

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
Lisa Darden Property
102 N. 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 Lisa Darden Property is located at 102 N. 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 Spring Avenue (Figure 1). Based on information supplied by the NCDOT and the site visit, AECOM understands that the site is a former gas station where underground storage tanks (USTs) exist. The structures on the site include a block building with an asphalt parking lot. The outline of a pump island is in front of the building and at least two fill ports were observed on its north side (Figure 2). The NCDOT has advised that the proposed right-of-way/easement will affect the parking lot and the former pump island as well as the potential UST area (Figure 2). Because of the location of the possible tanks and pump islands, 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 no Incident Number has been assigned to the property. AECOM also examined the UST registration database to obtain UST ownership information. No USTs are registered to the site address.

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. A survey grid was laid out 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 was located to cover the accessible portions of the proposed right-of-way. The survey lines were spaced 5 feet apart. Magnetic data was collected continuously along each survey line with a data logger. After collection, the data was reviewed in the field with graphical computer software. Following the electromagnetic survey, a ground penetrating radar (GPR) survey was conducted where needed to further evaluate any significant metallic anomalies.

Access was available to all areas of the right-of-way and several anomalies were detected with the geophysical survey. Most of these anomalies were attributed to buried utility lines or conduits. However, a large anomaly on the north side of the building, coinciding with the UST area, suggested that as many as six probable tanks were associated with the anomaly. A detailed report of findings and interpretations is presented in Attachment A.

Site Assessment Activities

On August 11, 2010, AECOM mobilized to the site to conduct a Geoprobe[®] direct push investigation to evaluate soil conditions within the proposed right-of-way/easement. Continuous sampling using direct push technology (Regional Probing of Wake Forest, North Carolina) resulted in generally good recovery of soil samples from the direct-push holes. Soil samples were collected and contained in 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).

Five direct-push holes (LD-1 through LD-5) were advanced within the right-of-way to a depth of 10 to 12 feet as shown in Figure 2 and Attachment B. Borings LD-1 and LD-2 were located to evaluate the conditions at the apparent former pump island in front of the building and borings LD-3 through LD-5 were placed to assess the soil conditions around the probable USTs (Attachment C). The USTs were located at the property boundary and, as such, an additional boring from an adjacent site (JD-1 in Attachment C) was used to further evaluate conditions around the tanks. The lithology encountered by the direct-push samples generally was consistent throughout the site. The ground surface was covered with about 2 to 3 inches of asphalt or concrete. Below the surface to a depth of 6 to 8 feet was a medium brown, loose, coarse-grained sand. Underlying this material was a medium brown sand/clay. No bedrock was encountered in any of the borings. The "Geologic Map of North Carolina" dated 1985 indicates that the site is underlain by the Middendorf and Cape Fear Formations, each of which consists predominantly of sand and mudstone. The soil observed at the site is consistent with this parent rock. The borings at the former pump island were terminated at a depth of 10 feet and the borings surrounding the probable USTs were terminated at a depth of 12 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

Based on the laboratory reports, summarized in Table 1 and presented in Attachment D, no petroleum hydrocarbon compounds identified as DRO and/or GRO were detected in any of the seven soil samples collected from the site on August 11, 2010. Consequently, no concentrations are present above applicable action levels.

Mr. Ethan Caldwell
September 14, 2010
Page 4

Conclusions and Recommendations

A Preliminary Site Assessment was conducted to evaluate the Lisa Darden Property located at 102 N. Bragg Boulevard in Spring Lake, Cumberland County, North Carolina. A geophysical investigation was conducted to evaluate the site for unknown USTs. The investigation suggested that as many as six probable USTs were present at the site. Five 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 no DRO and/or GRO concentrations were present above the action level in any of the four soil samples analyzed.

AECOM appreciates the opportunity to work with the NCDOT on this project. Because no compounds were detected above the method detection limits in the soil samples, no notification is required to the NCDENR. If you have any questions, please contact me at (919) 854-6238.

Sincerely,



Michael W. Branson, P.G.
Project Manager



Attachments

c: Project File

TABLE 1
SOIL FIELD SCREENING AND ANALYTICAL RESULTS
LISA DARDEN PROPERTY
SPRING LAKE, CUMBERLAND COUNTY, NORTH CAROLINA
NCDOT PROJECT NO. U-4444B
WBS ELEMENT 36492.1.2
AECOM PROJECT NO. 60158550

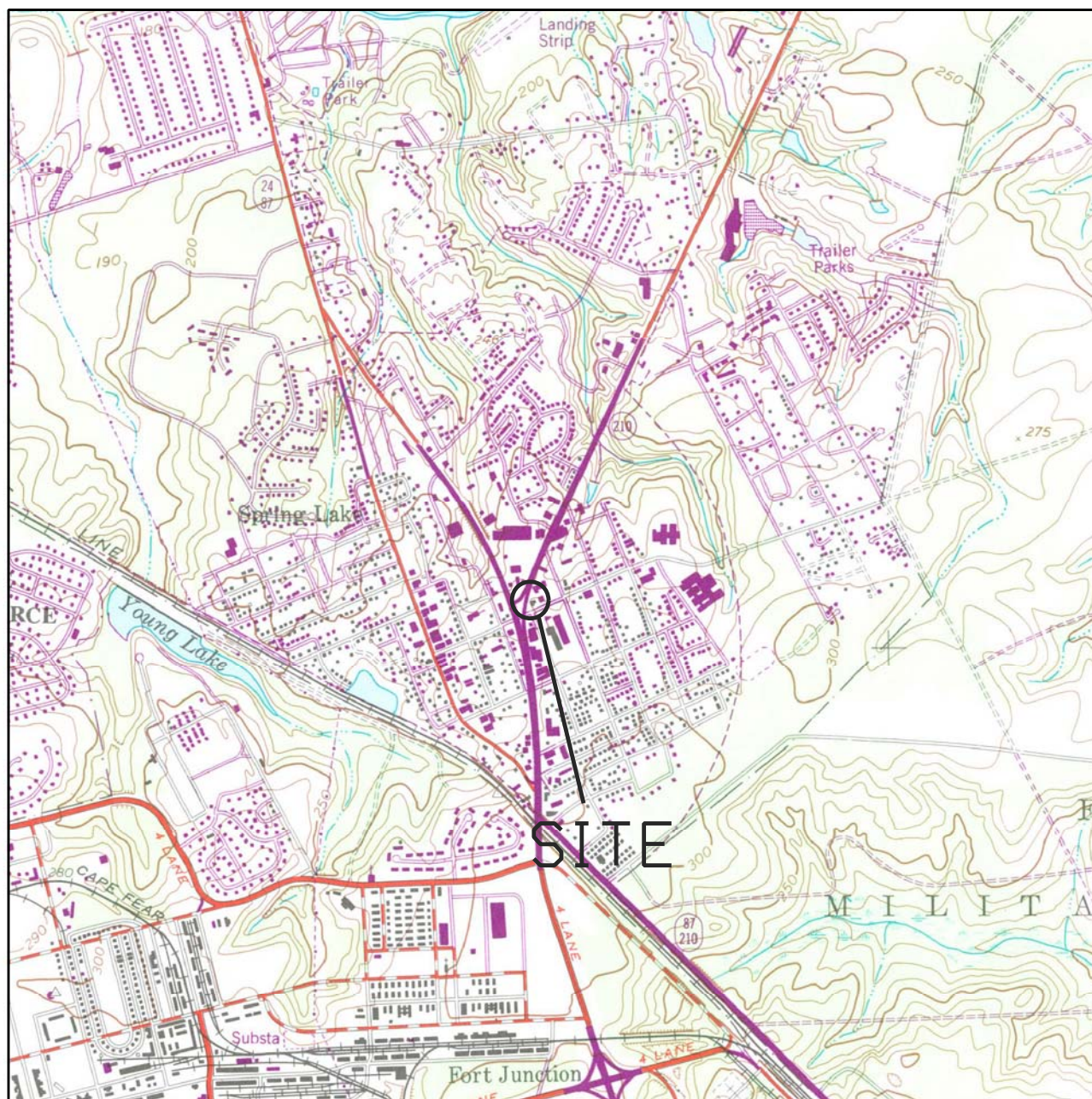
LOCATION	DEPTH (ft)	FID READING (ppm)	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)	ASSUMED ACTION LEVEL (mg/kg)
LD-1	0 - 2	1.27			
	2 - 4	2.69			
	4 - 6	2.60			
	6 - 8	4.12	LD-1	DRO (BQL) GRO (BQL)	10 10
	8 - 10	1.73			
LD-2	0 - 2	2.76	LD-2	DRO (BQL) GRO (BQL)	10 10
	2 - 4	1.73			
	4 - 6	1.78			
	6 - 8	2.19			
	8 - 10	2.15			
LD-3	0 - 2	1.12			
	2 - 4	1.14			
	4 - 6	1.95			
	6 - 8	2.49			
	8 - 10	1.15			
	10 - 12	2.53	LD-3	DRO (BQL) GRO (BQL)	10 10
LD-4	0 - 2	2.96			
	2 - 4	3.16			
	4 - 6	3.22			
	6 - 8	4.20	LD-4	DRO (BQL) GRO (BQL)	10 10
	8 - 10	2.87			
	10 - 12	2.99			
LD-5	0 - 2	2.11			
	2 - 4	3.32			
	4 - 6	4.12			
	6 - 8	3.85			
	8 - 10	3.79			
	10 - 12	4.19	LD-5	DRO (BQL) GRO (BQL)	10 10

Soil samples were collected on August 11, 2010.

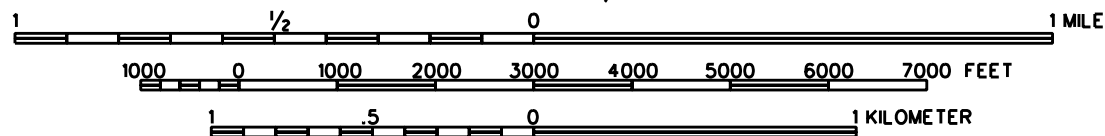
DRO - Diesel range organics.
GRO - Gasoline range organics.
BQL - Below quantitation limit.
ppm - parts per million.
mg/kg - milligrams per kilogram.



FIGURES



SCALE 1:24,000

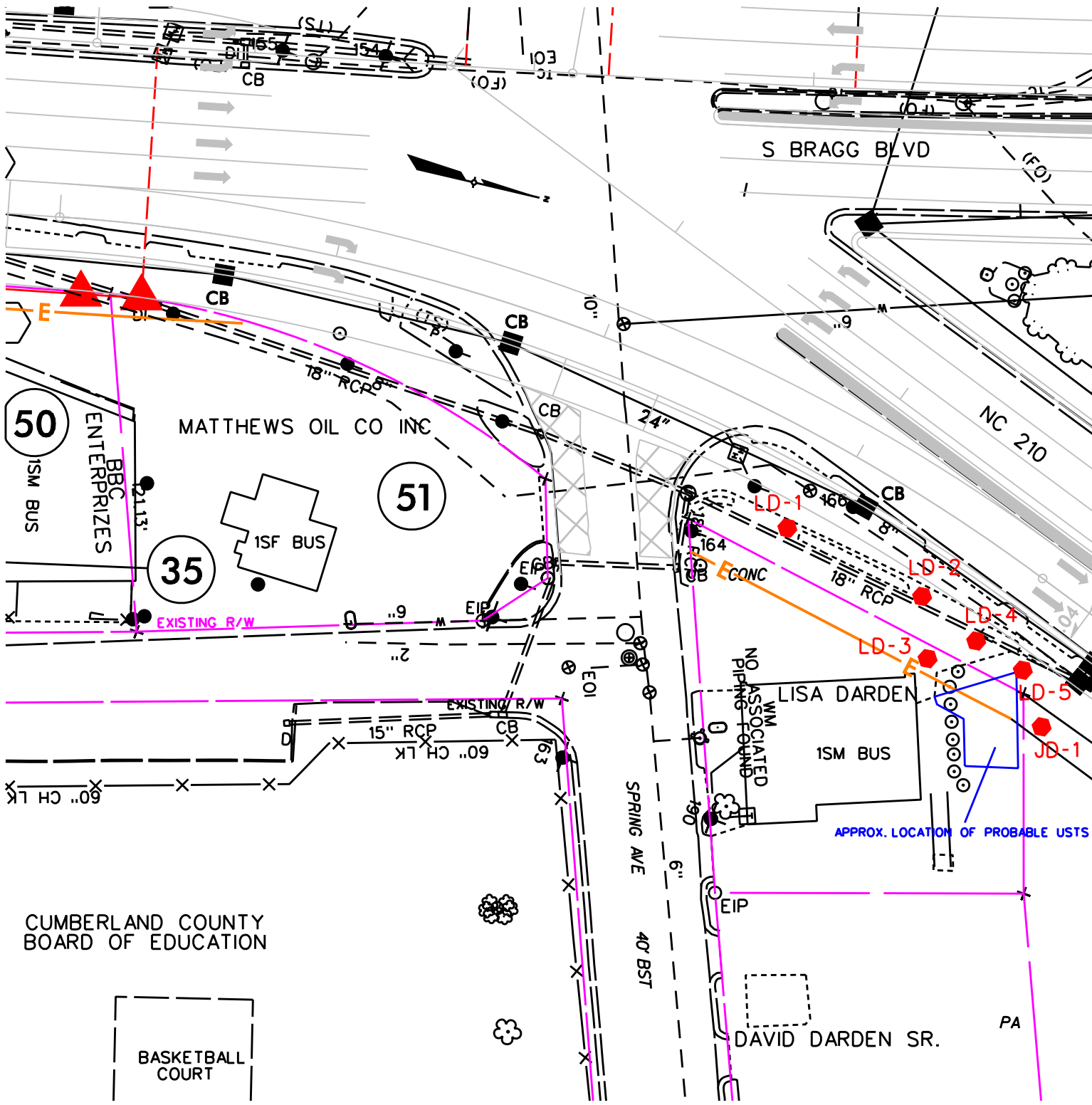


SOURCE: U.S. GEOLOGICAL SURVEY 7.5 MIN QUADRANGLE: MANCHESTER, NC (REV 1987)

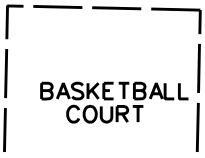


FIGURE 1
VICINITY MAP
LISA DARDEN PROPERTY
SPRING LAKE, CUMBERLAND COUNTY NORTH CAROLINA
AUGUST 2010

60158550



CUMBERLAND COUNTY BOARD OF EDUCATION



LEGEND

LD-1 SOIL SAMPLE LOCATION AND IDENTIFICATION

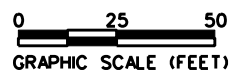


FIGURE 2
SITE MAP

LISA DARDEN PROPERTY
SPRING LAKE, CUMBERLAND COUNTY, NORTH CAROLINA

AUGUST 2010

60158550

ATTACHMENT A

GEOPHYSICAL INVESTIGATION REPORT


EM61 & GPR SURVEYS

**LISA DARDEN PROPERTY
Lillington Highway
Spring Lake, North Carolina**

August 27, 2010

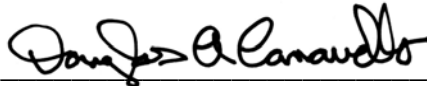
**Report prepared for: Michael W. Branson, PG
AECOM Environment
701 Corporate Center Drive, Suite 475
Raleigh, North Carolina 27607**

Prepared by:



Mark J. Denil, P.G.

Reviewed by:



Douglas Canavello, P.G.

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

AECOM Environment
GEOPHYSICAL INVESTIGATION REPORT
LISA DARDEN PROPERTY
Spring Lake, North Carolina

<u>TABLE OF CONTENTS</u>	<u>PAGE</u>
1.0 INTRODUCTION	1
2.0 FIELD METHODOLOGY	1
3.0 DISCUSSION OF RESULTS	3
4.0 SUMMARY & CONCLUSIONS	4
5.0 LIMITATIONS	4

FIGURES

Figure 1	Geophysical Equipment & Site Photographs
Figure 2	EM61 Metal Detection – Bottom Coil Results
Figure 3	EM61 Metal Detection – Differential Results
Figure 4	GPR Image Across Possible & Probable USTs

1.0 INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for AECOM Environmental across the proposed Right-of-Way (ROW) area at the Lisa Darden property located along the easterly side of Lillington Highway at the intersection of Lillington Highway and Spring Avenue in Spring Lake, North Carolina. Conducted on July 27 and August 3, 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) were present beneath the proposed ROW area of the site.

The Lisa Darden property consists of an occupied office building surrounded by an asphalt-covered parking area. The proposed ROW area (geophysical survey area) encompassed the property located between the building and Lillington Highway and has a maximum length and width of 170 feet and 72 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 Lisa Darden 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 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 survey was performed on July 27, 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 3, 2010 across selected EM61 differential anomalies 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=25 Y=38, X=25 Y=157, X=30 Y=65, X=55 Y=40, X=70 Y=34, X=75 Y=70, X=75 Y=93, and X=85 Y=160 are probably in response to buried utility lines or conduits. The high amplitude EM61 bottom coil anomalies centered near grid coordinates X=30 Y=173, X=40 Y=38, X=55 Y=22, and X=70 Y=40 are probably in response to known utility line-related equipment or metal poles and pipes. GPR data suggest the large, high amplitude EM61 anomaly centered near grid coordinates X=54 Y=95 is in response to steel reinforced concrete and buried conduits and may represent the former pump island area.

GPR data suggest the EM61 differential anomaly centered near grid lines X=155 Y=55 is in response to four probable metallic USTs and two possible metallic USTs buried approximately 2.0 to 2.8 feet below the asphalt pavement. The four probable USTs are associated with visible valve covers, whereas valve covers are not visible for the two possible USTs. The axes of the detected USTs appear to be oriented in a northeast-southwest direction and based on the GPR data, have the following dimensions.

<u>Detected UST</u>	<u>Depth (approx.)</u>	<u>Length/Width (approx.)</u>
Possible UST – 1	2.3 feet	12 feet x 5.0 feet
Probable UST – 2	2.8 feet	19 feet x 4.0 feet
Probable UST – 3	2.5 feet	24 feet x 4.5 feet
Probable UST – 4	2.5 feet	21 feet x 4.5 feet
Probable UST – 5	2.0 feet	18 feet x 4.5 feet
Possible UST – 6	2.3 feet	27 feet x 5.0 feet

The footprints of the six possible/probable, metallic USTs were marked in the field using orange marking paint. The image of a GPR survey line which crosses the four probable USTs and one possible UST and a photograph showing the location of the probable/possible USTs are presented in **Figure 4**.

The linear EM61 differential anomaly intersecting grid coordinates X=55 Y=120 appears to run from the detected UST area to the possible former pump island area and may represent metallic product lines and/or conduits. The remaining EM61 anomalies shown in Figures 2 and 3 are probably in response to known surface objects, structures and/or buried lines.

4.0 SUMMARY & CONCLUSIONS

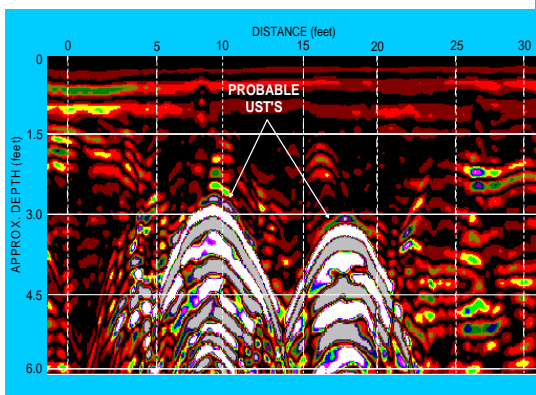
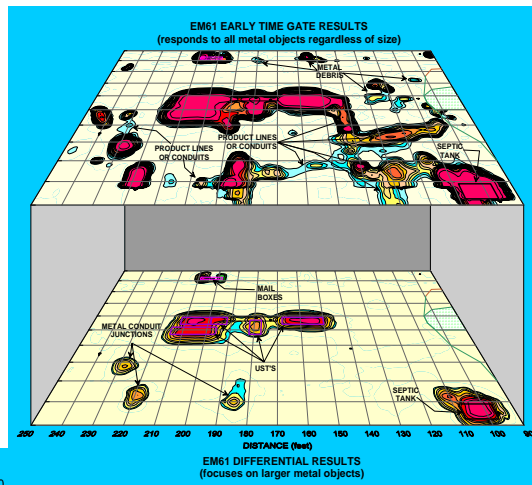
Our evaluation of the EM61 and GPR data collected across the proposed ROW area at the Lisa Darden property located along the east side of Lillington Highway in Spring Lake, North Carolina, provides the following summary and conclusions:

- 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=25 Y=38, X=25 Y=157, X=30 Y=65, X=55 Y=40, X=70 Y=34, X=75 Y=70, X=75 Y=93, and X=85 Y=160 are probably in response to buried utility lines or conduits.
- GPR data suggest the EM61 differential anomaly centered near grid lines X=155 Y=55 is in response to four probable metallic USTs and two possible metallic USTs buried approximately 2.0 to 2.8 feet below the asphalt pavement.
- The linear EM61 differential anomaly intersecting grid coordinates X=55 Y=120 appears to run from the detected UST area to the possible former pump island area and may represent metallic product lines and/or conduits.

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

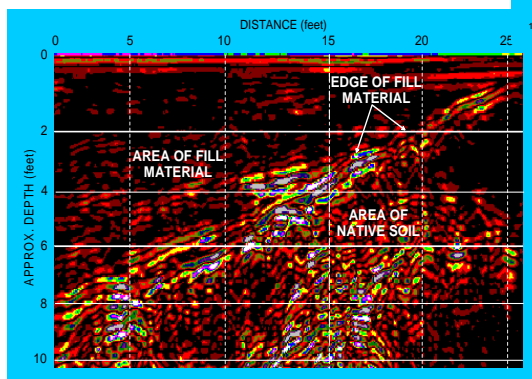
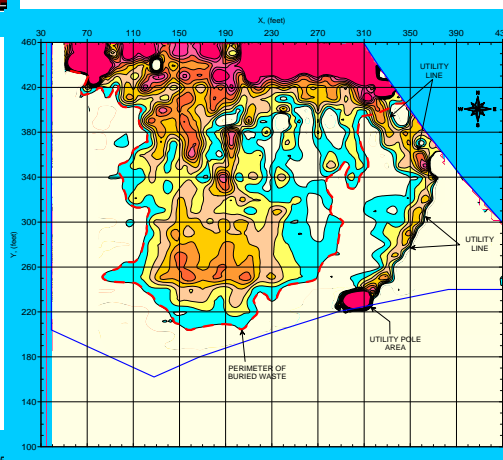
subsurface conditions. The EM61 and GPR results obtained for this project have not conclusively determined that four probable and two possible USTs are present within the surveyed portion of the site but that only a total of six probable/possible USTs were detected.



FIGURES

(on the following pages)

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



The photograph shows the Geonics EM61 metal detector that was used to conduct the metal detection survey across the proposed ROW area at the Lisa Darden property on July 27, 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 Lisa Darden property on August 3, 2010.



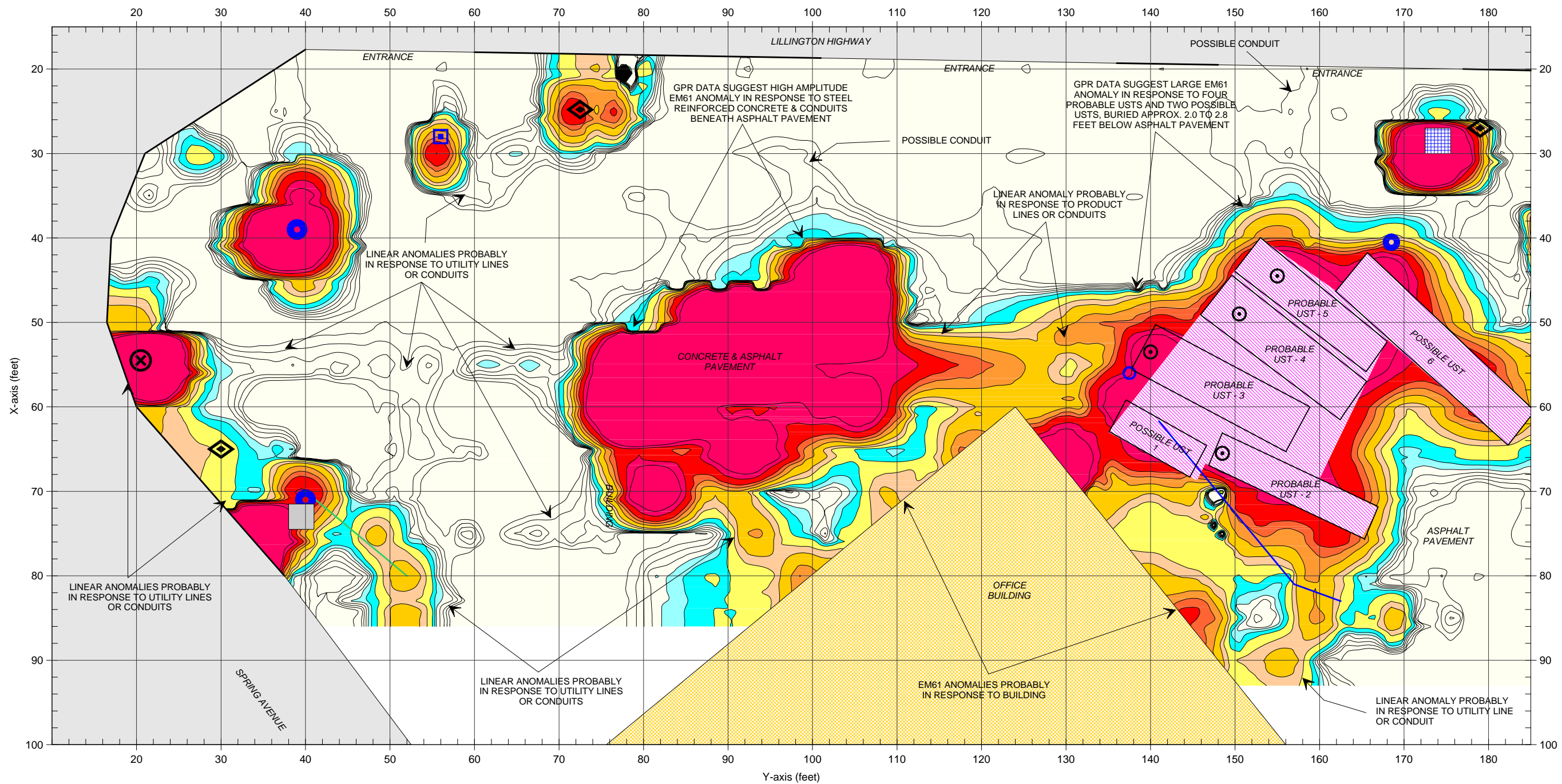
The photograph shows the proposed ROW area at the Lisa Darden property located immediately north of the South Bragg Boulevard and Spring Avenue intersection in Spring Lake, North Carolina. The photograph is viewed in a northerly direction.



CLIENT	AECOM ENVIRONMENT		DATE	08/25/10	BY	MJD
SITE	LISA DARDEN PROPERTY		LAY		OPND	
CITY	SPRING LAKE	STATE	NORTH CAROLINA	ENWG		
TITLE	GEOPHYSICAL RESULTS		PROJ#	2010-176	PROJ#	

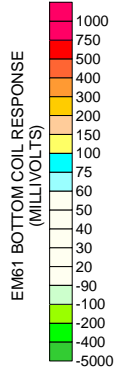
GEOPHYSICAL EQUIPMENT & SITE PHOTOGRAPHS

FIGURE 1



LEGEND

SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART	MANHOLE COVER
BUILDING OR STRUCTURE	ROAD SIGN
BOLLARD	UTILITY OR LAMP POLE
EXPOSED CONDUIT	WATER METER COVER
SUPPORT ABUTMENT	UST VALVE COVER
CHAIN FENCE LINE	CUT-OFF METAL PIPE
GUY WIRE	STORM SEWER GRATE
STORE SIGN POLE	PROBABLE OR POSSIBLE UST, AS SUGGESTED BY GPR DATA & EXPOSED VENT/FILL PIPES



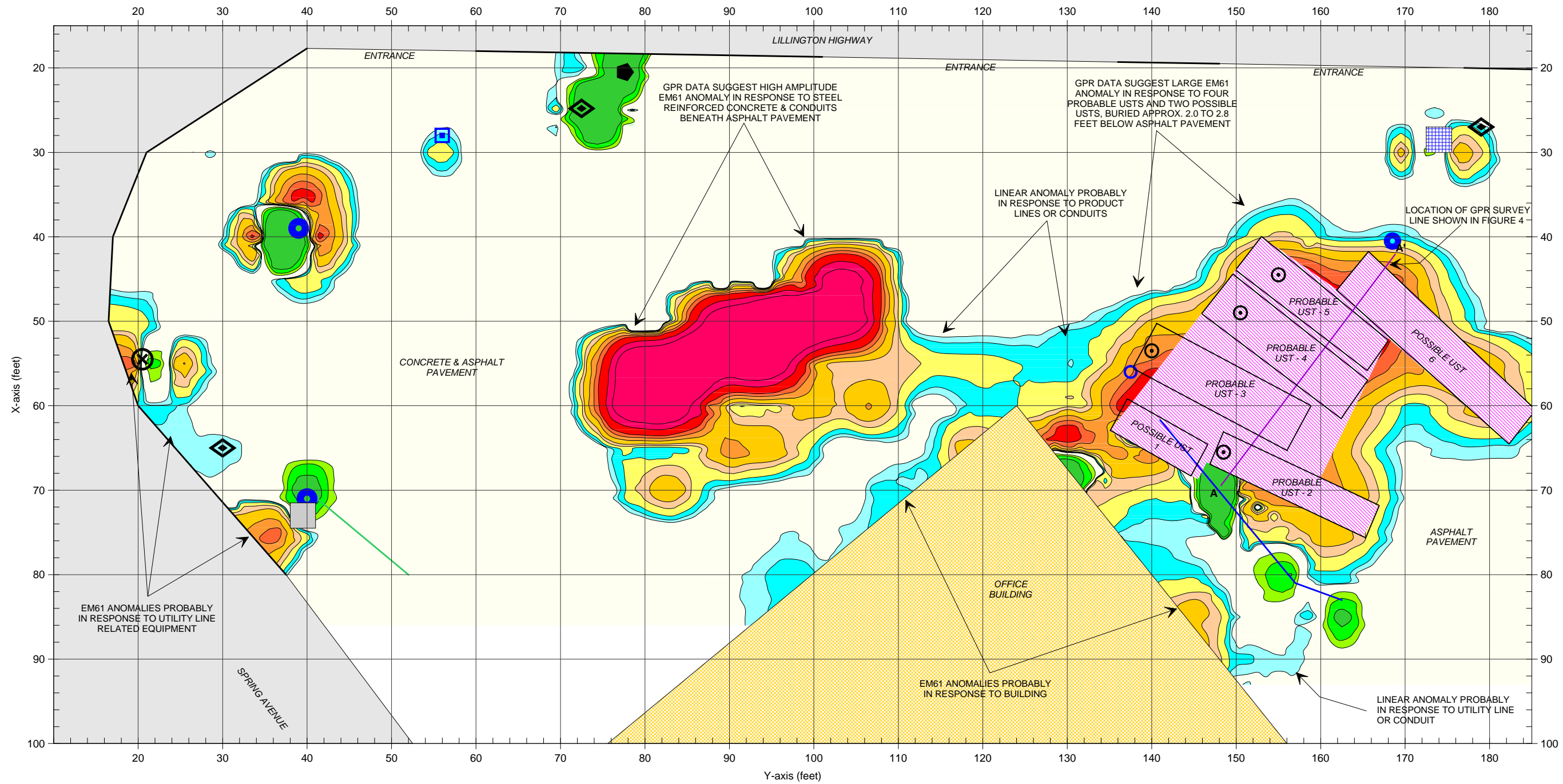
The contour plot shows the bottom coil (most sensitive) response of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The EM metal detection data were collected on July 27, 2010 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on August 3, 2010 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

The geophysical investigation detected four probable, metallic USTs and two possible metallic USTs within the surveyed portion of the site.

EM61 METAL DETECTION (BOTTOM COIL RESULTS) FIGURE 2

CLIENT	AECOM ENVIRONMENT	DATE	08/25/10	SCALE	GRAPHIC SCALE IN FEET
SITE	LISA DARDEN PROPERTY	DRAWN	MJD	FIGURE	FIGURE 2
CITY	SPRING LAKE	LAY		L-NO.	2010-176
STATE	NORTH CAROLINA	DWG		TITLE	GEOPHYSICAL RESULTS





EM61 METAL DETECTION
(DIFFERENTIAL RESULTS)

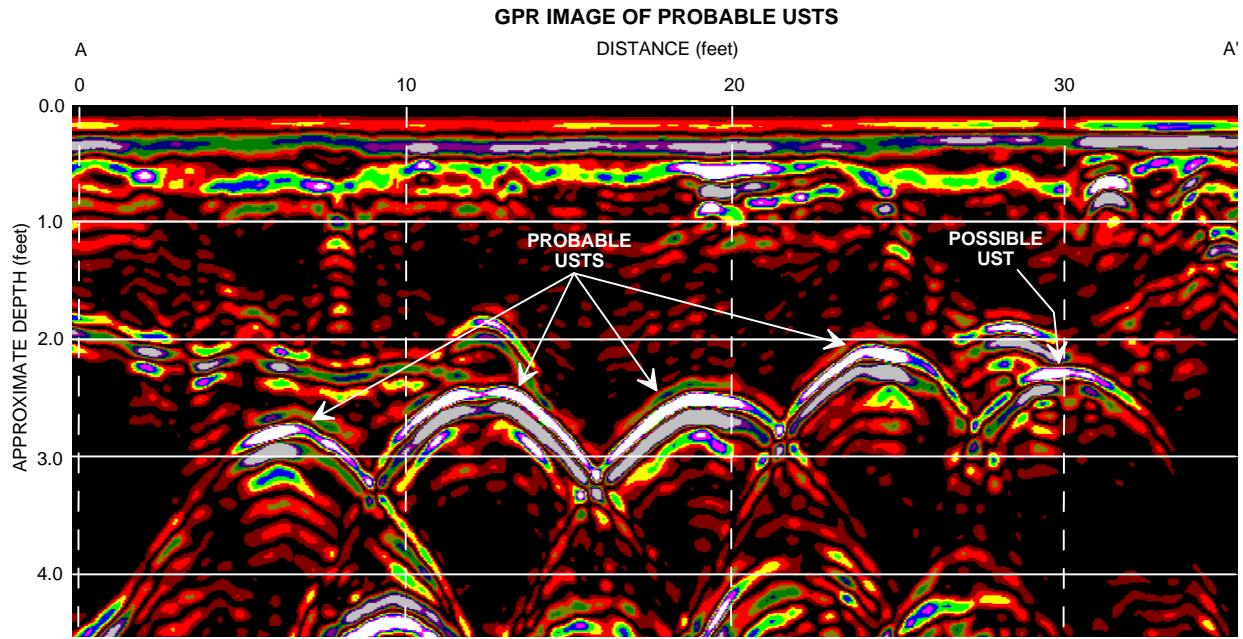
FIGURE 3

CLIENT	ACOM ENVIRONMENT	DATE	08/25/10	SCALE	GRAPHIC SCALE IN FEET
SITE	LISA DARDEN PROPERTY	LAY		FIGURE	
CITY	SPRING LAKE	DWG		L.N.O.	2010-176
STATE	NORTH CAROLINA				
TITLE	GEOPHYSICAL RESULTS				

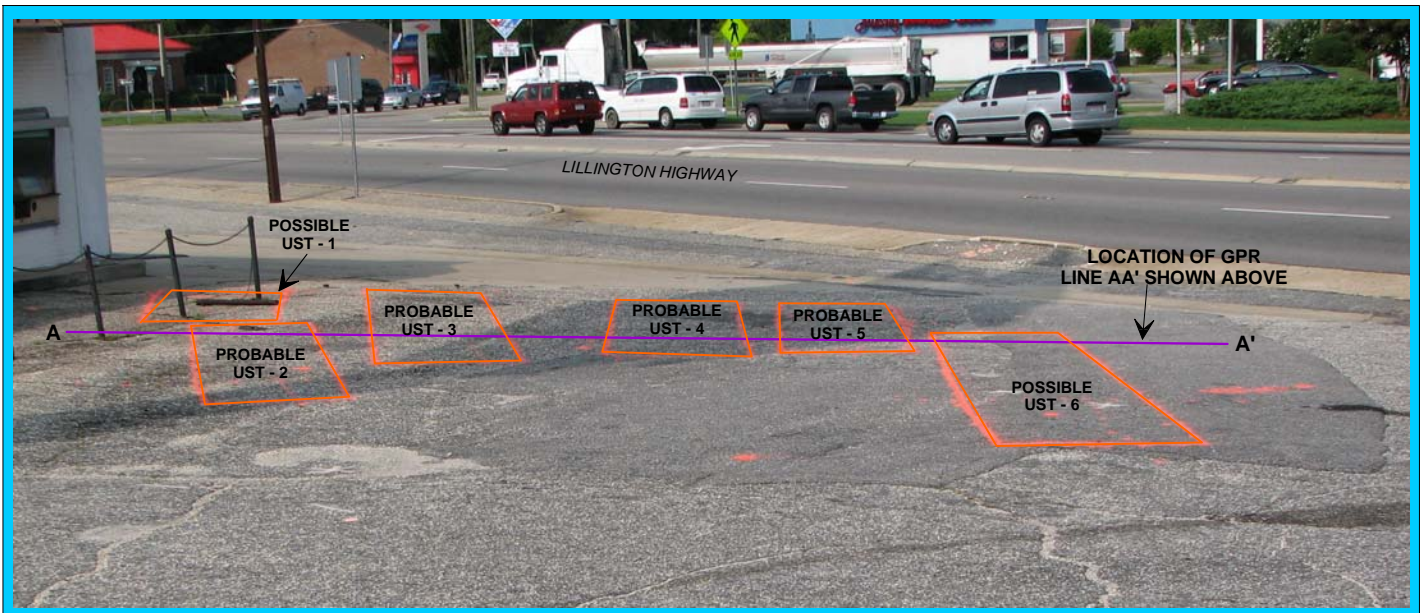


Note: The contour plot shows the differential response between the bottom and top coils of the EM61 instrument in millivolts (mV). The differential response focuses on larger, buried metallic objects such as drums and USTs and ignores smaller miscellaneous, buried, metal debris. The EM61 data were collected on July 27, 2010 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on August 3, 2010 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

The geophysical investigation detected four probable, metallic USTs and two possible metallic USTs within the surveyed portion of the site.



The GPR image obtained across a line from survey points X=74 Y=152 to X=45 Y=175 recorded five high amplitude, hyperbolic anomalies that are probably in response to four probable, metallic USTs and one possible, metallic UST buried approx. 2.0 to 2.8 feet below the asphalt pavement. The solid purple line labeled AA' in the photograph below and in Figure 3 shows the location of the GPR image.



The orange rectangles in the photograph represent the approximate perimeters of the four probable, metallic USTs and two possible, metallic USTs, as suggested by the GPR data. The GPR data suggest that the six possible/probable metallic USTs lie beneath the proposed ROW area and centered near grid coordinates X=55 Y=155. The solid purple line labeled AA' in the photograph represents the approximate location of the GPR image shown above. The photograph is viewed in a southwesterly direction.



CLIENT	AECOM ENVIRONMENT		DATE	08/27/10	DRAWN	MJD
SITE	LISA DARDEN PROPERTY		LAY		DATE	
CITY	SPRING LAKE	STATE	NORTH CAROLINA	DWG		
TITLE	GEOPHYSICAL RESULTS		NO.	2010-176	SCALE	

GPR IMAGE ACROSS
POSSIBLE & PROBABLE USTS

FIGURE 4

ATTACHMENT B

TEST BORING REPORT

PROJECT <u>LISA DARDEN PROPERTY</u> CLIENT <u>NCDOT</u> PROJECT NUMBER <u>60158550 (WBS 36492.1.2)</u> CONTRACTOR <u>REGIONAL PROBING</u> EQUIPMENT <u>GEOPROBE</u>	BORING NUMBER <u>LD-1</u> PAGE <u>1</u> ELEVATION _____ DATE <u>8/11/2010</u> DRILLER <u>OPPER</u> PREPARED BY <u>BRANSON</u>
--	--

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
5.0			1.27		2" ASPHALT/GRAVEL, MEDIUM BROWN, LOOSE, COARSE-GRAINED SAND, DRY, NO ODOR.	
				2.69		AS ABOVE, DRY, NO ODOR.
				2.60		AS ABOVE, DRY, NO ODOR.
				4.12		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
				1.73		AS ABOVE, DRY, NO ODOR.
10.0						
15.0						
20.0						



TEST BORING REPORT

PROJECT <u>LISA DARDEN PROPERTY</u> CLIENT <u>NCDOT</u> PROJECT NUMBER <u>60158550 (WBS 36492.1.2)</u> CONTRACTOR <u>REGIONAL PROBING</u> EQUIPMENT <u>GEOPROBE</u>	BORING NUMBER <u>LD-2</u> PAGE <u>1</u> ELEVATION _____ DATE <u>8/11/2010</u> DRILLER <u>OPPER</u> PREPARED BY <u>BRANSON</u>
--	--

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			2.76		2" CONCRETE, MEDIUM BROWN, LOOSE, COARSE-GRAINED SAND, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			1.73		AS ABOVE, DRY, NO ODOR.
			1.78		AS ABOVE, DRY, NO ODOR.
5.0			2.19		AS ABOVE, DRY, NO ODOR.
			2.15		MEDIUM BROWN SAND/CLAY, STIFF, DRY, NO ODOR.
10.0					BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED
15.0					
20.0					



TEST BORING REPORT

PROJECT <u>LISA DARDEN PROPERTY</u> CLIENT <u>NCDOT</u> PROJECT NUMBER <u>60158550 (WBS 36492.1.2)</u> CONTRACTOR <u>REGIONAL PROBING</u> EQUIPMENT <u>GEOPROBE</u>	BORING NUMBER <u>LD-3</u> PAGE <u>1</u> ELEVATION _____ DATE <u>8/11/2010</u> DRILLER <u>OPPER</u> PREPARED BY <u>BRANSON</u>
--	--

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
5.0			1.12		2" ASPHALT/GRAVEL, MEDIUM BROWN, LOOSE, COARSE-GRAINED SAND, DRY, NO ODOR.
			1.14		AS ABOVE, DRY, NO ODOR.
			1.95		AS ABOVE, DRY, NO ODOR.
			2.49		AS ABOVE, DRY, NO ODOR.
10.0			1.15		MEDIUM BROWN SAND/CLAY, STIFF, DRY, NO ODOR.
			2.53		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
					BORING TERMINATED AT 12 FEET. NO GROUNDWATER ENCOUNTERED
15.0					
20.0					



TEST BORING REPORT

PROJECT <u>LISA DARDEN PROPERTY</u> CLIENT <u>NCDOT</u> PROJECT NUMBER <u>60158550 (WBS 36492.1.2)</u> CONTRACTOR <u>REGIONAL PROBING</u> EQUIPMENT <u>GEOPROBE</u>	BORING NUMBER <u>LD-4</u> PAGE <u>1</u> ELEVATION _____ DATE <u>8/11/2010</u> DRILLER <u>OPPER</u> PREPARED BY <u>BRANSON</u>
--	--

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
5.0			2.96		2" ASPHALT/GRAVEL, MEDIUM BROWN, LOOSE, COARSE-GRAINED SAND, DRY, NO ODOR.
			3.16		AS ABOVE, DRY, NO ODOR.
			3.22		AS ABOVE, DRY, NO ODOR.
10.0			4.20		AS ABOVE TO 7 FEET, BECOMES MEDIUM BROWN SAND/CLAY, STIFF, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			2.87		AS ABOVE, DRY, NO ODOR.
			2.99		AS ABOVE, DRY, NO ODOR.
15.0					BORING TERMINATED AT 12 FEET. NO GROUNDWATER ENCOUNTERED
20.0					



TEST BORING REPORT

PROJECT LISA DARDEN PROPERTY

CLIENT NCDOT

PROJECT NUMBER 60158550 (WBS 36492.1.2)

CONTRACTOR REGIONAL PROBING

EQUIPMENT GEOPROBE

BORING NUMBER LD-5

PAGE 1

ELEVATION _____

DATE 8/11/2010

DRILLER OPPER

PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
5.0			2.11		2" ASPHALT/GRAVEL, MEDIUM BROWN, LOOSE, COARSE-GRAINED SAND, DRY, NO ODOR.
			3.32		AS ABOVE, DRY, NO ODOR.
			4.12		AS ABOVE, DRY, NO ODOR.
10.0					
			3.85		MEDIUM BROWN SAND/CLAY, STIFF, DRY, NO ODOR.
			3.79		AS ABOVE, DRY, NO ODOR.
15.0					
			4.19		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
20.0					



ATTACHMENT C



PHOTO 1 - BORING IN PROPOSED R/W LOOKING EAST



PHOTO 2 - BORINGS IN PROPOSED R/W LOOKING EAST



PHOTO 3 - BORING WITHIN PROPOSED R/W LOOKING EAST

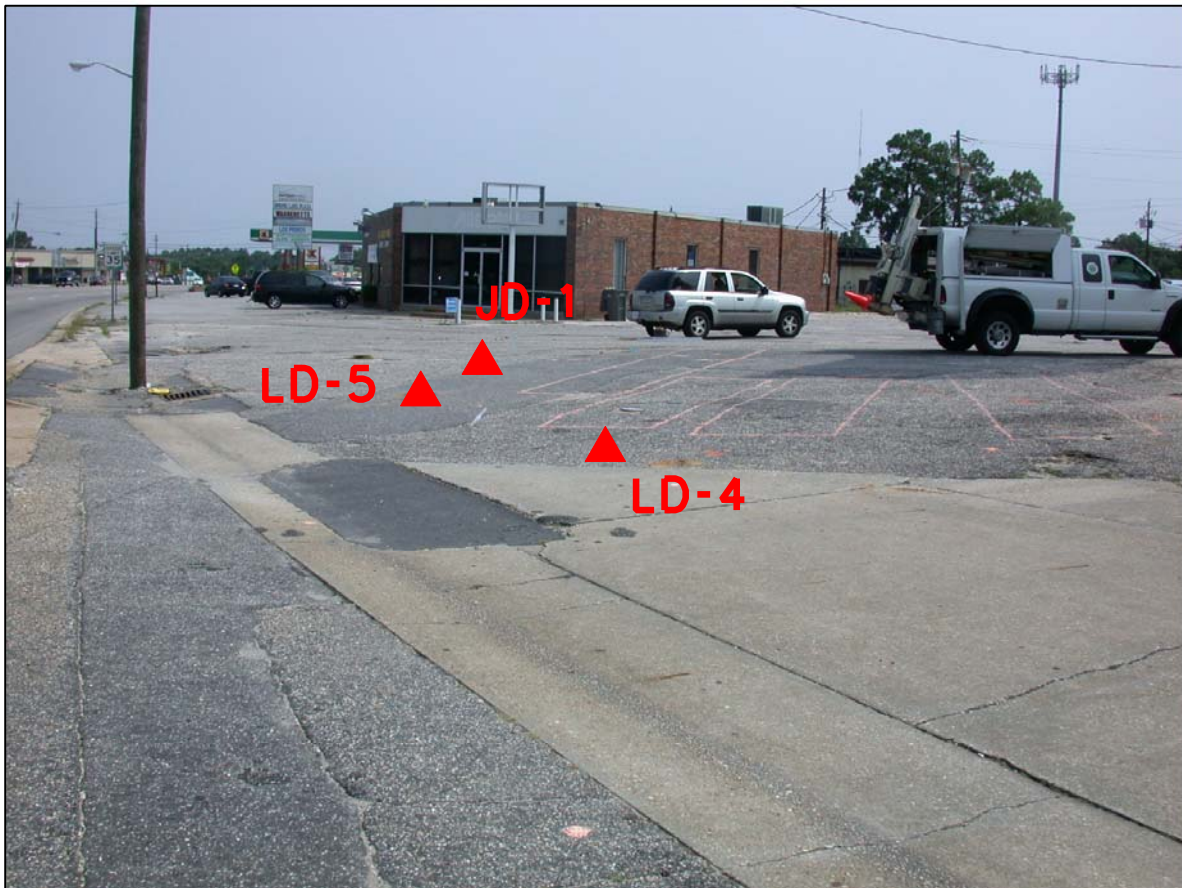


PHOTO 4 - BORINGS WITHIN PROPOSED R/W LOOKING NORTHEAST
ALSO SHOWING ADJACENT SITE BORING

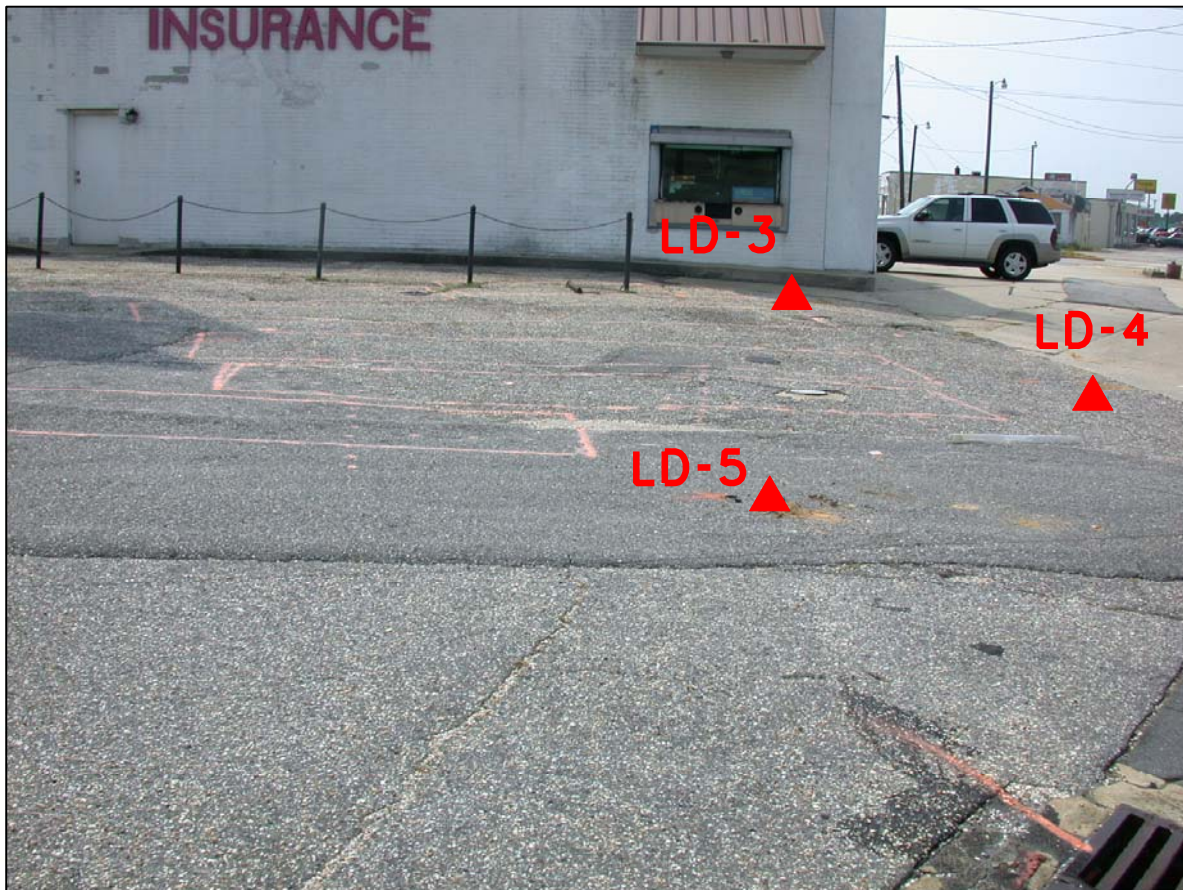


PHOTO 5 - BORINGS WITHIN PROPOSED R/W LOOKING SOUTH



PHOTO 6 - BORINGS WITHIN PROPOSED R/W LOOKING NORTHEAST ALONG R/W

ATTACHMENT D



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

Report Number: G1037-100

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 Date
Barbara Hager

SGS North America, Inc.
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

% solids = Percent Solids

Special Notes:

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

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: LD-1
 Client Project ID: NCDOT
 Lab Sample ID: G1037-100-1A
 Lab Project ID: G1037-100
 Report Basis: Dry Weight

Analyzed By: LMC
 Date Collected: 8/11/2010 9:00
 Date Received: 8/12/2010
 Matrix: Soil
 Solids 88.82

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	4.92	mg/Kg	1	08/18/10 19:59

Surrogate Spike Results

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

Comments:


Batch Information

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

Prep Method: 5035
 Initial Wt/Vol: 6.86 g
 Final Volume: 5 mL

Analyst: mlc

NC Certification #481

Reviewed By: 
GRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: LD-2
 Client Project ID: NCDOT
 Lab Sample ID: G1037-100-2A
 Lab Project ID: G1037-100
 Report Basis: Dry Weight

Analyzed By: LMC
 Date Collected: 8/11/2010 9:15
 Date Received: 8/12/2010
 Matrix: Soil
 Solids 94.00

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	4.93	mg/Kg	1	08/18/10 20:27

Surrogate Spike Results

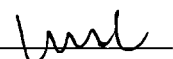
	Added	Result	Recovery	Flag	Limits
BFB	100	98.1	98.1		70-130

Comments:

Batch Information

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

Prep Method: 5035
 Initial Wt/Vol: 6.48 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: LD-3
 Client Project ID: NCDOT
 Lab Sample ID: G1037-100-3A
 Lab Project ID: G1037-100
 Report Basis: Dry Weight

Analyzed By: LMC
 Date Collected: 8/11/2010 9:30
 Date Received: 8/12/2010
 Matrix: Soil
 Solids 86.64

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.86	mg/Kg	1	08/18/10 20:54

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	98.5	98.5		70-130

Comments:


Batch Information

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

Prep Method: 5035
 Initial Wt/Vol: 5.91 g
 Final Volume: 5 mL

Analyst: LMC

NC Certification #481

Reviewed By: 
GRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: LD-4
 Client Project ID: NCDOT
 Lab Sample ID: G1037-100-4A
 Lab Project ID: G1037-100
 Report Basis: Dry Weight

Analyzed By: LMC
 Date Collected: 8/11/2010 9:45
 Date Received: 8/12/2010
 Matrix: Soil
 Solids 87.86

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	4.27	mg/Kg	1	08/18/10 21:21

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	97.4	97.4		70-130

Comments:


Batch Information

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

Prep Method: 5035
 Initial Wt/Vol: 8 g
 Final Volume: 5 mL

Analyst: LMC

NC Certification #481

Reviewed By: 
GRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: LD-5
 Client Project ID: NCDOT
 Lab Sample ID: G1037-100-5A
 Lab Project ID: G1037-100
 Report Basis: Dry Weight

Analyzed By: LMC
 Date Collected: 8/11/2010 10:00
 Date Received: 8/12/2010
 Matrix: Soil
 Solids 89.21

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	4.47	mg/Kg	1	08/18/10 21:49

Surrogate Spike Results

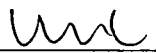
	Added	Result	Recovery	Flag	Limits
BFB	100	99.4	99.4		70-130

Comments:


Batch Information

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

Prep Method: 5035
 Initial Wt/Vol: 7.52 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: LD-1
 Client Project ID: NCDOT
 Lab Sample ID: G1037-100-1D
 Lab Project ID: G1037-100

Date Collected: 8/11/2010 9:00
 Date Received: 8/12/2010
 Matrix: Soil
 Solids 88.82
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.00	mg/Kg	1	08/17/10 22:40
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	65.7	164 #

Comments:
 High surrogate does not effect the sample as no hits are present

Batch Information

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

Prep batch: 17210
 Prep Method: 3541
 Prep Date: 08/16/10
 Initial Prep Wt/Vol: 32.16 G
 Prep Final Vol: 10 mL

Analyst: FA

NC Certification #481

Reviewed By: 
 DRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: LD-2
 Client Project ID: NCDOT
 Lab Sample ID: G1037-100-2D
 Lab Project ID: G1037-100

Date Collected: 8/11/2010 9:15
 Date Received: 8/12/2010
 Matrix: Soil
 Solids 94.00
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.59	mg/Kg	1	08/17/10 23:08
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	31.9	79.7

Comments:


Batch Information

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

Prep batch: 17210
 Prep Method: 3541
 Prep Date: 08/16/10
 Initial Prep Wt/Vol: 32.27 G
 Prep Final Vol: 10 mL

Analyst: FDL

NC Certification #481

Reviewed By: 
DRO.XLS

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

Client Sample ID: LD-3
 Client Project ID: NCDOT
 Lab Sample ID: G1037-100-3D
 Lab Project ID: G1037-100

Date Collected: 8/11/2010 9:30
 Date Received: 8/12/2010
 Matrix: Soil
 Solids 86.64
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.14	mg/Kg	1	08/17/10 23:37
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	30	74.9

Comments:


Batch Information

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

Prep batch: 17210
 Prep Method: 3541
 Prep Date: 08/16/10
 Initial Prep Wt/Vol: 32.33 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: LD-4
 Client Project ID: NCDOT
 Lab Sample ID: G1037-100-4D
 Lab Project ID: G1037-100

Date Collected: 8/11/2010 9:45
 Date Received: 8/12/2010
 Matrix: Soil
 Solids 87.86
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.67	mg/Kg	1	08/18/10 00:05
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	30.3	75.8

Comments:

Batch Information

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

Prep batch: 17210
 Prep Method: 3541
 Prep Date: 08/16/10
 Initial Prep Wt/Vol: 34.14 G
 Prep Final Vol: 10 mL

Analyst: FR

NC Certification #481

N.C. Certification #481

Reviewed By: 
 DRO.XLS
 Page 11 of 13

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

Client Sample ID: LD-5
 Client Project ID: NCDOT
 Lab Sample ID: G1037-100-5D
 Lab Project ID: G1037-100

Date Collected: 8/11/2010 10:00
 Date Received: 8/12/2010
 Matrix: Soil
 Solids 89.21
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.89	mg/Kg	1	08/18/10 00:34
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	34.7	86.7

Comments:

Batch Information

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

Prep batch: 17210
 Prep Method: 3541
 Prep Date: 08/16/10
 Initial Prep Wt/Vol: 32.55 G
 Prep Final Vol: 10 mL

Analyst: FX

NC Certification #481

N.C. Certification #481

Reviewed By: MM
DPO.XLS



CHAIN OF CUSTODY RECORD
SGS North America Inc.

Locations Nationwide
 • Alaska
 • Maryland
 • New Jersey
 • North Carolina
 • Ohio

www.us.sgs.com
 100613

1 CLIENT: AECOM CONTACT: MIKE BRANSON PHONE NO: (919) 854 6238 PROJECT: NCDOT SITE/PWSID#: LISA DREDEK REPORTS TO: ABOVE FAX NO.: (919) 854 6259 INVOICE TO: NCDOT QUOTE #: _____ P.O. NUMBER: 1083 36492.1.2		SGS Reference: G1037-100 PAGE 1 OF 1	
2 LAB NO. SAMPLE IDENTIFICATION DATE TIME MATRIX LD-1 8/11/10 0700 SOIL LD-2 8/11/10 0915 SOIL LD-3 8/11/10 0930 SOIL LD-4 8/11/10 0945 SOIL LD-5 8/11/10 1000 SOIL		No CONTAINERS SAMPLE TYPE C= COMP G= GRAB Preservatives Used: None Analysis Required: (3) GRD DRD	
5 Collected/Relinquished By: (1) M. Branson Relinquished By: (2) Relinquished By: (3) Relinquished By: (4)		4 Shipping Carrier: Fed Ex Shipping Ticket No: Special Deliverable Requirements: Special Instructions: Samples Received Cold? (Circle) YES NO Temperature °C: 6.75.9 ATP Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT	
Date 8/11/10 Time 1730 Date Time Date Time Date Time Date Time 8/12/10 9:46		Received By: Received By: Received By: Received By: [Signature]	
Requested Turnaround Time: <input type="checkbox"/> RUSH <input checked="" type="checkbox"/> STD		Date Needed	