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

Ralph & Arlene S Handy Property
Parcel #88
February 28, 2011

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

Troy L. Holzschuh
Engineering Technician

Helen P. Corley, L.G.
Associate Hydrogeologist

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

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 Ralph & Arlene S Handy Property (the Site) to be effected by a road improvement project along NC 18, Sparta Rd. The Site which is located at 1440 Sparta Rd is currently a residential property. The property is located on the northeast side of Sparta Road, near the intersection with Ruritan Park Road 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 Ralph & Arlene S Handy Property due to the resemblance of the home's architectural style to that of a gas station. The PSA was performed to determine if underground storage tanks (UST) are present and if soils have been impacted by petroleum compounds as a result of past uses of the property within the proposed design project area. This parcel will be affected by construction activities associated with road widening 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 #88 and estimates the extent of soil contamination.

1.1 Site Location and Vicinity

The Ralph & Arlene S Handy Property parcel is located on the northeast side of Sparta Road, near the intersection of Ruritan Park Road in North Wilkesboro, Wilkes County, North Carolina, as shown in Figure 1. The properties to the north, southeast, south and northwest are residential with single family homes. The property to the southwest and across Sparta Rd is The Little Dipper restaurant.

1.2 Site Description and History

The Site is currently a residential property. The Site has a single story brick building with an attached garage and a small portion of a barn primarily located on the western adjacent property. The proposed DOT project will parallel the southern property edge of Parcel #88 along Sparta Rd. No USTs were observed at this facility. Appendix A includes a photo log for Parcel #88.

AMEC studied the NCDENR UST Registered Tanks Database and no tanks are registered in association with this property. AMEC also reviewed the NCDENR Incident Management Database and did not find any incident numbers associated with this property.

2.0 GEOLOGY

2.1 Regional Geology

The Ralph & Arlene S. Handy 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 4 shallow direct push probe soil borings (SB) onsite. Borings extended to a total depth of 10 feet below ground surface (bgs). Native soils generally consisted of orange, well sorted 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 one geophysical survey (electromagnetic) 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 were focused just beyond the existing ROW. Boring locations were located to optimize the likelihood of intercepting any potential soil contamination by staggering sample locations along the front of the parcel.

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 between December 10 and 21, 2010 for the Sparta Rd corridor. Schnabel utilized a Geonics EM61-MK2 to perform the electromagnetic induction surveys. GPR data was not collected at the site due to a lack of differential EM61 evidence to suggest that unknown USTs were present. The EM61 was specifically calibrated to detect metal anomalies that are buried deeply and are characteristically large. The data collected by Schnabel indicates that no USTs are present within the proposed design area. The complete geophysical survey report can be found in Appendix C.

3.4 Well Survey

A well survey was not performed as part of this PSA and no monitoring wells were observed on the parcel.

3.5 Soil Sampling

Soil boring occurred on January 25, 2011 at Parcel #88. Four direct push soil borings were conducted within the NCDOT design project on Parcel #88, which focused on the southern side of the 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 southern edge of the property within the expanded ROW, which runs parallel to Sparta Rd. The first boring, P88-SB-1, was placed at the southeastern end of the site just inside the proposed ROW. Soil borings P88-SB-2 through P88-SB-4 were located within the proposed ROW, moving in a westerly direction. Soil from none of the borings at Parcel 88 exhibited elevated Photo Ionized Detector (PID) readings; therefore 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 25, 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 one soil sample was collected from each of the 4 completed soil borings from Parcel #88. Typically, if impacted soil is identified, then additional soil samples are obtained. Soil borings did not exhibit elevated PID readings; therefore additional soil samples were not warranted. Analyses of soil samples for DRO and GRO were below reporting limits for all soil boring locations.

Since the field investigation and the Laboratory analytical report did not indicate significant 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 25, 2011.

- The Site is presently a residential property.
- The architectural design of the building suggests that it might have once operated as a gas station.
- The geophysical data collected indicated that no USTs are present within the proposed design area.
- Four soil samples were collected and analyzed for TPH GRO and DRO.
- There was no field or laboratory indication of impacted soil.

6.0 RECOMMENDATIONS

The proposed NCDOT design at this time has minimal impact intended for Parcel 88 and this PSA soil data did not indicate any contamination. NCDOT should nevertheless always remain cautious of intercepting contaminated soil during road construction activities, so AMEC recommends the following potential action:

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

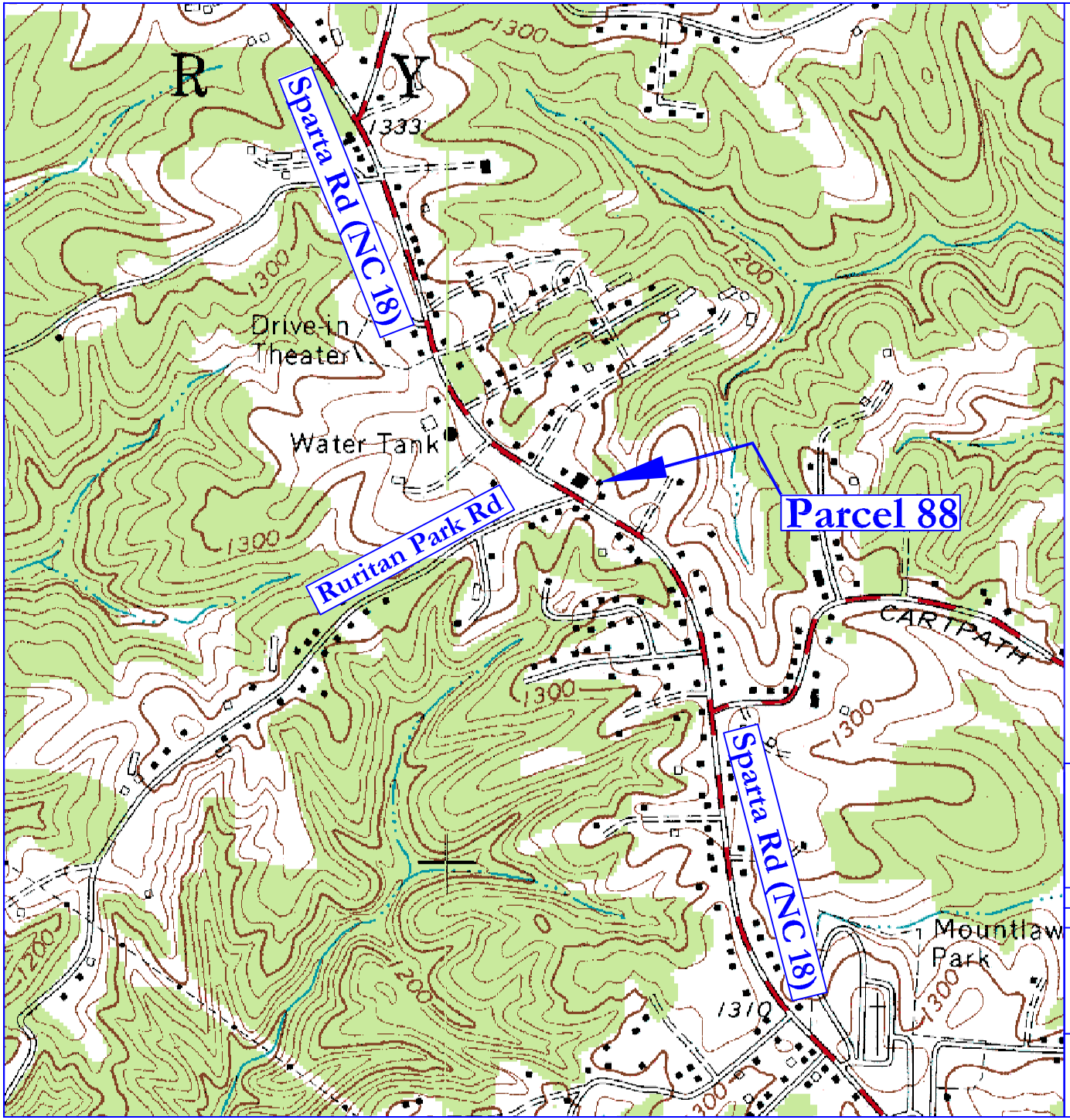
TABLES

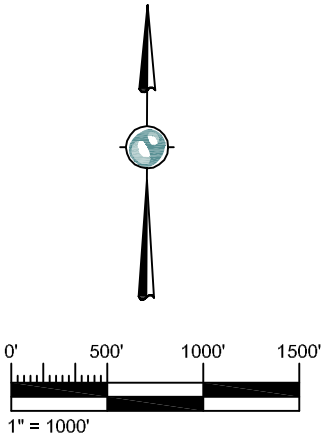
Table 1
Soil Sampling Analytical Results, DRO-GRO
Parcel 88, Ralph and Arlene S Handy Property
NC DOT
North Wilkesboro, Wilkes County, North Carolina

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (ft bgs)	PID READINGS (ppm)	EPA Method 8015B	
				DRO (mg/kg)	GRO (mg/kg)
NC Action Levels				**10**	**10**
P88-SB-1	1/25/2011	4 - 6	0	<9.3	<5.0
P88-SB-2	1/25/2011	3 - 5	0	<7.9	<4.4
P88-SB-3	1/25/2011	4 - 6	0	<8.6	<4.7
P88-SB-4	1/25/2011	3 - 5	0	<8.4	<4.2

NOTES:
ft bgs = feet below ground surface; ppm = parts per million
mg/kg = milligrams per kilogram
Bold 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

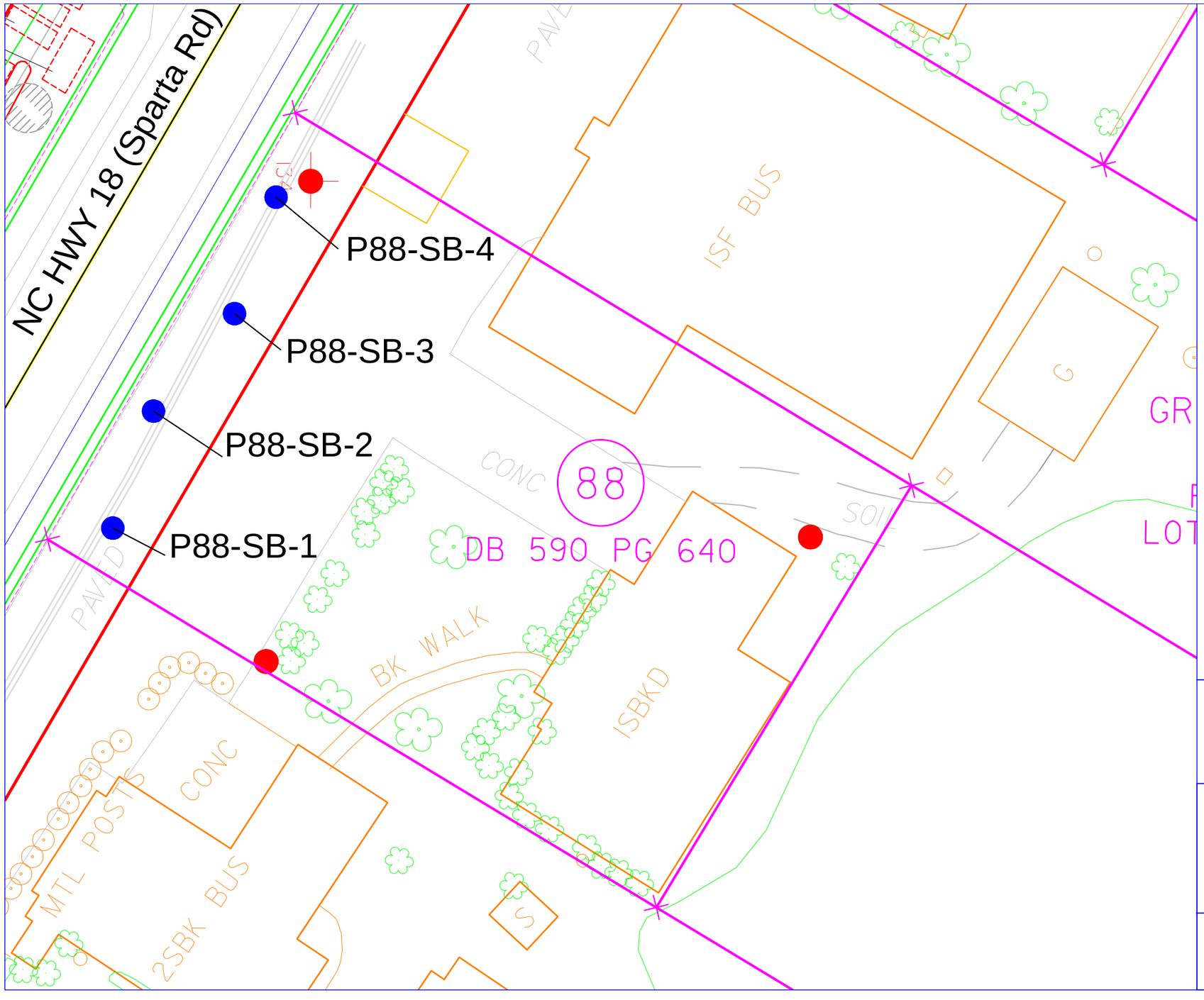
Parcel #88, Ralph & Arlene S. Handy Property
North Wilkesboro, Wilkes County, NC

DRAWING NAME: J:\NCDOT\Wilkes\FIG1		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:
amec
338 N Elm Ave
Suite 112
Greensboro, NC 27401
(336) 691-5398

Figure:
Figure 1



LEGEND

- Proposed Right of Way
- Existing Property Line
- Existing Right of Way
- C — Cut Line
- F — Fill Line
- Soil Boring Location January 2011
- Utility Easement
- Utility Pole

0' 10' 20' 30'

1" = 20'

Figure 2
Parcel #88 Ralph & Arlene S Handy Property
Site Map

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

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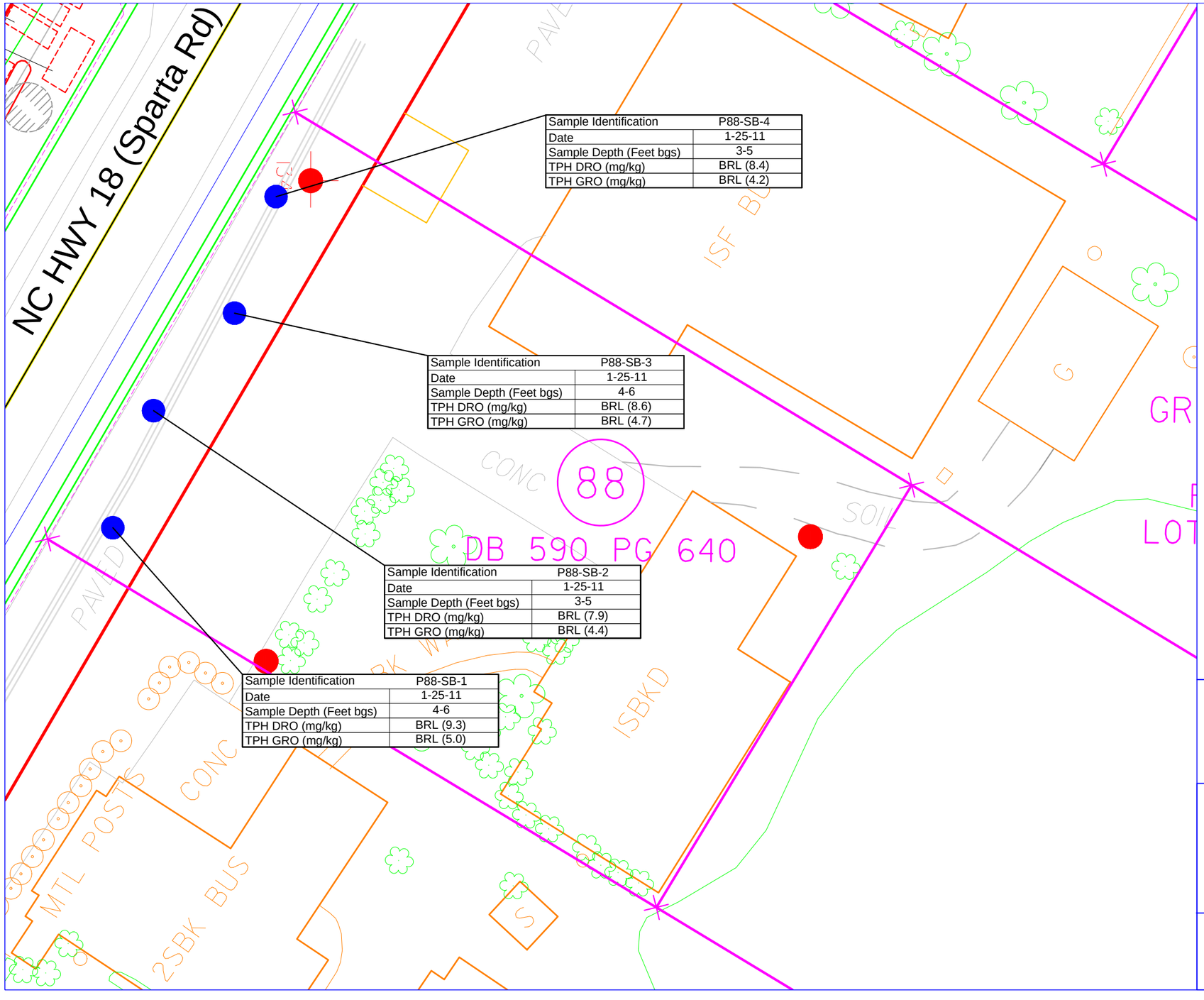


LEGEND

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

0' 10' 20' 30'

1" = 20'

Figure 3
Parcel #88 Ralph & Arlene S Handy Property
Site Map With Analytical Data

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

amec

APPENDIX A

PHOTO LOG

Photo 1

Viewing property from across Sparta Road. The area of expanded proposed right of way s in foreground.

Photo 2

The photo shows asphalt patch that covers a boring location.

amec

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 88, Ralph & Arlene S Handy Property
North Wilkesboro, NC

APPENDIX B

BORING LOGS

AMEC Earth & Environmental, Inc.
BORING LOG

Boring/Well No.: P88-SB1	**Site Name: Parcel 88**
Date: 1-25-11	**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
0.5-3.5	0		Orange, Well Sorted, Clayey Silt, Damp
3.5-7	0		Orange, Well Sorted, Silt, Damp
7-10	0		Yellow/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

Boring/Well No.: P88-SB2	**Site Name: Parcel 88**
Date: 1-25-11	**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
0.5-3	0		Orange, Well Sorted, Clayey Silt, Damp
3-6	0		Orange/Yellow, Marbled, Well Sorted, Silt, Damp
6-7	0		Pink, Well Sorted, Silt, Damp
7-10	0		Yellow, 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.: P88-SB3	**Site Name: Parcel 88**
Date: 1-25-11	**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
0.5-4	0		Orange, Well Sorted, Clayey Silt, Damp
4-7	0		Orange, Well Sorted, Silt, Damp
7-10	0		Brown/Yellow/Red, 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.: P88-SB4	**Site Name: Parcel 88**
Date: 1-25-11	**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
0.5-3	0		Orange, Well Sorted, Clayey Silt, Damp
3-7	0		Orange, Well Sorted, Silt, Damp
7-10	0		Orange/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:

APPENDIX C

GEOPHYSICAL SURVEY REPORT

Schnabel
ENGINEERING

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 88, 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 one 11x17 color figures and two 8.5x11 color figures.

INTRODUCTION

The work described in this report was conducted on December 8, 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 side of Sparta Road approximately 100 feet east of the intersection with Ruritan Park 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.

schnabel-eng.com
T/ 336-274-9456 F/ 336-274-9486
11A Oak Branch Drive / Greensboro, NC / 27407

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.

DISCUSSION OF RESULTS

The EM61 unit used for data collection on this parcel had an intermittent short in the top coil, which made the differential data unreliable. The data collected from just the bottom coil were not affected by this problem. Only the early time gate data collected from the bottom coil were used to determine anomalous locations to survey with GPR.

The contoured early time gate EM61 data for Parcel 88 are shown on Figure 3. The early time gate data provide the more sensitive detection of metal objects. The early time gate results show anomalies apparently caused by reinforced concrete, buried utilities, or known site features (Figure 3). GPR data were not collected at the site due to a lack of differential EM61 anomalies that suggested the presence of unknown USTs. The geophysical data do not indicate the presence of metallic USTs within the areas surveyed.

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 do not indicate the presence of metallic USTs in the areas surveyed on the subject property.

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 (3)
FILE: G:\2009 PROJECTS\09210013 (NCDOT 2009 GEOTECH UNIT SERVICES)\09210013.34 (R-3405, WILKES COUNTY)\REPORT\PARCEL 88\SCHNABEL GEOPHYSICAL REPORT ON PARCEL 88 (R-3405).DOCX

Parcel 88 – Ralph & Arlene S. Handy Property, looking northeast

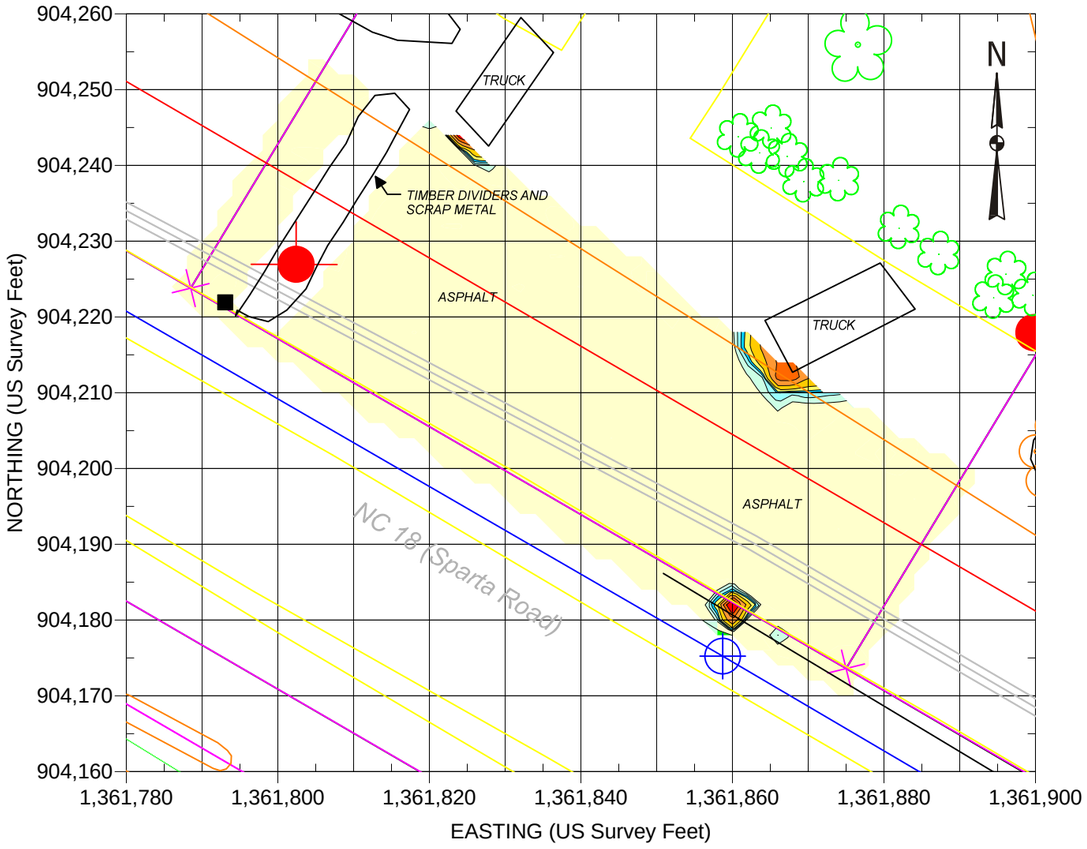
Parcel 88 – Ralph & Arlene S. Handy Property, looking northeast

Schnabel ENGINEERING	STATE PROJECT R-3405 NC DEPT. OF TRANSPORTATION WILKES CO., NORTH CAROLINA PROJECT NO. 09210013.34	PARCEL 88 SITE PHOTOS FIGURE 1

Geonics EM61-MK2

GSSI SIR-3000

Schnabel ENGINEERING	STATE PROJECT R-3405 NC DEPT. OF TRANSPORTATION WILKES CO., NORTH CAROLINA PROJECT NO. 09210013.34	PHOTOS OF GEOPHYSICAL EQUIPMENT USED FIGURE 2



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_psh08_060530.dgn
(FOR SOME SITE FEATURES)

EM61 Early Time Gate Response (mV)

-15000 -100 0 50 100 150 200 300 500 750 1000 2000

Scale in US Survey Feet

0 20 40 60

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 8, 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.

Schnabel ENGINEERING

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

PARCEL 88
EARLY TIME GATE RESPONSE

FIGURE 3

APPENDIX D

LABORATORY ANALYTICAL RESULTS

PRISM LABORATORIES, INC.
Full-Service Analytical & Environmental Solutions

NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert No. 37735

Case Narrative

02/02/2011

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

Project: NCDOT: Wilkes County Parcel 88
Project No.: WBS #35579.1.1
Lab Submittal Date: 01/26/2011
Prism Work Order: 1010533

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 limits. 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.

Sample Receipt Summary

02/02/2011

Prism Work Order: 1010533

Client Sample ID	Lab Sample ID	Matrix	Date Sampled	Date Received
P88-SB-1(4-6)	1010533-01	Solid	01/25/11	01/26/11
P88-SB-2(3-5)	1010533-02	Solid	01/25/11	01/26/11
P88-SB-3(4-6)	1010533-03	Solid	01/25/11	01/26/11
P88-SB-4(3-5)	1010533-04	Solid	01/25/11	01/26/11

Samples received in good condition at 2.7 degrees C unless otherwise noted.

449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543
Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409

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

Project: NCDOT: Wilkes County
Parcel 88
Project No.: WBS #35579.1.1
Sample Matrix: Solid

Client Sample ID: P88-SB-1(4-6)
Prism Sample ID: 1010533-01
Prism Work Order: 1010533
Time Collected: 01/25/11 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	9.3	1.5	1	*8015C	1/29/11 15:08	JMV	P1A0511
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*99 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	5.0	0.65	50	*8015C	1/28/11 1:36	HPE	P1A0466
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*61 %*		*55-129*	
General Chemistry Parameters									
% Solids	**75.1**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**2/1/11 15:30**	**JAB**	**P1B0014**

449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543
Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409

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

Project: NCDOT: Wilkes County
Parcel 88
Project No.: WBS #35579.1.1
Sample Matrix: Solid

Client Sample ID: P88-SB-2(3-5)
Prism Sample ID: 1010533-02
Prism Work Order: 1010533
Time Collected: 01/25/11 15:15
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	7.9	1.3	1	*8015C	1/29/11 15:43	JMV	P1A0511
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*100 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	4.4	0.57	50	*8015C	1/28/11 2:08	HPE	P1A0466
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*140 %*		*55-129*	*A*
General Chemistry Parameters									
% Solids	**88.2**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**2/1/11 15:30**	**JAB**	**P1B0014**

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

Project: NCDOT: Wilkes County
Parcel 88
Project No.: WBS #35579.1.1
Sample Matrix: Solid

Client Sample ID: P88-SB-3(4-6)
Prism Sample ID: 1010533-03
Prism Work Order: 1010533
Time Collected: 01/25/11 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	8.6	1.4	1	*8015C	1/29/11 16:19	JMV	P1A0511
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*117 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	4.7	0.61	50	*8015C	1/28/11 15:30	HPE	P1A0482
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*157 %*		*55-129*	*A*
General Chemistry Parameters									
% Solids	**81.1**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**2/1/11 15:30**	**JAB**	**P1B0014**

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Project: NCDOT: Wilkes County
Parcel 88
Project No.: WBS #35579.1.1
Sample Matrix: Solid

Client Sample ID: P88-SB-4(3-5)
Prism Sample ID: 1010533-04
Prism Work Order: 1010533
Time Collected: 01/25/11 15:25
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	8.4	1.4	1	*8015C	1/29/11 16:54	JMV	P1A0511
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*115 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	4.2	0.55	50	*8015C	1/28/11 16:01	HPE	P1A0482
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*124 %*		*55-129*	
General Chemistry Parameters									
% Solids	**83.0**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**2/1/11 15:30**	**JAB**	**P1B0014**

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Project: NCDOT: Wilkes County Parcel 88
Project No: WBS #35579.1.1

Prism Work Order: 1010533
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
Batch P1A0466 - 5035										
Blank (P1A0466-BLK1)				Prepared & Analyzed: 01/27/11						
Gasoline Range Organics	BRL	5.0	mg/kg wet							
Surrogate: a,a,a-Trifluorotoluene	*5.40*		*mg/kg wet*	*5.00*		*108*	*55-129*			
LCS (P1A0466-BS1)				Prepared & Analyzed: 01/27/11						
Gasoline Range Organics	42.3	5.0	mg/kg wet	50.0		85	67-116			
Surrogate: a,a,a-Trifluorotoluene	*5.35*		*mg/kg wet*	*5.00*		*107*	*55-129*			
LCS Dup (P1A0466-BSD1)				Prepared & Analyzed: 01/27/11						
Gasoline Range Organics	42.9	5.0	mg/kg wet	50.0		86	67-116	1	200	
Surrogate: a,a,a-Trifluorotoluene	*5.25*		*mg/kg wet*	*5.00*		*105*	*55-129*			
Batch P1A0482 - 5035										
Blank (P1A0482-BLK1)				Prepared & Analyzed: 01/28/11						
Gasoline Range Organics	BRL	5.0	mg/kg wet							
Surrogate: a,a,a-Trifluorotoluene	*5.25*		*mg/kg wet*	*5.00*		*105*	*55-129*			
LCS (P1A0482-BS1)				Prepared & Analyzed: 01/28/11						
Gasoline Range Organics	41.6	5.0	mg/kg wet	50.0		83	67-116			
Surrogate: a,a,a-Trifluorotoluene	*5.30*		*mg/kg wet*	*5.00*		*106*	*55-129*			
LCS Dup (P1A0482-BSD1)				Prepared & Analyzed: 01/28/11						
Gasoline Range Organics	41.2	5.0	mg/kg wet	50.0		82	67-116	1	200	
Surrogate: a,a,a-Trifluorotoluene	*5.10*		*mg/kg wet*	*5.00*		*102*	*55-129*			
Matrix Spike (P1A0482-MS1)	**Source: 1010533-03**			Prepared & Analyzed: 01/28/11						
Gasoline Range Organics	50.8	6.2	mg/kg dry	61.7	BRL	82	57-113			
Surrogate: a,a,a-Trifluorotoluene	*6.04*		*mg/kg dry*	*6.17*		*98*	*55-129*			

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Greensboro, NC 27401

Project: NCDOT: Wilkes County Parcel 88
Project No: WBS #35579.1.1

Prism Work Order: 1010533
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
Batch P1A0482 - 5035										
Matrix Spike Dup (P1A0482-MSD1)		**Source: 1010533-03**		Prepared & Analyzed: 01/28/11						
Gasoline Range Organics	50.9	6.2	mg/kg dry	61.7	BRL	83	57-113	0.2	23	
Surrogate: a,a,a-Trifluorotoluene	*6.10*		*mg/kg dry*	*6.17*		*99*	*55-129*			

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Project No: WBS #35579.1.1

Prism Work Order: 1010533
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
Batch P1A0511 - 3545A										
Blank (P1A0511-BLK1)				Prepared: 01/28/11 Analyzed: 01/29/11						
Diesel Range Organics	BRL	7.0	mg/kg wet							
Surrogate: o-Terphenyl	*1.51*		*mg/kg wet*	*1.60*		*95*	*49-124*			
LCS (P1A0511-BS1)				Prepared: 01/28/11 Analyzed: 01/29/11						
Diesel Range Organics	61.9	7.0	mg/kg wet	79.9		78	55-109			
Surrogate: o-Terphenyl	*1.67*		*mg/kg wet*	*1.60*		*104*	*49-124*			
LCS Dup (P1A0511-BSD1)				Prepared: 01/28/11 Analyzed: 01/29/11						
Diesel Range Organics	61.7	7.0	mg/kg wet	80.0		77	55-109	0.5	200	
Surrogate: o-Terphenyl	*1.54*		*mg/kg wet*	*1.60*		*96*	*49-124*			
Matrix Spike (P1A0511-MS1)		**Source: 1010533-01**		Prepared: 01/28/11 Analyzed: 01/29/11						
Diesel Range Organics	76.9	9.3	mg/kg dry	106	BRL	72	50-117			
Surrogate: o-Terphenyl	*1.96*		*mg/kg dry*	*2.12*		*93*	*49-124*			
Matrix Spike Dup (P1A0511-MSD1)		**Source: 1010533-01**		Prepared: 01/28/11 Analyzed: 01/29/11						
Diesel Range Organics	95.2	9.3	mg/kg dry	106	BRL	90	50-117	21	24	
Surrogate: o-Terphenyl	*2.42*		*mg/kg dry*	*2.13*		*114*	*49-124*			

AMEC Earth & Env. Inc.(DOT Gree)
Attn: Helen Corley
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Greensboro, NC 27401

Project: NCDOT: Wilkes County Parcel 88
Project No: WBS #35579.1.1

Prism Work Order: 1010533
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 P1B0014 - NO PREP										
Blank (P1B0014-BLK1)				Prepared & Analyzed: 02/01/11						
% Solids	100	0.100	% by Weight							

Sample Extraction Data

Prep Method: 3545A

Lab Number	Batch	Initial	Final	Date
1010533-01	P1A0511	25.16 g	1 mL	01/28/11
1010533-02	P1A0511	25.1 g	1 mL	01/28/11
1010533-03	P1A0511	25 g	1 mL	01/28/11
1010533-04	P1A0511	25.17 g	1 mL	01/28/11

Prep Method: 5035

Lab Number	Batch	Initial	Final	Date
1010533-01	P1A0466	6.63 g	5 mL	01/27/11
1010533-02	P1A0466	6.41 g	5 mL	01/27/11
1010533-03	P1A0482	6.54 g	5 mL	01/28/11
1010533-04	P1A0482	7.16 g	5 mL	01/28/11

NO PREP

Lab Number	Batch	Initial	Final	Date
1010533-01	P1B0014	30 g	30 mL	02/01/11
1010533-02	P1B0014	30 g	30 mL	02/01/11
1010533-03	P1B0014	30 g	30 mL	02/01/11
1010533-04	P1B0014	30 g	30 mL	02/01/11

CHAIN OF CUSTODY RECORD

PRISM LABORATORIES, INC. | Full-Service Analytical & Environmental Solutions

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

PAGE 1 OF 1 QUOTE # TO ENSURE PROPER BILLING: WBS 35579.1.1

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

Client Company Name: AMEC E+E
Report To/Contact Name: Helen Corley
Reporting Address: 338 N Elm St Greensboro, NC 27401
Phone: 336-691-5398 Fax (Yes) (No):
Email (Yes) (No) Email Address: helen.corley@amec.com
EDD Type: PDF ✓ Excel Other
Site Location Name: Parcel 88
Site Location Physical Address: N Wilkesboro

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?	X		
Received ON WET ICE? Temp 2.7	X		
PROPER PRESERVATIVES indicated?	X		
Received WITHIN HOLDING TIMES?	X		
CUSTODY SEALS INTACT?			X
VOLATILES rec'd W/OUT HEADSPACE?			X
PROPER CONTAINERS used?	X		

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 *TYPE SEE BELOW	NO.	SIZE	PRESERVATIVES	ANALYSES REQUESTED DRO	GRO/BTEX					REMARKS	PRISM LAB ID NO.
P88-SB-1 (4-6)	1-25-11	1510	Soil	G/VOA	4	2G 2VOA		X	X						01
P-88-SB-2 (3-5)	↓	1515	↓	↓	↓	↓		X	X						02
P-88-SB-3 (4-6)		1520						X	X						03
P-88-SB-4 (3-5)	↓	1525	↓	↓	↓	↓		X	X						04

PRESS DOWN FIRMLY - 3 COPIES

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

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.

		Date	Military/Hours
Relinquished By: (Signature) Troy L Holzschuh	Received By: (Signature)	1-26-11	1312
Relinquished By: (Signature)	Received By: (Signature)	Date	
Relinquished By: (Signature)	Received For Prism Laboratories By:	Date 1/26/11	1312

Method of Shipment: NOTE: ALL SAMPLE COOLERS SHOULD BE TAPED SHUT WITH CUSTODY SEALS FOR TRANSPORTATION TO THE LABORATORY. SAMPLES ARE NOT ACCEPTED AND VERIFIED AGAINST COC UNTIL RECEIVED AT THE LABORATORY.
☐ Fed Ex ☐ UPS ☐ Hand-delivered ☒ Prism Field Service ☐ Other
COC Group No. 1010533

Additional Comments:

PRISM USE ONLY

Site Arrival Time:
Site Departure Time:
Field Tech Fee:
Mileage:

NPDES:	UST:	GROUNDWATER:	DRINKING WATER:	SOLID WASTE:	RCRA:	CERCLA	LANDFILL	OTHER:
☐ NC ☐ SC ☐ ____	☐ NC ☐ SC ☐ ____	☐ NC ☐ SC ☐ ____	☐ NC ☐ SC ☐ ____	☐ NC ☐ SC ☐ ____	☐ NC ☐ SC ☐ ____	☐ NC ☐ SC ☐ ____	☐ NC ☐ SC ☐ ____	☐ NC ☐ SC ☐ ____

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

SEE REVERSE FOR TERMS & CONDITIONS