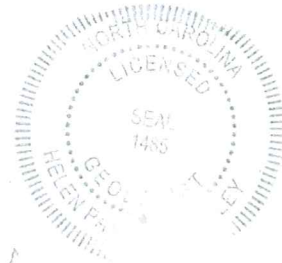




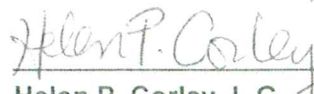
**NC Department of Transportation  
Preliminary Site Assessment  
State Project: R-3405  
WBS Element: 35579.1.1**

**T.L. & M.E. Bumgarner Property  
Parcel #139  
March 1, 2011**

**AMEC Earth and Environmental, Inc. of North Carolina  
AMEC Project: 562113405**



  
\_\_\_\_\_  
Troy L. Holzschuh  
Engineering Technician

  
\_\_\_\_\_  
Helen P. Corley, L.G.  
Senior Project Manager



## TABLE OF CONTENTS

<b>1.0 INTRODUCTION.....</b>	<b>1</b>
<b>1.1 Site Location and Vicinity.....</b>	<b>1</b>
<b>1.2 Site Description and History .....</b>	<b>2</b>
<b>2.0 GEOLOGY.....</b>	<b>2</b>
<b>2.1 Regional Geology.....</b>	<b>2</b>
<b>2.2 Site Geology .....</b>	<b>2</b>
<b>3.0 FIELD ACTIVITIES.....</b>	<b>3</b>
<b>3.1 Preliminary Activities.....</b>	<b>3</b>
<b>3.2 Site Reconnaissance .....</b>	<b>3</b>
<b>3.3 Geophysical Survey.....</b>	<b>3</b>
<b>3.4 Well Survey.....</b>	<b>4</b>
<b>3.5 Soil Sampling.....</b>	<b>4</b>
<b>4.0 SOIL SAMPLING RESULTS.....</b>	<b>5</b>
<b>5.0 CONCLUSIONS.....</b>	<b>5</b>
<b>6.0 RECOMMENDATIONS.....</b>	<b>6</b>

## **TABLES**

Table 1	Soil Sampling Analytical Results, DRO-GRO
---------	-------------------------------------------

## **FIGURES**

Figure 1	Vicinity Map
Figure 2	Site Map with Sample Locations
Figure 3	Site Map with Analytical Data

## **APPENDICES**

Appendix A	Photo Log
Appendix B	Boring Logs
Appendix C	Geophysical Report
Appendix D	Laboratory Analytical Data

## **1.0 INTRODUCTION**

In accordance with the North Carolina Department of Transportation (NCDOT) Request for Proposal, dated November 19, 2010, AMEC Earth and Environmental, Inc. of North Carolina (AMEC) has performed a Preliminary Site Assessment (PSA) for the T.L. & M.E. Bumgarner Property (the Site) to be effected by a road improvement project along NC 18, Sparta Rd. The Site which is located at 2066 Sparta Rd currently operates as God's Oasis Church. The property is located on the northeastern corner of the intersection of Sparta and Elledge Mill Roads in North Wilkesboro of Wilkes County, North Carolina. The investigation was conducted in accordance with AMEC's Technical and Cost proposal dated December 3, 2010.

NCDOT contracted AMEC to perform a PSA on the T.L. & M.E. Bumgarner Property because the site may have once operated as a gas station. The PSA was performed to determine if soils have been impacted by petroleum compounds as a result of past and present uses of the property within the proposed design project area. This parcel will be affected by construction activities associated with road widening and new drainage features along Sparta Rd.

The following report summarizes the site history, geophysical survey, location and capacities of any USTs, and describes our field investigation with results of chemical analyses. The report includes the evaluation of the analytical data with regards to the presence or absence of soil contamination within the NCDOT design area of parcel #139 and estimates the extent of soil contamination.

### **1.1 Site Location and Vicinity**

The T.L. & M.E. Bumgarner Property parcel is located on the northeastern corner of the intersection of Sparta and Elledge Mill Roads in North Wilkesboro, Wilkes County, North Carolina, as shown in Figure 1. The properties to the east, south and southwest are residential with single family homes. The property to the west across Sparta Rd is the Volunteer Fire Department. The properties to the northwest and north are wooded.

## **1.2 Site Description and History**

The Site is currently operating as a church. The church is a single story wood sided building. The parcel consists of three tracts. The proposed Right of Way (ROW) will run the length of the parcel along Sparta Rd. as well as through the church building and around the corner onto Elledge Mill Rd. Two USTs were identified at this facility from the geophysics. One of the USTs was anticipated due to a visible fuel port. One Aboveground Storage Tank (AST) was present near the southwest corner of the building. Appendix A includes a photo log for Parcel #139.

AMEC studied the NCDENR UST Registered Tanks Database and the NCDENR Incident Management Database. No registered tanks or incidences are associated with this site.

## **2.0 GEOLOGY**

### **2.1 Regional Geology**

The T.L. & M.E. Bumgarner Property is located within the Alligator Back Formation of the Ocoee Supergroup located in the Blue Ridge Physiographic Province of western North Carolina. The Alligator Back Formation comprises metamorphic sedimentary rocks that are 750 million years in age. The rocks include mica schist and phyllite that are interlayered with minor biotite. The Alligator Back rocks were named for the large sections of gneiss that descend from the peak of Bluff Mountain that resemble an alligator.

### **2.2 Site Geology**

Site geology was observed through the sampling of 8 shallow direct push probe soil borings (SB) onsite. Borings ranged in total depth from 10 feet to 15 feet below ground surface (bgs). Native soils generally consisted of orange, well sorted and clayey silt. Boring logs are presented in Appendix B.

Damp soil conditions were typically first encountered at a depth of 0.5 feet (ft) bgs.

## **3.0 FIELD ACTIVITIES**

### **3.1 Preliminary Activities**

Prior to commencing field sampling activities at the site, several tasks were accomplished in preparation for the subsurface investigation. The Health and Safety Plan (HSP) was modified to include the site-specific health and safety information. On January 17, 2011 a private utility locating company, Priority Underground Locating of Huntersville, North Carolina cleared the proposed drilling locations that were marked in the field by AMEC personnel. North Carolina-1-Call was contacted on January 19, 2011 to report the proposed drilling activities and subsequently notify all affected utilities for the parcel. Carolina Soil Investigations, LLC (CSI Drilling) of Olin, North Carolina was retained by AMEC to perform the direct push drilling and sampling. AMEC coordinated with Schnabel Engineering South (Schnabel) who performed two geophysical surveys (electromagnetic and ground penetrating radar) onsite during December. The geophysical results were reviewed and discussed at the completion of each survey. Prism Laboratories, Inc. was contacted for acquisition of sample bottles. Soil boring locations focused within the proposed ROW. Boring locations were strategically placed close to or around the probable USTs and along the road fronts of the parcel to maximize the likelihood of intercepting any potential soil contamination.

### **3.2 Site Reconnaissance**

AMEC personnel completed site reconnaissance on November 22, 2010. During reconnaissance, the area was visually examined for the presence of any UST or areas/obstructions that could potentially affect the subsurface investigation and the number of boring locations was discussed. Boring locations were marked on January 17, 2011.

### **3.3 Geophysical Survey**

Schnabel performed the geophysical surveys from December 7 to 22, 2010 on the Sparta Rd corridor. Schnabel utilized a Geonics EM61-MK2 to perform the electromagnetic induction surveys and a Geophysical Survey Systems SIR-3000 to conduct the ground-penetrating radar (GPR) investigations. These instruments are specifically calibrated to detect metal anomalies that are buried and are characteristically large. The data collected by Schnabel indicates the presence of two USTs within the proposed design area. The two



USTs locations are denoted in Figure 2 and their capacities and depths buried are tabulated below. The complete geophysical survey report can be found in Appendix C.

Probable UST-1	1,500 gal.	0.5-1.5 ft bgs
Probable UST-2	270 gal.	1-2 ft bgs

### 3.4 Well Survey

No well survey was performed as part of this PSA and no monitoring wells were observed on the parcel.

### 3.5 Soil Sampling

Soil boring occurred on January 24, 2011 at Parcel #139. Eight direct push soil borings were conducted within the NCDOT design project on Parcel #139, which includes the entire site. Figure 2 presents the Site Map with boring locations and identifications. These samples were located to optimize the likelihood of intercepting any potential soil contamination by targeting the two USTs, one AST, the western edge of the site which runs parallel to Sparta Rd, and the southern edge of the site which runs parallel to Elledge Mill Rd. Soil borings, P139-SB-1 through P139-SB-5, were placed around probable UST-1 and probable UST-2. Soil boring P139-SB-6 was located within the proposed ROW and adjacent to the AST. Soil boring P139-SB-7 was placed in the southeastern corner of the site and soil boring P139-SB-8 was placed beside an existing catch basin which will tie into proposed drainage features. None of the boring locations exhibited elevated Photo Ionized Detector (PID) readings. AMEC personnel concluded that adequate coverage of the site had been attained.

Soil samples were collected in accordance with EPA protocols in laboratory-supplied containers. The soil samples for Total Petroleum Hydrocarbons (TPH) –Gasoline Range Organics (GRO) analysis were collected using the 5030 prep method with methanol preservation. Samples for TPH-Diesel Range Organics (DRO) analysis were collected in 4oz. glass containers. Once placed in the containers, the samples were labeled with the sample number, time of collection, date of collection, name of the collector, and the requested analysis. The samples were packed on ice, and then hand delivered to Prism Laboratories in Charlotte, a North Carolina Certified Laboratory following proper chain-of-custody procedures.

## 4.0 SOIL SAMPLING RESULTS

AMEC conducted soil sampling at the Site on January 24, 2011. The purpose of the sampling was to determine if releases of petroleum hydrocarbons had occurred, and if so, to estimate the volume of soil that might require special handling during construction activities. The sampling was accomplished using direct push methods accompanied by field screening for organic vapors with a PID. The laboratory results with PID readings are tabulated in Table 1.

A minimum of 1 soil sample was collected from each of the 8 completed soil borings from Parcel #139. Typically, if impacted soil is identified, then additional soil samples are obtained. None of the soil borings produced elevated PID readings consequently additional soil samples were not warranted. All of the results for DRO analyses reported values below detection limits therefore. Results of analyses of soil samples for GRO were also measured to be below detection limits for all soil boring locations as well. The NC Action Level of 10 mg/kg was not exceeded by DRO or GRO data. Figure 3 shows the Site Map with Analytical Data.

Since the field investigation and the Laboratory analytical report did not indicate contamination, an estimation of contamination was not warranted.

Copies of the original laboratory report and chain-of-custody documentation are included as Appendix D.

## 5.0 CONCLUSIONS

The following conclusions are based upon AMEC's evaluation of field observations and laboratory analyses of samples collected from the Site on January 24, 2011.

- The property presently operates as a church called God's Oasis.
- NCDENR UST Registered Tanks Database and the NCDENR Incident Management Database do not list any Facility IDs or Groundwater Incidents associated with this parcel.



- The geophysical data indicated the presence of two probable USTs. The two USTs will be encountered during construction activities because this entire parcel will be taken.
- Eight soil samples were collected and analyzed for TPH GRO and DRO.
- Laboratory analyses did not indicate DRO and/or GRO detections above the analytical method detection limit.

## 6.0 RECOMMENDATIONS

The entire parcel will be taken therefore the two USTs need to be removed prior to construction activities. Removal of USTs by the UST owner is recommended. Soil will have to be sampled during closure activities and handled following NCDENR's Tank Closure Guidelines.

Since a party other than NCDOT may implement the UST closure, NCDOT should remain cautious of intercepting contaminated soil during road construction activities. If potentially impacted soils are intercepted, AMEC recommends the following action:

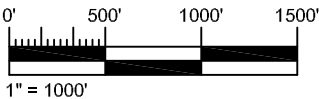
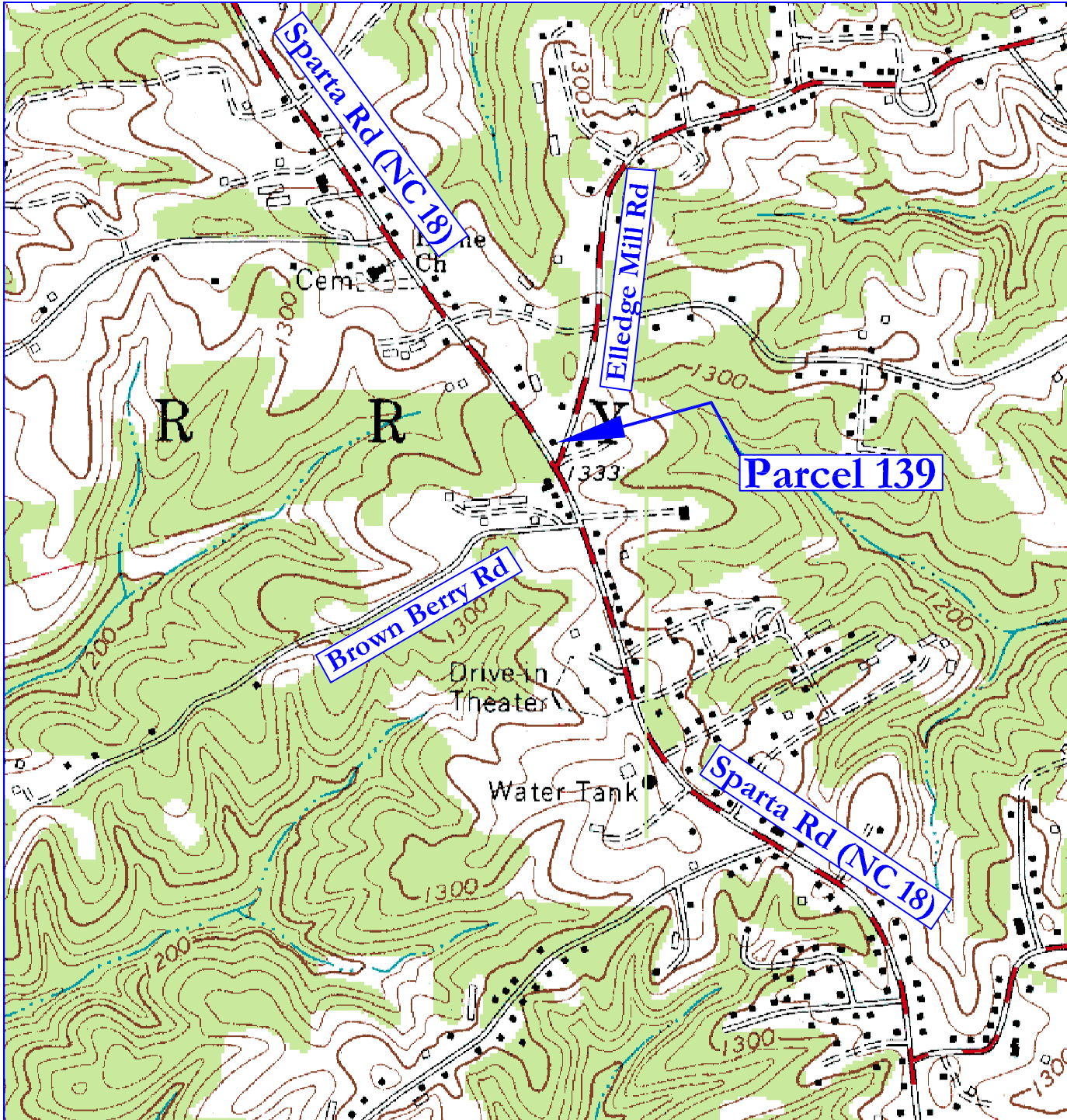
- Segregation, followed by proper assessment and handling, of potentially petroleum-impacted soil during roadway improvement construction operations.

## **TABLES**

**Table 1**  
**Soil Sampling Analytical Results, DRO-GRO**  
**Parcel 139, T.L. and M.E. Bumgarner Property**  
**NC DOT**  
**North Wilkesboro, Wilkes County, North Carolina**

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (ft bgs)	PID READINGS (ppm)	EPA Method 8015B	
				DRO (mg/kg)	GRO (mg/kg)
<b>NC Action Levels</b>				<b>10</b>	<b>10</b>
P139-SB-1	1/24/2011	6 - 8	0	<8.2	<4.4
P139-SB-2	1/24/2011	6 - 8	0	<8.9	<5.0
P139-SB-3	1/24/2011	8 - 10	0	<8.1	<4.4
P139-SB-4	1/24/2011	7 - 9	0	<8.9	<4.9
P139-SB-5	1/24/2011	7 - 9	0	<9.5	<4.7
P139-SB-6	1/24/2011	4 - 5	0	<9.1	<5.5
P139-SB-7	1/24/2011	4 - 5	0	<8.9	<4.8
P139-SB-8	1/24/2011	4 - 5	0	<9.1	<5.0
<b>NOTES:</b> ft bgs = feet below ground surface; ppm = parts per million mg/kg = milligrams per kilogram <b>Bold</b> Concentrations Exceed Action Levels DRO = Diesel Range Organics GRO = Gasoline Range Organics Standards derived from the North Carolina UST Section Guidelines for Assessment and Corrective Action					

## FIGURES



7.5 Minute Quadrangle  
 North Carolina, 1983  
 Photorevised 1993

### VICINITY MAP

Parcel #139, T.L. & M.E. Bumgarner Property  
 (God's Oasis Church)  
 North Wilkesboro, Wilkes County, NC

DRAWING NAME: J:\NCDOT\Wilkes\FIC1	DATE: 2 24 11
SCALE: 1 INCH = 1,000 FEET	DR TLH
	CHK HPC
	REV

PREPARED FOR:  
 NC Department Of Transportation  
 Geotechnical Unit  
 WBS Element: 35579.1.1  
 TIP# R-3405

Prepared By:  
 338 N Elm Ave  
 Suite 112  
 Greensboro, NC 27401  
 (336) 691-5398

Figure:  
 Figure 1

FAIRPLAINS FIRE DEPARTMENT  
DB 791 PG 537

132

139

T. L. & M. E. BUMGARNER  
DB 622 PG 295

NC HWY 18 (Sparta Rd)

P139-SB-7

Elledge Mill Rd

EVE J. WHITLEY  
DB 765 PG 590

133

P139-SB-4

Probable UST 1

P139-SB-5

P139-SB-3

P139-SB-6

P139-SB-2

Probable UST 2










P139-SB-1

AST

ISF CHURCH

P139-SB-8

Tract Lines

-  Proposed Right of Way
-  Existing Property Line
-  Existing Right of Way
-  Cut Line
-  Fill Line
-  Soil Boring Location  
January 2011
-  Probable UST
-  Utility Easement
-  Utility Pole

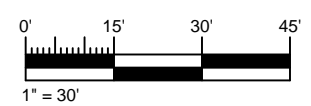


Figure 2  
Parcel #139 T.L. & M.E. Bumgarner Property  
Site Map

NC Department of Transportation  
Geotechnical Unit  
WBS Element: 35579.1.1  
TIP# R-3405



FAIRPLAINS FIRE DEPARTMENT  
DB 791 PG 537

132

Sample Identification	P139-SB-4
Date	1-24-11
Sample Depth (Feet bgs)	7-9
TPH DRO (mg/kg)	BRL (8.9)
TPH GRO (mg/kg)	BRL (4.9)

Sample Identification	P139-SB-3
Date	1-24-11
Sample Depth (Feet bgs)	8-10
TPH DRO (mg/kg)	BRL (8.1)
TPH GRO (mg/kg)	BRL (4.4)

Sample Identification	P139-SB-5
Date	1-24-11
Sample Depth (Feet bgs)	7-9
TPH DRO (mg/kg)	BRL (9.5)
TPH GRO (mg/kg)	BRL (4.7)

Sample Identification	P139-SB-2
Date	1-24-11
Sample Depth (Feet bgs)	6-8
TPH DRO (mg/kg)	BRL (8.9)
TPH GRO (mg/kg)	BRL (5.0)

Sample Identification	P139-SB-6
Date	1-24-11
Sample Depth (Feet bgs)	4-5
TPH DRO (mg/kg)	BRL (9.1)
TPH GRO (mg/kg)	BRL (5.5)

Sample Identification	P139-SB-1
Date	1-24-11
Sample Depth (Feet bgs)	6-8
TPH DRO (mg/kg)	BRL (8.2)
TPH GRO (mg/kg)	BRL (4.4)

Sample Identification	P139-SB-7
Date	1-24-11
Sample Depth (Feet bgs)	6-8
TPH DRO (mg/kg)	BRL (8.9)
TPH GRO (mg/kg)	BRL (4.8)

Sample Identification	P139-SB-8
Date	1-24-11
Sample Depth (Feet bgs)	4-5
TPH DRO (mg/kg)	BRL (9.1)
TPH GRO (mg/kg)	BRL (5.0)









NC HWY 18 (Sparta Rd)

Elledge Mill Rd

EVE J. WHITLEY  
DB 765 PG 590

133

T. L. & M. E. BUMGARNER

-  Proposed Right of Way
-  Existing Property Line
-  Existing Right of Way
-  Cut Line
-  Fill Line
-  Soil Boring Location January 2011
-  Probable UST
-  Utility Easement

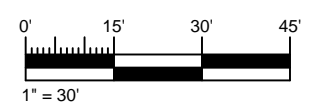


Figure 3  
Parcel #139 T.L. & M.E. Bumgarner Property  
Site Map With Analytical Data

NC Department of Transportation  
Geotechnical Unit  
WBS Element: 35579.1.1  
TIP# R-3405



**APPENDIX A**

**PHOTO LOG**





**Photo 1**

Viewing northeast from the southwestern corner of the Site. The photo shows the church in its current condition.



**Photo 2**

Viewing south from the western side of the church. The photo shows probable UST-1.



338 North Elm Street, Suite 112  
Greensboro, NC 27401

W.O. 562113405  
PROCESSED TLH  
DATE January 2011  
PAGE 1

PHOTOGRAPHIC LOG

Preliminary Site Assessment  
Parcel 139, Gary B. Miller Property  
North Wilkesboro, NC



**Photo 3**

Viewing south from northern side of the church. Photo shows Probable UST-2 and its fuel port and vent.



**Photo 4**

Viewing east from western portion of the site. Photo shows an AST located on the southwestern side of the church.



338 North Elm Street, Suite 112  
Greensboro, NC 27401

W.O. 562113405  
PROCESSED TLH  
DATE January 2011  
PAGE 2

PHOTOGRAPHIC LOG

Preliminary Site Assessment  
Parcel 139, Gary B. Miller Property  
North Wilkesboro, NC

**APPENDIX B**  
**BORING LOGS**









## AMEC Earth & Environmental, Inc.

### BORING LOG

Boring/Well No.: P139-SB4	Site Name: Parcel 139
Date: 1-24-11	Location: North Wilkesboro, Wilkes Co., NC
Job No.: 562113405	Sample Method: Direct Push
AMEC Rep: Troy Holzschuh	Drilling Method: Direct Push
Drilling Company: CSI	Driller Name/Cert #: Keith Speece - 2856-A

Remarks:

Depth (ft BLS)	PID/OVA Reading (ppm)	Blow Counts	Soil/Lithologic Description
0-0.5			Grass/Organic Soil
0.5-1	0		Brown, Well Sorted, Clayey Silt, Damp
1-4.5	0		Orange, Well Sorted, Clayey Silt, Damp
4.5-7	0		Orange/Yellow, Well Sorted, Silt, Damp
7-9	0		Orange, Well Sorted, Clayey Silt, Damp
9-11	0		Pink, Well Sorted, Clayey Silt, Damp
11-15	0		Tan, Well Sorted, Silt, Damp

#### WELL CONSTRUCTION DETAILS (If Applicable)

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:



# AMEC Earth & Environmental, Inc.

## BORING LOG

Boring/Well No.: P139-SB5	Site Name: Parcel 139
Date: 1-24-11	Location: North Wilkesboro, Wilkes Co., NC
Job No.: 562113405	Sample Method: Direct Push
AMEC Rep: Troy Holzschuh	Drilling Method: Direct Push
Drilling Company: CSI	Driller Name/Cert #: Keith Speece - 2856-A

Remarks:

Depth (ft BLS)	PID/OVA Reading (ppm)	Blow Counts	Soil/Lithologic Description
0-0.5			Asphalt/Aggregate
0.5-1.5	0		Brown, Well Sorted, Clayey Silt, Damp
1.5-3	0		Orange, Well Sorted, Clayey Silt, Damp
3-7	0		Red, Well Sorted, Clayey Silt, Damp
7-9	0		Yellow/Brown, Well Sorted, Clayey Silt, Damp
9-11	0		Pink, Well Sorted, Clayey Silt, Damp
11-13	0		Tan, Well Sorted, Silt, Damp
13-15	0		Tan, Well Sorted, Silt, Damp

**WELL CONSTRUCTION DETAILS (If Applicable)**

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:







**AMEC Earth & Environmental, Inc.**

**BORING LOG**

Boring/Well No.: P139-SB7	Site Name: Parcel 139
Date: 1-24-11	Location: North Wilkesboro, Wilkes Co., NC
Job No.: 562113405	Sample Method: Direct Push
AMEC Rep: Troy Holzschuh	Drilling Method: Direct Push
Drilling Company: CSI	Driller Name/Cert #: Keith Speece - 2856-A

Remarks:

Depth (ft BLS)	PID/OVA Reading (ppm)	Blow Counts	Soil/Lithologic Description
0-0.5			Asphalt/Aggregate
0.5-1.5	0		Brown, Well Sorted, Clayey Silt, Damp
1.5-3	0		Red, Well Sorted, Clayey Silt, Damp
3-6	0		Red, Well Sorted, Clayey Silt, Damp
6-8	0		Red/Pink, Well Sorted, Silt, Damp
8-10	0		Red/Pink, Well Sorted, Silt, Damp

**WELL CONSTRUCTION DETAILS (If Applicable)**

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:



# AMEC Earth & Environmental, Inc.

## BORING LOG

<b>Boring/Well No.:</b> P139-SB8	<b>Site Name:</b> Parcel 139
<b>Date:</b> 1-24-11	<b>Location:</b> North Wilkesboro, Wilkes Co., NC
<b>Job No.:</b> 562113405	<b>Sample Method:</b> Direct Push
<b>AMEC Rep:</b> Troy Holzschuh	<b>Drilling Method:</b> Direct Push
<b>Drilling Company:</b> CSI	<b>Driller Name/Cert #:</b> Keith Speece - 2856-A

**Remarks:**

Depth (ft BLS)	PID/OVA Reading (ppm)	Blow Counts	Soil/Lithologic Description
0-0.5			Asphalt/Aggregate
0.5-1	0		Brown, Well Sorted, Clayey Silt, Damp
1-5	0		Orange, Well Sorted, Clayey Silt, Damp
5-7	0		Red, Well Sorted, Silt, Damp
7-10	0		Orange, Well Sorted, Silt, Damp

WELL CONSTRUCTION DETAILS (If Applicable)	
Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:

**APPENDIX C**  
**GEOPHYSICAL SURVEY REPORT**



January 28, 2011

Ms. Helen Corley, LG  
AMEC Earth and Environmental of North Carolina, Inc.  
101 W. Friendly Avenue, Suite 603  
Greensboro, NC 27401

RE:           State Project: R-3405  
              WBS Element: 35579.1.1  
              County: Wilkes  
              Description: NC 18 from SR 1002 (Mountain View Road) to SR 1717 (Yellow Banks Road)

**Subject:       Project 09210013.34 Report on Geophysical Surveys  
                  Parcel 139, Wilkes County, North Carolina**

Dear Ms. Corley:

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

## **INTRODUCTION**

The work described in this report was conducted on December 7 and 22, 2010, by Schnabel under our 2009 contract with the NCDOT. The work was conducted over the accessible areas of the parcel as indicated by the NCDOT to support their environmental assessment of the subject property. Photographs of the parcel are included on Figure 1. The property is located on the north quadrant of the intersection of Elledge Mill Road and Sparta Road in North Wilkesboro, NC. The purpose of the geophysical surveys was to locate suspect metal underground storage tanks (USTs) in the accessible areas of the right-of-way and/or easement.

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

## **FIELD METHODOLOGY**

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

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

## **DISCUSSION OF RESULTS**

The contoured EM61 data collected over Parcel 139 are shown on Figures 3 and 4. The EM61 early time gate results are plotted on Figure 3. The early time gate data provide the more sensitive detection of metal objects. Figure 4 shows the difference between the response of the top and bottom coils of the EM61 instrument (differential response). The difference is taken to remove the effect of surface and very shallowly buried metallic objects. Typically, the differential response emphasizes anomalies from deeper and larger objects such as USTs.

The early time gate and differential results show anomalies of unknown cause, in addition to those apparently caused by reinforced concrete, buried utilities, or known site features (Figures 3 and 4). The GPR data collected near the northwestern side of the building indicate the presence of two probable USTs located within approximately 5 to 10 feet of the northwestern building corner. The USTs are partially inside the limits of the planned right-of way and/or easement. Example GPR images showing the reflections from the probable USTs are shown on Figures 3 and 4. Figures 3 and 4 also include the location of the probable USTs as marked in the field. Apparent fill and vent pipes are present at the location of Probable UST No. 2.

The GPR data indicate that Probable UST No. 1 is buried approximately 0.5 to 1.5 feet below ground surface, and is about 5 feet in diameter and about 9 feet long, equivalent to a capacity of about 1,500 gallons. The GPR data indicate that Probable UST No. 2 is buried approximately 1.0 to 2.0 feet below ground surface, and is about 3 feet in diameter and about 5 feet long, equivalent to a capacity of about 270 gallons. Photographs of the probable UST locations, as marked in the field, are included on Figure 5.

## **CONCLUSIONS**

Our evaluation of the geophysical data collected on the subject property on Project R-3405 in North Wilkesboro, NC indicates the following:

The geophysical data indicate the presence of two probable USTs on Parcel 139. The two probable USTs are at least partially inside the planned right-of-way and/or easement. Probable UST No. 1 is about 1,500-gallon capacity and is buried about 0.5 to 1.5 feet below ground surface. Probable UST No. 2 is about 270-gallon capacity and is buried about 1.0 to 2.0 feet below ground surface.

## **LIMITATIONS**

These services have been performed and this report prepared for AMEC Earth and Environmental of North Carolina, Inc. and the North Carolina Department of Transportation in accordance with generally accepted guidelines for conducting geophysical surveys. It is generally recognized that the results of geophysical surveys are non-unique and may not represent actual subsurface conditions.

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

Sincerely,

**SCHNABEL ENGINEERING SOUTH, PC**



Jeremy S. Strohmeyer, LG  
Project Manager



Edward D. Billington, LG  
Senior Vice President

JW:JS:NB

Attachments: Figures (5)

FILE: G:\2009 PROJECTS\09210013 (NCDOT 2009 GEOTECH UNIT SERVICES)\09210013.34 (R-3405, WILKES COUNTY)\REPORT\PARCEL 139\SCHNABEL GEOPHYSICAL REPORT ON PARCEL 139 (R-3405).DOCX



Parcel 139 – T.L & M.E Bumgarner Property, looking north



Parcel 139 – T.L & M.E Bumgarner Property, looking northeast

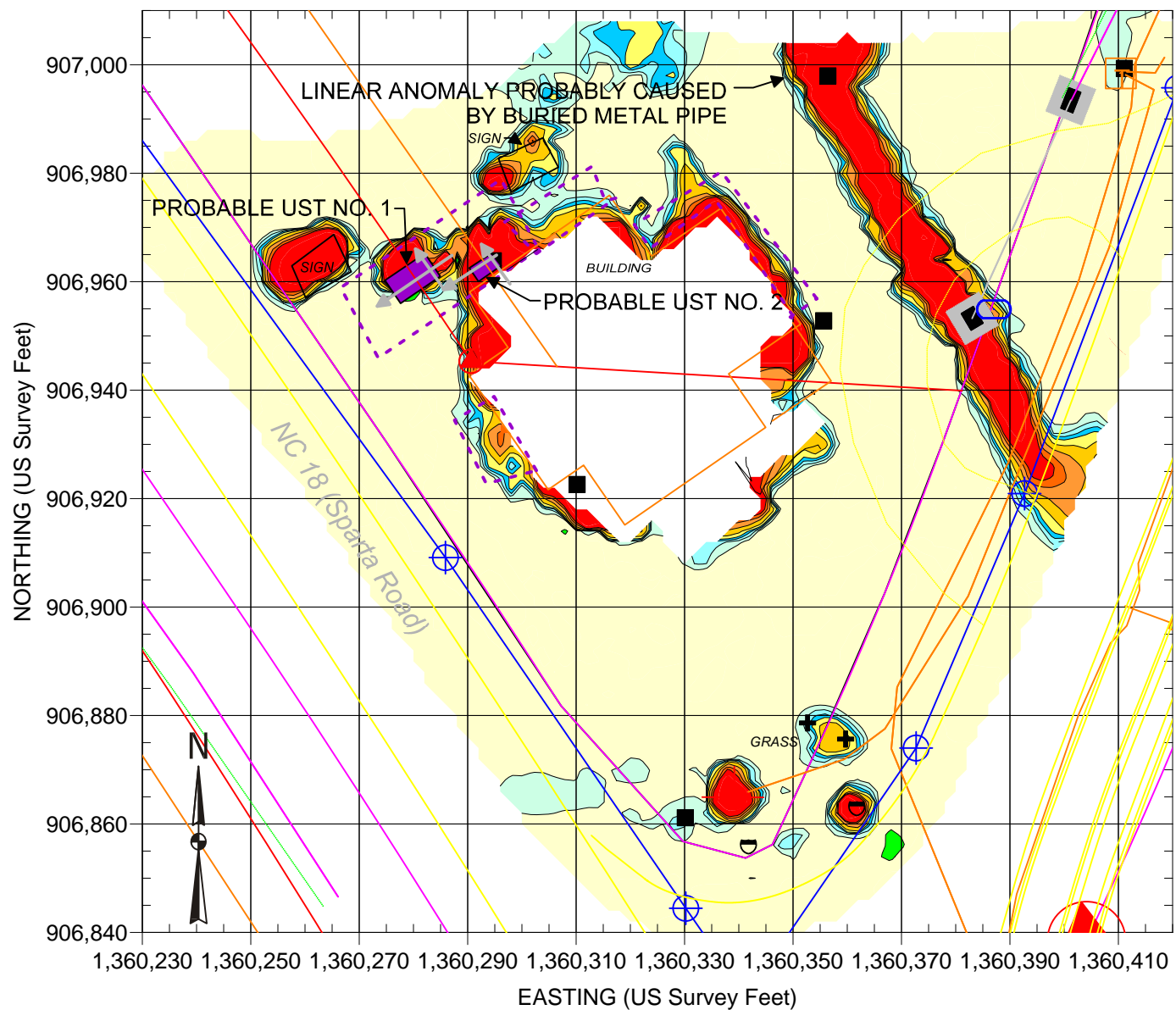




Geonics EM61-MK2



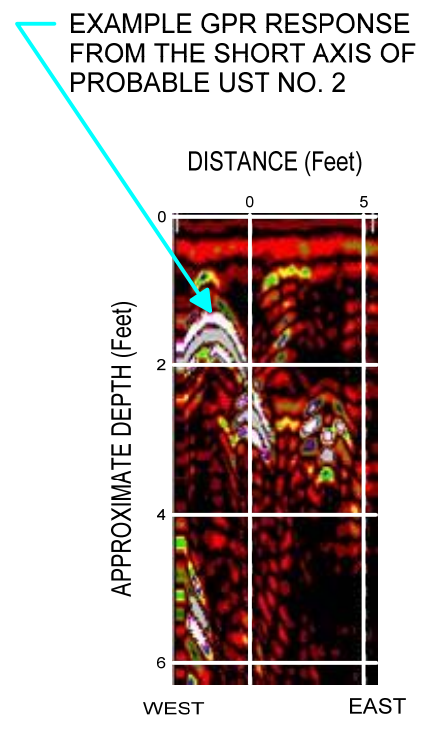
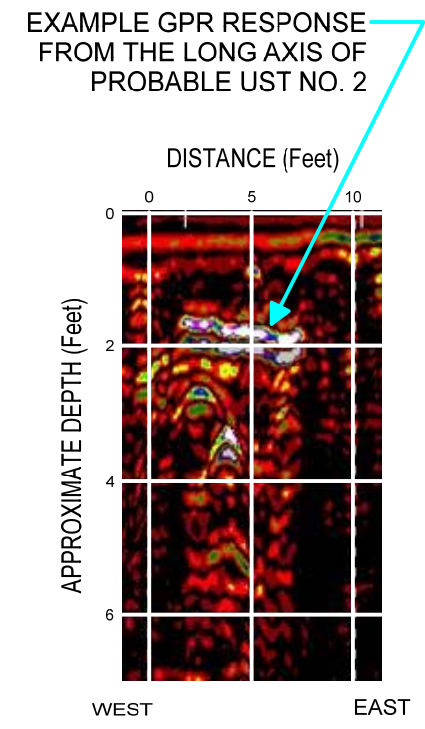
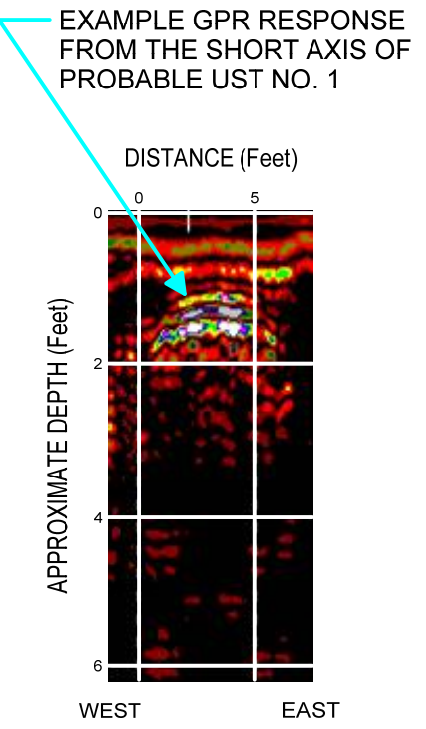
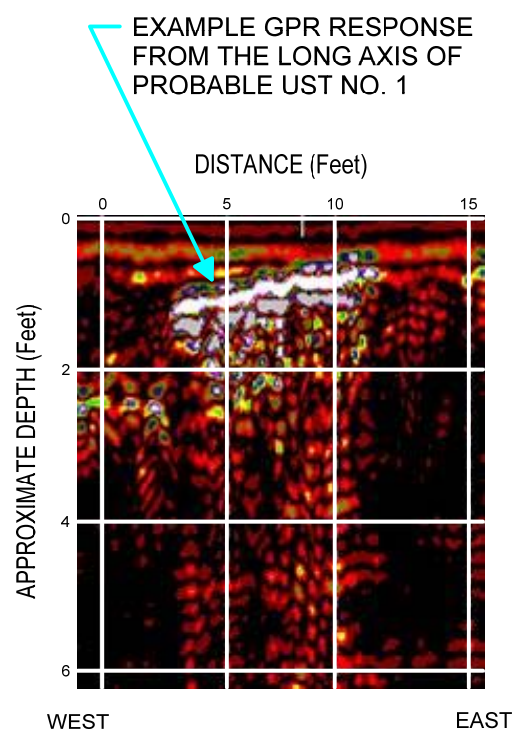
GSSI SIR-3000



### EXPLANATION

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

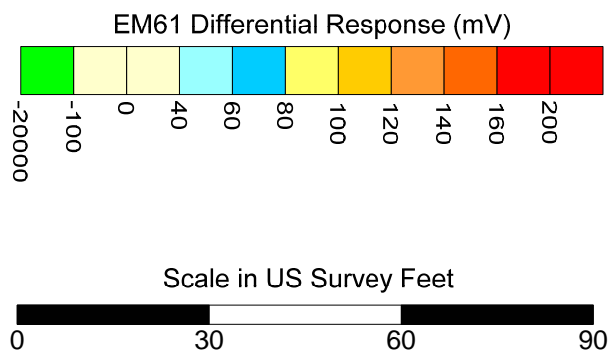
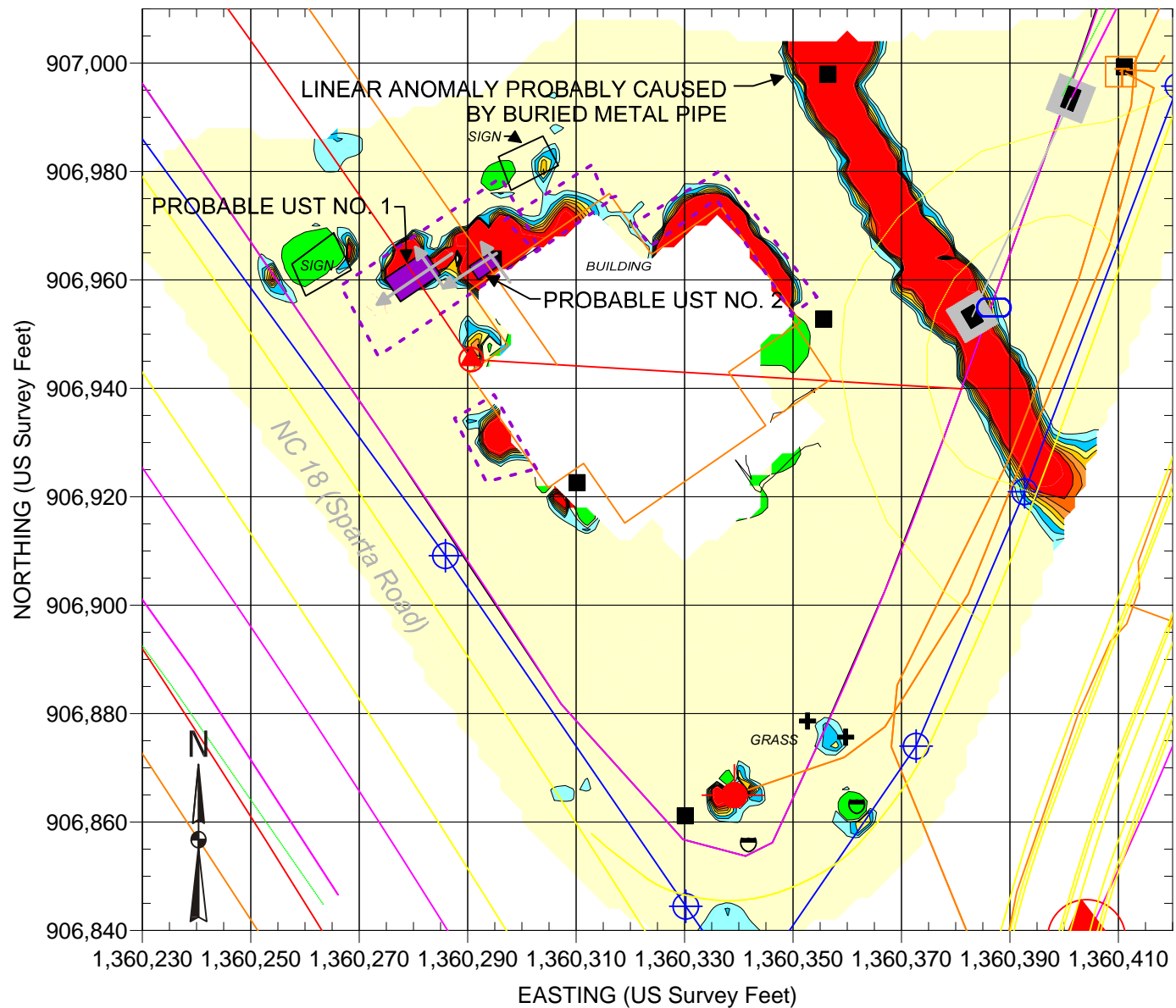
REF.: NCDOT FILE: r3405\_ddc\_psh10\_060530.dgn  
(FOR SOME SITE FEATURES)



Note: The contour plot shows the earliest and most sensitive time gate of the EM61 bottom coil/channel in millivolts (mV). The EM data were collected on December 7, 2010, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina Zone 3200, using the NAD 1983 datum. GPR data were acquired on December 22, 2010, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.

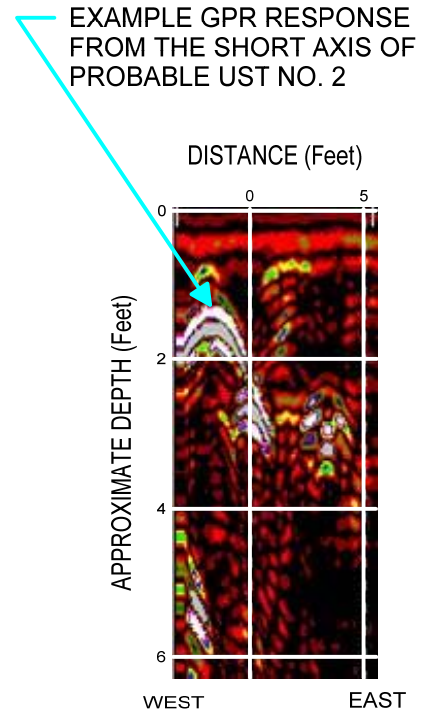
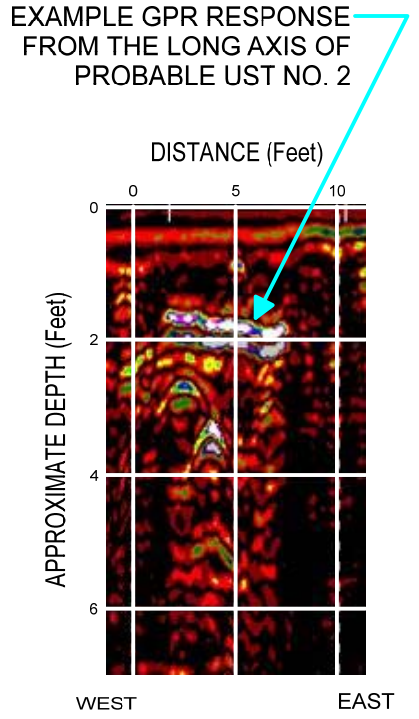
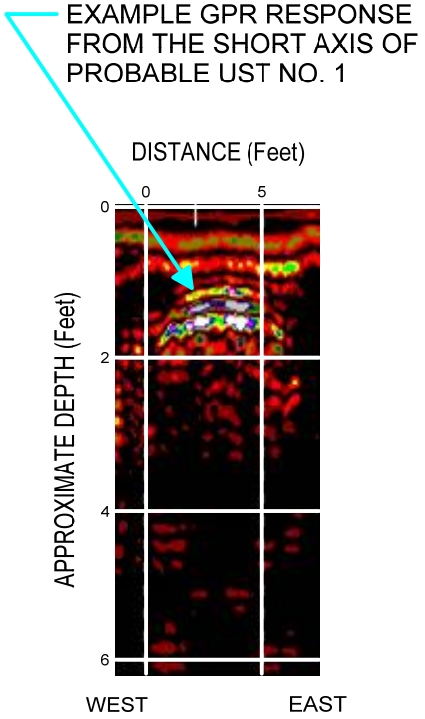
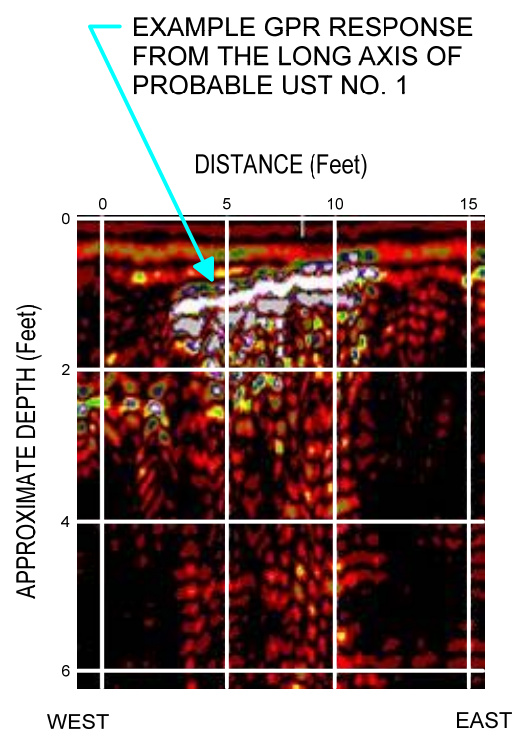
	<p>STATE PROJECT R-3405 WILKES COUNTY, NORTH CAROLINA NC DEPARTMENT OF TRANSPORTATION PROJECT NO. 09210013.34</p>	<p>PARCEL 139 EARLY TIME GATE RESPONSE</p>
--	-------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------

FIGURE 3



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

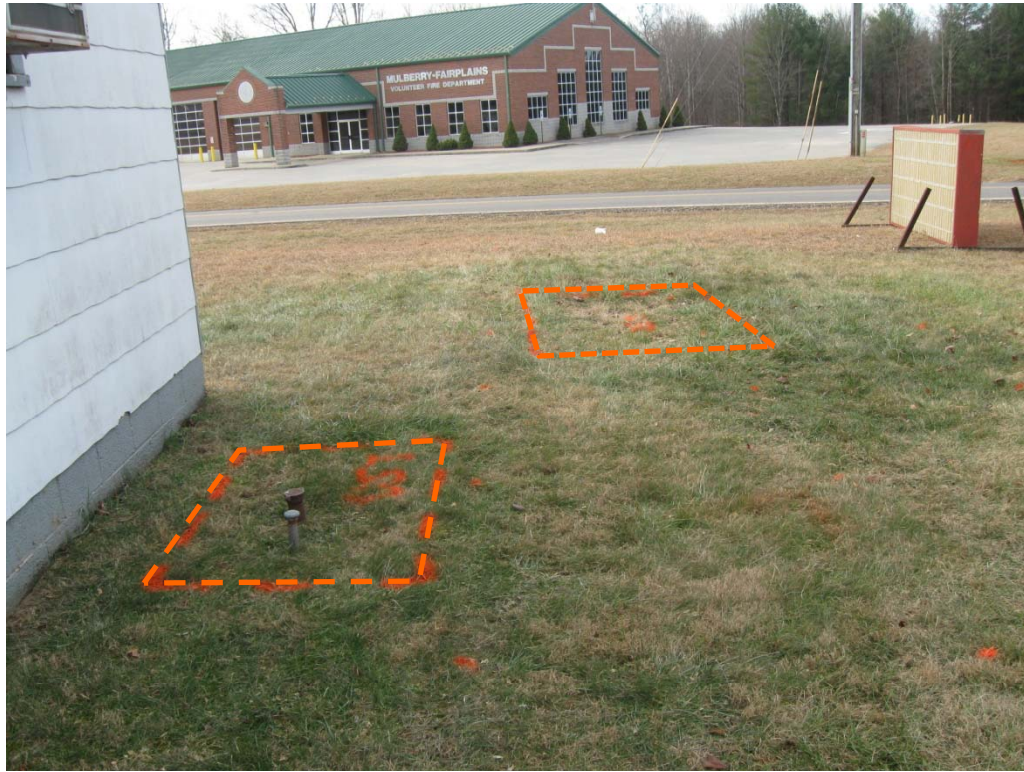
REF.: NCDOT FILE: r3405\_ddc\_psh10\_060530.dgn  
(FOR SOME SITE FEATURES)



Note: The contour plot shows the difference, in millivolts (mV), between the readings from the top and bottom coils of the EM61. The difference is taken to reduce the effect of shallow metal objects and emphasize anomalies caused by deeper metallic objects, such as drums and tanks. The EM data were collected on December 7, 2010, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina 3200 Zone, using the NAD 1983 datum. GPR data were acquired on December 22, 2010, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.

	STATE PROJECT R-3405 WILKES COUNTY, NORTH CAROLINA NC DEPARTMENT OF TRANSPORTATION PROJECT NO. 09210013.34	PARCEL 139 DIFFERENTIAL RESPONSE
--	---------------------------------------------------------------------------------------------------------------------	----------------------------------------

FIGURE 4



Parcel 139 – T.L. & M.E. Bumgarner Property, looking southwest. Photo shows approximate marked location of the probable USTs near the northwestern side of the building. Note apparent fill and vent pipes at location of Probable UST No. 2 next to building.



Parcel 139 – T.L. & M.E. Bumgarner Property, looking northeast. Photo shows approximate marked location of the probable USTs near the northwestern side of the building.



STATE PROJECT R-3405  
 WILKES CO., NORTH CAROLINA  
 NC DEPT. OF TRANSPORTATION  
 PROJECT NO. 09210013.34

PHOTOS OF  
 PROBABLE  
 UST LOCATIONS

FIGURE 5

## **APPENDIX D**

### **LABORATORY ANALYTICAL RESULTS**

AMEC Earth & Env. Inc.(DOT Gree)  
Helen Corley  
338 North Elm St. Suite 112  
Greensboro, NC 27401

Project: NCDOT: Wilkes County Parcel 139  
Project No.: WBS #35579.1.1  
Lab Submittal Date: 01/26/2011  
Prism Work Order: 1010563

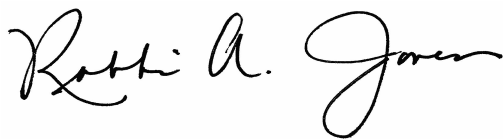
This data package contains the analytical results for the project identified above and includes a Case Narrative, Sample Results and Chain of Custody. Unless otherwise noted, all samples were received in acceptable condition and processed according to the referenced methods.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative.

Please call if you have any questions relating to this analytical report.

Respectfully,

**PRISM LABORATORIES, INC.**



President/Project Manager



Reviewed By

**Data Qualifiers Key Reference:**

- A Surrogate recovery above the control limit. GRO was not detected in the sample. No further action was taken.
- BRL Below Reporting Limit
- MDL Method Detection Limit
- RPD Relative Percent Difference
- \* Results reported to the reporting limit. All other results are reported to the MDL with values between MDL and reporting limit indicated with a J.

Client Sample ID	Lab Sample ID	Matrix	Date Sampled	Date Received
P139-SB-1(6-8)	1010563-01	Solid	01/24/11	01/26/11
P139-SB-2(6-8)	1010563-02	Solid	01/24/11	01/26/11
P139-SB-3(8-10)	1010563-03	Solid	01/24/11	01/26/11
P139-SB-4(7-9)	1010563-04	Solid	01/24/11	01/26/11
P139-SB-5(7-9)	1010563-05	Solid	01/24/11	01/26/11
P139-SB-6(4-5)	1010563-06	Solid	01/24/11	01/26/11
P139-SB-7(4-5)	1010563-07	Solid	01/24/11	01/26/11
P139-SB-8(4-5)	1010563-08	Solid	01/24/11	01/26/11

Samples received in good condition at 3.7 degrees C unless otherwise noted.

AMEC Earth & Env. Inc.(DOT Gree)  
 Attn: Helen Corley  
 338 North Elm St. Suite 112  
 Greensboro, NC 27401

Project: NCDOT: Wilkes County  
 Parcel 139  
 Project No.: WBS #35579.1.1  
 Sample Matrix: Solid

Client Sample ID: P139-SB-1(6-8)  
 Prism Sample ID: 1010563-01  
 Prism Work Order: 1010563  
 Time Collected: 01/24/11 15:00  
 Time Submitted: 01/26/11 13:12

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>Diesel Range Organics by GC/FID</b>									
Diesel Range Organics	BRL	mg/kg dry	8.2	1.3	1	*8015C	2/2/11 0:42	JMV	P1A0520
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			91 %		49-124	
<b>Gasoline Range Organics by GC/FID</b>									
Gasoline Range Organics	BRL	mg/kg dry	4.4	0.57	50	*8015C	1/31/11 22:22	HPE	P1A0526
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			122 %		55-129	
<b>General Chemistry Parameters</b>									
% Solids	85.1	% by Weight	0.100	0.100	1	*SM2540 G	1/28/11 15:00	JAB	P1A0512



AMEC Earth & Env. Inc.(DOT Gree)  
Attn: Helen Corley  
338 North Elm St. Suite 112  
Greensboro, NC 27401

Project: NCDOT: Wilkes County  
Parcel 139  
Project No.: WBS #35579.1.1  
Sample Matrix: Solid

Client Sample ID: P139-SB-2(6-8)  
Prism Sample ID: 1010563-02  
Prism Work Order: 1010563  
Time Collected: 01/24/11 15:10  
Time Submitted: 01/26/11 13:12

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
-----------	--------	-------	--------------	-----	-----------------	--------	--------------------	---------	----------

### Diesel Range Organics by GC/FID

Diesel Range Organics	BRL	mg/kg dry	8.9	1.4	1	*8015C	2/2/11 1:53	JMV	P1A0520
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			98 %		49-124	

### Gasoline Range Organics by GC/FID

Gasoline Range Organics	BRL	mg/kg dry	5.0	0.65	50	*8015C	1/31/11 22:53	HPE	P1A0526
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			93 %		55-129	

### General Chemistry Parameters

% Solids	78.1	% by Weight	0.100	0.100	1	*SM2540 G	1/28/11 15:00	JAB	P1A0512
----------	------	-------------	-------	-------	---	-----------	---------------	-----	---------

AMEC Earth & Env. Inc.(DOT Gree)  
Attn: Helen Corley  
338 North Elm St. Suite 112  
Greensboro, NC 27401

Project: NCDOT: Wilkes County  
Parcel 139  
Project No.: WBS #35579.1.1  
Sample Matrix: Solid

Client Sample ID: P139-SB-3(8-10)  
Prism Sample ID: 1010563-03  
Prism Work Order: 1010563  
Time Collected: 01/24/11 15:20  
Time Submitted: 01/26/11 13:12

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
-----------	--------	-------	--------------	-----	-----------------	--------	--------------------	---------	----------

### Diesel Range Organics by GC/FID

Diesel Range Organics	BRL	mg/kg dry	8.1	1.3	1	*8015C	2/2/11 2:28	JMV	P1A0520
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			94 %		49-124	

### Gasoline Range Organics by GC/FID

Gasoline Range Organics	BRL	mg/kg dry	4.4	0.57	50	*8015C	1/31/11 23:25	HPE	P1A0526
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			137 %		55-129	A

### General Chemistry Parameters

% Solids	85.8	% by Weight	0.100	0.100	1	*SM2540 G	1/28/11 15:00	JAB	P1A0512
----------	------	-------------	-------	-------	---	-----------	---------------	-----	---------

AMEC Earth & Env. Inc.(DOT Gree)  
Attn: Helen Corley  
338 North Elm St. Suite 112  
Greensboro, NC 27401

Project: NCDOT: Wilkes County  
Parcel 139  
Project No.: WBS #35579.1.1  
Sample Matrix: Solid

Client Sample ID: P139-SB-4(7-9)  
Prism Sample ID: 1010563-04  
Prism Work Order: 1010563  
Time Collected: 01/24/11 15:30  
Time Submitted: 01/26/11 13:12

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
-----------	--------	-------	--------------	-----	-----------------	--------	--------------------	---------	----------

### Diesel Range Organics by GC/FID

Diesel Range Organics	BRL	mg/kg dry	8.9	1.4	1	*8015C	2/2/11 3:04	JMV	P1A0520
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			85 %		49-124	

### Gasoline Range Organics by GC/FID

Gasoline Range Organics	BRL	mg/kg dry	4.9	0.63	50	*8015C	1/31/11 23:57	HPE	P1A0526
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			114 %		55-129	

### General Chemistry Parameters

% Solids	78.1	% by Weight	0.100	0.100	1	*SM2540 G	1/28/11 15:00	JAB	P1A0512
----------	------	-------------	-------	-------	---	-----------	---------------	-----	---------

AMEC Earth & Env. Inc.(DOT Gree)  
Attn: Helen Corley  
338 North Elm St. Suite 112  
Greensboro, NC 27401

Project: NCDOT: Wilkes County  
Parcel 139  
Project No.: WBS #35579.1.1  
Sample Matrix: Solid

Client Sample ID: P139-SB-5(7-9)  
Prism Sample ID: 1010563-05  
Prism Work Order: 1010563  
Time Collected: 01/24/11 15:45  
Time Submitted: 01/26/11 13:12

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
-----------	--------	-------	--------------	-----	-----------------	--------	--------------------	---------	----------

### Diesel Range Organics by GC/FID

Diesel Range Organics	BRL	mg/kg dry	9.5	1.5	1	*8015C	2/2/11 3:39	JMV	P1A0520
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			85 %		49-124	

### Gasoline Range Organics by GC/FID

Gasoline Range Organics	BRL	mg/kg dry	4.7	0.61	50	*8015C	2/1/11 0:28	HPE	P1A0526
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			112 %		55-129	

### General Chemistry Parameters

% Solids	73.3	% by Weight	0.100	0.100	1	*SM2540 G	1/28/11 15:00	JAB	P1A0512
----------	------	-------------	-------	-------	---	-----------	---------------	-----	---------

AMEC Earth & Env. Inc.(DOT Gree)  
 Attn: Helen Corley  
 338 North Elm St. Suite 112  
 Greensboro, NC 27401

Project: NCDOT: Wilkes County  
 Parcel 139  
 Project No.: WBS #35579.1.1  
 Sample Matrix: Solid

Client Sample ID: P139-SB-6(4-5)  
 Prism Sample ID: 1010563-06  
 Prism Work Order: 1010563  
 Time Collected: 01/24/11 16:00  
 Time Submitted: 01/26/11 13:12

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
-----------	--------	-------	--------------	-----	-----------------	--------	--------------------	---------	----------

**Diesel Range Organics by GC/FID**

Diesel Range Organics	BRL	mg/kg dry	9.1	1.5	1	*8015C	2/2/11 4:15	JMV	P1A0520
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			97 %		49-124	

**Gasoline Range Organics by GC/FID**

Gasoline Range Organics	BRL	mg/kg dry	5.5	0.71	50	*8015C	2/1/11 1:00	HPE	P1A0526
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			196 %		55-129	A

**General Chemistry Parameters**

% Solids	76.5	% by Weight	0.100	0.100	1	*SM2540 G	1/28/11 15:00	JAB	P1A0512
----------	------	-------------	-------	-------	---	-----------	---------------	-----	---------

AMEC Earth & Env. Inc.(DOT Gree)  
Attn: Helen Corley  
338 North Elm St. Suite 112  
Greensboro, NC 27401

Project: NCDOT: Wilkes County  
Parcel 139  
Project No.: WBS #35579.1.1  
Sample Matrix: Solid

Client Sample ID: P139-SB-7(4-5)  
Prism Sample ID: 1010563-07  
Prism Work Order: 1010563  
Time Collected: 01/24/11 16:10  
Time Submitted: 01/26/11 13:12

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
-----------	--------	-------	--------------	-----	-----------------	--------	--------------------	---------	----------

### Diesel Range Organics by GC/FID

Diesel Range Organics	BRL	mg/kg dry	8.9	1.4	1	*8015C	2/2/11 4:50	JMV	P1A0520
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			94 %		49-124	

### Gasoline Range Organics by GC/FID

Gasoline Range Organics	BRL	mg/kg dry	4.8	0.63	50	*8015C	2/1/11 1:31	HPE	P1A0526
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			106 %		55-129	

### General Chemistry Parameters

% Solids	78.2	% by Weight	0.100	0.100	1	*SM2540 G	1/28/11 15:00	JAB	P1A0512
----------	------	-------------	-------	-------	---	-----------	---------------	-----	---------

AMEC Earth & Env. Inc.(DOT Gree)  
Attn: Helen Corley  
338 North Elm St. Suite 112  
Greensboro, NC 27401

Project: NCDOT: Wilkes County  
Parcel 139  
Project No.: WBS #35579.1.1  
Sample Matrix: Solid

Client Sample ID: P139-SB-8(4-5)  
Prism Sample ID: 1010563-08  
Prism Work Order: 1010563  
Time Collected: 01/24/11 16:30  
Time Submitted: 01/26/11 13:12

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
-----------	--------	-------	--------------	-----	-----------------	--------	--------------------	---------	----------

### Diesel Range Organics by GC/FID

Diesel Range Organics	BRL	mg/kg dry	9.1	1.5	1	*8015C	2/2/11 5:25	JMV	P1A0520
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			94 %		49-124	

### Gasoline Range Organics by GC/FID

Gasoline Range Organics	BRL	mg/kg dry	5.0	0.65	50	*8015C	2/1/11 2:03	HPE	P1A0526
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			109 %		55-129	

### General Chemistry Parameters

% Solids	77.2	% by Weight	0.100	0.100	1	*SM2540 G	1/28/11 15:00	JAB	P1A0512
----------	------	-------------	-------	-------	---	-----------	---------------	-----	---------



AMEC Earth & Env. Inc.(DOT Gree)  
 Attn: Helen Corley  
 338 North Elm St. Suite 112  
 Greensboro, NC 27401

Project: NCDOT: Wilkes County Parcel  
 139  
 Project No: WBS #35579.1.1

Prism Work Order: 1010563  
 Time Submitted: 1/26/11 1:12:00PM

**Gasoline Range Organics by GC/FID - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch P1A0526 - 5035</b>										
<b>Blank (P1A0526-BLK1)</b>										
Prepared & Analyzed: 01/31/11										
Gasoline Range Organics	BRL	5.0	mg/kg wet							
Surrogate: a,a,a-Trifluorotoluene	5.05		mg/kg wet	5.00		101	55-129			
<b>LCS (P1A0526-BS1)</b>										
Prepared & Analyzed: 01/31/11										
Gasoline Range Organics	39.8	5.0	mg/kg wet	50.0		80	67-116			
Surrogate: a,a,a-Trifluorotoluene	5.15		mg/kg wet	5.00		103	55-129			
<b>LCS Dup (P1A0526-BSD1)</b>										
Prepared & Analyzed: 01/31/11										
Gasoline Range Organics	41.2	5.0	mg/kg wet	50.0		82	67-116	3	200	
Surrogate: a,a,a-Trifluorotoluene	5.10		mg/kg wet	5.00		102	55-129			



AMEC Earth & Env. Inc.(DOT Gree)  
Attn: Helen Corley  
338 North Elm St. Suite 112  
Greensboro, NC 27401

Project: NCDOT: Wilkes County Parcel  
139  
Project No: WBS #35579.1.1

Prism Work Order: 1010563  
Time Submitted: 1/26/11 1:12:00PM

**Diesel Range Organics by GC/FID - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch P1A0520 - 3545A</b>										
<b>Blank (P1A0520-BLK1)</b>										
					Prepared: 01/31/11 Analyzed: 02/01/11					
Diesel Range Organics	BRL	7.0	mg/kg wet							
Surrogate: <i>o</i> -Terphenyl	1.43		mg/kg wet	1.60		89	49-124			
<b>LCS (P1A0520-BS1)</b>										
					Prepared: 01/31/11 Analyzed: 02/01/11					
Diesel Range Organics	60.6	6.9	mg/kg wet	79.4		76	55-109			
Surrogate: <i>o</i> -Terphenyl	1.43		mg/kg wet	1.59		90	49-124			
<b>LCS Dup (P1A0520-BSD1)</b>										
					Prepared: 01/31/11 Analyzed: 02/01/11					
Diesel Range Organics	56.7	6.9	mg/kg wet	79.4		71	55-109	7	200	
Surrogate: <i>o</i> -Terphenyl	1.43		mg/kg wet	1.59		90	49-124			

AMEC Earth & Env. Inc.(DOT Gree)  
Attn: Helen Corley  
338 North Elm St. Suite 112  
Greensboro, NC 27401

Project: NCDOT: Wilkes County Parcel  
139  
Project No: WBS #35579.1.1

Prism Work Order: 1010563  
Time Submitted: 1/26/11 1:12:00PM

**General Chemistry Parameters - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch P1A0512 - NO PREP**

**Blank (P1A0512-BLK1)** Prepared & Analyzed: 01/28/11

% Solids	100	0.100	% by Weight							
----------	-----	-------	-------------	--	--	--	--	--	--	--

**Duplicate (P1A0512-DUP3)** Source: 1010563-03 Prepared & Analyzed: 01/28/11

% Solids	81.2	0.100	% by Weight		85.8			6	20	
----------	------	-------	-------------	--	------	--	--	---	----	--

**Sample Extraction Data**

**Prep Method: 3545A**

Lab Number	Batch	Initial	Final	Date
1010563-01	P1A0520	25.08 g	1 mL	01/31/11
1010563-02	P1A0520	25.05 g	1 mL	01/31/11
1010563-03	P1A0520	25.17 g	1 mL	01/31/11
1010563-04	P1A0520	25.1 g	1 mL	01/31/11
1010563-05	P1A0520	25.22 g	1 mL	01/31/11
1010563-06	P1A0520	25.16 g	1 mL	01/31/11
1010563-07	P1A0520	25.18 g	1 mL	01/31/11
1010563-08	P1A0520	25.04 g	1 mL	01/31/11

**Prep Method: 5035**

Lab Number	Batch	Initial	Final	Date
1010563-01	P1A0526	6.71 g	5 mL	01/31/11
1010563-02	P1A0526	6.36 g	5 mL	01/31/11
1010563-03	P1A0526	6.69 g	5 mL	01/31/11
1010563-04	P1A0526	6.57 g	5 mL	01/31/11
1010563-05	P1A0526	7.32 g	5 mL	01/31/11
1010563-06	P1A0526	5.96 g	5 mL	01/31/11
1010563-07	P1A0526	6.61 g	5 mL	01/31/11
1010563-08	P1A0526	6.5 g	5 mL	01/31/11

**NO PREP**

Lab Number	Batch	Initial	Final	Date
1010563-01	P1A0512	30 g	30 mL	01/28/11
1010563-02	P1A0512	30 g	30 mL	01/28/11
1010563-03	P1A0512	30 g	30 mL	01/28/11
1010563-04	P1A0512	30 g	30 mL	01/28/11
1010563-05	P1A0512	30 g	30 mL	01/28/11
1010563-06	P1A0512	30 g	30 mL	01/28/11
1010563-07	P1A0512	30 g	30 mL	01/28/11
1010563-08	P1A0512	30 g	30 mL	01/28/11



Full-Service Analytical & Environmental Solutions

449 Springbrook Road • P.O. Box 240543 • Charlotte, NC 28224-0543  
Phone: 704/529-6364 • Fax: 704/525-0409

Client Company Name: AMEC EA-E

Report To/Contact Name: Helen Corley

Reporting Address: 338 N Elm St  
Greensboro, NC 27401

Phone: 336-691-5392 Fax (Yes) (No):

Email (Yes) (No) Email Address: helen.corley@amec.com

EDD Type: PDF  Excel  Other

Site Location Name: Parcel 139

Site Location Physical Address: N. Wilkesboro

# CHAIN OF CUSTODY RECORD

PAGE 1 OF 1 QUOTE # TO ENSURE PROPER BILLING: WBS: 35579.1

Project Name: Wilkes County

Short Hold Analysis: (Yes) (No) UST Project: (Yes) (No)

\*Please ATTACH any project specific reporting (QC LEVEL I II III IV) provisions and/or QC Requirements

Invoice To: Helen Corley

Address: Same

Purchase Order No./Billing Reference WBS: 35579.1.1

Requested Due Date  1 Day  2 Days  3 Days  4 Days  5 Days

"Working Days"  6-9 Days  Standard 10 days  Rush Work Must Be Pre-Approved

Samples received after 15:00 will be processed next business day.

Turnaround time is based on business days, excluding weekends and holidays.

(SEE REVERSE FOR TERMS & CONDITIONS REGARDING SERVICES RENDERED BY PRISM LABORATORIES, INC. TO CLIENT)

LAB USE ONLY			
	YES	NO	N/A
Samples INTACT upon arrival?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Received ON WET ICE? Temp <u>3.7</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PROPER PRESERVATIVES indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Received WITHIN HOLDING TIMES?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUSTODY SEALS INTACT?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VOLATILES rec'd W/OUT HEADSPACE?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
PROPER CONTAINERS used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL

Certification: NELAC USACE FL NC SC OTHER N/A

Water Chlorinated: YES NO

Sample Iced Upon Collection: YES NO

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)	SAMPLE CONTAINER			PRESERVATIVES	ANALYSES REQUESTED				REMARKS	PRISM LAB ID NO.	
				*TYPE SEE BELOW	NO.	SIZE		DRD	600/5033					
P139-SB-1(6-8)	1-24-11	1500	Soil	G	4	26								01
P139-SB-2(6-8)		1510												02
P139-SB-3(8-10)		1520										X		03
P139-SB-4(7-9)		1530												04
P139-SB-5(7-9)		1545												05
P139-SB-6(4-5)		1600												06
P139-SB-7(4-5)		1610												07
P139-SB-8(4-5)		1630												08

Sampler's Signature: Troy L Holzschuh Sampled By (Print Name): Troy L Holzschuh Affiliation: AMEC

PRESS DOWN FIRMLY - 3 COPIES

Upon relinquishing, this Chain of Custody is your authorization for Prism to proceed with the analyses as requested above. Any changes must be submitted in writing to the Prism Project Manager. There will be charges for any changes after analyses have been initialized.

Relinquished By: (Signature) <u>Troy L Holzschuh</u>	Received By: (Signature)	Date	Military/Hours
Relinquished By: (Signature)	Received By: (Signature)	Date	
Relinquished By: (Signature)	Received For Prism Laboratories By: <u>J.R.B.</u>	Date	
Method of Shipment: <input type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input checked="" type="checkbox"/> Hand-delivered <input type="checkbox"/> Prism Field Service <input type="checkbox"/> Other			COC Group No. <u>1010563</u>

Additional Comments:

PRISM USE ONLY	
Site Arrival Time:	
Site Departure Time:	
Field Tech Fee:	
Mileage:	

NPDES: <input type="checkbox"/> NC <input type="checkbox"/> SC	UST: <input type="checkbox"/> NC <input type="checkbox"/> SC	GROUNDWATER: <input type="checkbox"/> NC <input type="checkbox"/> SC	DRINKING WATER: <input type="checkbox"/> NC <input type="checkbox"/> SC	SOLID WASTE: <input type="checkbox"/> NC <input type="checkbox"/> SC	RCRA: <input type="checkbox"/> NC <input type="checkbox"/> SC	CERCLA: <input type="checkbox"/> NC <input type="checkbox"/> SC	LANDFILL: <input type="checkbox"/> NC <input type="checkbox"/> SC	OTHER: <input type="checkbox"/> NC <input type="checkbox"/> SC
----------------------------------------------------------------	--------------------------------------------------------------	----------------------------------------------------------------------	-------------------------------------------------------------------------	----------------------------------------------------------------------	---------------------------------------------------------------	-----------------------------------------------------------------	-------------------------------------------------------------------	----------------------------------------------------------------

SEE REVERSE FOR TERMS & CONDITIONS

Page 14 of 14

\*CONTAINER TYPE CODES: A = Amber C = Clear G = Glass P = Plastic; TL = Teflon-Lined Cap VOA = Volatile Organics Analysis (Zero Head Space)