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March 20, 2012

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

Reference: Preliminary Site Assessment
Roger and Sheila Byrd Property (Parcel #82)
6971 US 19E
Burnsville, Yancey County, North Carolina
NCDOT Tip No. R-2519B
WBS Element 35609.1.1
AECOM Project No. 60241470

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 January 12, 2012, and the North Carolina Department of Transportation's (NCDOT's) Notice to Proceed dated January 18, 2012. 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 Roger and Sheila Byrd Property (Parcel #82) is located at 6971 US 19E in Burnsville, Yancey County, North Carolina. The property is situated on the north side of US 19E in the northwest quadrant of the intersection of US 19E and Newdale Church Road (Figure 1). Based on information supplied by the NCDOT and the site visit, AECOM understands that the site is a former gas station/convenience store (a vacant furniture store, Byrd's Furniture, at the date of this report) where nine underground storage tanks (USTs) were reportedly operated and subsequently removed. These USTs included two 8,000-gallon gasoline, one 4,000-gallon gasoline, and one 2,000-gallon diesel fuel tank that were removed in 1988; and three 6,000-gallon gasoline, one 6,000-gallon diesel fuel, and one 6,000-gallon kerosene tank that were removed in 2003. The structure on the site consists of a main single-story block building and two additional block buildings. A residence, not part of the property, is located on the eastern part of the site. A former dispenser island is located between the building and the road, but

outside the proposed right-of-way. No USTS are reported to be located on the site, but the former USTs associated with the former dispenser island were located outside, but adjacent to, the proposed right-of-way. An asphalt parking area and driveway are in front of the building. Grassy areas are located at the road in front of the building and on the eastern portion of the property (Figure 2). A large ditch limiting access is located adjacent to US 19E and extends from the asphalt drive to Newdale Church Road. The NCDOT has advised that the proposed right-of-way will not affect the building, former dispenser island, or former UST area. The former dispenser island and associated USTs adjacent to the right-of-way created an area of potential environmental concern and 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 existing 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 Incident Number AS—2982 has been assigned to the property. No detailed information was available except that the incident was closed in 2004. AECOM also examined the UST registration database to obtain UST ownership information. As noted previously, nine USTs were operated and removed from the site under Facility ID 0-005003. The database lists the operator and owner of the tanks as follows:

Owner	Operator
Dale Parsley	Newdale Grocery
111 Harris Heights	6971 US 19E
Spruce Pine, NC 28777	Burnsville, NC 28714

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 parallel to US 19E and the Y-axis oriented approximately perpendicular to US 19E. The grid was located to cover the accessible portions of the 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 limited on the southeast portion of the site where a large ditch was present from the asphalt drive to Newdale Church Road. All other areas of the proposed right-of-way were available and the geophysical survey detected several anomalies. Data interpretation attributed

all of these anomalies to buried utility lines, conduits, or miscellaneous metallic debris. Attachment A presents a detailed report of findings and interpretations.

Site Assessment Activities

On February 23, 2012, AECOM mobilized to the site to conduct a Geoprobe® direct push investigation to evaluate soil conditions within the proposed right-of-way. 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 Pace Analytical in Asheville, 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).

Seven direct-push holes (RD-1 through RD-7) were advanced within the proposed right-of-way to depths ranging from 7 to 15 feet as shown in Figure 2 and Attachment B. Borings RD-1 and RD-2 were located to evaluate the soil conditions at the proposed right-of-way lines closest to the former USTs and dispenser island. Borings RD-3 through RD-7 were placed to assess the soil conditions along the proposed drainage line and droop inlets (Attachment C). The lithology encountered by the direct-push samples generally was consistent throughout the site. About 4 inches of asphalt and gravel or topsoil covered the ground surface. Below the surface to a depth of about 4 to 8 feet was reworked soil and fill consisting of medium brown micaceous silt/sand. Under this material was a medium gray, organic, silt/clay with some sand and occasional rock fragments. Several of the borings encountered a micaceous coarse-grained sand to partially weathered rock. Boring RD-2 encountered refusal at 12 feet in depth and boring RD-7 encountered refusal at 7 feet in depth. None of the remaining borings encountered bedrock.

The “Geologic Map of North Carolina” dated 1985 indicates that the Alligator Formation underlies the site. This formation consists of amphibolites and gneiss. The amphibolite is described as equigranular, massive to well foliated, metamorphosed intrusive and extrusive mafic rock. The gneiss is a finely laminated to thinly layered and locally contains massive gneiss and micaceous granule conglomerate. In addition to these rock types, quartz diorite intrusions are common in the area. The soil observed at the site is consistent with these parent rocks. The borings were terminated at a depths ranging from 7 to 15 feet. Groundwater was observed in borings RD-1 (13 feet), RD-4 (12 feet), RD-5 (10 feet), and RD-6 (10 feet). 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 soil analytical reports, summarized in Table 1 and presented in Attachment D, indicated the presence of petroleum hydrocarbon compounds identified as DRO in two of the seven soil samples collected from the site on February 23, 2012. The DRO concentrations were detected in the samples from borings RD-5 (13 milligrams per kilogram (mg/kg)) and RD-7 (34.9 mg/kg). No GRO concentrations were detected in any of the soil samples. According to the North Carolina Underground Storage Tank Section's "Guidelines for Site Checks, Tank Closure, and Initial Response and Abatement for UST Releases" effective December 1, 2008, 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 petroleum contamination extent or its cleanup. As a result, while TPH concentrations are no longer applicable in confirming 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 concentrations detected in samples RD-5 and RD-7 were present above the 10 mg/kg assumed action level.

The field screening readings in many of the borings were above 100 parts per million (ppm) but no odors were observed. Simultaneous readings with a PID indicated readings generally below 1 ppm. This discrepancy, along with the organic soil, suggests the presence of methane in the soil samples. However, DRO concentrations were detected above the assumed action level in two of the samples. AECOM reviewed the field observations and found that the soil sample containing the DRO showed no staining or odors, buit did exhibit elevated field screening readings. As a result, AECOM contacted the laboratory for clarification. The laboratory's response to the inquiry was to review the chromatograms associated with this sample and advised AECOM that the resulting patterns were not diesel range organics. The resulting patterns may be background interferences, naturally occurring hydrocarbons or heavier hydrocarbons. Based on this information, AECOM discounted the DRO detections in the sample. As a result, no DRO or GRO concentrations were present above applicable action levels.

Conclusions and Recommendations

A Preliminary Site Assessment was conducted to evaluate the Roger and Sheila Byrd Property (Parcel #82) located at 6971 US 19E in Burnsville, Yancey 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. Seven 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 two DRO concentrations of 13 mg/kg and 34.9 mg/kg, and no GRO concentrations were detected. As

noted above, the DRO concentrations have been discounted and, based on the analytical results, no soil concentrations are above applicable action levels.

AECOM appreciates the opportunity to work with the NCDOT on this project. Because laboratory analysis detected no compounds above the applicable action levels in the soil samples, no NCDENR notification is required. 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

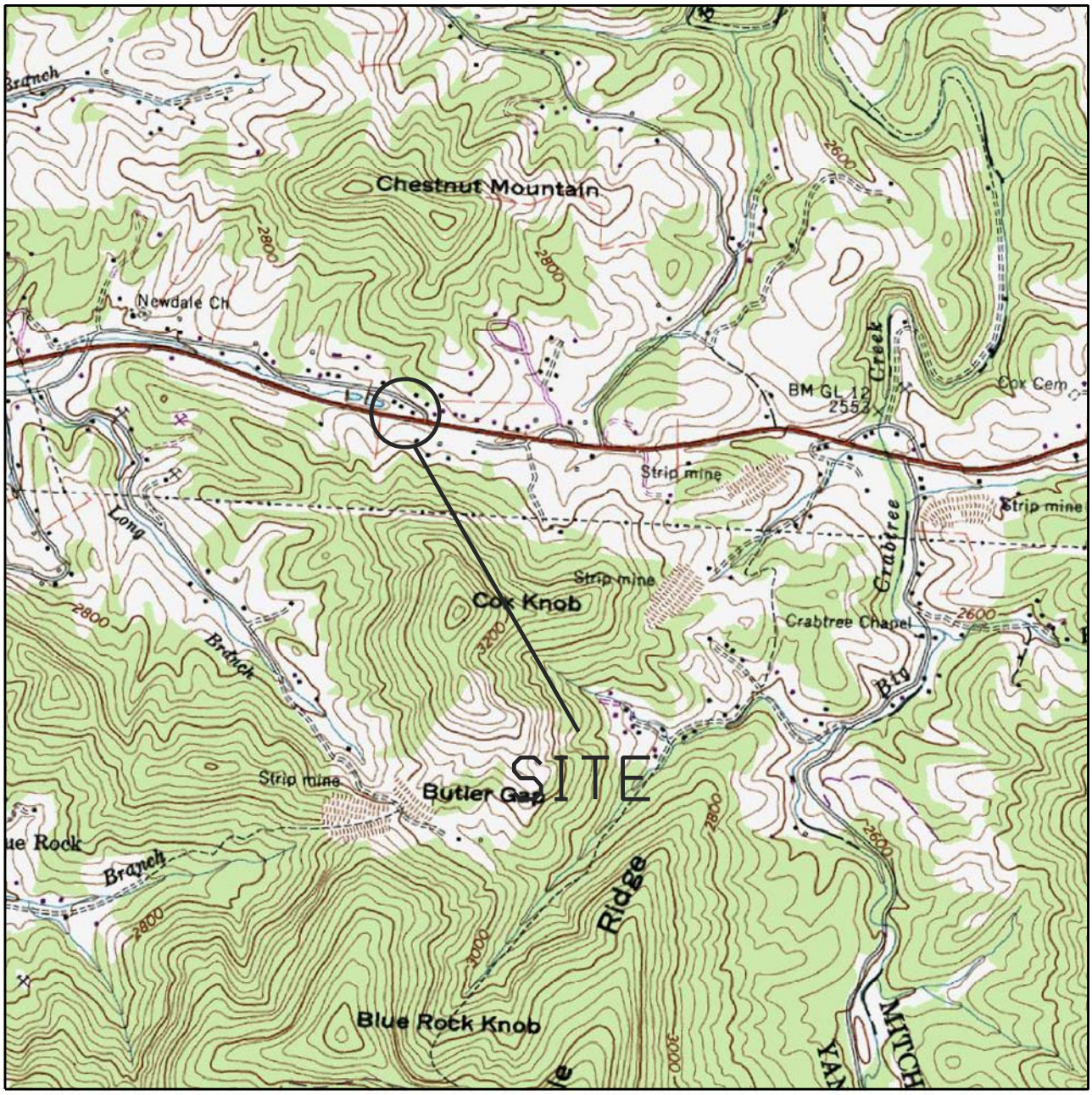
SOIL FIELD SCREENING AND ANALYTICAL RESULTS
ROGER BYRD PROPERTY (PARCEL #82)
BURNSVILLE, YANCEY COUNTY, NORTH CAROLINA
NCDOT PROJECT NO. R-2519B
WBS ELEMENT 35609.1.1
AECOM PROJECT NO. 60241470

LOCATION	DEPTH (ft)	FID READING (ppm)	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)	ASSUMED ACTION LEVEL (mg/kg)
RD-1	0 - 2	1.28			
	2 - 4	2.26			
	4 - 6	172			
	6 - 8	135			
	8 - 10	1235			
	10 - 12	4358	RD-1	DRO (BQL) GRO (BQL)	10 10
	12 - 14	600			
RD-2	0 - 2	27			
	2 - 4	106			
	4 - 6	177			
	6 - 8	242			
	8 - 10	53			
	10 - 12	270	RD-2	DRO (BQL) GRO (BQL)	10 10
RD-3	0 - 2	0.67			
	2 - 4	1.33			
	4 - 6	8.91	RD-3	DRO (BQL) GRO (BQL)	10 10
	6 - 8	6.13			
	8 - 10	1.09			
	10 - 12	2.61			
	12 - 14	1.33			
	14 - 15	0.91			
RD-4	0 - 2	1.11			
	2 - 4	5.25			
	4 - 6	6.86			
	6 - 8	18.55	RD-4	DRO (BQL) GRO (BQL)	10 10
	8 - 10	2.21			
	10 - 12	3.91			
RD-5	0 - 2	23			
	2 - 4	323			
	4 - 6	283			
	6 - 8	521			
	8 - 10	615	RD-5	**DRO (13.0)** GRO (BQL)	10 10
RD-6	0 - 2	0.13			
	2 - 4	5.58			
	4 - 6	51			
	6 - 8	6.41			
	8 - 10	99	RD-6	DRO (BQL) GRO (BQL)	10 10
RD-7	0 - 2	0.77			
	2 - 4	3.91	RD-7	**DRO (34.9)** GRO (BQL)	10 10
	4 - 6	2.93			

Soil samples were collected on February 23, 2012.
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: MICAVILLE, NC

AECOM

FIGURE 1
VICINITY MAP
ROGER AND SHEILA BYRD PROPERTY (PARCEL #82)
BURNSVILLE, YANCEY COUNTY NORTH CAROLINA

FEBRUARY 2012

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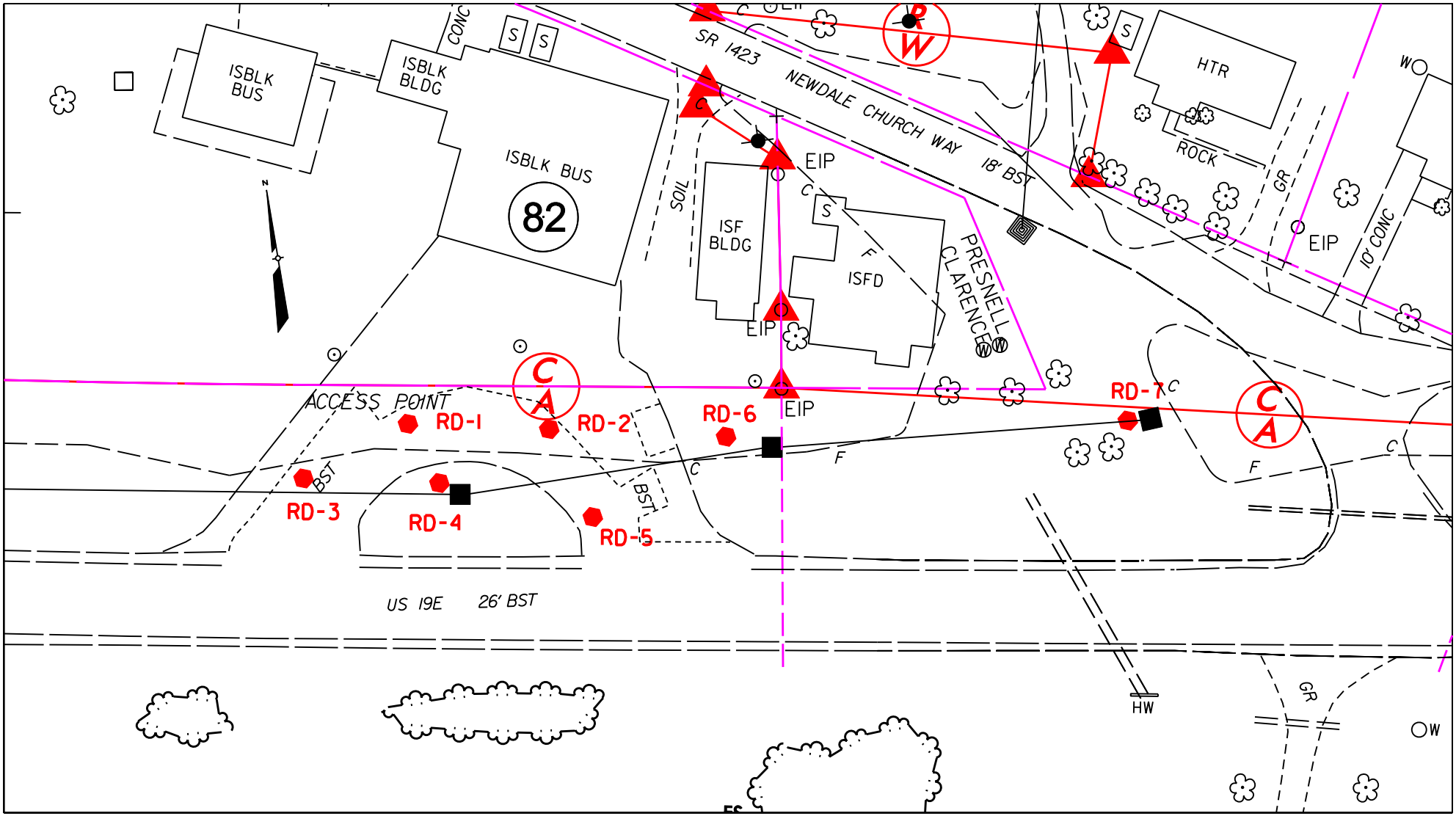

LEGEND

RD-1

SOIL SAMPLE LOCATION AND IDENTIFICATION

0 25 50

GRAPHIC SCALE (FEET)

AECOM

FIGURE 2

SITE MAP

ROGER & SHEILA BYRD PROPERTY (PARCEL #82)

BURNSVILLE, YANCEY COUNTY, NORTH CAROLINA

FEBRUARY 2012

60241470

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ATTACHMENT A

Pyramid Project # 2012035

GEOPHYSICAL INVESTIGATION REPORT

EM61 & GPR SURVEYS

ROGER & SHEILA BYRD PROPERTY - PARCEL 82
6971 US Highway 19 East
Yancey County, North Carolina

February 28, 2012

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
ROGER & SHEILA BYRD PROPERTY - PARCEL 82
6971 US Highway 19 East
Yancey County, North Carolina

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FIGURES

1.0 INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for AECOM Environmental across the accessible portions of the proposed right-of way (ROW) area at the Roger and Sheila Byrd property (Parcel 82) located at 6971 US Highway 19 East in Yancey County, North Carolina. Conducted on February 9 and 15, 2012, 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) were present beneath the proposed ROW area of the site.

The western half of the Roger and Sheila Byrd property consists of an inactive furniture store building which at one time was a gas station facility. A storage building lies east of the furniture store building. The former pump island area is located immediately south of the store building. Flat-lying terrain consisting of a grass island surrounded by asphalt pavement also lie south of the furniture store. The eastern half of the Byrd property consists of a brush and grass-covered residential lot which has a vacant house. A steep, brush-covered ditch is located along the western and southern portion of the residential lot and was excluded from the geophysical survey area. The geophysical survey area at the Byrd property had a maximum length and width of 400 feet and 140 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 the eastern and western portions of the property are shown in **Figure 1**.

2.0 FIELD METHODOLOGY

Prior to conducting the geophysical investigation, a 10-foot by 10-foot survey grid was established across the accessible portions of the geophysical survey area 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 survey was performed on February 9, 2012 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 trending, 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 data were acquired on February 15, 2012 across selected EM61 differential anomalies using a GSSI SIR-2000 unit equipped with a 400 MHz antenna. GPR data were viewed in real time 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 viewed down to a maximum depth of approximately 5 feet, based on an estimated two-way travel time of 8 nanoseconds per foot.

Preliminary geophysical results obtained from the site were emailed to Mr. Branson during the week of February 20, 2012.

3.0 DISCUSSION OF RESULTS

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.

The linear EM61 bottom coil anomalies intersecting grid coordinates X=160 Y=80, X=195 Y=70 and X=355 Y=100 are probably in response to buried lines or conduits. The linear, EM61 bottom coil anomalies intersecting grid coordinates X=320 Y=17 and X=400 Y=34 are probably in response to culverts. The bottom coil anomalies centered near grid coordinates X=195 Y=45 and 305 Y=105 are probably in response to a metal bed frame and a debris pile, respectively.

GPR data suggest the EM61 differential anomalies centered near grid coordinates X=20 Y=25 and X=357 Y=66 are probably in response to buried, miscellaneous objects or debris. GPR data suggest the high amplitude EM61 differential anomaly centered near grid coordinates X=130 Y=90 is probably in response to the pump island and equipment associated with the pump island. The remaining EM61 anomalies are probably in response to known surface objects or to buried, miscellaneous objects/debris.

The geophysical investigation suggests that the surveyed portions of the proposed ROW area at the Byrd property do not contain metallic USTs.

4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 and GPR data collected across the proposed ROW areas at the Roger and Sheila Byrd property located at 6971 US Highway 19 East in Yancey County Mitchell County, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the geophysical survey area.

- The linear EM61 bottom coil anomalies intersecting grid coordinates X=160 Y=80, X=195 Y=70 and X=355 Y=100 are probably in response to buried lines or conduits.

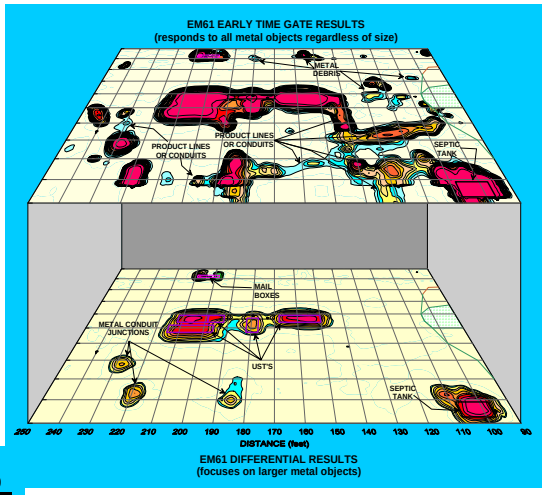
- GPR data suggest the EM61 differential anomalies centered near grid coordinates X=20 Y=25 and X=357 Y=66 are probably in response to buried, miscellaneous objects or debris.

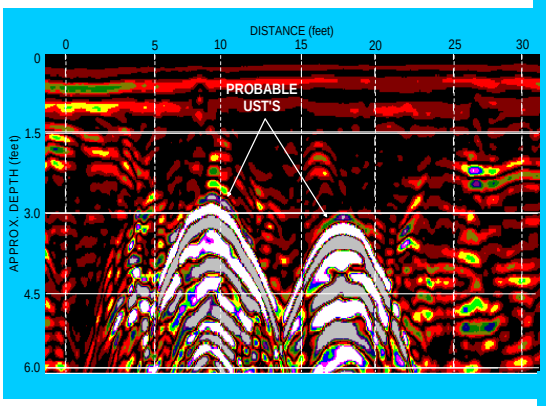
- The remaining EM61 metal detection anomalies are probably in response to known surface objects or to buried, insignificant metal objects or debris.

- The geophysical investigation suggests that the surveyed portions of the proposed ROW area do not contain 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 surveys are non-unique and may not represent actual subsurface conditions. The EM61 and GPR results obtained for this project have not conclusively determined that the proposed ROW area does not contain buried metallic USTs but that none were detected.

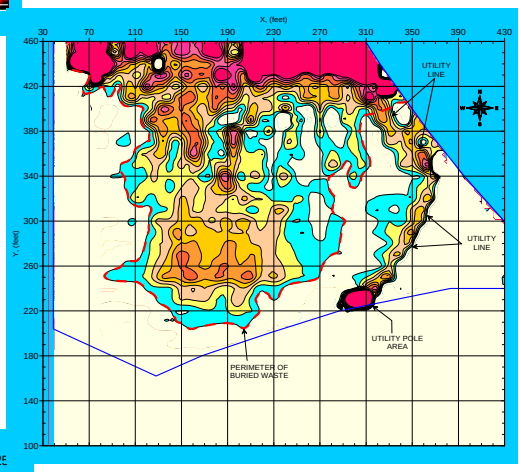


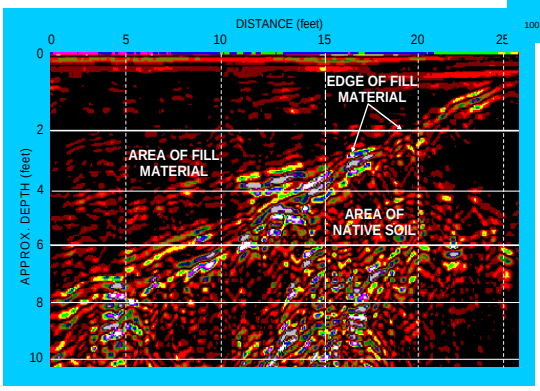


FIGURES

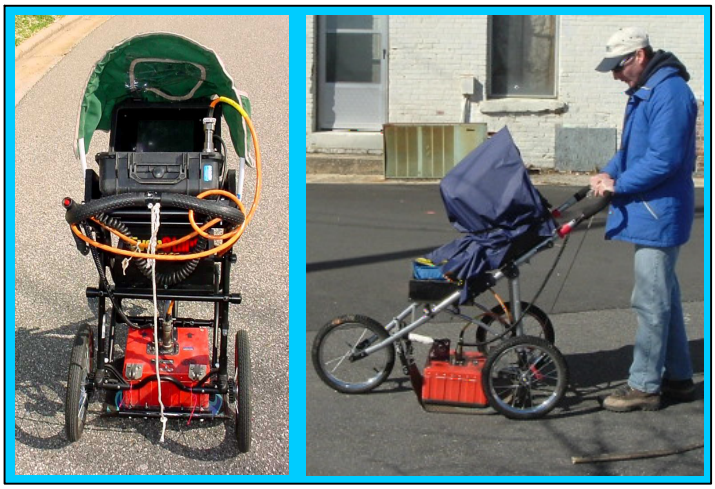
(on the following pages)

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 portions of the proposed ROW area at the Byrd property on February 9, 2012.



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 Byrd property on February 15, 2012.

The photographs show the western portion (top) of the geophysical survey area and the eastern portion (bottom) of the geophysical survey area at the Byrd property located at 6971 US 19E in Yancey County, North Carolina. The photographs are viewed in a westerly direction.

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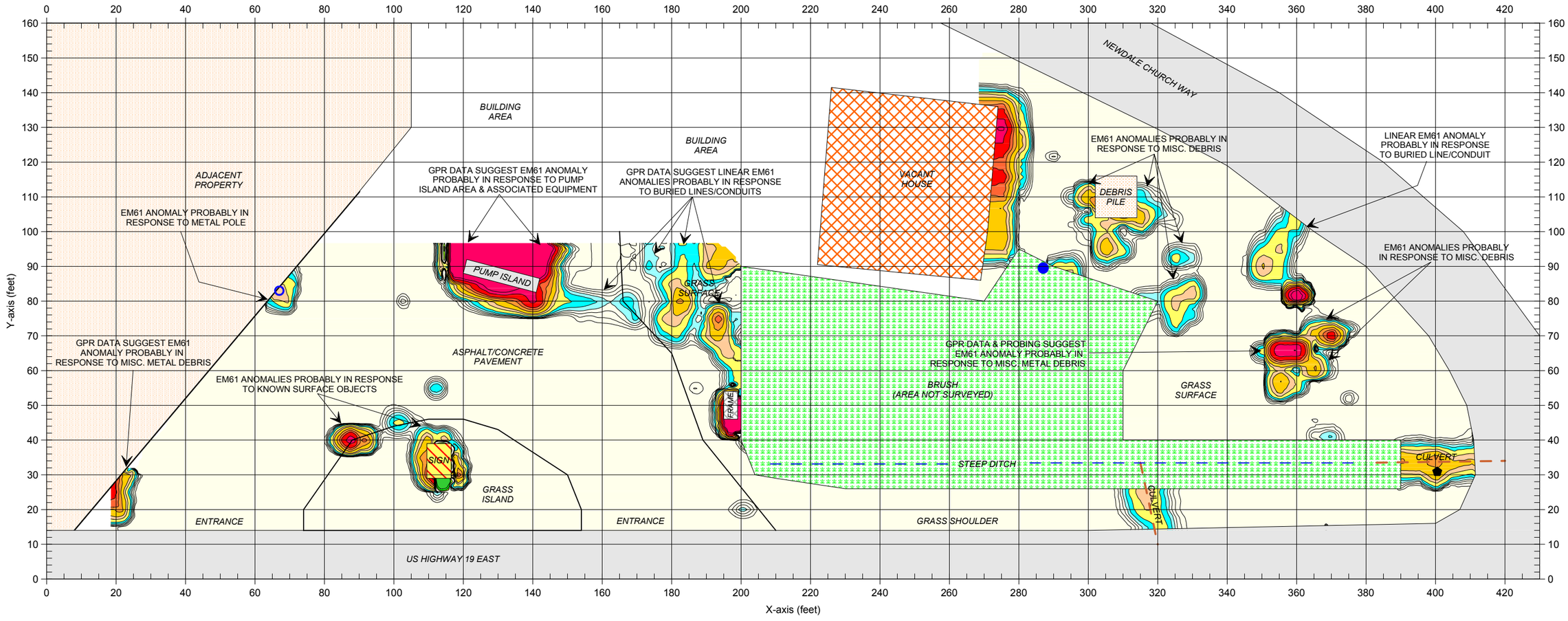
CLIENT	AECOM ENVIRONMENT	DATE	02/28/12	DRWN	MJD
SITE	ROGER & SHEILA BYRD PROPERTY - PARCEL 82	LAY		CHKD	
CITY	YANCEY COUNTY	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	JNO	2012-035	FIGURE	

GEOPHYSICAL EQUIPMENT & SITE PHOTOGRAPHS

FIGURE 1

EM61 METAL DETECTION (BOTTOM COIL RESULTS)

FIGURE 2



LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- BUILDING OR STRUCTURE
- DEBRIS PILE
- PUMP ISLAND
- METAL BED FRAME
- BUSINESS SIGN
- CULVERT
- ROAD SIGN
- METAL SIGN POLE
- WATER WELL

EM61 BOTTOM COIL RESPONSE (MILLIVOLTS)

-5000 -400 -200 -100 -50 -30 -20 -10 -5 0 5 10 20 30 40 50 60 75 100 150 200 300 400 500 750 1000

APPROXIMATE NORTH

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 EM61 survey was conducted on February 9, 2012 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired across selected EM61 anomalies on February 15, 2012 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

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

GRAPHIC SCALE IN FEET

DRWN	CHKD		FIGURE
MJD			
DATE	LAY	DWG	J.-NO.
02/28/12			2012-035

CLIENT: AECOM ENVIRONMENT
SITE: ROGER & SHEILA BYRD PROPERTY - PARCEL 82
CITY: YANCEY COUNTY
STATE: NORTH CAROLINA
TITLE: GEOPHYSICAL RESULTS

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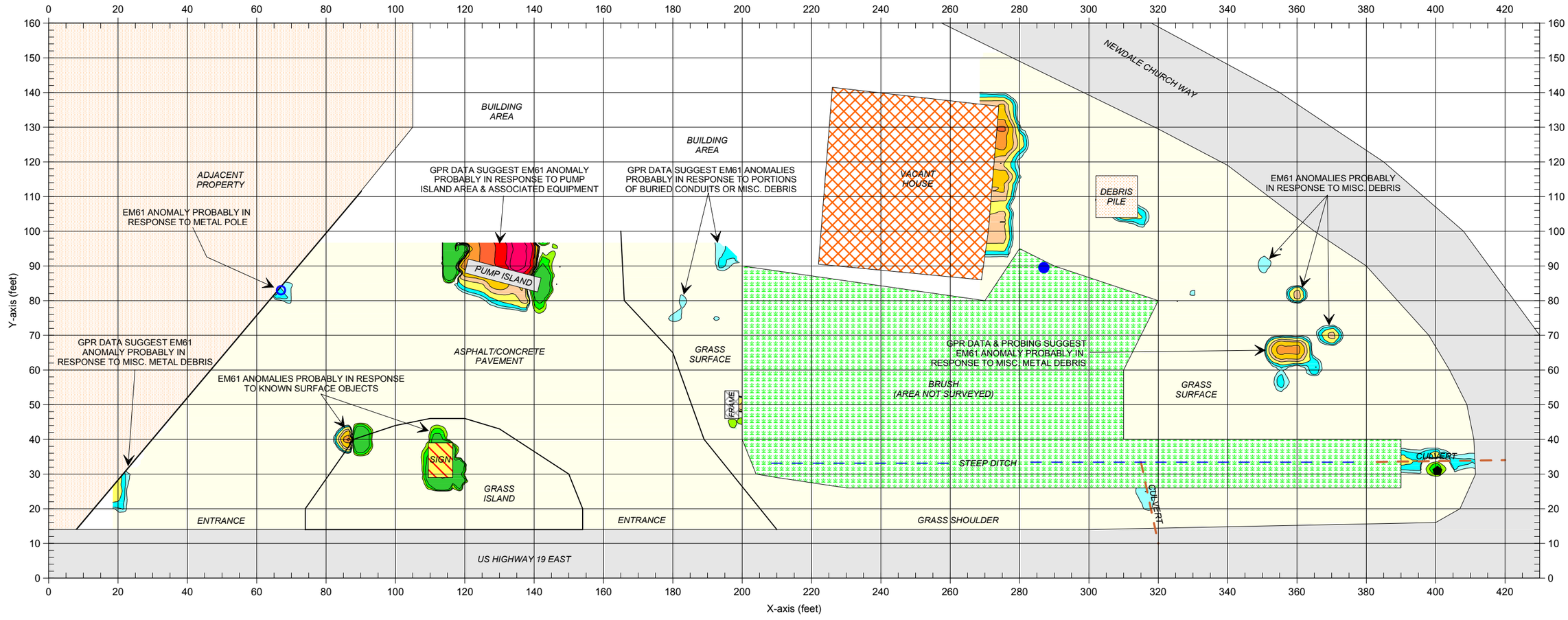
EM61 METAL DETECTION (DIFFERENTIAL RESULTS)

FIGURE 3



LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- BUILDING OR STRUCTURE
- DEBRIS PILE
- PUMP ISLAND
- METAL BED FRAME
- BUSINESS SIGN
- CULVERT
- ROAD SIGN
- METAL SIGN POLE
- WATER WELL

EM61 DIFFERENTIAL RESPONSE (MILLIVOLTS)

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

APPROXIMATE NORTH

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 9, 2012 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired across selected EM61 anomalies on February 15, 2012 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

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

GRAPHIC SCALE IN FEET

DRWN	MJD		FIGURE
CHKD			
DATE	02/28/12	LAY	DWG	J.-NO.	2012-035

CLIENT: AECOM ENVIRONMENT

SITE: ROGER & SHEILA BYRD PROPERTY - PARCEL 82

CITY: YANCEY COUNTY

STATE: NORTH CAROLINA

TITLE: GEOPHYSICAL RESULTS

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ATTACHMENT B

TEST BORING REPORT

PROJECT ROGER BYRD PROPERTY (PARCEL #82)
CLIENT NCDOT R-2519B
PROJECT NUMBER 60241470
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER RD-1
PAGE 1
ELEVATION
DATE 2/23/12
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			1.28		MEDIUM BROWN, MICACEOUS, SILT/SAND, ABUNDANT ROCK FRAGMENTS. DRY, NO ODORS.
			2.26		AS ABOVE. DRY. NO ODORS.
			172		OLIVE GRAY, MICACEOUS, ORGANIC SILT/CLAY/SAND, ABUNDANT ROCK FRAGMENTS, GRAIN SIZE DECREASES DOWN. DRY. NO ODORS.
5.0					
			135		AS ABOVE. DRY. NO ODORS.
			1235		AS ABOVE. DRY. NO ODORS.
10.0			4358		AS ABOVE. DRY. NO ODORS.
			600		AS ABOVE. WET AT 13 FEET. NO ODORS.
					AS ABOVE. WET. NOT SAMPLED.
15.0					BORING TERMINATED AT 15 FEET. GROUNDWATER ENCOUNTERED AT 13 FEET.
20.0					

AECOM

TEST BORING REPORT

PROJECT ROGER BYRD PROPERTY (PARCEL #82)
CLIENT NCDOT R-2519B
PROJECT NUMBER 60241470
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER RD-2
PAGE 1
ELEVATION
DATE 2/23/12
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			27		4" ASPHALT/GRAVEL, MEDIUM BROWN, MICACEOUS, SILT/CLAY/SAND, ABUNDANT ROCK FRAGMENTS. DRY, NO ODORS.
			106		AS ABOVE. DRY. NO ODORS.
			177		DARK BROWN TO MEDIUM GRAY ORGANIC, MICACEOUS, SILT/CLAY/SAND, ABUNDANT ROCK FRAGMENTS. DRY. NO ODORS.
5.0					
			242		AS ABOVE. DRY. NO ODORS.
			53		AS ABOVE. DRY. NO ODORS.
10.0			270		AS ABOVE. DRY. NO ODORS. REFUSAL ON TOP OF TREE STUMP.
					BORING TERMINATED AT 12 FEET. NO GROUNDWATER ENCOUNTERED.
15.0					
20.0					

AECOM

TEST BORING REPORT

PROJECT ROGER BYRD PROPERTY (PARCEL #82)
CLIENT NCDOT R-2519B
PROJECT NUMBER 60241470
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER RD-3
PAGE 1
ELEVATION
DATE 2/23/12
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.67		4" ASPHALT/GRAVEL, MEDIUM BROWN, MICACEOUS, SILT/CLAY/SAND, ABUNDANT ROCK FRAGMENTS. DRY, NO ODORS.
			1.33		AS ABOVE. DRY. NO ODORS.
			8.91		AS ABOVE. DRY. NO ODORS. SUBMIT TO LABORATORY FOR ANALYSIS.
5.0					
			6.13		DARK BROWN TO GRAY ORGANIUC SILT/CLAY WITH SOME SAND AND ROCK FRAGMENTS. DRY. NO ODORS.
			1.09		AS ABOVE. DRY. NO ODORS.
10.0					
			2.61		AS ABOVE. DRY. NO ODORS.
			1.33		BLACK MICACEOUS SILT/SAND. DRY. NO ODORS.
			0.91		AS ABOVE. DRY. NO ODORS.
15.0					
					BORING TERMINATED AT 15 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					

AECOM

TEST BORING REPORT

PROJECT ROGER BYRD PROPERTY (PARCEL #82)
CLIENT NCDOT R-2519B
PROJECT NUMBER 60241470
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER RD-4
PAGE 1
ELEVATION
DATE 2/23/12
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			1.11		2" TOPSOIL, MEDIUM BROWN, MICACEOUS, SILT/SAND, OCCASIONAL ROCK FRAGMENTS. DRY, NO ODORS.
			5.25		AS ABOVE. DRY. NO ODORS.
			6.86		AS ABOVE. DRY. NO ODORS.
5.0					
			18.55		MEDIUM GRAY MICACEOUS SILT/CLAY. DRY. NO ODORS. SUBMIT TO LABORATORY FOR ANALYSIS.
			2.21		AS ABOVE. DRY. NO ODORS.
10.0					
			3.91		AS ABOVE. DRY. NO ODORS.
					AS ABOVE. WET. NOT SAMPLED.
					AS ABOVE. WET. NOT SAMPLED.
15.0					
					BORING TERMINATED AT 15 FEET. GROUNDWATER ENCOUNTERED AT 12 FEET.
20.0					

AECOM

TEST BORING REPORT

PROJECT ROGER BYRD PROPERTY (PARCEL #82)
CLIENT NCDOT R-2519B
PROJECT NUMBER 60241470
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER RD-5
PAGE 1
ELEVATION
DATE 2/23/12
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			23		4" ASPHALT/GRAVEL, MEDIUM BROWN, MICACEOUS, SILTY SAND. DRY, NO ODORS.
			323		AS ABOVE. DRY. NO ODORS.
			283		MEDIUM GRAY MICACEOUS SILT/SAND. DRY. NO ODORS.
5.0					
			521		AS ABOVE. DRY. NO ODORS.
			615		AS ABOVE. WET AT 10 FEET. NO ODORS. SUBMIT TO LABORATORY FOR ANALYSIS.
10.0					AS ABOVE. WET. NOT SAMPLED.
					BORING TERMINATED AT 12 FEET. GROUNDWATER ENCOUNTERED AT 10 FEET.
15.0					
20.0					

AECOM

TEST BORING REPORT

PROJECT ROGER BYRD PROPERTY (PARCEL #82)
CLIENT NCDOT R-2519B
PROJECT NUMBER 60241470
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER RD-6
PAGE 1
ELEVATION
DATE 2/23/12
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.13		2" TOPSOIL, MEDIUM BROWN POORLY SORTED FILL. DRY, NO ODORS.
			5.58		AS ABOVE. DRY. NO ODORS.
			51		AS ABOVE. DRY. NO ODORS.
5.0					
			6.41		AS ABOVE. DRY. NO ODORS.
			99		MEDIUM GRAY CLAYEY SAND, MICACEOUS. WET AT 10 FEET. NO ODORS. SUBMIT TO LABORATORY FOR ANALYSIS.
10.0					AS ABOVE. WET. NOT SAMPLED.
					BORING TERMINATED AT 12 FEET. GROUNDWATER ENCOUNTERED AT 10 FEET.
15.0					
20.0					

AECOM

TEST BORING REPORT

PROJECT ROGER BYRD PROPERTY (PARCEL #82)
CLIENT NCDOT R-2519B
PROJECT NUMBER 60241470
CONTRACTOR REGIONAL PROBING
EQUIPMENT GEOPROBE

BORING NUMBER RD-7
PAGE 1
ELEVATION
DATE 2/23/12
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.77		2" TOPSOIL, MEDIUM TO DARK BROWN SILTY COARSE-GRAINED SAND, OCCASIONAL ROOTING/WOODY DEBRIS. DRY. NO ODORS.
			3.91		AS ABOVE. DRY. NO ODORS. SUBMIT TO LABORATORY FOR ANALYSIS.
			2.93		WHITE TO TAN COARSE-GRAINED SAND WITH SOME SILT. DRY. NO ODORS.
5.0					
					AS ABOVE. DRY. NO ODORS. REFUSAL AT 7 FEET.
					REFUSAL AT 7 FEET. NO GROUNDWATER ENCOUNTERED.
10.0					
15.0					
20.0					

AECOM

ATTACHMENT C

PHOTO 1- BORING WITHIN RIGHT-OF-WAY LOOKING NORTH

PHOTO 2 - BORING WITHIN RIGHT-OF-WAY LOOKING NORTH

PHOTO 3 - BORING WITHIN RIGHT-OF-WAY LOOKING NORTH

PHOTO 4 - BORING WITHIN RIGHT-OF-WAY LOOKING NORTH

PHOTO 5 - BORING WITHIN RIGHT-OF-WAY LOOKING NORTHWEST

PHOTO 6 - BORING WITHIN RIGHT-OF-WAY LOOKING NORTH

PHOTO 7 - BORING WITHIN RIGHT-OF-WAY LOOKING SOUTHEAST

ATTACHMENT D

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March 05, 2012

Chemical Testing Engineer
NCDOT
Materials & Tests Unit
1801 Blue Ridge Road
Raleigh, NC 27607

RE: Project: Byrd WBS#35609.1.1
Pace Project No.: 92112775

Dear Chemical Engineer:
Enclosed are the analytical results for sample(s) received by the laboratory on February 23, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lorri Patton

Lorri Patton

lorri.patton@pacelabs.com
Project Manager

Enclosures

cc: Mr. Mike Branson, AECOM

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CERTIFICATIONS

Project: Byrd WBS#35609.1.1
Pace Project No.: 92112775

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
South Carolina Drinking Water Cert. #: 99006003
Virginia Drinking Water Certification #: 00213
Connecticut Certification #: PH-0104
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Louisiana DHH Drinking Water # LA 100031
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460144

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SAMPLE ANALYTE COUNT

Project: Byrd WBS#35609.1.1
Pace Project No.: 92112775

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92112775001	**RD-1**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92112775002	**RD-2**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92112775003	**RD-3**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92112775004	**RD-4**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92112775005	**RD-5**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92112775006	**RD-6**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92112775007	**RD-7**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C

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ANALYTICAL RESULTS

Project: Byrd WBS#35609.1.1
Pace Project No.: 92112775

Sample: RD-1 **Lab ID: 92112775001** Collected: 02/23/12 07:50 Received: 02/23/12 11:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546							
Diesel Components	ND	mg/kg	6.6	1	02/25/12 10:42	02/27/12 20:44	68334-30-5	
Surrogates								
n-Pentacosane (S)	80	%	41-119	1	02/25/12 10:42	02/27/12 20:44	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	ND	mg/kg	5.7	1	03/01/12 15:34	03/01/12 22:48	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	89	%	70-167	1	03/01/12 15:34	03/01/12 22:48	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**24.1**	%	0.10	1		02/24/12 14:52		

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ANALYTICAL RESULTS

Project: Byrd WBS#35609.1.1
Pace Project No.: 92112775

Sample: RD-2 **Lab ID: 92112775002** Collected: 02/23/12 08:10 Received: 02/23/12 11:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546							
Diesel Components	ND	mg/kg	6.8	1	02/25/12 10:42	02/27/12 21:13	68334-30-5	
Surrogates								
n-Pentacosane (S)	87	%	41-119	1	02/25/12 10:42	02/27/12 21:13	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	ND	mg/kg	6.4	1	03/01/12 15:34	03/01/12 23:12	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	85	%	70-167	1	03/01/12 15:34	03/01/12 23:12	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**26.2**	%	0.10	1		02/24/12 14:52		

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ANALYTICAL RESULTS

Project: Byrd WBS#35609.1.1
Pace Project No.: 92112775

Sample: RD-3 **Lab ID: 92112775003** Collected: 02/23/12 08:30 Received: 02/23/12 11:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546							
Diesel Components	ND	mg/kg	6.1	1	02/25/12 10:42	02/27/12 21:13	68334-30-5	
Surrogates								
n-Pentacosane (S)	78	%	41-119	1	02/25/12 10:42	02/27/12 21:13	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	ND	mg/kg	6.4	1	03/01/12 15:34	03/01/12 23:36	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	92	%	70-167	1	03/01/12 15:34	03/01/12 23:36	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**19.3**	%	0.10	1		02/24/12 14:53		

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ANALYTICAL RESULTS

Project: Byrd WBS#35609.1.1
Pace Project No.: 92112775

Sample: RD-4 **Lab ID: 92112775004** Collected: 02/23/12 08:50 Received: 02/23/12 11:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546							
Diesel Components	ND	mg/kg	6.5	1	02/25/12 10:42	02/27/12 21:43	68334-30-5	
Surrogates								
n-Pentacosane (S)	81	%	41-119	1	02/25/12 10:42	02/27/12 21:43	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	ND	mg/kg	6.2	1	03/01/12 15:34	03/02/12 00:01	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	85	%	70-167	1	03/01/12 15:34	03/02/12 00:01	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**23.1**	%	0.10	1		02/24/12 14:53		

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ANALYTICAL RESULTS

Project: Byrd WBS#35609.1.1
Pace Project No.: 92112775

Sample: RD-5 **Lab ID: 92112775005** Collected: 02/23/12 09:15 Received: 02/23/12 11:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546							
Diesel Components	**13.0**	mg/kg	6.2	1	02/25/12 10:42	02/27/12 21:43	68334-30-5	
Surrogates								
n-Pentacosane (S)	82	%	41-119	1	02/25/12 10:42	02/27/12 21:43	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	ND	mg/kg	5.9	1	03/01/12 15:34	03/02/12 00:25	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	87	%	70-167	1	03/01/12 15:34	03/02/12 00:25	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**20.3**	%	0.10	1		02/24/12 14:53		

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ANALYTICAL RESULTS

Project: Byrd WBS#35609.1.1
Pace Project No.: 92112775

Sample: RD-6 **Lab ID: 92112775006** Collected: 02/23/12 09:30 Received: 02/23/12 11:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546							
Diesel Components	ND	mg/kg	6.5	1	02/25/12 10:42	02/27/12 22:13	68334-30-5	
Surrogates								
n-Pentacosane (S)	84	%	41-119	1	02/25/12 10:42	02/27/12 22:13	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	ND	mg/kg	6.1	1	03/01/12 15:34	03/02/12 00:49	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	90	%	70-167	1	03/01/12 15:34	03/02/12 00:49	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**23.3**	%	0.10	1		02/24/12 14:53		

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ANALYTICAL RESULTS

Project: Byrd WBS#35609.1.1
Pace Project No.: 92112775

Sample: RD-7 **Lab ID: 92112775007** Collected: 02/23/12 10:00 Received: 02/23/12 11:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546							
Diesel Components	**34.9**	mg/kg	32.7	1	02/25/12 10:42	02/27/12 22:42	68334-30-5	P3
Surrogates								
n-Pentacosane (S)	98	%	41-119	1	02/25/12 10:42	02/27/12 22:42	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	ND	mg/kg	6.0	1	03/01/12 15:34	03/02/12 01:14	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	89	%	70-167	1	03/01/12 15:34	03/02/12 01:14	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**23.7**	%	0.10	1		02/24/12 14:53		

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QUALITY CONTROL DATA

Project: Byrd WBS#35609.1.1
Pace Project No.: 92112775

QC Batch: GCV/5784 Analysis Method: EPA 8015 Modified
QC Batch Method: EPA 5035A/5030B Analysis Description: Gasoline Range Organics
Associated Lab Samples: 92112775001, 92112775002, 92112775003, 92112775004, 92112775005, 92112775006, 92112775007

METHOD BLANK: 729634 Matrix: Solid
Associated Lab Samples: 92112775001, 92112775002, 92112775003, 92112775004, 92112775005, 92112775006, 92112775007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	5.9	03/01/12 17:31	
4-Bromofluorobenzene (S)	%	86	70-167	03/01/12 17:31	

LABORATORY CONTROL SAMPLE: 729635

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	24.8	24.9	101	70-165	
4-Bromofluorobenzene (S)	%			97	70-167	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 729636 729637

Parameter	Units	92112772006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Gasoline Range Organics	mg/kg	ND	25.8	25.8	32.3	28.6	121	107	47-187	12	
4-Bromofluorobenzene (S)	%						94	92	70-167		

Pace Analytical Services, Inc.
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(828)254-7176

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Byrd WBS#35609.1.1
Pace Project No.: 92112775

QC Batch: OEXT/16549 Analysis Method: EPA 8015 Modified
QC Batch Method: EPA 3546 Analysis Description: 8015 Solid GCSV
Associated Lab Samples: 92112775001, 92112775002, 92112775003, 92112775004, 92112775005, 92112775006, 92112775007

METHOD BLANK: 727511 Matrix: Solid
Associated Lab Samples: 92112775001, 92112775002, 92112775003, 92112775004, 92112775005, 92112775006, 92112775007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Components	mg/kg	ND	5.0	02/27/12 17:17	
n-Pentacosane (S)	%	81	41-119	02/27/12 17:17	

LABORATORY CONTROL SAMPLE: 727512

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Components	mg/kg	66.7	46.5	70	49-113	
n-Pentacosane (S)	%			76	41-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 727513 727514

Parameter	Units	92112775006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Diesel Components	mg/kg	ND	87	86.3	60.9	64.6	68	73	10-146	6	
n-Pentacosane (S)	%						78	87	41-119		

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QUALITY CONTROL DATA

Project: Byrd WBS#35609.1.1
Pace Project No.: 92112775

QC Batch: PMST/4519 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92112775001, 92112775002, 92112775003, 92112775004, 92112775005, 92112775006, 92112775007

SAMPLE DUPLICATE: 726840

Parameter	Units	92112773001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	43.4	42.4	2	

SAMPLE DUPLICATE: 726841

Parameter	Units	92112777007 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	16.6	15.3	8	

QUALIFIERS

Project: Byrd WBS#35609.1.1
Pace Project No.: 92112775

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

P3 Sample extract could not be concentrated to the routine final volume, resulting in elevated reporting limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Byrd WBS#35609.1.1
Pace Project No.: 92112775

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92112775001	**RD-1**	EPA 3546	OEXT/16549	EPA 8015 Modified	GCSV/11454
92112775002	**RD-2**	EPA 3546	OEXT/16549	EPA 8015 Modified	GCSV/11454
92112775003	**RD-3**	EPA 3546	OEXT/16549	EPA 8015 Modified	GCSV/11454
92112775004	**RD-4**	EPA 3546	OEXT/16549	EPA 8015 Modified	GCSV/11454
92112775005	**RD-5**	EPA 3546	OEXT/16549	EPA 8015 Modified	GCSV/11454
92112775006	**RD-6**	EPA 3546	OEXT/16549	EPA 8015 Modified	GCSV/11454
92112775007	**RD-7**	EPA 3546	OEXT/16549	EPA 8015 Modified	GCSV/11454
92112775001	**RD-1**	EPA 5035A/5030B	GCV/5784	EPA 8015 Modified	GCV/5785
92112775002	**RD-2**	EPA 5035A/5030B	GCV/5784	EPA 8015 Modified	GCV/5785
92112775003	**RD-3**	EPA 5035A/5030B	GCV/5784	EPA 8015 Modified	GCV/5785
92112775004	**RD-4**	EPA 5035A/5030B	GCV/5784	EPA 8015 Modified	GCV/5785
92112775005	**RD-5**	EPA 5035A/5030B	GCV/5784	EPA 8015 Modified	GCV/5785
92112775006	**RD-6**	EPA 5035A/5030B	GCV/5784	EPA 8015 Modified	GCV/5785
92112775007	**RD-7**	EPA 5035A/5030B	GCV/5784	EPA 8015 Modified	GCV/5785
92112775001	**RD-1**	ASTM D2974-87	PMST/4519		
92112775002	**RD-2**	ASTM D2974-87	PMST/4519		
92112775003	**RD-3**	ASTM D2974-87	PMST/4519		
92112775004	**RD-4**	ASTM D2974-87	PMST/4519		
92112775005	**RD-5**	ASTM D2974-87	PMST/4519		
92112775006	**RD-6**	ASTM D2974-87	PMST/4519		
92112775007	**RD-7**	ASTM D2974-87	PMST/4519		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

1551771

Section A Required Client Information:

Company: AECOM
Address: 701 Corporate Center Dr
Raleigh, NC 27607
Email To: Mike.Branson@Aecom.com
Phone: 9198546238 Fax: 9198546259
Requested Due Date/TAT: 2 week

Section B Required Project Information:

Report To: Mike Branson
Copy To: NCDOT
Purchase Order No.: WBS 35609.1.1
Project Name: Byrd
Project Number: 60241470

Section C Invoice Information:

Attention:
Company Name: NCDOT
Address:
Pace Quote Reference: Blanket PO
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☒ UST ☐ RCRA ☐ OTHER

Site Location STATE: NC

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: DRO	GRO	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	RD-1	SL	G	2/23/12	0750				4	2						2		✓	✓		92112775-001
2	RD-2	SL	G	2/23/12	0810				4	2						2		✓	✓		-002
3	RD-3	SL	G	2/23/12	0830				4	2						2		✓	✓		-003
4	RD-4	SL	G	2/23/12	0850				4	2						2		✓	✓		-004
5	RD-5	SL	G	2/23/12	0915				4	2						2		✓	✓		-005
6	RD-6	SL	G	2/23/12	0930				4	2						2		✓	✓		-006
7	RD-7	SL	G	2/23/12	1000				4	2						2		✓	✓		-007
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	M Branson / AECOM	2/23/12	1100		2-23-12	1100				
		2-23-12	1115		2/23/12	11:55	5.6	X	U	X

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: M Branson
SIGNATURE of SAMPLER: M Branson
DATE Signed (MM/DD/YY):

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: October 19, 2011 Page 1 of 2
	Document No.: F-ASV-CS-003-rev.07	Issuing Authorit Pace Asheville Qual

Client Name: AECOM Project # 9211 5

Where Received: ☐ Huntersville ☑ Asheville ☐ Eden

Courier (Circle): Fed Ex UPS USPS Client Commercial ~~Pace~~ Other ____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☑ no

Packing Material: ☑ ~~Bubble Wrap~~ ☑ ~~Bubble Bags~~ ☐ None ☐ Other ____

Circle Thermometer Used: ~~IR Gun#2 -80344039~~ **Type of Ice:** (Wet) Blue None ☑ ~~Samples on ice, coolir~~ ~~as begun~~

IR Gun Back Up- 111565135

Temp Correction Factor: Add / ~~Subtract~~ 0.2 C

Corrected Cooler Temp.: 5.8 C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C

Comments:

Optional	
Proj. Due D	
Proj. Nam	

Date and Initial contents: [illegible] **Examining** 2/3/12

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☑Yes ☐No ☐N/A	7. 2 week
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: SL		
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	Initial when completed
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☑No	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): ____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: ____ Date/Time: ____

Comments/ Resolution: ____

SCURF Review: LP Date: 2/24/12 **SRF Review:** LP Date: 2/24/12

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)