60 Y=465 are probably in response to the metallic fence line that runs along the western and southern perimeters of the property. Similarly, the bottom coil anomaly centered near grid coordinates X=90 Y=32 is probably in response to the rolled-up segment of the fence line. The linear bottom coil anomaly intersecting grid coordinates X=95 Y=160 may be in response to a buried utility line running from the remediation compound to the utility pole. The short, linear bottom coil anomaly intersecting grid coordinates X=70 Y=360 is probably in response to a metallic valve cover and the metal fence line and not in response to a buried utility line or conduit.

The remaining EM61 bottom coil anomalies are probably in response to known surface objects, such as monitoring wells, metallic valve covers, culverts, or miscellaneous metallic debris. The EM61 differential results recorded a number of negative metal detection anomalies indicating surface metal objects or debris. The negative differential anomalies confirm the interpretation that the majority of EM61 bottom coil anomalies are in response to known surface objects. Due to the absence of positive differential anomalies (indicating larger buried metallic objects), the differential results also suggest that the surveyed portion of the site does not contain buried metallic USTs.

4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 data collected across the accessible portion of the proposed ROW area of the Guilford County & City of Greensboro property (Parcel 51) located at the intersection of US Highway 220 and Strawberry Road near Summerfield, North Carolina, provides the following summary and conclusions:

- The EM61 survey provided reliable results for the detection of metallic USTs within the surveyed portion of the site.

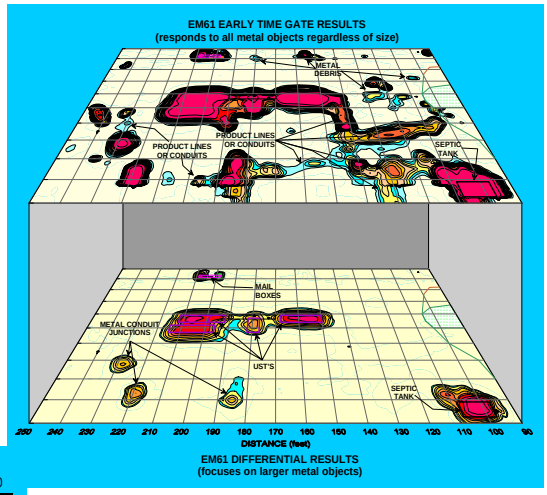
- The linear, EM61 bottom coil anomalies intersecting grid coordinates X=50 Y=60, X=60 Y=140, X=60 Y=360, X=60 Y=420, and X=60 Y=465 are probably in response to the metallic fence line that runs along the western and southern perimeters of the property.

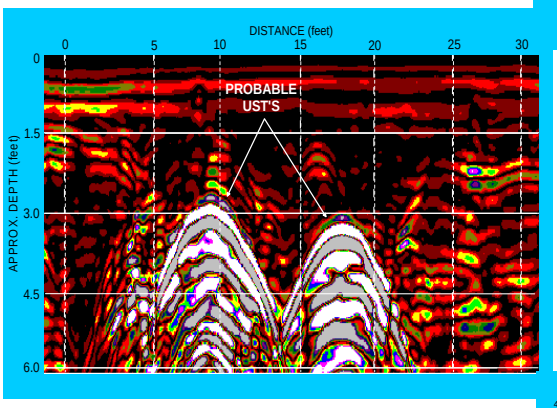
- The remaining EM61 anomalies are probably in response to known surface objects, such as monitoring wells, metallic valve covers, culverts, or miscellaneous metallic debris.

- The geophysical investigation suggests that the surveyed portion of the proposed ROW area at Parcel 51 does not contain buried, metallic USTs.

5.0 LIMITATIONS

EM61 surveys have been performed and this report prepared for AECOM Environment in accordance with generally accepted guidelines for EM61 surveys. It is generally recognized that the results of the EM61 are non-unique and may not represent actual subsurface conditions. The EM61 results obtained for this project have not conclusively determine that the surveyed portion of the site does not contain buried metallic USTs, but that none were detected.

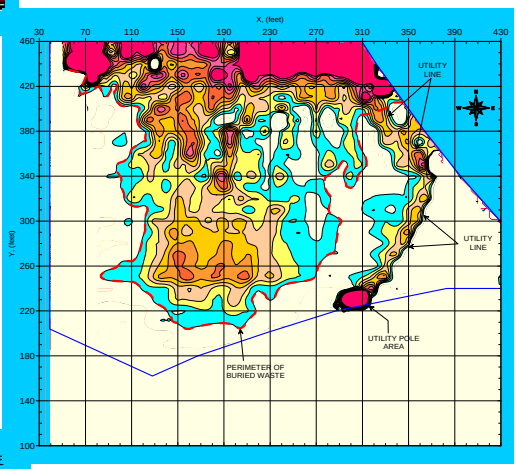


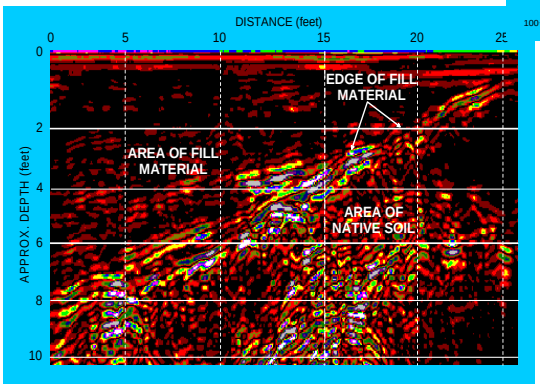


FIGURES

(on the following pages)

Figures shown on this page are for esthetic purposes only and are not related to the geophysical results discussed in this report





The photograph shows the Geonics EM61 metal detector that was used to conduct the metal detection survey across the accessible portions of the proposed Right-of-Way area at Parcel 51 on February 4, 2010.

The photograph shows the southwesterm portion of the Guilford County & City of Greensboro property (Parcel 51) located at the intersection of US Highway 220 and Strawberry Road near Summerfield, North Carolina. The photograph is viewed in a northerly direction.

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

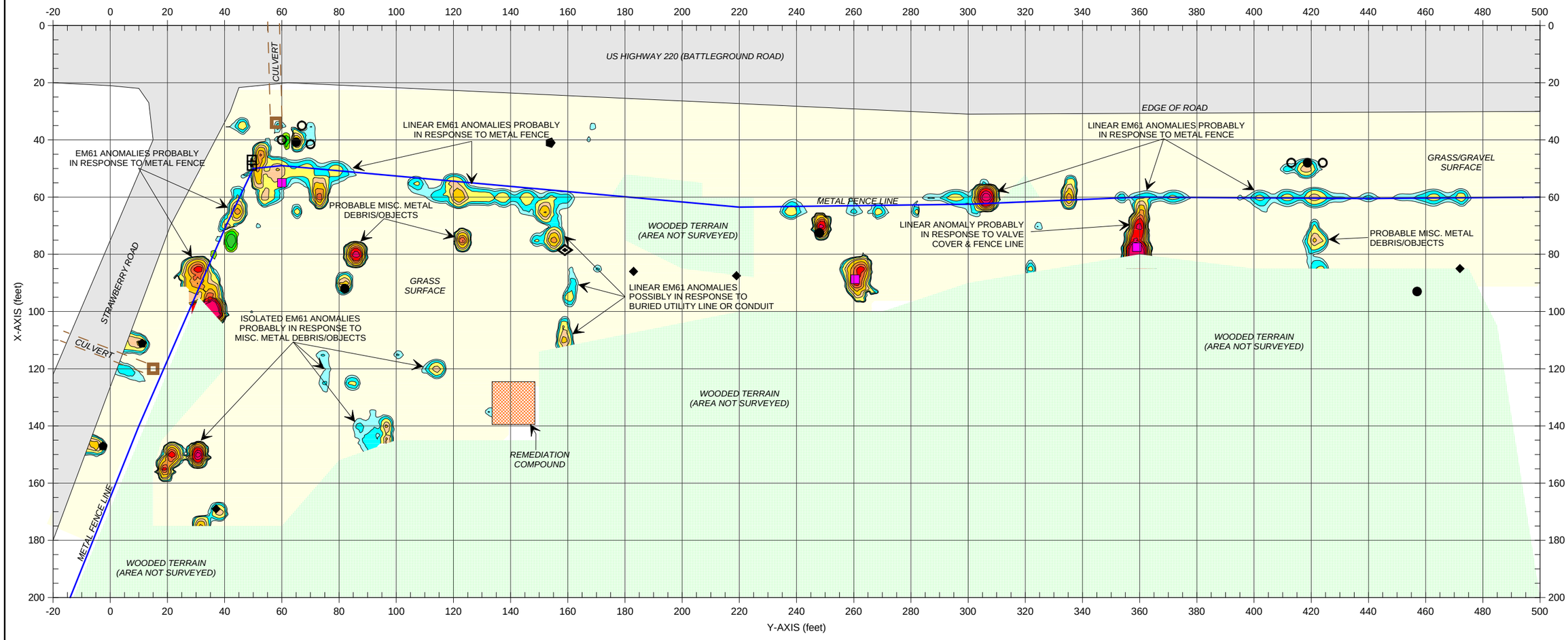
CLIENT	AECOM ENVIRONMENT	DATE	02/09/10	DRWN	MJD
SITE	GUILDFORD CO. & CITY OF GREENSBORO - PARCEL 51	LAY		CHKD	
CITY	SUMMERFIELD	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	JNO	2009-328	FIGURE	

GEOPHYSICAL EQUIPMENT & SITE PHOTOGRAPHS

FIGURE 1

EM61 METAL DETECTION BOTTOM COIL RESULTS

FIGURE 2



LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS TRENDING LINES SPACED 5 FEET APART
- REMEDIATION COMPOUND
- ROAD SIGN
- RIGHT-OF-WAY MARKER
- METAL VALVE COVER
- MONITORING WELL
- BOLLARD
- CULVERT
- UTILITY POLE
- FIBER OPTICS MARKER
- METAL FENCE LINE

APPROXIMATE NORTH

EM61 BOTTOM COIL RESPONSE (MILLIVOLTS)

-5000 -400 -200 -100 -90 -55 -60 -75 -100 -150 -200 -300 -400 -500 -750 -1000

Note: The contour plot shows the bottom coil (most sensitive) response of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The EM metal detection data were collected on February 4, 2009 using a Geonics EM61 instrument.

The geophysical investigation suggests that the surveyed portion of the site does not contain buried, metallic USTs.

GRAPHIC SCALE IN FEET

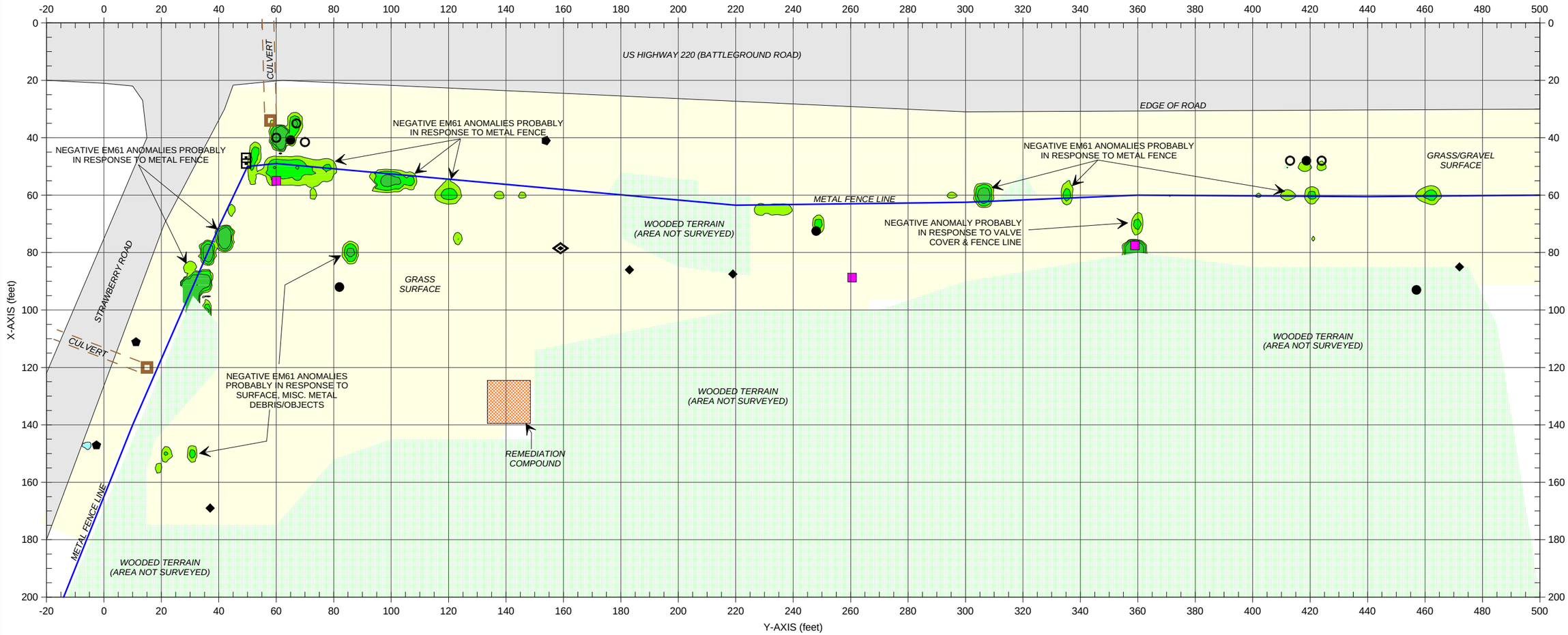
DRWN	CHKD		FIGURE
MJD			2009-328
DATE	LAY	DWG	J-NO.
02/09/10			

CLIENT	SITE	CITY	TITLE
AECOM ENVIRONMENT	GUILFORD COUNTY/CITY OF GREENSBORO - PARCEL 51	SUMMERFIELD	GEOPHYSICAL RESULTS
		STATE: NORTH CAROLINA	

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.

EM61 METAL DETECTION DIFFERENTIAL RESULTS

FIGURE 3



LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS TRENDING LINES SPACED 5 FEET APART
- REMEDIATION COMPOUND
- ROAD SIGN
- RIGHT-OF-WAY MARKER
- METAL VALVE COVER
- MONITORING WELL
- BOLLARD
- CULVERT
- UTILITY POLE
- FIBER OPTICS MARKER
- METAL FENCE LINE

APPROXIMATE NORTH

EM61 DIFFERENTIAL RESPONSE (MILLIVOLTS)

-5000 -400 -200 -100 -90 -45 -60 -75 -100 -150 -200 -300 -400 -500 -750 -1000

Note: The contour plot shows the differential response between the bottom and top coils of the EM61 instrument in millivolts (mV). The differential response focuses on larger, buried metallic objects such as drums and USTs and ignores smaller miscellaneous, buried, metal debris. The EM61 data were collected on February 4, 2010 using a Geonics EM61 instrument.

The geophysical investigation suggests that the surveyed portion of the site does not contain buried, metallic USTs.

CLIENT	AECOM ENVIRONMENT
SITE	GUILFORD COUNTY/CITY OF GREENSBORO - PARCEL 51
CITY	SUMMERFIELD
STATE	NORTH CAROLINA
TITLE	GEOPHYSICAL RESULTS
J-NO.	2009-328
DWG	
LAY	
DATE	02/09/10
DRWN	MJD
CHKD	
FIGURE	

GRAPHIC SCALE IN FEET

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.

ATTACHMENT B

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-1
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.85		3" TOPSOIL; MEDIUM BROWN MEDIUM-GRAINED SAND, DRY, NO ODOR.
			0.92		AS ABOVE, DRY, NO ODOR.
			0.95		AS ABOVE, WET AT 6 FEET, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
5.0			0.84		AS ABOVE, WET, NO ODOR.
					BORING TERMINATED AT 8 FEET. GROUNDWATER ENCOUNTERED AT 6 FEET.
10.0					
15.0					
20.0					

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-2
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.99		3" TOPSOIL; MEDIUM BROWN MEDIUM-GRAINED SAND, DRY, NO ODOR.
			1.02		AS ABOVE, DRY, NO ODOR.
			0.94		MOTTLED MEDIUM BROWN AND WHITE SAND/CLAY, DRY, NO ODOR.
5.0					
			1.03		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			0.99		AS ABOVE, DRY, NO ODOR.
10.0			0.97		AS ABOVE, WET AT 11.5 FEET, NO ODOR.
					BORING TERMINATED AT 12 FEET. GROUNDWATER AT 11.5 FEET.
15.0					
20.0					

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-3
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.91		3" TOPSOIL, MEDIUM TO DARK BROWN SAND/GRAVEL/SAND/CLAY (FILL?), DRY NO ODOR
			0.81		AS ABOVE, DRY, NO ODOR.
			0.84		AS ABOVE, DRY, NO ODOR.
5.0					
			1.53		AS ABOVE, DRY, NO ODOR.
			1.77		MOTTLED MEDIUM BROWN/WHITE/REDDISH BROWN SAND/CLAY SAPROLITE, DRY, NO ODOR.
10.0			2.15		AS ABOVE, WET AT 11.5 FEET, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
					BORING TERMINATED AT 12 FEET. GROUNDWATER AT 11.5 FEET.
15.0					
20.0					

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-4
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.83		3" TOPSOIL; MEDIUM BROWN SAND/CLAY, STIFF, DRY, NO ODOR.
			0.84		AS ABOVE, DRY, NO ODOR.
			0.80		MOTTLED MEDIUM BROWN AND WHITE SAND/CLAY, DRY, NO ODOR.
5.0					
			0.88		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			0.81		AS ABOVE, DRY, NO ODOR.
10.0			0.79		AS ABOVE, WET AT 11.5 FEET, NO ODOR.
					BORING TERMINATED AT 12 FEET. GROUNDWATER AT 11.5 FEET.
15.0					
20.0					

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-5
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.81		3" TOPSOIL; MEDIUM BROWN SAND/CLAY, DRY, NO ODOR.
			0.81		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			0.76		MOTTLED MEDIUM BROWN AND WHITE SAND/CLAY, DRY, NO ODOR.
5.0					
			0.70		AS ABOVE, DRY, NO ODOR.
			0.72		AS ABOVE, DRY, NO ODOR.
10.0					AS ABOVE, WET AT 10 FEET, NO ODOR. NOT SAMPLED.
					BORING TERMINATED AT 12 FEET. GROUNDWATER AT 10 FEET.
15.0					
20.0					

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-6
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.69		3" TOPSOIL; MEDIUM BROWN SAND/CLAY, DRY, NO ODOR.
			0.70		AS ABOVE, WET AT 4 FEET, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
					TERMINATE BORING AT 4 FEET. GROUNDWATER AT 4 FEET.
5.0					
10.0					
15.0					
20.0					

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-7
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.73		3" TOPSOIL; MEDIUM BROWN SILT/CLAY, DRY, NO ODOR.
			0.73		AS ABOVE, DRY, NO ODOR.
			1.01		MOTTLED MEDIUM BROWN AND WHITE SAND/CLAY, DRY, NO ODOR.
5.0					
			2.99		AS ABOVE, WET AT 8 FEET, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
					TERMINATE BORING AT 8 FEET. GROUNDWATER AT 8 FEET.
10.0					
15.0					
20.0					

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-8
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.69		3" TOPSOIL; MEDIUM BROWN SAND/CLAY, STIFF, DRY, NO ODOR.
			1.56		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			0.68		MOTTLED MEDIUM BROWN AND WHITE SAND/CLAY, PLASTIC, DRY, NO ODOR.
5.0					
			0.83		AS ABOVE, DRY, NO ODOR.
			0.83		AS ABOVE, DRY, NO ODOR.
10.0			0.83		AS ABOVE, DRY, NO ODOR.
					BORING TERMINATED AT 12 FEET. NO GROUNDWATER ENCOUNTERED.
15.0					
20.0					

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-9
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.86		3" TOPSOIL; MEDIUM BROWN SAND/CLAY, STIFF, DRY, NO ODOR.
			2.02		AS ABOVE, WET AT 4 FEET, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
					TERMINATE BORING AT 4 FEET. GROUNDWATER AT 4 FEET.
5.0					
10.0					
15.0					
20.0					

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-10
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.62		3" TOPSOIL; MEDIUM BROWN SAND/CLAY, STIFF, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
					AS ABOVE, WET AT 2 FEET, NO ODOR. NOT SAMPLED.
					TERMINATE BORING AT 4 FEET. GROUNDWATER AT 2 FEET.
5.0					
10.0					
15.0					
20.0					

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-11
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.70		3" TOPSOIL; MEDIUM BROWN SAND/CLAY, STIFF, DRY, NO ODOR.
			0.64		AS ABOVE, DRY, NO ODOR.
			0.81		MOTTLED MEDIUM BROWN AND WHITE SILT/CLAY, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
5.0					
			0.80		AS ABOVE, WET AT 8 FEET, NO ODOR.
					TERMINATE BORING AT 8 FEET. GROUNDWATER AT 8 FEET.
10.0					
15.0					
20.0					

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-12
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.41		3" TOPSOIL; MOTTLED MEDIUM BROWN, WHITE AND REDDISH BROWN SILT/CLAY, DRY, NO ODOR.
			0.44		AS ABOVE, DRY, NO ODOR.
			0.47		MOTTLED MEDIUM BROWN AND WHITE SILTY SAND, DRY, NO ODOR.
5.0					
			0.48		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
					AS ABOVE, WET AT 8.5 FEET, NO ODOR. NOT SAMPLED.
10.0					AS ABOVE, WET, NO ODOR. NOT SAMPLED.
					BORING TERMINATED AT 12 FEET. GROUNDWATER AT 8.5 FEET.
15.0					
20.0					

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-13
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.48		3" TOPSOIL; MOTTLED MEDIUM BROWN, WHITE AND REDDISH BROWN SAND/CLAY, DRY, NO ODOR.
			1.52		AS ABOVE, DRY, NO ODOR.
			11.67		AS ABOVE, DRY, NO ODOR.
5.0					
			8.33		AS ABOVE, DRY, NO ODOR.
			8.45		AS ABOVE, DRY, NO ODOR. SAND INCREASES DOWNWARD AT 8 FEET.
10.0			2446		AS ABOVE, WET AT 11 FEET, MODERATE ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
					BORING TERMINATED AT 12 FEET. GROUNDWATER AT 11 FEET.
15.0					
20.0					

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-14
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.58		3" TOPSOIL; MEDIUM BROWN CLAYEY COARSE-GRAINED SAND, DRY, NO ODOR.
			0.64		AS ABOVE, DRY, NO ODOR.
			365		AS ABOVE, DRY, MODERATE ODOR.
5.0					
			445		AS ABOVE, DRY, MODERATE ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
					AS ABOVE, WET AT 8.5 FEET, MODERATE ODOR. NOT SAMPLED.
10.0					AS ABOVE, WET, MODERATE ODOR. NOT SAMPLED.
					BORING TERMINATED AT 12 FEET. GROUNDWATER AT 8.5 FEET.
15.0					
20.0					

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-15
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.55		3" TOPSOIL, MEDIUM BROWN CLAYEY COARSE-GRAINED SAND, DRY, NO ODOR.
			0.74		AS ABOVE, DRY, NO ODOR.
			0.74		AS ABOVE, DRY, NO ODOR.
5.0					
			0.77		MOTTLED MEDIUM BROWN AND WHITE SILT/CLAY, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			0.69		AS ABOVE, DRY, NO ODOR.
10.0					MOTTLED WHITE AND BLACK COARSE-GRAINED SAND, WET AT 10 FEET, NO ODOR. NOT SAMPLED.
					BORING TERMINATED AT 12 FEET. GROUNDWATER AT 10 FEET.
15.0					
20.0					

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-16
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			1.45		3" TOPSOIL, MEDIUM BROWN CLAYEY COARSE-GRAINED SAND, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			0.69		AS ABOVE, DRY, NO ODOR.
			0.65		AS ABOVE, DRY, NO ODOR.
5.0					
			0.67		AS ABOVE, DRY, NO ODOR.
			0.52		AS ABOVE, DRY, NO ODOR.
10.0					AS ABOVE, WET AT 10 FEET, NO ODOR. NOT SAMPLED.
					BORING TERMINATED AT 12 FEET. GROUNDWATER AT 10.5 FEET.
15.0					
20.0					

TEST BORING REPORT

PROJECT GUILFORD COUNTY & CITY OF GREENSBORO (PARCEL #51)
CLIENT NCDOT
PROJECT NUMBER 60144352 (WBS 34418.1.1)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER SS-17
PAGE 1
ELEVATION
DATE 2/11/10
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.93		3" TOPSOIL; MEDIUM BROWN CLAYEY COARSE-GRAINED SAND, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			0.69		AS ABOVE, DRY, NO ODOR.
			0.59		AS ABOVE, DRY, NO ODOR.
5.0					
			0.61		AS ABOVE, DRY, NO ODOR.
			0.57		AS ABOVE, DRY, NO ODOR.
10.0			0.58		AS ABOVE, WET AT 11.5 FEET, NO ODOR.
					BORING TERMINATED AT 12 FEET. GROUNDWATER AT 11.5 FEET.
15.0					
20.0					

ATTACHMENT C

PHOTO 1 - BORINGS IN PROPOSED R/W LOOKING EAST

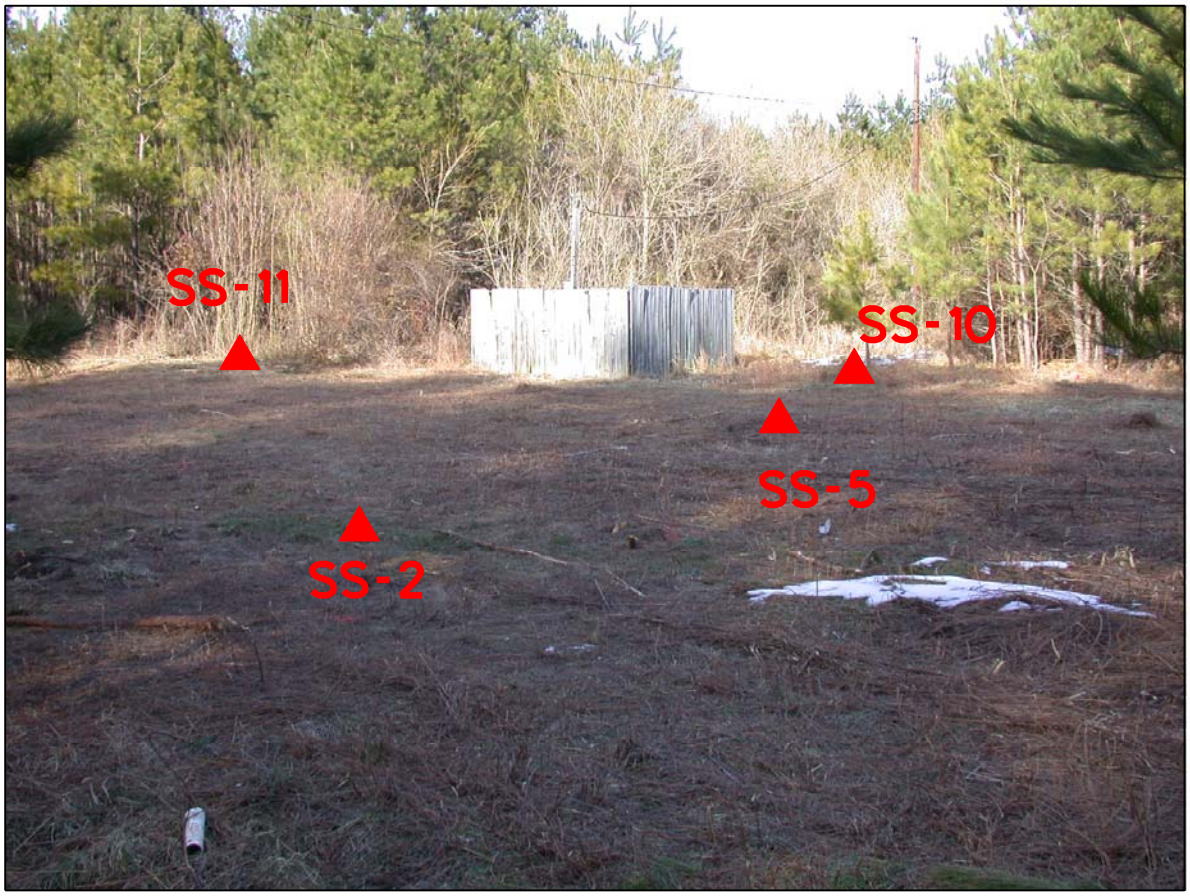


PHOTO 2 - BORINGS IN PROPOSED R/W LOOKING EAST

PHOTO 3 - BORINGS WITHIN PROPOSED R/W LOOKING EAST

PHOTO 4 - BORINGS WITHIN PROPOSED R/W LOOKING NORTH

PHOTO 5 - BORING WITHIN PROPOSED R/W LOOKING EAST

PHOTO 6 - BORING WITHIN PROPOSED R/W LOOKING EAST

PHOTO 7 - BORING WITHIN PROPOSED R/W LOOKING NORTH

PHOTO 8 - BORING WITHIN PROPOSED R/W LOOKING EAST

PHOTO 9 - BORING WITHIN PROPOSED R/W LOOKING EAST

PHOTO 10 - BORING WITHIN PROPOSED R/W LOOKING EAST

PHOTO 11 - BORING WITHIN PROPOSED R/W LOOKING NORTH

ATTACHMENT D

Mike Branson
AECOM
701 Corporate Center Drive
Raleigh, NC 27607

Report Number: G1037-53

Client Project: NCDOT

Dear Mike Branson,

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 Feb 19 2010

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: SS-1
Client Project ID: NCDOT
Lab Sample ID: G1037-53-1B
Lab Project ID: G1037-53
Report Basis: Dry Weight

Analyzed By: BAO
Date Collected: 2/11/2010 9:45
Date Received: 2/13/2010
Matrix: Soil
Solids 82.44

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.22	mg/Kg	1	02/16/10 11:36

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	98.3	98.3		70-130

Comments:

Batch Information

Analytical Batch: VP021610
Analytical Method: 8015
Instrument ID: GC4
Analyst: BAO

Prep Method: 5035
Initial Wt/Vol: 6.97 g
Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: GRO.XLS

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID:	SS-2	Analyzed By:	BAO
Client Project ID:	NCDOT	Date Collected:	2/11/2010 10:00
Lab Sample ID:	G1037-53-2B	Date Received:	2/13/2010
Lab Project ID:	G1037-53	Matrix:	Soil
Report Basis:	Dry Weight	Solids	84.60

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	4.78	mg/Kg	1	02/16/10 12:02

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	96.2	96.2		70-130

Comments:

Batch Information

Analytical Batch:	VP021610	Prep Method:	5035
Analytical Method:	8015	Initial Wt/Vol:	7.42 g
Instrument ID:	GC4	Final Volume:	5 mL
Analyst:	BAO		

Analyst: BAO

NC Certification #481

Reviewed By: _____ GRO.XLS

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

Client Sample ID: SS-3
Client Project ID: NCDOT
Lab Sample ID: G1037-53-3B
Lab Project ID: G1037-53
Report Basis: Dry Weight

Analyzed By: BAO
Date Collected: 2/11/2010 10:15
Date Received: 2/13/2010
Matrix: Soil
Solids 72.34

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.45	mg/Kg	1	02/16/10 12:29

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	99.8	99.8		70-130

Comments:

Batch Information

Analytical Batch: VP021610
Analytical Method: 8015
Instrument ID: GC4
Analyst: BAO

Prep Method: 5035
Initial Wt/Vol: 6.43 g
Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: GRO.XLS

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID: SS-4
Client Project ID: NCDOT
Lab Sample ID: G1037-53-4B
Lab Project ID: G1037-53
Report Basis: Dry Weight

Analyzed By: BAO
Date Collected: 2/11/2010 10:40
Date Received: 2/13/2010
Matrix: Soil
Solids 89.80

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.67	mg/Kg	1	02/16/10 12:56

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	99.4	99.4		70-130

Comments:

Batch Information

Analytical Batch: VP021610
Analytical Method: 8015
Instrument ID: GC4
Analyst: BAO

Prep Method: 5035
Initial Wt/Vol: 5.89 g
Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By:

GRO.XLS

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID: SS-5
Client Project ID: NCDOT
Lab Sample ID: G1037-53-5B
Lab Project ID: G1037-53
Report Basis: Dry Weight

Analyzed By: BAO
Date Collected: 2/11/2010 11:00
Date Received: 2/13/2010
Matrix: Soil
Solids 85.16

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	4.70	mg/Kg	1	02/16/10 13:23

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	96.6	96.6		70-130

Comments:

Batch Information

Analytical Batch: VP021610
Analytical Method: 8015
Instrument ID: GC4
Analyst: BAO

Prep Method: 5035
Initial Wt/Vol: 7.5 g
Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: GRO.XLS

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID: SS-6
Client Project ID: NCDOT
Lab Sample ID: G1037-53-6B
Lab Project ID: G1037-53
Report Basis: Dry Weight

Analyzed By: BAO
Date Collected: 2/11/2010 11:10
Date Received: 2/13/2010
Matrix: Soil
Solids 87.32

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.94	mg/Kg	1	02/16/10 13:50

Surrogate Spike Results

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

Comments:

Batch Information

Analytical Batch: VP021610
Analytical Method: 8015
Instrument ID: GC4
Analyst: BAO

Prep Method: 5035
Initial Wt/Vol: 5.78 g
Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By:

GRO.XLS

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID:	SS-7	Analyzed By:	BAO
Client Project ID:	NCDOT	Date Collected:	2/11/2010 11:30
Lab Sample ID:	G1037-53-7B	Date Received:	2/13/2010
Lab Project ID:	G1037-53	Matrix:	Soil
Report Basis:	Dry Weight	Solids	85.19

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.54	mg/Kg	1	02/16/10 14:17

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	97.7	97.7		70-130

Comments:

Batch Information

Analytical Batch:	VP021610	Prep Method:	5035
Analytical Method:	8015	Initial Wt/Vol:	6.36 g
Instrument ID:	GC4	Final Volume:	5 mL
Analyst:	BAO		

Analyst: BAO

NC Certification #481

Reviewed By: GRO.XLS

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

Client Sample ID: SS-8
Client Project ID: NCDOT
Lab Sample ID: G1037-53-8B
Lab Project ID: G1037-53
Report Basis: Dry Weight

Analyzed By: BAO
Date Collected: 2/11/2010 11:45
Date Received: 2/13/2010
Matrix: Soil
Solids 86.25

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	4.93	mg/Kg	1	02/16/10 14:44

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	97.2	97.2		70-130

Comments:

Batch Information

Analytical Batch: VP021610
Analytical Method: 8015
Instrument ID: GC4
Analyst: BAO

Prep Method: 5035
Initial Wt/Vol: 7.06 g
Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: GRO.XLS

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID:	SS-9	Analyzed By:	BAO
Client Project ID:	NCDOT	Date Collected:	2/11/2010 12:00
Lab Sample ID:	G1037-53-9B	Date Received:	2/13/2010
Lab Project ID:	G1037-53	Matrix:	Soil
Report Basis:	Dry Weight	Solids	82.44

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.66	mg/Kg	1	02/16/10 15:11

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	99.1	99.1		70-130

Comments:

Batch Information

Analytical Batch:	VP021610	Prep Method:	5035
Analytical Method:	8015	Initial Wt/Vol:	6.43 g
Instrument ID:	GC4	Final Volume:	5 mL
Analyst:	BAO		

Analyst: BAO

NC Certification #481

Reviewed By: GRO.XLS

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID:	SS-10	Analyzed By:	BAO
Client Project ID:	NCDOT	Date Collected:	2/11/2010 12:15
Lab Sample ID:	G1037-53-10B	Date Received:	2/13/2010
Lab Project ID:	G1037-53	Matrix:	Soil
Report Basis:	Dry Weight	Solids	85.98

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.28	mg/Kg	1	02/16/10 15:38

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	102.0	102.0		70-130

Comments:

Batch Information

Analytical Batch:	VP021610	Prep Method:	5035
Analytical Method:	8015	Initial Wt/Vol:	5.56 g
Instrument ID:	GC4	Final Volume:	5 mL
Analyst:	BAO		

Analyst: BAO

NC Certification #481

Reviewed By: GRO.XLS

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID: SS-11
Client Project ID: NCDOT
Lab Sample ID: G1037-53-11B
Lab Project ID: G1037-53
Report Basis: Dry Weight

Analyzed By: BAO
Date Collected: 2/11/2010 12:30
Date Received: 2/13/2010
Matrix: Soil
Solids 86.08

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	4.60	mg/Kg	1	02/16/10 16:04

Surrogate Spike Results

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

Comments:

Batch Information

Analytical Batch: VP021610
Analytical Method: 8015
Instrument ID: GC4
Analyst: BAO

Prep Method: 5035
Initial Wt/Vol: 7.57 g
Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: GRO.XLS

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID: SS-12
Client Project ID: NCDOT
Lab Sample ID: G1037-53-12B
Lab Project ID: G1037-53
Report Basis: Dry Weight

Analyzed By: BAO
Date Collected: 2/11/2010 13:40
Date Received: 2/13/2010
Matrix: Soil
Solids 82.52

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.53	mg/Kg	1	02/16/10 16:31

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	98.8	98.8		70-130

Comments:

Batch Information

Analytical Batch: VP021610
Analytical Method: 8015
Instrument ID: GC4
Analyst: BAO

Prep Method: 5035
Initial Wt/Vol: 6.58 g
Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: GRO.XLS

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID: SS-13
Client Project ID: NCDOT
Lab Sample ID: G1037-53-13B
Lab Project ID: G1037-53
Report Basis: Dry Weight

Analyzed By: BAO
Date Collected: 2/11/2010 14:00
Date Received: 2/13/2010
Matrix: Soil
Solids 70.55

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	**131**	5.96	mg/Kg	10	02/17/10 13:44

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	104.0	104.0		70-130

Comments:

Batch Information

Analytical Batch: VP021710
Analytical Method: 8015
Instrument ID: GC4
Analyst: BAO

Prep Method: 5035
Initial Wt/Vol: 7.13 g
Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: GRO.XLS

SGS North America, Inc.

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID:	SS-14	Analyzed By:	BAO
Client Project ID:	NCDOT	Date Collected:	2/11/2010 14:40
Lab Sample ID:	G1037-53-14B	Date Received:	2/13/2010
Lab Project ID:	G1037-53	Matrix:	Soil
Report Basis:	Dry Weight	Solids	80.00

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	**203**	6.25	mg/Kg	8	02/17/10 14:37

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	103.0	103.0		70-130

Comments:

Batch Information

Analytical Batch:	VP021710	Prep Method:	5035
Analytical Method:	8015	Initial Wt/Vol:	6 g
Instrument ID:	GC4	Final Volume:	5 mL
Analyst:	BAO		

Analyst: BAO

NC Certification #481

Reviewed By: GRO.XLS

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID:	SS-15	Analyzed By:	BAO
Client Project ID:	NCDOT	Date Collected:	2/11/2010 14:50
Lab Sample ID:	G1037-53-15B	Date Received:	2/13/2010
Lab Project ID:	G1037-53	Matrix:	Soil
Report Basis:	Dry Weight	Solids	71.49

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.50	mg/Kg	1	02/17/10 12:20

Surrogate Spike Results

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

Comments:

Batch Information

Analytical Batch:	VP021710	Prep Method:	5035
Analytical Method:	8015	Initial Wt/Vol:	6.46 g
Instrument ID:	GC4	Final Volume:	5 mL
Analyst:	BAO		

Analyst: BAO

NC Certification #481

Reviewed By: GRO.XLS

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID: SS-16
Client Project ID: NCDOT
Lab Sample ID: G1037-53-16B
Lab Project ID: G1037-53
Report Basis: Dry Weight

Analyzed By: BAO
Date Collected: 2/11/2010 15:10
Date Received: 2/13/2010
Matrix: Soil
Solids 82.05

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.89	mg/Kg	1	02/17/10 12:47

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	99.2	99.2		70-130

Comments:

Batch Information

Analytical Batch: VP021710
Analytical Method: 8015
Instrument ID: GC4
Analyst: BAO

Prep Method: 5035
Initial Wt/Vol: 6.21 g
Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: GRO.XLS

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID:	SS-17	Analyzed By:	BAO
Client Project ID:	NCDOT	Date Collected:	2/11/2010 15:30
Lab Sample ID:	G1037-53-17B	Date Received:	2/13/2010
Lab Project ID:	G1037-53	Matrix:	Soil
Report Basis:	Dry Weight	Solids	79.36

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.40	mg/Kg	1	02/16/10 18:46

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	98.3	98.3		70-130

Comments:

Batch Information

Analytical Batch:	VP021610	Prep Method:	5035
Analytical Method:	8015	Initial Wt/Vol:	7 g
Instrument ID:	GC4	Final Volume:	5 mL
Analyst:	BAO		

Analyst: BAO

NC Certification #481

Reviewed By: GRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: VBLK4021610A
Lab Project ID:
Report Basis: Dry Weight

Analyzed By: BAO
Date Collected:
Date Received:
Matrix: Soil
Solids 100.00

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.00	mg/kg	1	02/16/10 11:08

Surrogate Spike Results

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

Comments:

Batch Information

Analytical Batch: VP021610
Analytical Method: 8015
Instrument ID: GC4
Analyst: BAO

Prep Method: 5030
Initial Wt/Vol: 5 g
Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: GRO.XLS

QC Results for Total Petroleum Hydrocarbons
by GC/FID

Client Sample ID: Batch QC
Lab Sample ID: g1037-53-10b
LCS ID: LCS4021610A / VP021610

Analyzed By: BAO
Matrix: Soil
Solids 85.98

MS/MSD

Analyte	Sample MG/KG	Spiked MG/KG	MS MG/KG	REC % #	Spiked MG/KG	MSD MG/KG	REC % #	RPD % #
				(70-130%)			(70-130%)	(30%)
GRO	BQL	16.7	17.3	104	16.7	18.1	108	3.77

LCS

Analyte	Spiked MG/KG	Result MG/KG	REC % #	LIMITS Lower	Upper
GRO	16	14.0	87.5	70	130

Comments:

Reviewed By: _____

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: VBLK4021710A
Lab Project ID:
Report Basis: Dry Weight

Analyzed By: BAO
Date Collected:
Date Received:
Matrix: Soil
Solids 100.00

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.00	mg/kg	1	02/17/10 10:59

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	97.5	97.5		70-130

Comments:

Batch Information

Analytical Batch: VP021710
Analytical Method: 8015
Instrument ID: GC4
Analyst: BAO

Prep Method: 5030
Initial Wt/Vol: 5 g
Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By:

GRO.XLS

QC Results for Total Petroleum Hydrocarbons
by GC/FID

Client Sample ID: Batch QC
Lab Sample ID: g1037-53-15b
LCS ID: LCS4021710A / VP021710

Analyzed By: BAO
Matrix: Soil
Solids 71.49

MS/MSD

Analyte	Sample MG/KG	Spiked MG/KG	MS MG/KG	REC % #	Spiked MG/KG	MSD MG/KG	REC % #	RPD % #
				(70-130%)			(70-130%)	(30%)
GRO	BQL	17.3	15.6	90.2	17.3	17.9	103	13.3

LCS

Analyte	Spiked MG/KG	Result MG/KG	REC % #	LIMITS Lower	Upper
GRO	16	15.3	95.6	70	130

Comments:

Reviewed By:

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

Client Sample ID: SS-1
Client Project ID: NCDOT
Lab Sample ID: G1037-53-1D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 9:45
Date Received: 2/13/2010
Matrix: Soil
Solids 82.44
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.39	mg/Kg	1	02/16/10 12:10

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	28.1	70.4

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 32.85 G
Prep Final Vol: 10 mL

Analyst: FX

NC Certification #481

Reviewed By: _____
DRO.XLS

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

Client Sample ID: SS-2
Client Project ID: NCDOT
Lab Sample ID: G1037-53-2D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 10:00
Date Received: 2/13/2010
Matrix: Soil
Solids 84.60
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.32	mg/Kg	1	02/16/10 12:38

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	28.7	71.9

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 32.31 G
Prep Final Vol: 10 mL

Analyst: FX

NC Certification #481

Reviewed By: DRO.XLS

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

Client Sample ID: SS-3
Client Project ID: NCDOT
Lab Sample ID: G1037-53-3D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 10:15
Date Received: 2/13/2010
Matrix: Soil
Solids 72.34
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	8.47	mg/Kg	1	02/16/10 13:06

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	28.1	70.4

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 32.64 G
Prep Final Vol: 10 mL

Analyst: FK

NC Certification #481

Reviewed By: DRO.XLS

SGS North America, Inc.

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

Client Sample ID: SS-4
Client Project ID: NCDOT
Lab Sample ID: G1037-53-4D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 10:40
Date Received: 2/13/2010
Matrix: Soil
Solids 89.80
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.87	mg/Kg	1	02/16/10 13:34

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	32.9	82.2

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 32.42 G
Prep Final Vol: 10 mL

Analyst: FX

NC Certification #481

Reviewed By: DRO.XLS

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

Client Sample ID: SS-5
Client Project ID: NCDOT
Lab Sample ID: G1037-53-5D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 11:00
Date Received: 2/13/2010
Matrix: Soil
Solids 85.16
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.19	mg/Kg	1	02/16/10 14:02

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	29.3	73.2

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 32.68 G
Prep Final Vol: 10 mL

Analyst: _____

NC Certification #481

Reviewed By: _____
DRO.XLS

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

Client Sample ID: SS-6
Client Project ID: NCDOT
Lab Sample ID: G1037-53-6D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 11:10
Date Received: 2/13/2010
Matrix: Soil
Solids 87.32
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.71	mg/Kg	1	02/16/10 14:30

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	27.9	69.8

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 34.13 G
Prep Final Vol: 10 mL

Analyst: FV

NC Certification #481

Reviewed By: DRO.XLS

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

Client Sample ID: SS-7
Client Project ID: NCDOT
Lab Sample ID: G1037-53-7D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 11:30
Date Received: 2/13/2010
Matrix: Soil
Solids 85.19
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.32	mg/Kg	1	02/16/10 14:58

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	28.8	72

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 32.09 G
Prep Final Vol: 10 mL

Analyst: _____

NC Certification #481

Reviewed By: _____
DRO.XLS

SGS North America, Inc.

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

Client Sample ID: SS-8
Client Project ID: NCDOT
Lab Sample ID: G1037-53-8D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 11:45
Date Received: 2/13/2010
Matrix: Soil
Solids 86.25
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.98	mg/Kg	1	02/16/10 15:26

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	28.3	70.8

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 33.2 G
Prep Final Vol: 10 mL

Analyst: FX

NC Certification #481

Reviewed By: DRO.XLS

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

Client Sample ID: SS-9
Client Project ID: NCDOT
Lab Sample ID: G1037-53-9D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 12:00
Date Received: 2/13/2010
Matrix: Soil
Solids 82.44
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	**78.0**	7.39	mg/Kg	1	02/16/10 15:54

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	26.3	65.8

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 32.84 G
Prep Final Vol: 10 mL

Analyst: FX

NC Certification #481

Reviewed By: DRO.XLS

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

Client Sample ID: SS-10
Client Project ID: NCDOT
Lab Sample ID: G1037-53-10D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 12:15
Date Received: 2/13/2010
Matrix: Soil
Solids 85.98
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	**15.0**	6.94	mg/Kg	1	02/16/10 16:21

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	31.8	79.5

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 33.53 G
Prep Final Vol: 10 mL

Analyst: _____

NC Certification #481

Reviewed By: _____
DRO.XLS

SGS North America, Inc.

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

Client Sample ID: SS-11
Client Project ID: NCDOT
Lab Sample ID: G1037-53-11D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 12:30
Date Received: 2/13/2010
Matrix: Soil
Solids 86.08
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.93	mg/Kg	1	02/16/10 16:50

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

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 33.52 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: SS-12
Client Project ID: NCDOT
Lab Sample ID: G1037-53-12D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 13:40
Date Received: 2/13/2010
Matrix: Soil
Solids 82.52
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.35	mg/Kg	1	02/16/10 17:18

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	29	72.6

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 32.97 G
Prep Final Vol: 10 mL

Analyst: FN

NC Certification #481

Reviewed By: MD

DRO.XLS

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

Client Sample ID: SS-13
Client Project ID: NCDOT
Lab Sample ID: G1037-53-13D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 14:00
Date Received: 2/13/2010
Matrix: Soil
Solids 70.55
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	**38.1**	8.64	mg/Kg	1	02/16/10 17:46

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	30.9	77.4

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 32.8 G
Prep Final Vol: 10 mL

Analyst: _____

NC Certification #481

Reviewed By: _____

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

Client Sample ID: SS-14
Client Project ID: NCDOT
Lab Sample ID: G1037-53-14D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 14:40
Date Received: 2/13/2010
Matrix: Soil
Solids 80.00
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	**3200**	74.4	mg/Kg	10	02/17/10 18:18

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

Comments:
NA = Surrogates diluted out

Batch Information

Analytical Batch: EP021710
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 33.59 G
Prep Final Vol: 10 mL

Analyst: FX

NC Certification #481

Reviewed By: DRO.XLS

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

Client Sample ID: SS-15
Client Project ID: NCDOT
Lab Sample ID: G1037-53-15D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 14:50
Date Received: 2/13/2010
Matrix: Soil
Solids 71.49
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	8.42	mg/Kg	1	02/16/10 18:42

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	29.2	72.9

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 33.24 G
Prep Final Vol: 10 mL

Analyst: _____ NC Certification #481 Reviewed By: _____ DRO.XLS

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

Client Sample ID: SS-16
Client Project ID: NCDOT
Lab Sample ID: G1037-53-16D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 15:10
Date Received: 2/13/2010
Matrix: Soil
Solids 82.05
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.32	mg/Kg	1	02/16/10 19:10

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	29.8	74.5

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 33.31 G
Prep Final Vol: 10 mL

Analyst: FK

NC Certification #481

Reviewed By: DRO.XLS

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

Client Sample ID: SS-17
Client Project ID: NCDOT
Lab Sample ID: G1037-53-17D
Lab Project ID: G1037-53

Date Collected: 2/11/2010 15:30
Date Received: 2/13/2010
Matrix: Soil
Solids 79.36
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	**12.8**	7.68	mg/Kg	1	02/16/10 19:38

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	28.6	71.5

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 32.81 G
Prep Final Vol: 10 mL

Analyst: _____

NC Certification #481

Reviewed By: _____

DRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: PB16057
Lab Project ID:

Date Collected:
Date Received:
Matrix: SOIL
Solids 100.00
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.25	mg/Kg	1	02/16/10 11:15

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	31.4	78.6

Comments:

Batch Information

Analytical Batch: EP021610
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 16057
Prep Method: 3541
Prep Date: 02/15/10
Initial Prep Wt/Vol: 32 G
Prep Final Vol: 10 mL

Analyst: _____

NC Certification #481

Reviewed By: _____
DRO.XLS

QC Results for Total Petroleum Hydrocarbons
by GC/FID

Client Sample ID: Batch QC
Lab Sample ID: G1037-53-17D
Batch ID: 16057

Analyzed By: DTF
Matrix: Soil
Solids 79.36

MS/MSD

Analyte	Sample MG/KG	Spiked MG/KG	MS MG/KG	REC %	#	Spiked MG/KG	MSD MG/KG	REC %	#	RPD %
DRO	9.56	78.1	60.2	64.8		78	61	65.9		1.68

LCS

Analyte	Spiked MG/KG	Result MG/KG	REC %	#	LIMITS Lower	Upper
DRO	62.5	53.4	85.4		55.3	137

Reviewed By:

SGS Environmental Services Inc.
CHAIN OF CUSTODY RECORD

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

www.us.sgs.com

(1)

CLIENT: AECom

CONTACT: MIKE BRANSON PHONE NO: 9198546238

PROJECT: NCDOT SITE/PWSID#: Guilford County

REPORTS TO: 701 Corporate Center Dr EMAIL: mike.branson@AECom.com
Suite 475, Raleigh NC 27607

INVOICE TO: NCDOT QUOTE #:

P.O. #: WBS 34418.1.1

SGS Reference #: G1037-53

page 1 of 2

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX/ MATRIX CODE	# CONTAINERS	SAMPLE TYPE C= COMP G= GRAB MI= Multi Incremental Samples	Preservatives Used	—	MeOH								
							Analysis Required (3)	DRO	GRO								REMARKS/ LOC ID
	SS-1	2/11/10	0945	Soil	3			✓	✓								
	SS-2	2/11/10	1000	Soil	3			✓	✓								
	SS-3	2/11/10	1015	Soil	3			✓	✓								
	SS-4	2/11/10	1040	Soil	3			✓	✓								
	SS-5	2/11/10	1100	Soil	3			✓	✓								
	SS-6	2/11/10	1110	Soil	3			✓	✓								
	SS-7	2/11/10	1130	Soil	3			✓	✓								
	SS-8	2/11/10	1145	Soil	3			✓	✓								
	SS-9	2/11/10	1200	Soil	3			✓	✓								
	SS-10	2/11/10	1245	Soil	3			✓	✓								

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
M Branson	2/12/10	0925	Nathan Beaney
Relinquished By: (2)	Date	Time	Received By:
Nathan Beaney	2/12/10	1108	
Relinquished By: (3)	Date	Time	Received By:
	2/13/10	11:10	Nathan Mc
Relinquished By: (4)	Date	Time	Received For Laboratory By:

(4)

DOD Project? YES (NO)

Cooler ID _____

Special Deliverable Requirements:

Requested Turnaround Time and-or Special Instructions:

STANDARD

Samples Received Cold? (YES) NO

Cooler TB

Temperature °C: 2.0 . _____

Chain of Custody Seal: (Circle)

INTACT BROKEN (ABSENT)

N.C. Certification #481

SGS North America, Inc.

Page 43 of 44

SGS Environmental Services Inc.
CHAIN OF CUSTODY RECORD

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

www.us.sgs.com

(1)

CLIENT: AECOM

CONTACT: Mike Branson PHONE NO: 919-854 6238

PROJECT: NCDOT SITE/PWSID#: Guilford County

REPORTS TO: 701 Corporate Center Dr EMAIL: Mike.Branson@AECOM.com
Suite 475, Raleigh NC 27607

INVOICE TO: NCDOT QUOTE #:

P.O. #: WBS 34418.1.1

SGS Reference #: G1037-53

page 2 of 2

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX/ MATRIX CODE	# CONTAINERS	SAMPLE TYPE C= COMP G= GRAB MI= Multi Incremental Samples	Preservatives Used	—	MeOH								REMARKS/ LOC ID
							Analysis Required (3)	DRO	GRO								
	SS-11	2/11/10	1230	SOIL	3			✓	✓								
	SS-12	2/11/10	1340	SOIL	3			✓	✓								
	SS-13	2/11/10	1400	SOIL	3			✓	✓								
	SS-14	2/11/10	1440	SOIL	3			✓	✓								
	SS-15	2/11/10	1450	SOIL	3			✓	✓								
	SS-16	2/11/10	1510	SOIL	3			✓	✓								
	SS-17	2/11/10	1530	SOIL	3			✓	✓								

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
[signature]	2/12/10	0925	[signature]
Relinquished By: (2)	Date	Time	Received By:
[signature]	2/12/10	1108	
Relinquished By: (3)	Date	Time	Received By:
	2/13/10	1110	[signature]
Relinquished By: (4)	Date	Time	Received For Laboratory By:

(4)

DOD Project? YES (NO)

Cooler ID _____

Special Deliverable Requirements:

Requested Turnaround Time and-or Special Instructions:

STANDARD

Samples Received Cold? (YES) NO

Cooler TB

Temperature °C: 2.0 . _____

Chain of Custody Seal: (Circle)

INTACT BROKEN (ABSENT)

N.C. Certification #481

SGS North America, Inc.

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

White - Retained by Lab
Pink - Retained by Client