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September 14, 2010

Mr. Ethan Caldwell, LG
North Carolina Department of Transportation
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

Reference: Preliminary Site Assessment
Roy Byrd Property (Parcel #12)
301 S. Bragg Blvd.
Spring Lake, Cumberland County, North Carolina
NCDOT Tip No. U-4444B
WBS Element 36492.1.2
AECOM Project No. 60158550

Dear Mr. Caldwell:

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 July 6, 2010, and the North Carolina Department of Transportation's (NCDOT's) Notice to Proceed dated July 7, 2010. 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 Roy Byrd Property (Parcel #12) is located at 301 S. Bragg Boulevard in Spring Lake, Cumberland County, North Carolina. The property is situated on the east side of Bragg Boulevard and in the northeast quadrant of the intersection of Bragg Boulevard and Wilson Avenue (Figure 1). Based on information supplied by the NCDOT and the site visit, AECOM understands that the site is a former gas station (Nance Vending) where one 1,000-gallon gasoline underground storage tank (UST) reportedly was removed. As of the date of this report, the former gas station had been demolished and an Advance Auto Parts store was constructed on the property. The structure on the site consists of a block building with an asphalt parking lot surrounding it (Figure 2). The NCDOT has advised that the proposed right-of-way/easement will affect the parking lot (Figure 2). Because of the former UST, 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 proposed right-of-way with respect to the presence of known

and unknown USTs and assess where contamination may exist on the right-of-way. If present, an estimate of the quantity of impacted soil was to be provided.

AECOM reviewed the on-line NCDENR Incident Management database and Groundwater Incident Number 2844 has been assigned to the property. According to the database, the Incident Number was assigned in 1994 and the available information states that "on 8/12/84 a UST ruptured when filled with product resulting in a leak of 8,700 gal.of diesel fuel." The database contained no further information regarding the incident. The size of the reported UST removed (1,000 gallons) could not be reconciled with the amount of product released (8,700 gallons).

AECOM also examined the UST registration database to obtain UST ownership information. One UST was operated on the site under Facility ID 0-012618 prior to the tank removal. The database lists the operator and owner of the tanks as follows:

Owner
Nance Vending
305 S. Bragg Boulevard
Fayetteville, NC 28390
(919) 497-3111

Operator
Nance Vending
305 (includes 301) S. Bragg Boulevard
Spring Lake, NC 28390
No telephone

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 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. Pyramid laid out a survey grid at the property with the X-axis oriented approximately perpendicular to Bragg Boulevard and the Y-axis oriented approximately parallel to Bragg Boulevard. The grid covered the accessible portions of the proposed right-of-way. The survey lines were spaced 5 feet apart. A data logger collected magnetic data continuously along each survey line. 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 where needed to further evaluate any significant metallic anomalies.

Access was available to all areas of the right-of-way and the geophysical survey detected several anomalies. Data interpretation attributed all of these anomalies to buried utility lines, surface metal, or vehicles. Attachment A presents a detailed report of findings and interpretations.

Site Assessment Activities

On August 10, 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 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 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).

Six direct-push holes (BD-1 through BD-6) were advanced within the right-of-way to a depth of 10 feet as shown in Figure 2 and Attachment B. Borings BD-1 through BD-3 were located to evaluate the conditions within the right-of-way on the south side of the property. Borings BD-3 through BD-6 were placed to assess the soil conditions near proposed drop inlets within the proposed right-of-way on the north side of the property (Attachment C). The lithology encountered by the direct-push samples generally was consistent throughout the site. About 2 to 3 inches of asphalt or topsoil covered the ground surface. Below the surface to a depth of 4 to 10 feet was a medium brown, loose, coarse-grained sand. Underlying this material was a medium brown sand/clay. None of the borings encountered bedrock. The "Geologic Map of North Carolina" dated 1985 indicates that the Middendorf and Cape Fear Formations underlie the site, each of which consists predominantly of sand and mudstone. The soil observed at the site is consistent with this parent rock. The borings were terminated at a depth of 10 feet. No groundwater was observed in any of the borings. Based on field screening, soil samples were submitted for laboratory analyses, which are summarized in Table 1. Following completion, each boring was backfilled in accordance with 15A NCAC 2C.

Analytical Results

The laboratory reports, summarized in Table 1 and presented in Attachment D, detected petroleum hydrocarbon compounds identified as DRO in two of the six soil samples collected from the site. The soil sample from boring BD-5 contained a DRO concentration of 177 mg/kg, and the soil sample from boring BD-6 contained a DRO concentration of 6.88 mg/kg. 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 December 2008, 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 DRO concentration detected in soil sample BD-5 was present at a concentration above the 10 mg/kg assumed action level.

Conclusions and Recommendations

A Preliminary Site Assessment was conducted to evaluate the Roy Byrd Property (Parcel #12) located at 301 S. Bragg Boulevard in Spring Lake, Cumberland County, North Carolina. A geophysical investigation was conducted to evaluate the site for unknown USTs. The investigation found no evidence of metallic USTs within the proposed right-of-way. Six soil borings were advanced to evaluate the soil conditions throughout the proposed right-of-way. The laboratory reports of the soil samples from these borings suggest that DRO concentrations in one boring at 177 mg/kg and one boring at 6.88 mg/kg were present. The 177 mg/kg concentration is above the assumed action level.

To evaluate the volume of soil requiring possible remediation, AECOM considered the soil samples with TPH concentrations above 10 mg/kg. The analytical results of the soil samples indicate that the soil from boring BD-5 (177 mg/kg) contained a TPH concentration identified as DRO above the assumed action level (Figure 3). A review of the field screening readings (Table 1) suggests that the thickness of the potentially contaminated soil is about 2 feet. After estimating the potential contamination geometry using field observations and experience with similar sites and geology, AECOM measured the affected section by using CADD software, which indicated an area of about 1895 ft^2. Based on a 2-foot contamination thickness, the area calculates to a volume of 140 cubic yards. AECOM estimated this volume 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.

After a review of the NCDOT plan sheets, AECOM is uncertain as to whether the potential contamination is within a cut or fill area. The contamination is at a depth of about 4 feet and any disturbance to that depth may result in contact with the contamination.

AECOM appreciates the opportunity to work with the NCDOT on this project. Because laboratory analysis detected compounds above the applicable action levels in the soil samples, AECOM recommends that NCDOT submit a copy of this report to the Fayetteville Regional Office UST Section. If you have any questions, please contact me at (919) 854-6238.

Sincerely,

Michael W. Branson

Michael W. Branson, P.G.
Project Manager

Attachments

c: Project File

TABLE 1

SOIL FIELD SCREENING AND ANALYTICAL RESULTS
ROY BYRD PROPERTY (PARCEL #12)
SPRING LAKE, CUMBERLAND COUNTY, NORTH CAROLINA
NCDOT PROJECT NO. U-4444B
WBS ELEMENT 36492.1.2
AECOM PROJECT NO. 60158550

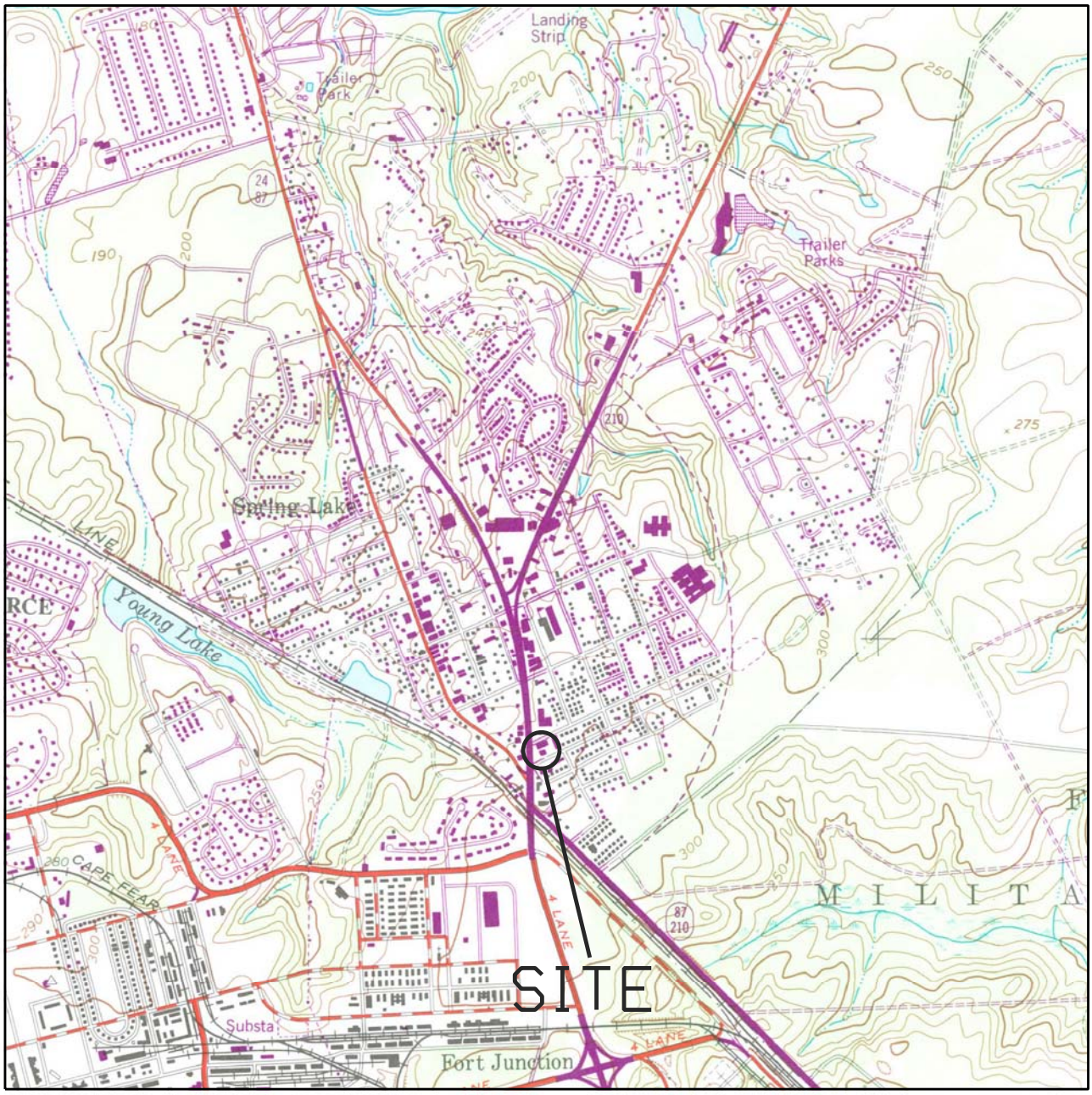
LOCATION	DEPTH (ft)	FID READING (ppm)	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)	ASSUMED ACTION LEVEL (mg/kg)
BD-1	0 - 2	6.19	BD-1	DRO (BQL) GRO (BQL)	10 10
	2 - 4	1.26			
	4 - 6	2.74			
	6 - 8	2.84			
	8 - 10	2.85			
BD-2	0 - 2	2.55			
	2 - 4	2.75			
	4 - 6	3.08	BD-2	DRO (BQL) GRO (BQL)	10 10
	6 - 8	3.05			
	8 - 10	3.01			
BD-3	0 - 2	3.56	BD-3	DRO (BQL) GRO (BQL)	10 10
	2 - 4	2.81			
	4 - 6	2.78			
	6 - 8	3.07			
	8 - 10	1.86			
BD-4	0 - 2	3.50	BD-4	DRO (BQL) GRO (BQL)	10 10
	2 - 4	2.99			
	4 - 6	2.44			
	6 - 8	2.39			
	8 - 10	2.38			
BD-5	0 - 2	2.59			
	2 - 4	2.90			
	4 - 6	3.14	BD-5	**DRO (177)** GRO (BQL)	10 10
	6 - 8	2.10			
	8 - 10	1.93			
BD-6	0 - 2	3.27	BD-6	DRO (6.88) GRO (BQL)	10 10
	2 - 4	2.36			
	4 - 6	1.77			
	6 - 8	2.87			
	8 - 10	1.27			

Soil samples were collected on August 10, 2010.

DRO - Diesel range organics.
GRO - Gasoline range organics.
BQL - Below quantitation limit.
ppm - parts per million.
mg/kg - milligrams per kilogram.
BOLD values are present above the assumed action level.

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: MANCHESTER, NC (REV 1987)

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FIGURE 1
VICINITY MAP
ROY BYRD PROPERTY (PARCEL #12)
SPRING LAKE, CUMBERLAND COUNTY NORTH CAROLINA

AUGUST 2010

60158550

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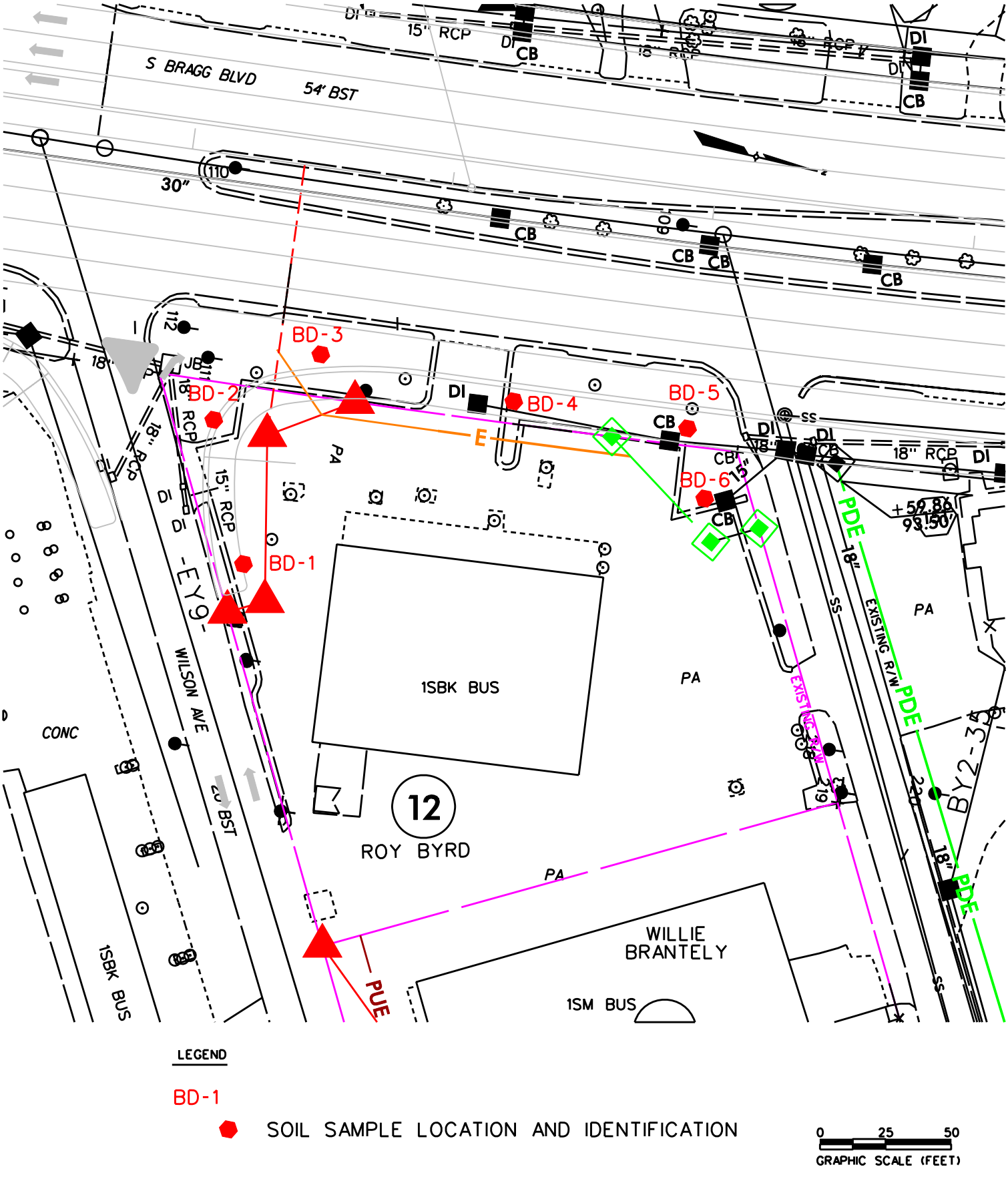

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FIGURE 2
SITE MAP
ROY BYRD PROPERTY (PARCEL #12)
SPRING LAKE, CUMBERLAND COUNTY, NORTH CAROLINA

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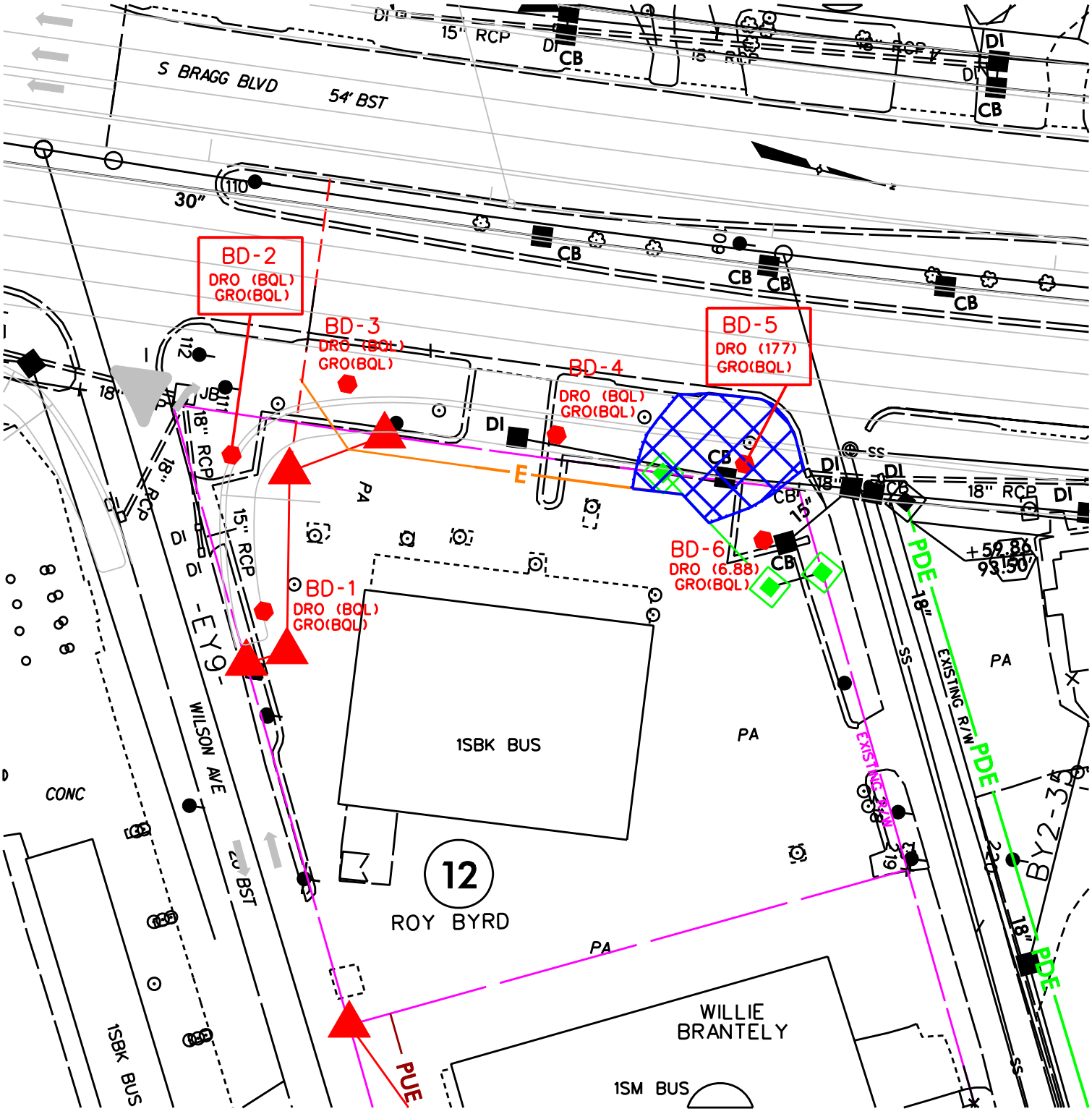

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FIGURE 3

SOIL ANALYTICAL RESULTS MAP

ROY BYRD PROPERTY (PARCEL #12)

SPRING LAKE, CUMBERLAND COUNTY, NORTH CAROLINA

AUGUST 2010

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ATTACHMENT A

Pyramid Project # 2010176

GEOPHYSICAL INVESTIGATION REPORT

EM61 & GPR SURVEYS

ROY BYRD PROPERTY
South Bragg Boulevard
Spring Lake, North Carolina

September 7, 2010

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

Prepared by: _____
Mark J. Denil, P.G.

Reviewed by: _____
Douglas Canavello, P.G.

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AECOM Environment
GEOPHYSICAL INVESTIGATION REPORT
ROY BYRD PROPERTY
Spring Lake, North Carolina

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FIGURES

1.0 INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for AECOM Environmental across the proposed Right-of-Way (ROW) area at the Roy Byrd property located along the easterly side of South Bragg Boulevard between Wilson Avenue and Poe Avenue in Spring Lake, North Carolina. Conducted on July 21 and August 2, 2010, the geophysical investigation was performed as part of the North Carolina Department of Transportation (NCDOT) preliminary site assessment project to determine if unknown, metallic underground storage tanks (USTs) are present beneath the proposed ROW area of the site.

The Roy Byrd property consists of an active Advance Auto Parts store with asphalt-paved parking areas surrounding the store building. The proposed ROW area encompasses the portions of property that lie along Wilson Avenue, South Bragg Boulevard and Poe Avenue. The proposed ROW area (geophysical survey area) has a maximum length and width of 225 feet and 120 feet, respectively.

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 prior to conducting the investigation. Photographs of the geophysical equipment used in this investigation and a portion of the Roy Byrd property 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 (property) using measuring tapes 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 and ground penetrating radar (GPR) surveys. The EM investigation was conducted on July 21, 2010 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. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. All of the EM61 data were digitally collected at approximately 0.8 foot intervals along northerly-southerly, or easterly-westerly, parallel survey lines spaced five feet apart. All of the data were downloaded to a computer and reviewed in the field and office using the Geonics DAT61W and Surfer for Windows Version 7.0 software programs.

GPR surveys were conducted on August 2, 2010 across selected EM61 differential anomalies and around the parked vehicles using a GSSI SIR-2000 unit equipped with a 400 MHz antenna. Data were digitally collected in a continuous mode along X-axis and/or Y-axis survey lines, spaced 2.5 to 5.0 feet apart using a vertical scan of 512 samples, at a rate of 48 scans per second. A 70 MHz high pass filter and an 800 MHz low pass filter were used during data acquisition with the 400 MHz antenna. GPR data were collected down to a maximum depth of approximately 5 feet, based on an estimated two-way travel time of 8 nanoseconds per foot. All of the GPR data were downloaded to a field computer and reviewed in the field and office using Radprint software.

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 drum and UST-size objects and ignore the smaller insignificant metal objects.

Preliminary contour plots of the EM61 bottom coil and EM61 differential results obtained from the survey area were emailed to Mr. Branson during the week of August 9, 2010.

3.0 DISCUSSION OF RESULTS

The linear EM61 bottom coil anomalies intersecting grid coordinates X=20 Y=222, X=25 Y=36, X=25 Y=103, X=35 Y=243, and X=55 Y=130 are probably in response to buried utility lines or conduits. GPR data suggest the EM61 anomalies centered near grid coordinates X=65 Y=40, X=88 Y=47, X=117 Y=60, and X=138 Y=75 are in response to utility line-related objects or debris. GPR data suggest that the high amplitude EM61 anomalies centered near grid coordinates X=50 Y=65, X=50 Y=93 and X=50 Y=172 are in response to the parked vehicles and other known surface objects.

The remaining EM61 anomalies are probably in response to surface objects, utility line-related equipment or miscellaneous metal debris. The geophysical investigation suggests the proposed ROW area at the Roy Byrd property does not contain unknown, metallic USTs.

4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 and GPR data collected across the proposed ROW area at the Roy Byrd property located along the east side of South Bragg Boulevard in Spring Lake, North Carolina, provides the following summary and conclusions:

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

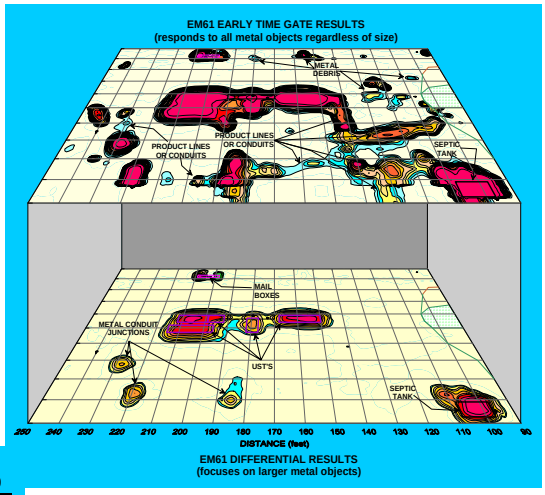
- The linear EM61 bottom coil anomalies intersecting grid coordinates X=20 Y=222, X=25 Y=36, X=25 Y=103, X=35 Y=243, and X=55 Y=130 are probably in response to buried utility lines or conduits.

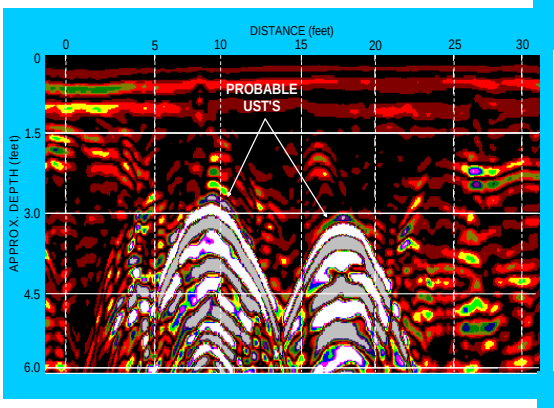
- GPR data suggest that the high amplitude EM61 anomalies centered near grid coordinates X=50 Y=65, X=50 Y=93 and X=50 Y=172 are in response to the parked vehicles and other known surface objects.

- The geophysical investigation suggests the proposed ROW area at the Shuler McMillian Oil Company property does not contain unknown, metallic USTs.

5.0 LIMITATIONS

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





FIGURES

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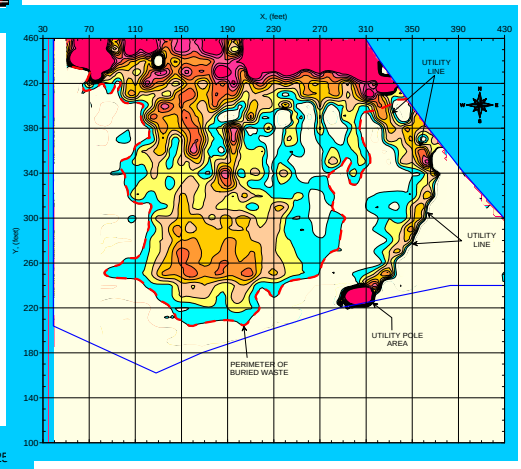
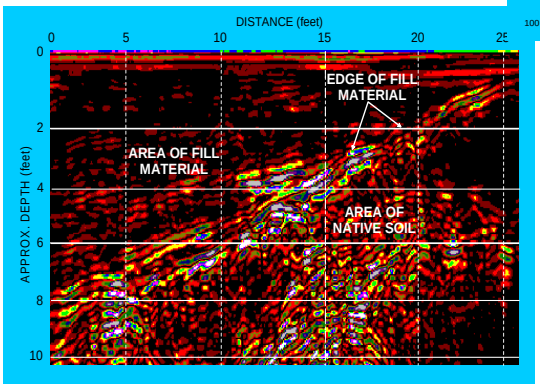
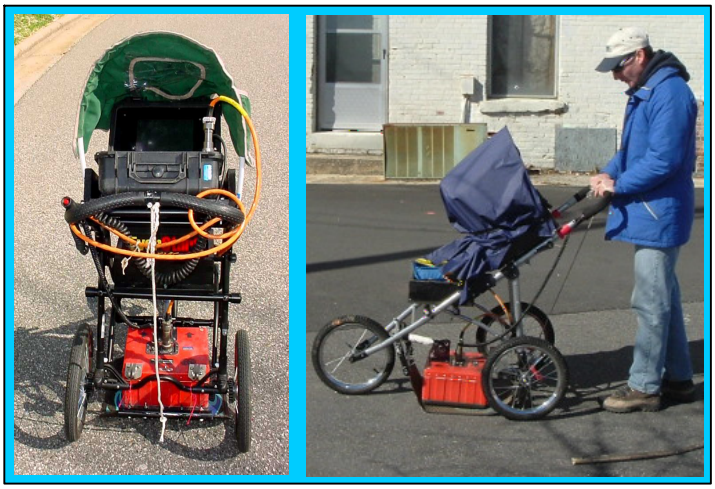
Figures shown on this page are for esthetic purposes only and are not related to the geophysical results discussed in this report.





The photograph shows the Geonics EM61 metal detector that was used to conduct the metal detection survey across the proposed ROW area at the Roy Byrd property on July 21, 2010.

The photographs show the SIR-2000 GPR system equipped with a 400 MHz antenna that were used to conduct the ground penetrating radar investigation at the Roy Byrd property on August 2, 2010.



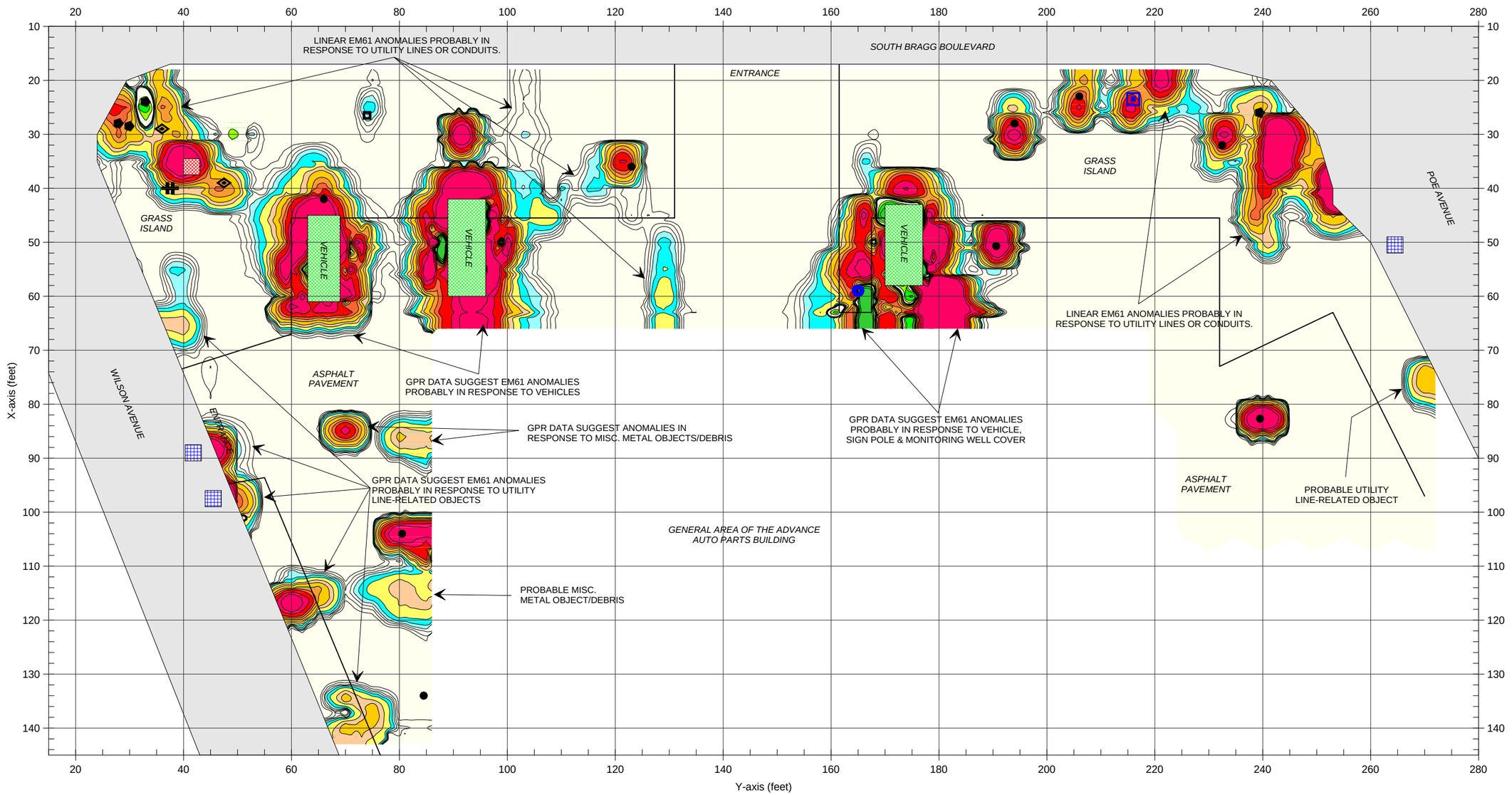
The photograph shows a portion of the Roy Byrd property located along the easterly side of South Bragg Boulevard in Spring Lake, North Carolina. The photograph is viewed in a northerly direction.

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	AECOM ENVIRONMENT	DATE	09/07/10	DRWN	MJD
SITE	ROY BYRD PROPERTY	LAY		CHKD	
CITY	SPRING LAKE	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	JNO	2010-176	FIGURE	

GEOPHYSICAL EQUIPMENT & SITE PHOTOGRAPHS

FIGURE 1



LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING SPACED 5 FEET APART
- VEHICLE
- UTILITY POLE
- MONITORING WELL
- GUY WIRE
- ROAD SIGN
- ELECTRICAL BOX
- WATER METER COVER
- UTILITY LINE BOX
- STORM SEWER GRATE
- METAL SIGN OR SUPPORT POLE

W S N E

APPROXIMATE NORTH

EM61 BOTTOM COIL RESPONSE (MILLIVOLTS)

-5000 -4500 -4000 -3500 -3000 -2500 -2000 -1500 -1000 -500 0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000

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 July 21, 2010 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on August 2, 2010 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

The geophysical investigation suggests the proposed ROW area of the site does not contain metallic USTs.

EM61 METAL DETECTION (BOTTOM COIL RESULTS)

FIGURE 2

GRAPHIC SCALE IN FEET

DRWN	CHKD		FIGURE
MJD			
DATE	LAY	DWG	J.-NO.
09/07/10			2010-176

CLIENT: AECOM ENVIRONMENT

SITE: ROY BYRD PROPERTY

CITY: SPRING LAKE

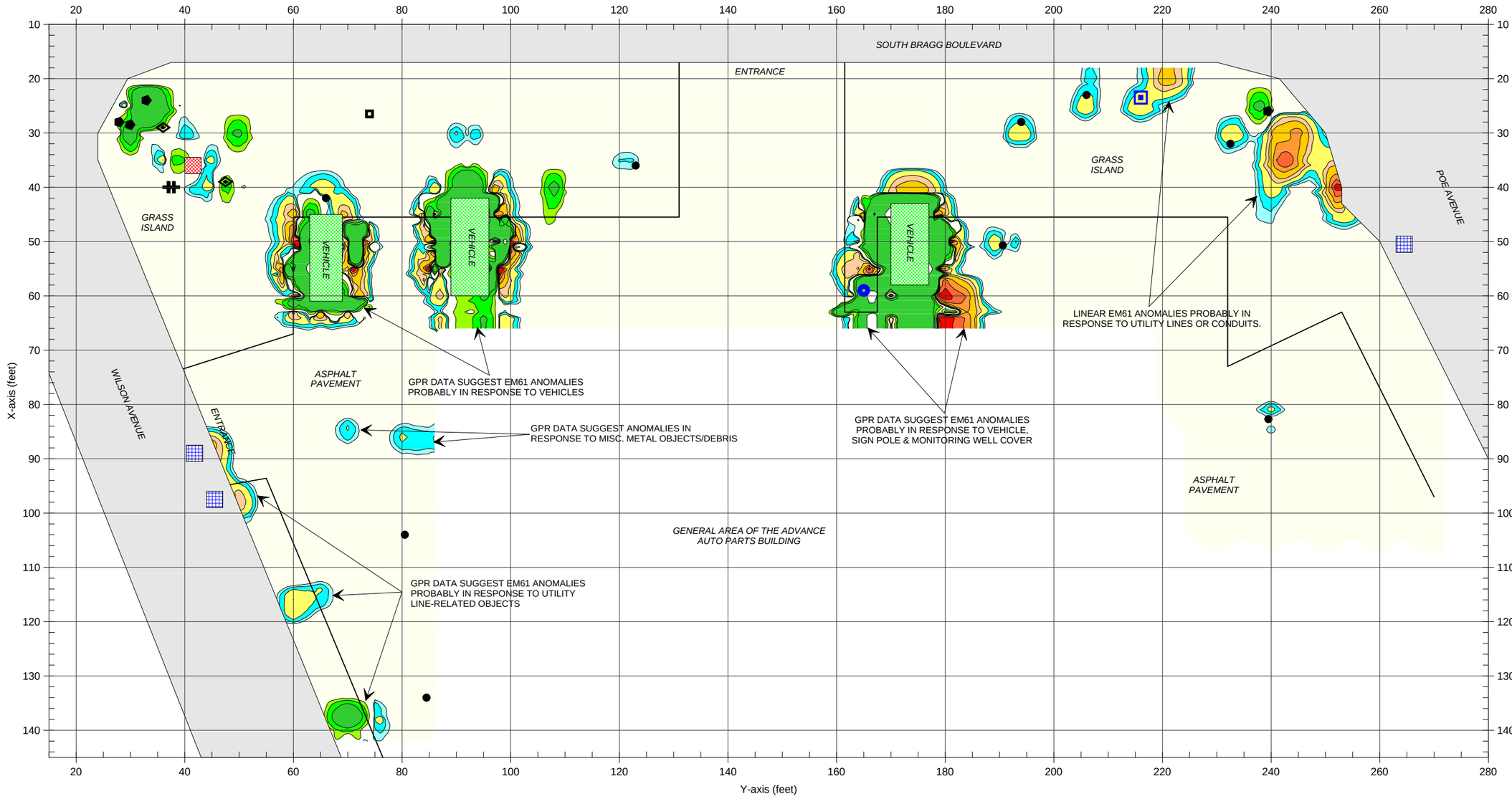
STATE: NORTH CAROLINA

TITLE: GEOPHYSICAL RESULTS

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.

EM61 METAL DETECTION (DIFFERENTIAL RESULTS)

FIGURE 3



LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING SPACED 5 FEET APART
- VEHICLE
- UTILITY POLE
- MONITORING WELL
- GUY WIRE
- ROAD SIGN
- ELECTRICAL BOX
- WATER METER COVER
- UTILITY LINE BOX
- STORM SEWER GRATE
- METAL SIGN OR SUPPORT POLE

APPROXIMATE NORTH

EM61 DIFFERENTIAL RESPONSE (MILLIVOLTS)

-5000 -400 -200 -100 -40 -20 -10 10 20 40 100 200 400 500 750 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 July 21, 2010 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on August 2, 2010 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

The geophysical investigation suggests the proposed ROW area of the site does not contain metallic USTs.

GRAPHIC SCALE IN FEET

DRWN	MJD		FIGURE
CHKD			
DATE	09/07/10		J.NO. 2010-176
LAY			
DWG			

CLIENT: AECOM ENVIRONMENT

SITE: ROY BYRD PROPERTY

CITY: SPRING LAKE

STATE: NORTH CAROLINA

TITLE: GEOPHYSICAL RESULTS

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.

ATTACHMENT B

TEST BORING REPORT

PROJECT ROY BYRD PROPERTY (PARCEL 12)
CLIENT NCDOT
PROJECT NUMBER 60158550 (WBS 36492.1.2)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER BD-1
PAGE 1
ELEVATION
DATE 8/10/2010
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			6.19		2" ASPHALT/GRAVEL, MEDIUM BROWN, LOOSE, COARSE-GRAINED SAND, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			1.26		AS ABOVE, DRY, NO ODOR.
			2.74		AS ABOVE, DRY, NO ODOR.
5.0					
			2.84		MEDIUM BROWN SAND/CLAY, STIFF, DRY, NO ODOR.
			2.85		AS ABOVE, DRY, NO ODOR.
10.0					BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED
15.0					
20.0					

AECOM

TEST BORING REPORT

PROJECT ROY BYRD PROPERTY (PARCEL 12)
CLIENT NCDOT
PROJECT NUMBER 60158550 (WBS 36492.1.2)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER BD-2
PAGE 1
ELEVATION
DATE 8/10/2010
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			2.55		2" ASPHALT/GRAVEL, MEDIUM BROWN, LOOSE, COARSE-GRAINED SAND, DRY, NO ODOR.
			2.75		AS ABOVE, DRY, NO ODOR.
5.0			3.08		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			3.05		AS ABOVE, DRY, NO ODOR.
			3.01		AS ABOVE, DRY, NO ODOR.
10.0					BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED
15.0					
20.0					

AECOM

TEST BORING REPORT

PROJECT ROY BYRD PROPERTY (PARCEL 12)
CLIENT NCDOT
PROJECT NUMBER 60158550 (WBS 36492.1.2)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER BD-3
PAGE 1
ELEVATION
DATE 8/10/2010
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			3.56		2" ASPHALT/GRAVEL, MEDIUM BROWN, LOOSE, COARSE-GRAINED SAND, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			2.81		AS ABOVE, DRY, NO ODOR.
			2.78		AS ABOVE, DRY, NO ODOR.
5.0					
			3.07		AS ABOVE, DRY, NO ODOR.
			1.86		AS ABOVE, DRY, NO ODOR.
10.0					BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED
15.0					
20.0					

AECOM

TEST BORING REPORT

PROJECT ROY BYRD PROPERTY (PARCEL 12)
CLIENT NCDOT
PROJECT NUMBER 60158550 (WBS 36492.1.2)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER BD-4
PAGE 1
ELEVATION
DATE 8/10/2010
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			3.50		2" ASPHALT/GRAVEL, MEDIUM BROWN, LOOSE, COARSE-GRAINED SAND, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			2.99		AS ABOVE, DRY, NO ODOR.
			2.44		AS ABOVE, DRY, NO ODOR.
5.0					
			2.39		AS ABOVE, DRY, NO ODOR.
			2.38		AS ABOVE, DRY, NO ODOR.
10.0					BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED
15.0					
20.0					

AECOM

TEST BORING REPORT

PROJECT ROY BYRD PROPERTY (PARCEL 12)
CLIENT NCDOT
PROJECT NUMBER 60158550 (WBS 36492.1.2)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER BD-5
PAGE 1
ELEVATION
DATE 8/10/2010
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			2.59		2" TOPSOIL, LOOSE SAND FILL OVER ASPHALT, DRY, NO ODOR.
			2.90		MEDIUM BROWN, LOOSE, COARSE-GRAINED SAND, DRY, NO ODOR.
5.0			3.14		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			2.10		AS ABOVE, DRY, NO ODOR.
			1.93		AS ABOVE, DRY, NO ODOR.
10.0					BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED
15.0					
20.0					

AECOM

TEST BORING REPORT

PROJECT ROY BYRD PROPERTY (PARCEL 12)
CLIENT NCDOT
PROJECT NUMBER 60158550 (WBS 36492.1.2)
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER BD-6
PAGE 1
ELEVATION
DATE 8/10/2010
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			3.27		2" ASPHALT/GRAVEL, MEDIUM BROWN, LOOSE, COARSE-GRAINED SAND, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			2.36		AS ABOVE, DRY, NO ODOR.
			1.77		WHITE TO TAN SILT TO FINE-GRAINED SAND, DRY, NO ODOR.
5.0					
			2.87		AS ABOVE, DRY, NO ODOR.
			1.27		AS ABOVE, DRY, NO ODOR.
10.0					BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED
15.0					
20.0					

AECOM

ATTACHMENT C

PHOTO 1 - BORING IN PROPOSED R/W LOOKING EAST

PHOTO 2 - BORING IN PROPOSED R/W LOOKING EAST

PHOTO 3 - BORING WITHIN PROPOSED R/W LOOKING EAST

PHOTO 4 - BORING WITHIN PROPOSED R/W LOOKING NORTHEAST

PHOTO 5 - BORING WITHIN PROPOSED R/W LOOKING NORTHEAST

PHOTO 6 - BORING WITHIN PROPOSED R/W LOOKING EAST

ATTACHMENT D

Mike Branson
AECOM
701 Corporate Center Drive
Suite 475
Raleigh, NC 27607

Report Number: G1037-98

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 Aug 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: BD-1
Client Project ID: NCDOT
Lab Sample ID: G1037-98-1A
Lab Project ID: G1037-98
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 8/10/2010 8:00
Date Received: 8/11/2010
Matrix: Soil
Solids 95.99

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.50	mg/Kg	1	08/18/10 17:17

Surrogate Spike Results

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

Comments:

Batch Information

Analytical Batch: VP081810
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 5.68 g
Final Volume: 5 mL

Analyst: _____

NC Certification #481

Reviewed By: _____
GRO.XLS

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

Client Sample ID: BD-2
Client Project ID: NCDOT
Lab Sample ID: G1037-98-2A
Lab Project ID: G1037-98
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 8/10/2010 8:15
Date Received: 8/11/2010
Matrix: Soil
Solids 90.24

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	4.99	mg/Kg	1	08/18/10 17:44

Surrogate Spike Results

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

Comments:

Batch Information

Analytical Batch: VP081810
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

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

Analyst: _____

NC Certification #481

Reviewed By: _____
GRO.XLS

SGS North America, Inc.

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

Client Sample ID: BD-3
Client Project ID: NCDOT
Lab Sample ID: G1037-98-3A
Lab Project ID: G1037-98
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 8/10/2010 8:30
Date Received: 8/11/2010
Matrix: Soil
Solids 94.16

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.73	mg/Kg	1	08/18/10 18:11

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	105.0	105.0		70-130

Comments:

Batch Information

Analytical Batch: VP081810
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 5.56 g
Final Volume: 5 mL

Analyst: _____

NC Certification #481

Reviewed By: _____
GRO.XLS

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID:	BD-4	Analyzed By:	LMC
Client Project ID:	NCDOT	Date Collected:	8/10/2010 8:45
Lab Sample ID:	G1037-98-4A	Date Received:	8/11/2010
Lab Project ID:	G1037-98	Matrix:	Soil
Report Basis:	Dry Weight	Solids	92.96

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.19	mg/Kg	1	08/18/10 18:38

Surrogate Spike Results

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

Comments:

Batch Information

Analytical Batch:	VP081810	Prep Method:	5035
Analytical Method:	8015	Initial Wt/Vol:	6.22 g
Instrument ID:	GC4	Final Volume:	5 mL
Analyst:	LMC		

Analyst: _____

NC Certification #481

Reviewed By: _____

GRO.XLS

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

Client Sample ID: BD-5
Client Project ID: NCDOT
Lab Sample ID: G1037-98-5A
Lab Project ID: G1037-98
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 8/10/2010 9:00
Date Received: 8/11/2010
Matrix: Soil
Solids 90.80

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.37	mg/Kg	1	08/18/10 19:05

Surrogate Spike Results

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

Comments:

Batch Information

Analytical Batch: VP081810
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 6.15 g
Final Volume: 5 mL

Analyst: _____

NC Certification #481

Reviewed By: _____
GRO.XLS

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID:	BD-6	Analyzed By:	LMC
Client Project ID:	NCDOT	Date Collected:	8/10/2010 9:15
Lab Sample ID:	G1037-98-6A	Date Received:	8/11/2010
Lab Project ID:	G1037-98	Matrix:	Soil
Report Basis:	Dry Weight	Solids	89.54

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.68	mg/Kg	1	08/18/10 19:33

Surrogate Spike Results

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

Comments:

Batch Information

Analytical Batch:	VP081810	Prep Method:	5035
Analytical Method:	8015	Initial Wt/Vol:	5.9 g
Instrument ID:	GC4	Final Volume:	5 mL
Analyst:	LMC		

Analyst: _____

NC Certification #481

Reviewed By: _____

GRO.XLS

SGS North America, Inc.

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

Client Sample ID: BD-1
Client Project ID: NCDOT
Lab Sample ID: G1037-98-1D
Lab Project ID: G1037-98

Date Collected: 8/10/2010 8:00
Date Received: 8/11/2010
Matrix: Soil
Solids 95.99
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.04	mg/Kg	1	08/17/10 16:05

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	33.6	84.1

Comments:

Batch Information

Analytical Batch: EP081710
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17206
Prep Method: 3541
Prep Date: 08/13/10
Initial Prep Wt/Vol: 34.51 G
Prep Final Vol: 10 mL

Analyst: _____

NC Certification #481

Reviewed By: _____

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

Client Sample ID: BD-2
Client Project ID: NCDOT
Lab Sample ID: G1037-98-2D
Lab Project ID: G1037-98

Date Collected: 8/10/2010 8:15
Date Received: 8/11/2010
Matrix: Soil
Solids 90.24
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.48	mg/Kg	1	08/17/10 16:34

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	33.5	83.7

Comments:

Batch Information

Analytical Batch: EP081710
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17206
Prep Method: 3541
Prep Date: 08/13/10
Initial Prep Wt/Vol: 34.19 G
Prep Final Vol: 10 mL

Analyst: _____

NC Certification #481

Reviewed By: _____

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

Client Sample ID: BD-3
Client Project ID: NCDOT
Lab Sample ID: G1037-98-3D
Lab Project ID: G1037-98

Date Collected: 8/10/2010 8:30
Date Received: 8/11/2010
Matrix: Soil
Solids 94.16
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.25	mg/Kg	1	08/17/10 17:02

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	30.9	77.2

Comments:

Batch Information

Analytical Batch: EP081710
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17206
Prep Method: 3541
Prep Date: 08/13/10
Initial Prep Wt/Vol: 33.96 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: BD-4
Client Project ID: NCDOT
Lab Sample ID: G1037-98-4D
Lab Project ID: G1037-98

Date Collected: 8/10/2010 8:45
Date Received: 8/11/2010
Matrix: Soil
Solids 92.96
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.37	mg/Kg	1	08/17/10 17:30

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	28.4	71.1

Comments:

Batch Information

Analytical Batch: EP081710
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17206
Prep Method: 3541
Prep Date: 08/13/10
Initial Prep Wt/Vol: 33.76 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: BD-5
Client Project ID: NCDOT
Lab Sample ID: G1037-98-5D
Lab Project ID: G1037-98

Date Collected: 8/10/2010 9:00
Date Received: 8/11/2010
Matrix: Soil
Solids 90.80
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	**177**	6.65	mg/Kg	1	08/17/10 17:58

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	27.3	68.1

Comments:

Batch Information

Analytical Batch: EP081710
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17206
Prep Method: 3541
Prep Date: 08/13/10
Initial Prep Wt/Vol: 33.13 G
Prep Final Vol: 10 mL

Analyst: FR

NC Certification #481

Reviewed By: DRO.XLS

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

Client Sample ID: BD-6
Client Project ID: NCDOT
Lab Sample ID: G1037-98-6D
Lab Project ID: G1037-98

Date Collected: 8/10/2010 9:15
Date Received: 8/11/2010
Matrix: Soil
Solids 89.54
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	**6.88**	6.44	mg/Kg	1	08/18/10 10:09

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	29.7	74.2

Comments:

Batch Information

Analytical Batch: EP081810
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17206
Prep Method: 3541
Prep Date: 08/13/10
Initial Prep Wt/Vol: 34.66 G
Prep Final Vol: 10 mL

Analyst: _____

NC Certification #481

Reviewed By: _____
DRO.XLS

CHAIN OF CUSTODY RECORD
SGS North America Inc.

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

www.us.sgs.com

100604

(1)
CLIENT: AECOM
CONTACT: Mike Branson PHONE NO:(919) 854 6238
PROJECT: NCDOT SITE/PWSID#: By RD
REPORTS TO: Above
FAX NO.:(919) 854 6259
INVOICE TO: NCDOT QUOTE #:
P.O. NUMBER: WBS# 36492.1.2

SGS Reference: G1037-98

PAGE _____ OF _____

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP G=GRAB)	Preservatives Used: Meoh / —	Analysis Required (3): GRO / DRO	REMARKS
	BD-1	8/10/10	0802	SOIL	3	C	✓	✓	
	BD-2	8/10/10	0815	SOIL	3	C	✓	✓	
	BD-3	8/10/10	0830	SOIL	3	C	✓	✓	
	BD-4	8/10/10	0845	SOIL	3	C	✓	✓	
	BD-5	8/10/10	0900	SOIL	3	C	✓	✓	
	BD-6	8/10/10	0915	SOIL	3	C	✓	✓	

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
M Branson	8/10/10	1730	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date 8/11/10	Time 1000	Received By:

(4)

Shipping Carrier: FedEx
Shipping Ticket No:
Samples Received Cold? (Circle) YES (NO)
Temperature°C: 20° c
Special Deliverable Requirements:
Chain of Custody Seal: (Circle) INTACT BROKEN (ABSENT)
Special Instructions:
Requested Turnaround Time:
☐ RUSH _____ Date Needed ☒ STD

SGS North America Inc.

N.C. Certification #481

❑ 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