



PRELIMINARY SITE ASSESSMENT

ETHEL P. ALLEN PROPERTY (PARCEL #87)

835 N US 220 Hwy

Rockingham, NC

State Project: R-3421C

WBS Element: 34542.1.2

February 28, 2011

Prepared for:

North Carolina Department of Transportation

Geotechnical Engineering Unit

1020 Birch Ridge Drive

Raleigh, NC 27610



FROEHLING & ROBERTSON, INC.
Engineering Stability Since 1881

310 Hubert Street
Raleigh, North Carolina 27603-2302
T 919.828.3441 | F 919.828.5751
NC License #F-0266

February 28, 2011

North Carolina Department of Transportation
Geotechnical Engineering Unit
1020 Birch Ridge Drive
Raleigh, North Carolina 27610

Attn.: Mr. Ethan J. Caldwell, L.G., P.E.
GeoEnvironmental Project Manager



Re: State Project: R-3421C
WBS Element: 34542.1.2
US 220 Bypass from Southwest of SR 1304 (Harrington Road) to Future
US 220 Business/US 220 Bypass Interchange South of Ellerbe

Subject: Preliminary Site Assessment
Ethel P. Allen Property (Parcel #87)
835 N US 220 Hwy
Rockingham, NC

Dear Mr. Caldwell:

Froehling and Robertson, Inc. (F&R) has completed the authorized Preliminary Site Assessment at the Ethel P. Allen Property in Rockingham, North Carolina. The work was performed in general accordance with F&R's Proposal No. 1166-336E dated December 8, 2010 and revised December 12, 2010. This report documents our field activities, presents the results of laboratory analysis and provides recommendations regarding the property.

Please do not hesitate to contact us if you should have any questions regarding this report.

Sincerely,

FROEHLING & ROBERTSON, INC.

Michael S. Sabodish, Jr., Ph.D., P.E.
Engineering and Remediation Services Manager

Christopher J. Burkhardt
Environmental Department Manager



TABLE OF CONTENTS

	<u>PAGE</u>
1.0 INTRODUCTION	1
2.0 GEOPHYSICAL SURVEY	1
3.0 SITE ASSESSMENT ACTIVITIES	2
4.0 SUBSURFACE CONDITIONS	3
5.0 ANALYTICAL RESULTS	3
6.0 CONCLUSIONS AND RECOMMENDATIONS	4
7.0 LIMITATIONS.....	5
APPENDIX I	FIGURE No. 1 – Site Vicinity Map FIGURE No. 2 – Topographic Map FIGURE No. 3 – Boring Location Plan FIGURE No. 4 – Estimated Extent of Soil Contamination
APPENDIX II	GEOPHYSICAL REPORT PREPARED BY SCHNABEL ENGINEERING
APPENDIX III	ENVIRONMENTAL BORING LOGS
APPENDIX IV	SITE PHOTOS
APPENDIX V	LABORATORY ANALYTICAL RESULTS



**Preliminary Site Assessment Report
Ethel P. Allen Property (Parcel #87)
Rockingham, Richmond County, North Carolina
F&R Project No. 66M-0178-0001**

1.0 Introduction

Froehling and Robertson, Inc. (F&R) has prepared this Preliminary Site Assessment Report (PSA) to document soil assessment activities performed at the Ethel P. Allen Property (Parcel #87) addressed as 835 N US 220 Hwy, Rockingham, Richmond County, North Carolina. The site is located on the west side of north US 220 Hwy approximately 875 feet north of the intersection of Billy Covington Road (Appendix I, Figure 1). Currently, the site is being utilized as a machine shop (*AMS Complete Machine Shop*). As indicated in the Request for Proposal (RFP), the site historically operated as a gas station. The RFP also indicated that according to the North Carolina Department of Environment and Natural Resources (NCDENR) Underground Storage Tank (UST) Section registry, there are no known Facility IDs or Groundwater Incidents associated with this site. This work was performed in general accordance with F&R's Proposal No. 1166-336E dated December 8, 2010 and revised December 12, 2010. The purpose of this report is to document field activities, present the results of laboratory analysis, and provide recommendations regarding the property.

Based on conversations and a site visit with NCDOT, it has been determined that the proposed utility installation and roadway construction will impact the project site (See Figure No.3). As such, the NCDOT requested a Preliminary Site Assessment be performed to assess the possibility of encountering petroleum impacted soil from known or unknown USTs which may exist/existed at the project site. As previously mentioned, the site is currently a machine shop. The site contains one building used as office space and machining operations. In addition, a cargo container type structure is located on the northern side of the building presumably used for storage. A two sided, wooden pole supported structure exists north of the cargo container and is used for the storage of various machinery and debris. Existing ground surface at the site consists of dirt/gravel access roads, grassed areas in the vicinity of the wooden storage structure and a small concrete pad located on the east side of the machine shop. Photos detailing existing site features are attached as Appendix IV of this report.

2.0 Geophysical Survey

Prior to F&R's soil assessment activities, Schnabel Engineering conducted a geophysical survey of the project site to locate suspect metal underground storage tanks (USTs) in the accessible areas of the



right-of-way and/or easement. The geophysical work was conducted on January 6 and 14, 2011 under Schnabel's 2009 contract with NCDOT.

The geophysical investigation consisted of electromagnetic (EM) induction surveys using a Geonics EM61-MK2 instrument. Ground-penetrating radar (GPR) investigations of selected EM61 anomalies were investigated using a Geophysical Survey Systems SIR-3000 system equipped with a 400 MHz antenna. The EM61 data were collected along parallel survey lines spaced approximately 2.5 feet apart, while the GPR data were collected along survey lines spaced 1 to 2 feet apart in orthogonal directions. The data was reviewed in the field to evaluate the possible presence of USTs and later transferred to a desktop computer for further review.

Based on the results of the geophysical survey, two anomalies of unknown cause, in addition to those apparently caused by reinforced concrete, buried utilities and known site features were encountered. The GPR data indicates the presence of two probable USTs located approximately 5 to 10 feet east of the southeastern corner of the building (See Figures No. 3 and 4). The GPR data indicate that the probable USTs are buried approximately 1.5 to 2.5 feet below ground surface, and are approximately 5.5 feet in diameter and approximately 12 feet long, resulting in tanks with a capacity of approximately 2,000 gallons each. The complete geophysical report is attached as Appendix II.

3.0 Site Assessment Activities

Prior to performing the Preliminary Site Assessments, F&R attended a site meeting with NCDOT on November 29, 2010, to observe existing site conditions and determine the quantity of soil borings and their locations.

F&R returned to the site on January 18 and 19, 2011 to perform the Preliminary Site Assessment. The assessment consisted of advancing 12 borings into the soils at the project site. Three of the borings (B-1 through B-3) were advanced on the south, east and north sides of the probable USTs, respectively. Five of the borings (B-4 through B-8) were advanced in the southern drive area and area of proposed drainage installation at the west side of the site, while the remaining four borings (B-9 through B-12) were advanced in the Public Utility Easement located on the eastern portion of the site (Appendix I, Figure 3). The borings were advanced using direct-push technology (Geoprobe) to depths ranging from 10 to 12 feet below ground surface (bgs). As directed by the NCDOT, borings in the vicinity of the probable USTs were terminated at a depth of 12 feet, while the remaining borings were terminated at a depth of 10 feet bgs. Boring locations were determined by F&R staff based on the location of the probable USTs, site features and directives from the NCDOT during a previous site meeting.



Soil sample cores from the borings (B-1 through B-12) were collected in disposable, 4-foot long acetate sleeves. The soil samples were visually/manually classified and screened in the field using a photo-ionization detector (PID) for evidence of petroleum hydrocarbons. Evaluation of VOC concentrations were performed using a MiniRae 2000 PID which produces results in parts per million (ppm). A representative soil sample was collected from one foot sections of each sleeve and placed in a re-sealable plastic bag and the vapors were then allowed to equilibrate in the headspace of the bag for approximately ten minutes prior to measurement with the PID. The measurements were collected by placing the probe tip into the headspace of the bag. PID measurements can be found in the Environmental Borings Logs in Appendix III.

The soil sample which exhibited the highest PID concentration or the sample at boring termination was submitted for laboratory analysis for diesel range organics (DRO) by EPA Method 3510 and gasoline range organics (GRO) by EPA Method 5030 with preparation by EPA Method 8015C.

The samples were collected in laboratory-supplied sample containers, placed in a cooler with ice, and delivered by courier to SGS North America, Inc. (SGS) in Wilmington, North Carolina following standard chain-of custody procedures.

4.0 Subsurface Conditions

As indicated in the attached Environmental Boring Logs (Appendix III), subsurface conditions from existing ground surface to a depth of five feet included moist, tan/orange/brown, silty sands (USCS – SM). Underlying the silty sands, and extending to a depth of approximately ten to twelve feet below ground surface, the soils consisted of moist, orange/gray, sandy and silty clays (USCS – CL) and moist, orange/gray/tan, clayey sands (USCS – SC). Layers of moist, tan-orange, clean sands (USCS – SP) were encountered in Borings B-8 and B-10 at depths of five to six and three to seven feet, respectively. The groundwater table was not encountered within the depth of the drilled borings, as a majority of the samples appeared to be moist. However, wet soils were observed in Boring B-2 at depths of seven to nine feet, Boring B-9 at depths of eight to ten feet and Boring B-11 at depths of six to seven feet.

5.0 Analytical Results

As shown in the following table, petroleum hydrocarbons identified as DRO and GRO were encountered at one of the boring locations (B-2) at a depth of 7 to 8 feet below ground surface. The laboratory results indicate the soil sample collected from Boring B-2 (in the vicinity of the probably USTs) exceeds the NC DENR Action level of 10 mg/kg for DRO and GRO. The laboratory analytical results can be found in the attached Appendix V of this report.



Table 1
Soil Sampling Analytical Results
Ethel P. Allen Property (Parcel #87)
Richmond County, Rockingham, North Carolina

Sample ID	Sample Date	Sample Depth (ft bgs)	PID Reading (ppm)	EPA Method 8015B	
				DRO (mg/kg)	GRO (mg/kg)
66M-0178-0001-B1	1/19/2011	3-4	0.0	BQL	BQL
66M-0178-0001-B2	1/19/2011	7-8	741	72.4	351
66M-0178-0001-B3	1/19/2011	11-12	0.0	BQL	BQL
66M-0178-0001-B4	1/19/2011	4-5	0.1	BQL	BQL
66M-0178-0001-B5	1/19/2011	6-7	0.2	BQL	BQL
66M-0178-0001-B6	1/19/2011	9-10	0.0	BQL	BQL
66M-0178-0001-B7	1/19/2011	9-10	0.0	BQL	BQL
66M-0178-0001-B8	1/19/2011	9-10	0.0	BQL	BQL
66M-0178-0001-B9	1/19/2011	9-10	0.0	BQL	BQL
66M-0178-0001-B10	1/19/2011	6-7	0.4	BQL	BQL
66M-0178-0001-B11	1/19/2011	6-7	0.6	BQL	BQL
66M-0178-0001-B12	1/19/2011	9-10	0.0	BQL	BQL
NC DENR Action Level				10	10

Notes:

ft bgs = feet below ground surface

ppm = parts per million

DRO = Diesel Range Organics

GRO = Gasoline Range Organics

BQL = Below Quantitation Limit

Bold indicates soil analytical results above NCDENR Action Levels

NCDENR Action Level determined from the North Carolina UST Section Guidelines for Assessment and Corrective Ac

6.0 Conclusions and Recommendations

F&R conducted a PSA at the Ethel P. Allen Property located at 835 N US 220 Hwy, Rockingham, Richmond County, North Carolina. A geophysical investigation was performed by Schnabel Engineering



to investigate the existence of unknown USTs at the site. Based on the results of the geophysical survey, it was determined that two probable USTs, approximately 2,000 gallons in size were present at the site. Three geoprobe borings were advanced in the vicinity of the USTs, and an additional nine geoprobe borings were advanced at the site in the vicinity of the proposed access road location and right-of-way utility easement. Based on the results of laboratory testing, it has been determined that petroleum impacted soils exist in the vicinity of the probable USTs at concentrations above the NC DENR Action Level of 10 mg/kg. Petroleum impacted soils were not identified in other areas of the project site.

In regards to the probable USTs, it is estimated that petroleum impacted soils may exist to depths of approximately 11 feet below existing ground surface based on laboratory analysis and PID readings. F&R estimates the extents of soil contamination to extend approximately 12 feet from the eastern side of the tanks, with the extents of soil contamination on the northern and southern sides of the tanks extending to approximately 5 feet from the edge of the tanks. Using the above dimensions, it can be approximated that the volume of petroleum impacted soil in the vicinity of the USTs to be 260 tons. It should be noted that borings were not able to be advanced on the western side of the USTs due to interference from the existing building. Therefore, F&R cannot preclude the possibility that petroleum impacted soil does not exist in that area. However, given the fact that petroleum compounds were not detected in Borings B-1 and B-3, it seems unlikely that petroleum impacted soil would be encountered in that area. Petroleum impacted soil and USTs that are removed should be properly managed and disposed of in accordance with all NCDENR rules and regulations.

It should be noted that a delineation of the soil contamination was not performed, as this was not included in the proposed scope of work, and the above estimates are based on interpretations of soil analytical results, PID readings and our experience with similar petroleum UST releases. The amount of impacted soil can only be determined after excavation or by advancing additional borings at the site to possibly delineate the extents (horizontal and vertical) of contamination.

7.0 Limitations

These services have been performed, under authorization of the North Carolina Department of Transportation for specific application on this project. These services have been performed in accordance with generally accepted environmental and hydrogeological practices. No other warranty, expressed or implied is made. As with any subsurface investigation, actual conditions exist only at the precise locations from which samples were taken. Certain inferences are based on the results of sampling and related testing to form a professional opinion of conditions in areas beyond those from which samples were taken. Our conclusions and recommendations are based upon information provided to us by others, our sampling and testing results and our site observations. We have not verified the completeness or accuracy of the information provided by others, unless otherwise noted.



Our observations are based upon conditions readily visible at the site at the time of our site visits.

Froehling & Robertson, Inc. by virtue of providing the services described in this report, does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state or federal public agencies any conditions at the site that may present a potential danger to public health, safety or the environment. In areas that require notification of local, state, or federal public agencies as required by law, it is the Client's responsibility to so notify.



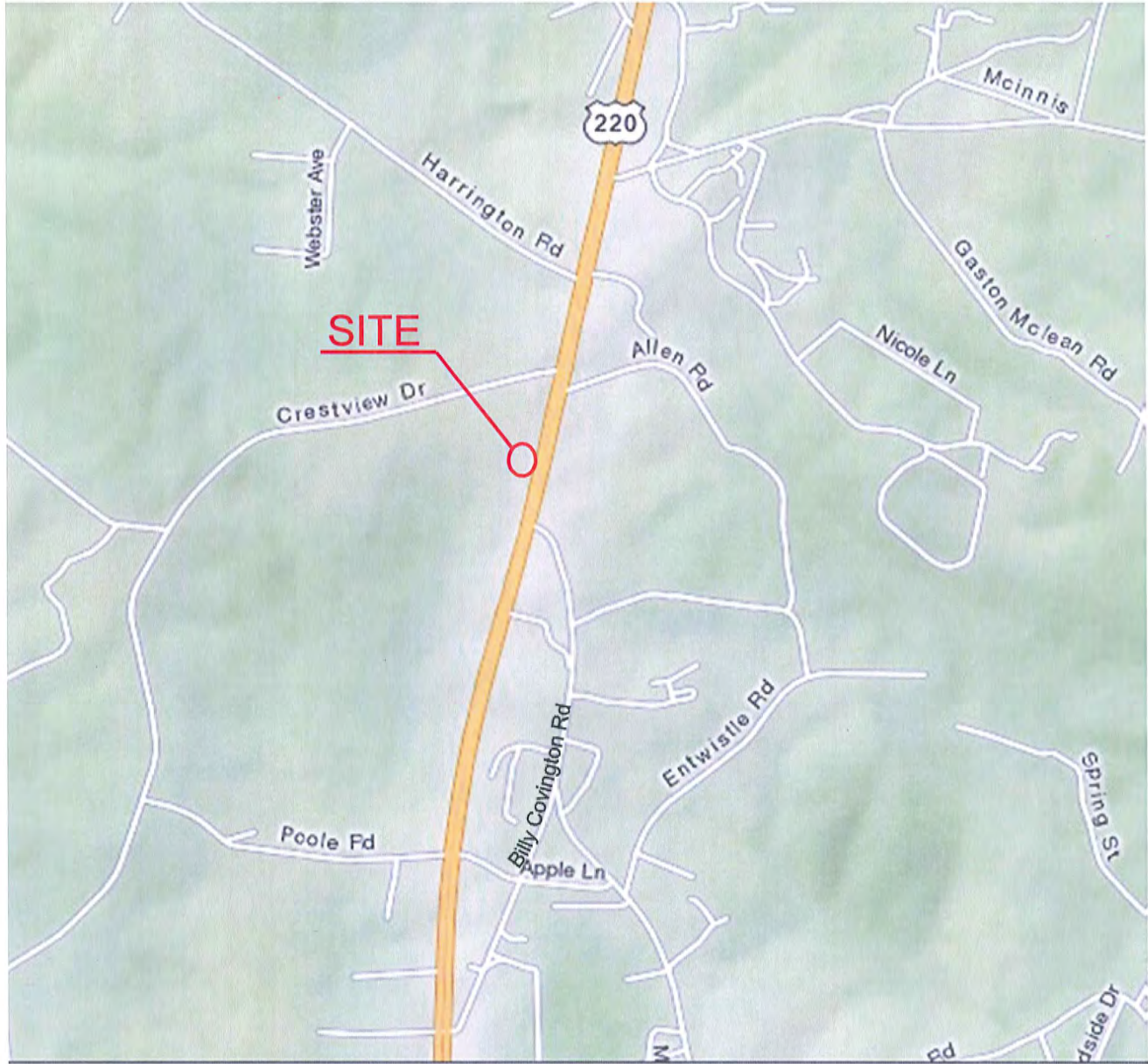
APPENDIX I

Figure No. 1 – SITE VICINITY MAP

Figure No. 2 – TOPOGRAPHIC MAP

Figure No. 3 – BORING LOCATION PLAN

Figure No. 4 – ESTIMATED EXTENT OF SOIL CONTAMINATION



SITE VICINITY MAP

North 



FROEHLING & ROBERTSON, INC.
 Engineering • Environmental • Geotechnical
 310 Hubert Street
 Raleigh, North Carolina 27603-2302 | USA
 T 919.828.3441 | F 919.828.5751
 www.fandr.com

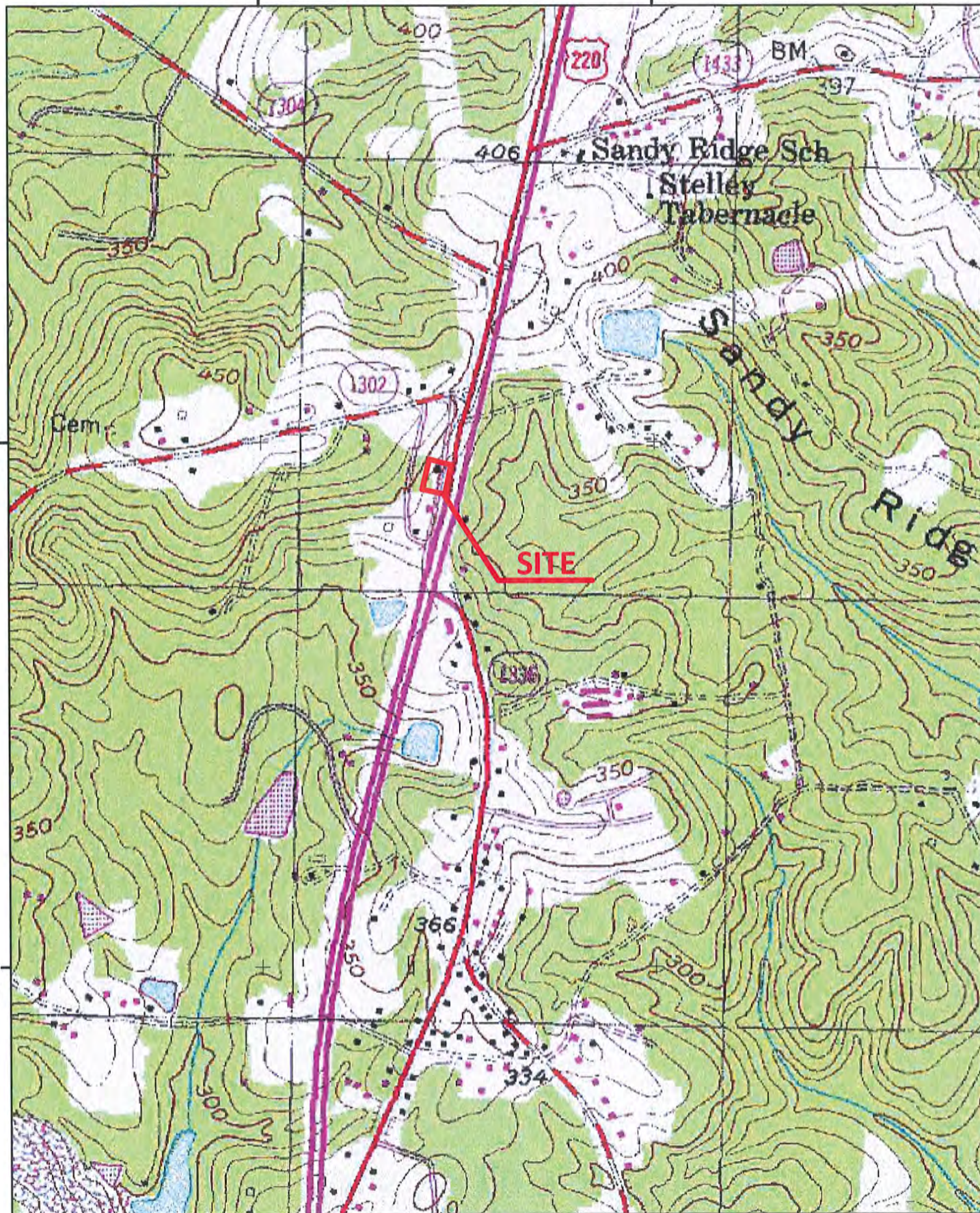
CLIENT: NCDOT
 PROJECT: Ethel P. Allen Property
 LOCATION: Rockingham, Richmond County, North Carolina
 F&R PROJECT No.: 66M-0178-0001
 DRAWN BY: D. Racey
 DATE: February 2011

SCALE: Not to scale

FIGURE No.: **1**

1765000 000000

1768000 000000



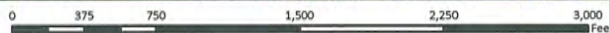
452000 000000

452000 000000

448000 000000

448000 000000

Topographic Plan



FROEHLING & ROBERTSON, INC.
 Engineering • Environmental • Geotechnical
 310 Hubert Street
 Raleigh, North Carolina 27603-2302 | USA
 T 919.828.3441 | F 919.582-0304

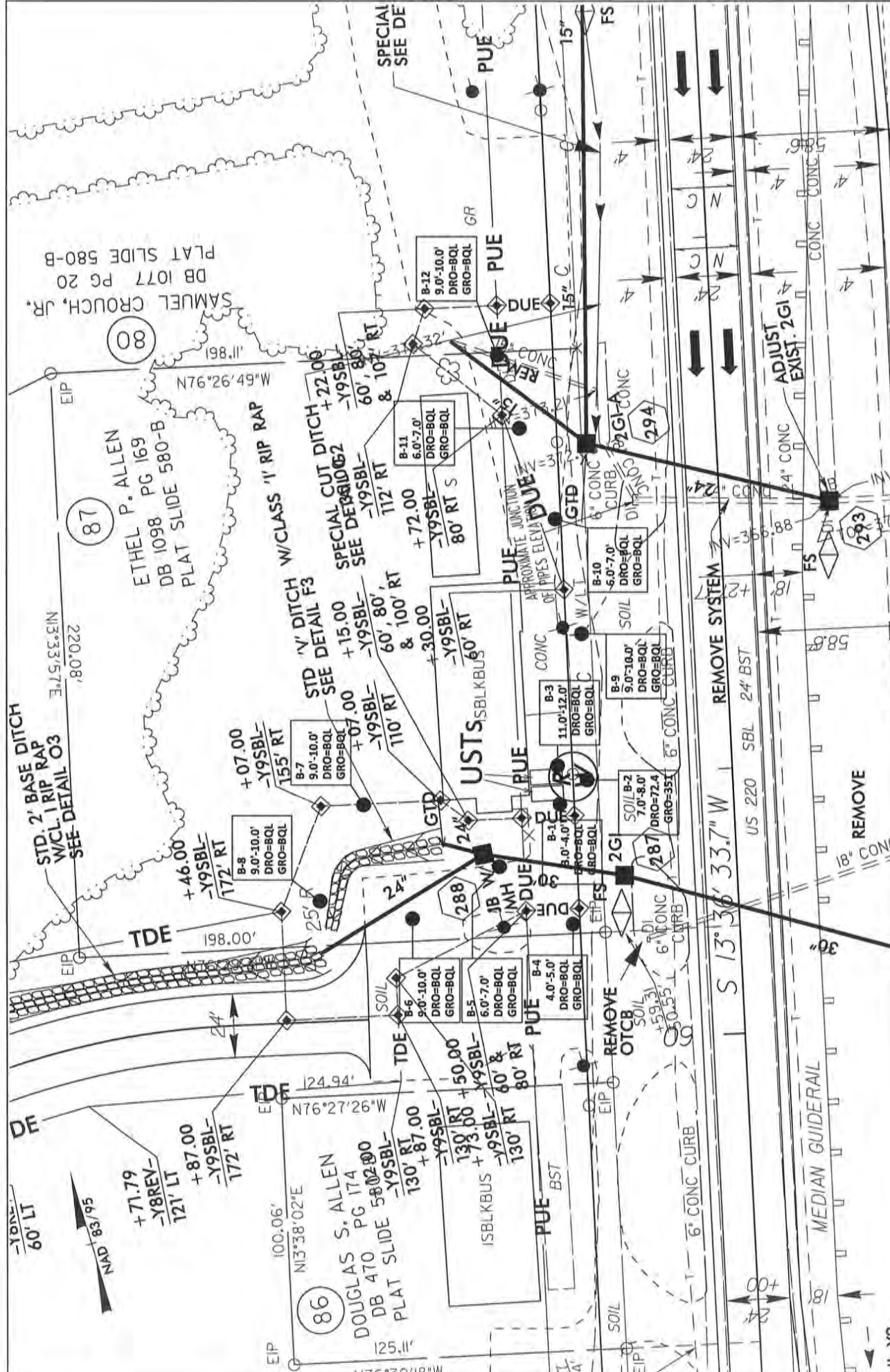
Client:	NCDOT
Project:	Ethel P. Allen Property
Location:	Rockingham, Richmond County, NC
F&R Project No.:	66M-0178-0001
Data:	F&R(NAD 83 State Plane, FEET: CORS96)
Date:	February 2011

Disclaimer: F&R makes no warranties or guarantees regarding the accuracy or completeness of geographic features shown on this map. Spatial accuracy of measurement provided by source agencies can be obtained by contacting F&R.

Figure 2

1765000 000000

1768000 000000



BORING LOCATION PLAN

LEGEND

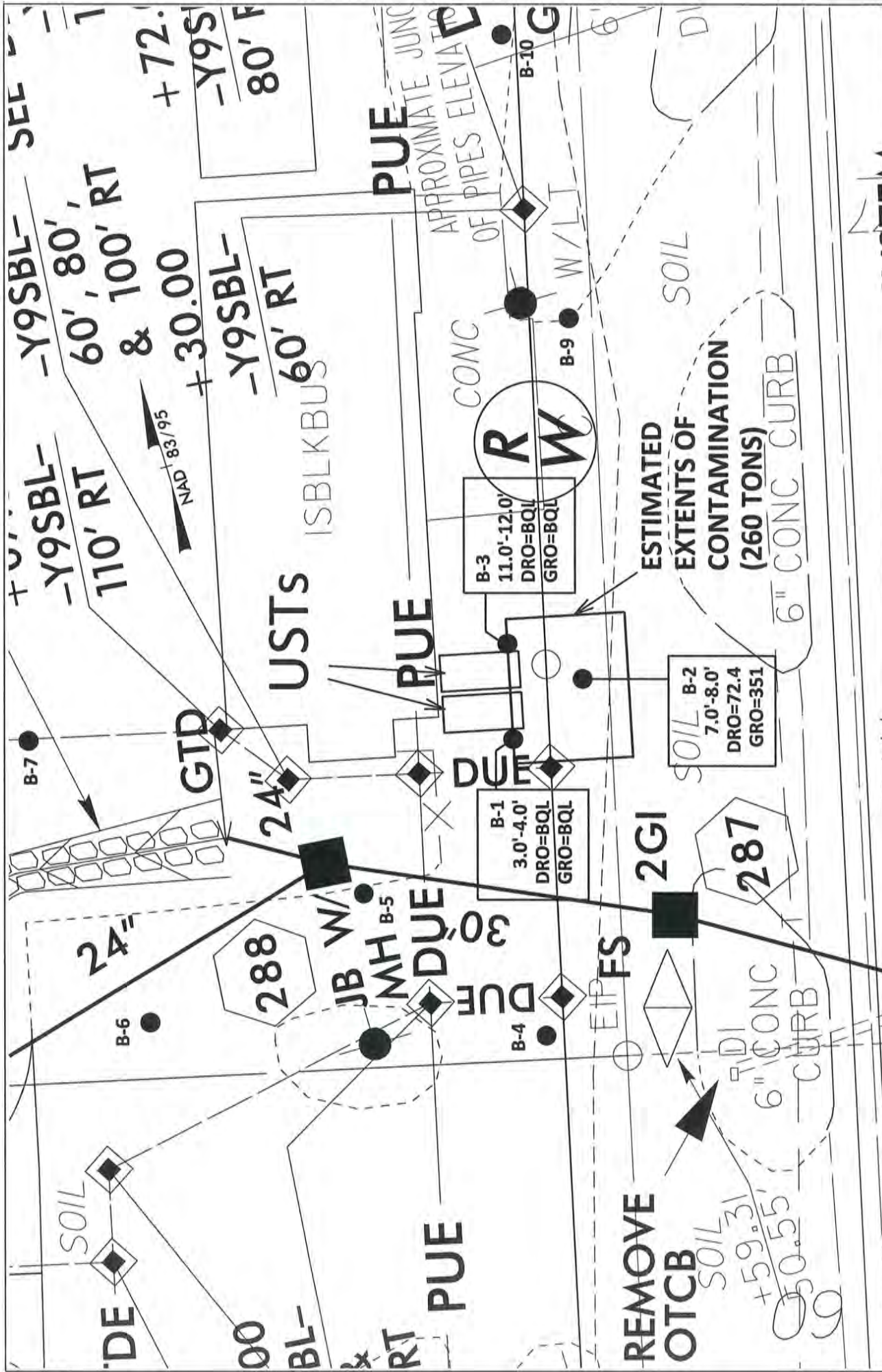
- Approximate Geoprobe Boring Location
- SCALE (FEET)
 0 25' 50'
 1"=50'

FROEHLING & ROBERTSON, INC.
 Engineering • Environmental • Geotechnical

310 Hubert Street
 Raleigh, North Carolina 27603-2302 USA
 T 919.828.3441 | F 919.828.5751
 www.fandr.com



CLIENT: NCDOT
 PROJECT: Ethel P. Allen Property
 LOCATION: Rockingham, Richmond County, North Carolina
 F&R PROJECT No.: 66M-0178-0001
 DRAWN BY: D. Racey
 CHECKED BY: M. Sabodish, P.E.
 DATE: February 2011
 SCALE: 1"=50'



ESTIMATED EXTENT OF SOIL CONTAMINATION	
CLIENT: NCDOT	
PROJECT: Ethel P. Allen Property	
LOCATION: Rockingham, Richmond County, North Carolina	
F&R PROJECT No.: 66M-0178-0001	
DRAWN BY: D. Racey	CHECKED BY: M. Sabodish, P.E.
DATE: February 2011	FIGURE No.: 4
SCALE: 1"=20'	

LEGEND

- Approximate Geoprobe Boring Location

SCALE (FEET)

0 10' 20'

1"=20'

SINCE FROEHLING & ROBERTSON, INC.
 Engineering • Environmental • Geotechnical
 310 Hubert Street
 Raleigh, North Carolina 27603-2302 | USA
 T 919.828.3441 | F 919.828.5751
 www.fandr.com



APPENDIX II

GEOPHYSICAL REPORT PREPARED BY SCHNABEL ENGINEERING



January 31, 2011

Mr. Christopher Burkhardt
Froehling & Robertson, Inc.
310 Hubert Street
Raleigh, NC 27603

RE: State Project: R-3421C
 WBS Element: 34542.1.2
 County: Richmond
 Description: US 220 Bypass from Southwest of SR 1304 (Harrington Road) to Future
 US 220 Business/US 220 Bypass Interchange South of Ellerbe

**Subject: Project 09210013.35 Report on Geophysical Surveys
 Parcel 87, Richmond County, North Carolina**

Dear Mr. Burkhardt:

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 January 6 and 14, 2011, 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 west side of US 220 Hwy approximately 875 feet north of the intersection of Billy Covington Road in Rockingham, 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 87 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 indicate the presence of two probable USTs. The probable USTs are located approximately 5 to 10 feet west of the southeastern corner of the building. The USTs appear to be a few feet outside of the proposed utility 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. The GPR data indicate that the probable USTs are buried approximately 1.5 to 2.5 feet below ground surface. The GPR data indicate that the probable USTs are about 5.5 feet in diameter and about 12.0 feet long, equivalent to a capacity of about 2,000 gallons each. 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-3421C in Rockingham, NC indicates the following:

The geophysical data indicate the presence of two probable USTs on Parcel 87. The USTs appear to be a few feet outside of the proposed utility easement. The probable USTs are both about 2,000-gallon capacity and are buried about 1.5 to 2.5 feet below ground surface.

LIMITATIONS

These services have been performed and this report prepared for Froehling & Robertson, 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

PS:JW:JS:NB

Attachments: Figures (5)

FILE: G:\2009 PROJECTS\09210013 (NCDOT 2009 GEOTECH UNIT SERVICES)\09210013.35 (R-3421C, RICHMOND COUNTY)\REPORT\PARCEL 87\SCHNABEL GEOPHYSICAL REPORT ON PARCEL 87 (R-3421C).DOCX



Parcel 87 – Ethel P. Allen Property, looking northwest



Parcel 87 – Ethel P. Allen Property, looking southwest



STATE PROJECT R-3421C
NC DEPT. OF TRANSPORTATION
RICHMOND CO., NORTH CAROLINA
PROJECT NO. 09210013.35

PARCEL 87
SITE PHOTOS

FIGURE 1



Geonics EM61-MK2



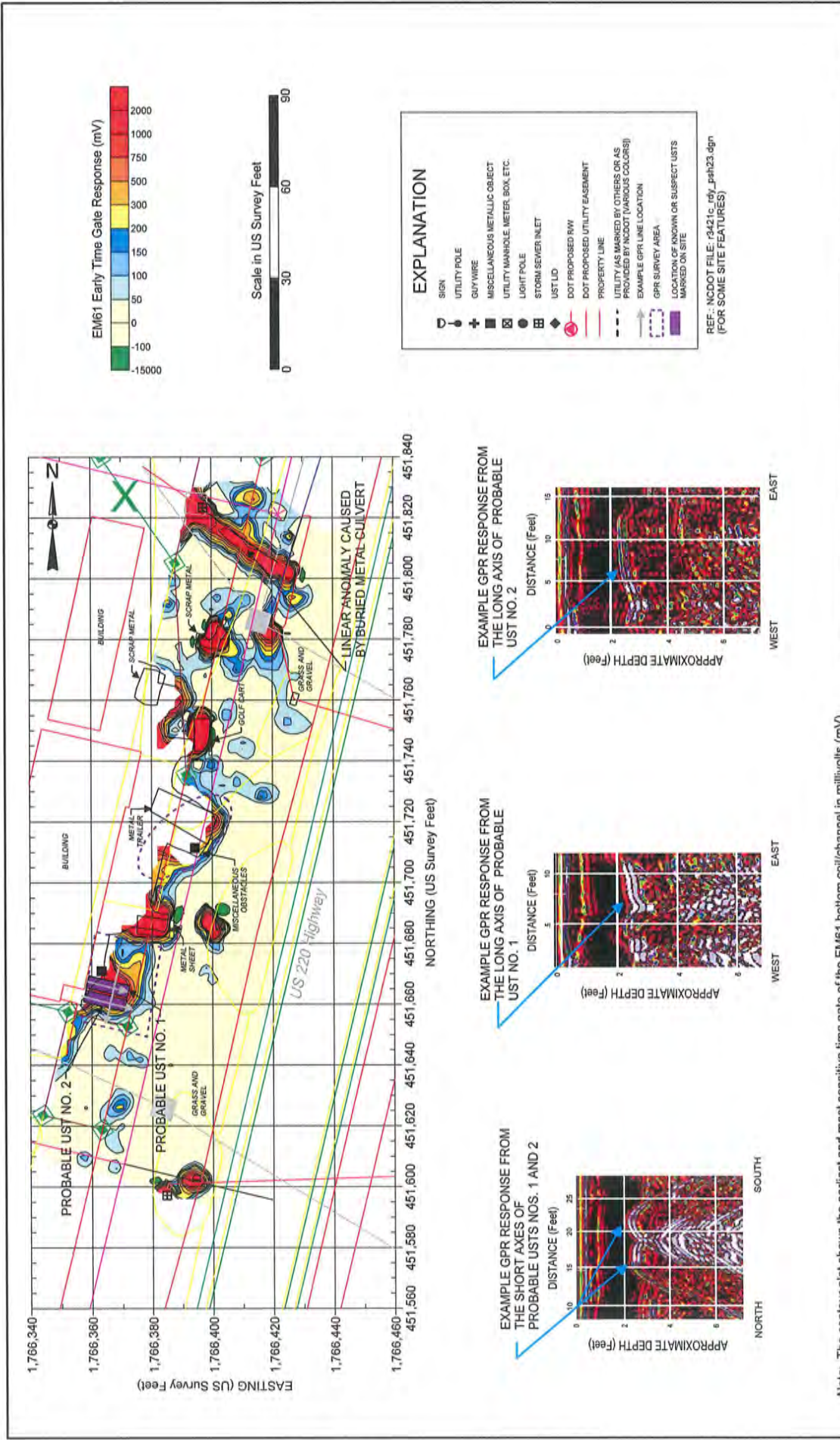
GSSI SIR-3000



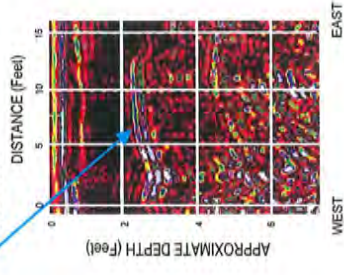
STATE PROJECT R-3421C
NC DEPT. OF TRANSPORTATION
RICHMOND CO., NORTH CAROLINA
PROJECT NO. 09210013.35

PHOTOS OF
GEOPHYSICAL
EQUIPMENT USED

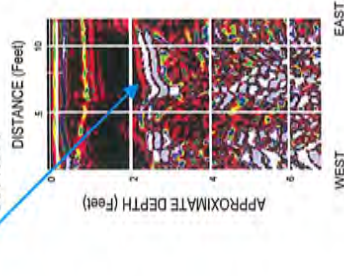
FIGURE 2



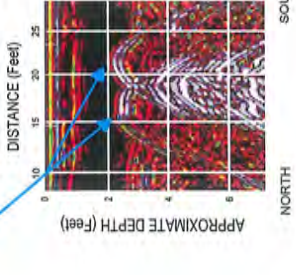
EXAMPLE GPR RESPONSE FROM THE LONG AXIS OF PROBABLE UST NO. 2



EXAMPLE GPR RESPONSE FROM THE LONG AXIS OF PROBABLE UST NO. 1



EXAMPLE GPR RESPONSE FROM THE SHORT AXES OF PROBABLE UST NOS. 1 AND 2



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 January 6, 2011, 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 January 14, 2011, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.

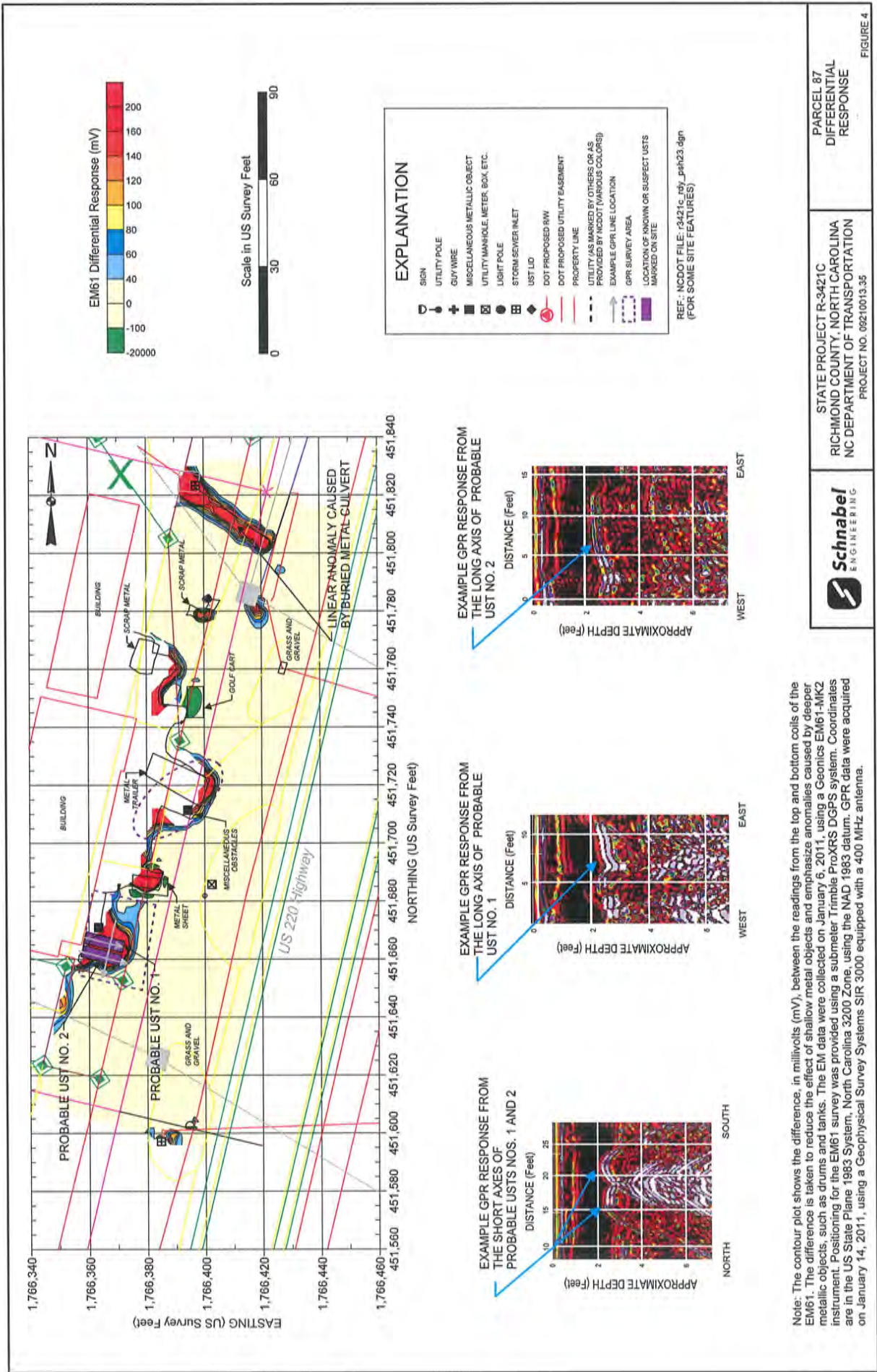


Schnabel
ENGINEERING

STATE PROJECT R-3421C
RICHMOND COUNTY, NORTH CAROLINA
NC DEPARTMENT OF TRANSPORTATION

PARCEL 87
EARLY TIME GATE
RESPONSE

PROJECT NO. 09210013.35
FIGURE 3



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 January 6, 2011, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRSS 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 January 14, 2011, using a Geophysical Survey Systems Sjr 3000 equipped with a 400 MHz antenna.

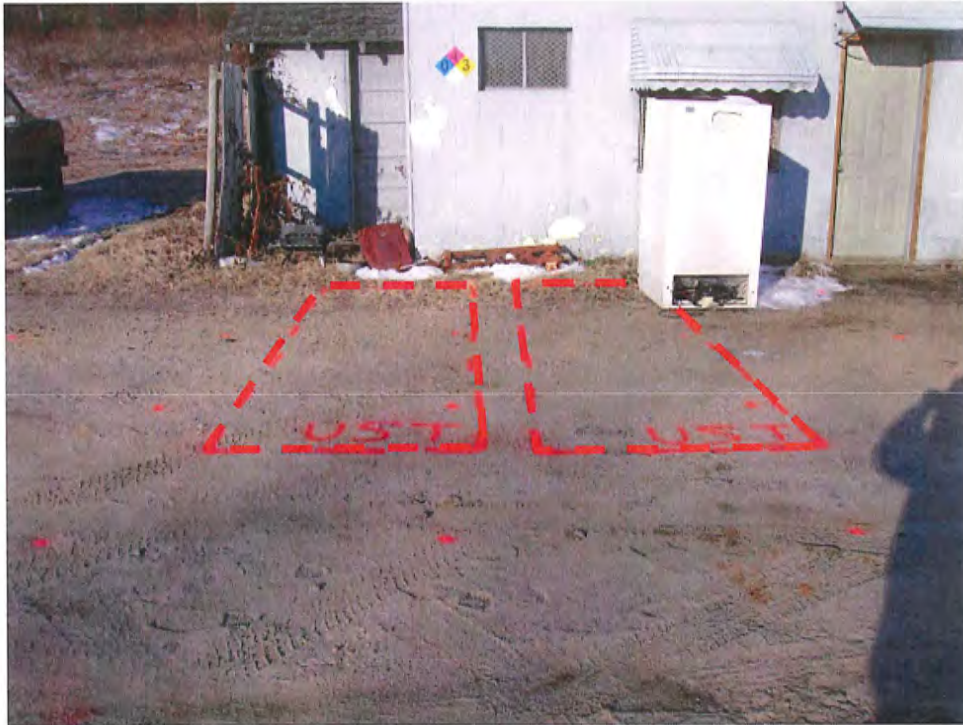


STATE PROJECT R-3421C
RICHMOND COUNTY, NORTH CAROLINA
NC DEPARTMENT OF TRANSPORTATION

PARCEL 87
DIFFERENTIAL
RESPONSE

PROJECT NO. 06210013.35

FIGURE 4



Parcel 87 – Ethel P. Allen Property, looking west. Photo shows approximate marked location of the probable USTs near the southeast corner of the building.



Parcel 87 – Ethel P. Allen Property, looking north. Photo shows approximate marked location of the probable USTs near the southeast corner of the building.



STATE PROJECT R-3421C
 RICHMOND CO., NORTH CAROLINA
 NC DEPT. OF TRANSPORTATION
 PROJECT NO. 09210013.35

PHOTOS OF PROBABLE
 UST LOCATIONS

FIGURE 5



APPENDIX III
ENVIRONMENTAL BORING LOGS

ENVIRONMENTAL BORING LOG



FROEHLING & ROBERTSON, INC.
 GEOTECHNICAL • ENVIRONMENTAL • MATERIALS
 ENGINEERS • LABORATORIES
 "OVER 125 YEARS OF SERVICE"

Report No.: **66M-0178-0001**

Date: **February 2011**

Client: **NCDOT**

Project: **US 220 PSAs (EPA Property), Rockingham, Richmond County, NC**

Boring No.: **B-1 (1 of 1)** Total Depth: **12.0'** Elev: Location: **See Boring Location Plan**

Type of Boring: **Geoprobe** Started: **1/19/11** Completed: **1/19/11** Driller: **Regional Probing**

Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Interval	Sample Depth (feet)	PID (ppm)	REMARKS
		Moist, brown, silty SAND (SM).		0.0	0	Sample submitted for laboratory analysis for TPH DRO/GRO
				1.0	0	
				2.0	0	
				3.0	1.0	
4.0		Moist, tan, silty SAND (SM).		4.0	0.1	
5.0		Moist, orange & orange-brown, clayey SAND (SC).		5.0	0.1	
				6.0	0	
7.0		Moist to wet, gray, clayey SAND (SC).		7.0	0	
				8.0	0.1	
9.0		Moist, gray, sandy silty CLAY (CL).		9.0	0	
10.0		Moist, orange-gray, sandy silty CLAY (CL).		10.0	0	
11.0		Moist, orange-gray, clayey SAND (SC).		11.0	0	
12.0		Geoprobe Boring Terminated at 12.0 feet.		12.0		

ENV. BORING LOG 66M0178-0001_BORELOGS.GPJ F&R.GDT 2/22/11

ENVIRONMENTAL BORING LOG



FROEHLING & ROBERTSON, INC.
 GEOTECHNICAL • ENVIRONMENTAL • MATERIALS
 ENGINEERS • LABORATORIES
 "OVER 125 YEARS OF SERVICE"

Report No.: **66M-0178-0001**

Date: **February 2011**

Client: **NCDOT**

Project: **US 220 PSAs (EPA Property), Rockingham, Richmond County, NC**

Boring No.: **B-2 (1 of 1)** Total Depth **12.0'** Elev: Location: **See Boring Location Plan**

Type of Boring: **Geoprobe** Started: **1/19/11** Completed: **1/19/11** Driller: **Regional Probing**

Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Interval	Sample Depth (feet)	PID (ppm)	REMARKS
		Moist, brown-orange, clayey SAND (SC).		0.0	0	
	1.0	Moist, brown-orange, silty SAND (SM).		1.0	0	
				2.0	0	
				3.0	0	
	4.0	Moist, tan, silty SAND (SM).		4.0	0.1	
	5.0	Moist, orange-brown, silty SAND (SM).		5.0	0	
				6.0	7.2	
	7.0	Wet, gray, silty SAND (SM).		7.0	741	Sample submitted for laboratory analysis for TPH DRO/GRO
				8.0	441	
	9.0	Moist, gray, silty CLAY (CL).		9.0	48.8	
	10.0	Moist, gray, sandy CLAY (CL).		10.0	7.1	
	11.0	Moist to wet, gray-orange, clayey silty SAND (SM).		11.0	4.6	
	12.0	Geoprobe Boring Terminated at 12.0 feet.		12.0		

ENVIRONMENTAL BORING LOG



FROEHLING & ROBERTSON, INC.
 GEOTECHNICAL • ENVIRONMENTAL • MATERIALS
 ENGINEERS • LABORATORIES
 "OVER 125 YEARS OF SERVICE"

Report No.: **66M-0178-0001**

Date: **February 2011**

Client: **NCDOT**

Project: **US 220 PSAs (EPA Property), Rockingham, Richmond County, NC**

Boring No.: **B-3 (1 of 1)** Total Depth **12.0'** Elev: Location: **See Boring Location Plan**

Type of Boring: **Geoprobe** Started: **1/19/11** Completed: **1/19/11** Driller: **Regional Probing**

Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Interval	Sample Depth (feet)	PID (ppm)	REMARKS
		Moist, orange-dark brown, silty SAND (SM).		0.0	0	
	1.0	Moist, brown, silty SAND (SM).		1.0	0	
				2.0	0	
				3.0	0	
	4.0	Moist, tan & orange-brown, silty SAND (SM).		4.0	0	
				5.0	0	
	6.0	Moist, orange, clayey SAND (SC).		6.0	0	
	7.0	Moist, orange-gray, clayey SAND (SC).		7.0	0	
	8.0	Moist, orange-brown, clayey SAND (SC).		8.0	0	
	9.0	Moist, gray, sandy CLAY (CL).		9.0	0	
	10.0	Moist, orange-gray-brown, clayey SAND (SC).		10.0	0	
				11.0	0	Sample submitted for laboratory analysis for TPH DRO/GRO
	12.0	Geoprobe Boring Terminated at 12.0 feet.		12.0		

ENVIRONMENTAL BORING LOG



FROEHLING & ROBERTSON, INC.
 GEOTECHNICAL • ENVIRONMENTAL • MATERIALS
 ENGINEERS • LABORATORIES
 "OVER 125 YEARS OF SERVICE"

Report No.: **66M-0178-0001**

Date: **February 2011**

Client: **NCDOT**

Project: **US 220 PSAs (EPA Property), Rockingham, Richmond County, NC**

Boring No.: **B-4 (1 of 1)** Total Depth **10.0'** Elev: Location: **See Boring Location Plan**

Type of Boring: **Geoprobe** Started: **1/19/11** Completed: **1/19/11** Driller: **Regional Probing**

Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Interval	Sample Depth (feet)	PID (ppm)	REMARKS
		Moist, brown, silty SAND (SM).		0.0	0	
				1.0	0	
				2.0	0	
	3.0	Moist, tan-orange, silty SAND (SM).		3.0	0	
	4.0	Moist, orange-brown, clayey silty SAND (SM).		4.0	0.1	Sample submitted for laboratory analysis for TPH DRO/GRO
	5.0	Moist, orange-brown, clayey SAND (SC).		5.0	0	
				6.0	0	
	7.0	Moist, gray-orange, silty CLAY (CL).		7.0	0	
	8.0	Dry to moist, gray, silty CLAY (CL).		8.0	0	
	9.0	Moist, orange-gray, clayey SAND (SC).		9.0	0	
	10.0	Geoprobe Boring Terminated at 10.0 feet.		10.0		

ENVIRONMENTAL BORING LOG



FROEHLING & ROBERTSON, INC.
 GEOTECHNICAL • ENVIRONMENTAL • MATERIALS
 ENGINEERS • LABORATORIES
 "OVER 125 YEARS OF SERVICE"

Report No.: **66M-0178-0001**

Date: **February 2011**

Client: NCDOT						
Project: US 220 PSAs (EPA Property), Rockingham, Richmond County, NC						
Boring No.: B-5 (1 of 1)		Total Depth: 10.0'	Elev:		Location: See Boring Location Plan	
Type of Boring: Geoprobe			Started: 1/19/11	Completed: 1/19/11	Driller: Regional Probing	
Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Interval	Sample Depth (feet)	PID (ppm)	REMARKS
		Moist, tan, silty SAND (SM).		0.0	0	
	1.0	Moist, brown, silty SAND (SM).		1.0	0	
				2.0	0	
				3.0	0	
	4.0	Moist, orange, clayey silty SAND (SM).		4.0	0	
				5.0	0	
				6.0	0.2	Sample submitted for laboratory analysis for TPH DRO/GRO
	7.0	Dry to moist, orange-gray, sandy CLAY (CL).		7.0	0	
	8.0	Moist, orange-gray, clayey SAND (SC).		8.0	0	
	9.0	Moist, orange-gray-tan, clayey SAND (SC).		9.0	0	
	10.0	Geoprobe Boring Terminated at 10.0 feet.		10.0		

ENV BORING LOG 66M0178-0001 BORELOGS.GPJ F&R.GDT 2/22/11

ENVIRONMENTAL BORING LOG



FROEHLING & ROBERTSON, INC.
 GEOTECHNICAL • ENVIRONMENTAL • MATERIALS
 ENGINEERS • LABORATORIES
 "OVER 125 YEARS OF SERVICE"

Report No.: **66M-0178-0001**

Date: **February 2011**

Client: NCDOT						
Project: US 220 PSAs (EPA Property), Rockingham, Richmond County, NC						
Boring No.: B-6 (1 of 1)		Total Depth: 10.0'	Elev:	Location: See Boring Location Plan		
Type of Boring: Geoprobe		Started: 1/19/11	Completed: 1/19/11	Driller: Regional Probing		
Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Interval	Sample Depth (feet)	PID (ppm)	REMARKS
		Moist, brown, silty SAND (SM).		0.0	0	
	1.0	Moist, tan, silty SAND (SM).		1.0	0	
				2.0	0	
				3.0	0	
	4.0	Moist, tan-orange, silty SAND (SM).		4.0	0	
	5.0	Moist, tan-orange, clayey silty SAND (SM).		5.0	0	
				6.0	0	
	7.0	Moist, orange-gray, sandy CLAY (CL).		7.0	0	
	8.0	Moist, orange-gray, clayey SAND (SC).		8.0	0	
				9.0	0	Sample submitted for laboratory analysis for TPH DRO/GRO
	10.0	Geoprobe Boring Terminated at 10.0 feet.		10.0		

ENVIRONMENTAL BORING LOG



FROEHLING & ROBERTSON, INC.
 GEOTECHNICAL • ENVIRONMENTAL • MATERIALS
 ENGINEERS • LABORATORIES
 "OVER 125 YEARS OF SERVICE"

Report No.: **66M-0178-0001**

Date: **February 2011**

Client: **NCDOT**

Project: **US 220 PSAs (EPA Property), Rockingham, Richmond County, NC**

Boring No.: **B-7 (1 of 1)** Total Depth: **10.0'** Elev: Location: **See Boring Location Plan**

Type of Boring: **Geoprobe** Started: **1/19/11** Completed: **1/19/11** Driller: **Regional Probing**

Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Interval	Sample Depth (feet)	PID (ppm)	REMARKS
		Moist, brown & orange-brown, silty SAND (SM).		0.0	0	
				1.0	0	
	2.0	Moist, orange & tan, silty SAND (SM).		2.0	0	
				3.0	0	
	4.0	Moist, tan-orange, silty SAND (SM).		4.0	0	
	5.0	Moist, orange, clayey SAND (SC).		5.0	0	
				6.0	0	
	7.0	Moist, orange, clayey silty SAND (SM).		7.0	0	
	8.0	Moist, orange-gray & gray, sandy CLAY (CL).		8.0	0	
				9.0	0	Sample submitted for laboratory analysis for TPH DRO/GRO
	10.0	Geoprobe Boring Terminated at 10.0 feet.		10.0		

ENVIRONMENTAL BORING LOG



FROEHLING & ROBERTSON, INC.
 GEOTECHNICAL • ENVIRONMENTAL • MATERIALS
 ENGINEERS • LABORATORIES
 "OVER 125 YEARS OF SERVICE"

Report No.: **66M-0178-0001**

Date: **February 2011**

Client: **NCDOT**

Project: **US 220 PSAs (EPA Property), Rockingham, Richmond County, NC**

Boring No.: **B-8 (1 of 1)** Total Depth: **10.0'** Elev: Location: **See Boring Location Plan**

Type of Boring: **Geoprobe** Started: **1/19/11** Completed: **1/19/11** Driller: **Regional Probing**

Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Interval	Sample Depth (feet)	PID (ppm)	REMARKS
		Moist, brown, silty SAND (SM).		0.0	0	
				1.0	0	
				2.0	0	
	3.0	Moist, orange-brown, silty SAND (SM).		3.0	0	
				4.0	0	
	5.0	Moist, tan, SAND (SP).		5.0	0	
	6.0	Moist, brown-orange & orange, silty SAND (SM).		6.0	0	
				7.0	0	
	8.0	Moist, orange, clayey silty SAND (SM).		8.0	0	
	9.0	Moist, orange, clayey SAND (SC).		9.0	0	Sample submitted for laboratory analysis for TPH DRO/GRO
	10.0	Geoprobe Boring Terminated at 10.0 feet.		10.0		

ENV_BORING_LOG_66M0178-0001_BORELOGS.GPJ F&R.GDT 2/22/11

ENVIRONMENTAL BORING LOG



FROEHLING & ROBERTSON, INC.
 GEOTECHNICAL • ENVIRONMENTAL • MATERIALS
 ENGINEERS • LABORATORIES
 "OVER 125 YEARS OF SERVICE"

Report No.: **66M-0178-0001**

Date: **February 2011**

Client: NCDOT						
Project: US 220 PSAs (EPA Property), Rockingham, Richmond County, NC						
Boring No.: B-9 (1 of 1)		Total Depth: 10.0'	Elev:	Location: See Boring Location Plan		
Type of Boring: Geoprobe		Started: 1/19/11	Completed: 1/19/11	Driller: Regional Probing		
Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Interval	Sample Depth (feet)	PID (ppm)	REMARKS
		Wet, dark brown, silty SAND (SM).		0.0	0	
	1.0	Moist, brown & orange-brown, silty SAND (SM).		1.0	0	
				2.0	0	
				3.0	0	
	4.0	Moist, tan, silty SAND (SM).		4.0	0	
				5.0	0	
	6.0	Moist, brown & orange-brown, silty SAND (SM).		6.0	0	
				7.0	0	
	8.0	Wet, orange-brown, silty SAND (SM).		8.0	0	
	9.0	Wet, gray, clayey SAND (SC).		9.0	0	Sample submitted for laboratory analysis for TPH DRO/GRO
	10.0	Geoprobe Boring Terminated at 10.0 feet.		10.0		

ENV_BORING_LOG_66M0178-0001_BORELOGS.GPJ_F&R.GDT_2/22/11

ENVIRONMENTAL BORING LOG



FROEHLING & ROBERTSON, INC.
 GEOTECHNICAL • ENVIRONMENTAL • MATERIALS
 ENGINEERS • LABORATORIES
 "OVER 125 YEARS OF SERVICE"

Report No.: **66M-0178-0001**

Date: **February 2011**

Client: NCDOT						
Project: US 220 PSAs (EPA Property), Rockingham, Richmond County, NC						
Boring No.: B-10 (1 of 1)		Total Depth: 10.0'	Elev:	Location: See Boring Location Plan		
Type of Boring: Geoprobe		Started: 1/19/11	Completed: 1/19/11	Driller: Regional Probing		
Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Interval	Sample Depth (feet)	PID (ppm)	REMARKS
		Moist, brown, silty SAND (SM).		0.0	0.2	
				1.0	0	
				2.0	0	
	3.0	Moist, tan, SAND (SP).		3.0	0	
				4.0	0	
	5.0	Moist, tan-orange, SAND (SP).		5.0	0	
				6.0	0.4	Sample submitted for laboratory analysis for TPH DRO/GRO
	7.0	Moist, orange & orange-gray, clayey SAND (SC).		7.0	0	
				8.0	0	
				9.0	0	
	10.0	Geoprobe Boring Terminated at 10.0 feet.		10.0		

ENV BORING LOG 66M0178-0001 BORELOGS.GPJ F&R.GDT 2/22/11

ENVIRONMENTAL BORING LOG



FROEHLING & ROBERTSON, INC.
 GEOTECHNICAL • ENVIRONMENTAL • MATERIALS
 ENGINEERS • LABORATORIES
 "OVER 125 YEARS OF SERVICE"

Report No.: **66M-0178-0001**

Date: **February 2011**

Client: **NCDOT**

Project: **US 220 PSAs (EPA Property), Rockingham, Richmond County, NC**

Boring No.: **B-11 (1 of 1)** Total Depth: **10.0'** Elev: Location: **See Boring Location Plan**

Type of Boring: **Geoprobe** Started: **1/19/11** Completed: **1/19/11** Driller: **Regional Probing**

Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Interval	Sample Depth (feet)	PID (ppm)	REMARKS
		Moist, orange-brown, silty SAND (SM).		0.0	0	
				1.0	0	
				2.0	0	
				3.0	0.3	
	4.0	Moist, orange, silty SAND (SM).		4.0	0.3	
	5.0	Moist, orange, clayey SAND (SC).		5.0	0.2	
	6.0	Wet, orange-gray-brown, clayey SAND (SC).		6.0	0.6	Sample submitted for laboratory analysis for TPH DRO/GRO
	7.0	Moist, orange-gray-brown, clayey SAND (SC).		7.0	0	
				8.0	0	
	9.0	Moist, gray, clayey SAND (SC).		9.0	0	
	10.0	Geoprobe Boring Terminated at 10.0 feet.		10.0		

ENV BORING LOG 66M0178-0001 BORELOGS.GPJ F&R.GDT 2/22/11

ENVIRONMENTAL BORING LOG



FROEHLING & ROBERTSON, INC.
 GEOTECHNICAL • ENVIRONMENTAL • MATERIALS
 ENGINEERS • LABORATORIES
 "OVER 125 YEARS OF SERVICE"

Report No.: **66M-0178-0001**

Date: **February 2011**

Client: **NCDOT**

Project: **US 220 PSAs (EPA Property), Rockingham, Richmond County, NC**

Boring No.: **B-12 (1 of 1)** Total Depth **10.0'** Elev: Location: **See Boring Location Plan**

Type of Boring: **Geoprobe** Started: **1/19/11** Completed: **1/19/11** Driller: **Regional Probing**

Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Interval	Sample Depth (feet)	PID (ppm)	REMARKS
		Moist, orange, silty SAND (SM).		0.0	0	
				1.0	0	
				2.0	0	
	3.0	Moist, tan-orange, silty SAND (SM).		3.0	0	
				4.0	0	
	5.0	Moist, orange-gray, clayey SAND (SC).		5.0	0	
				6.0	0	
	7.0	Moist, orange-gray, sandy CLAY (CL).		7.0	0	
	8.0	Moist, orange-gray-brown, clayey SAND (SC).		8.0	0	
				9.0	0	Sample submitted for laboratory analysis for TPH DRO/GRO
	10.0	Geoprobe Boring Terminated at 10.0 feet.		10.0		

ENV_BORING_LOG_66M0178-0001_BORELOGS.GPJ_F&R.GDT_2/22/11



APPENDIX IV

SITE PHOTOS



Photo #1: Location of probable USTs and borings B-1 through B-3 at southeast building corner.



Photo #2: Location of Borings B-4 through B-8 looking northwest.

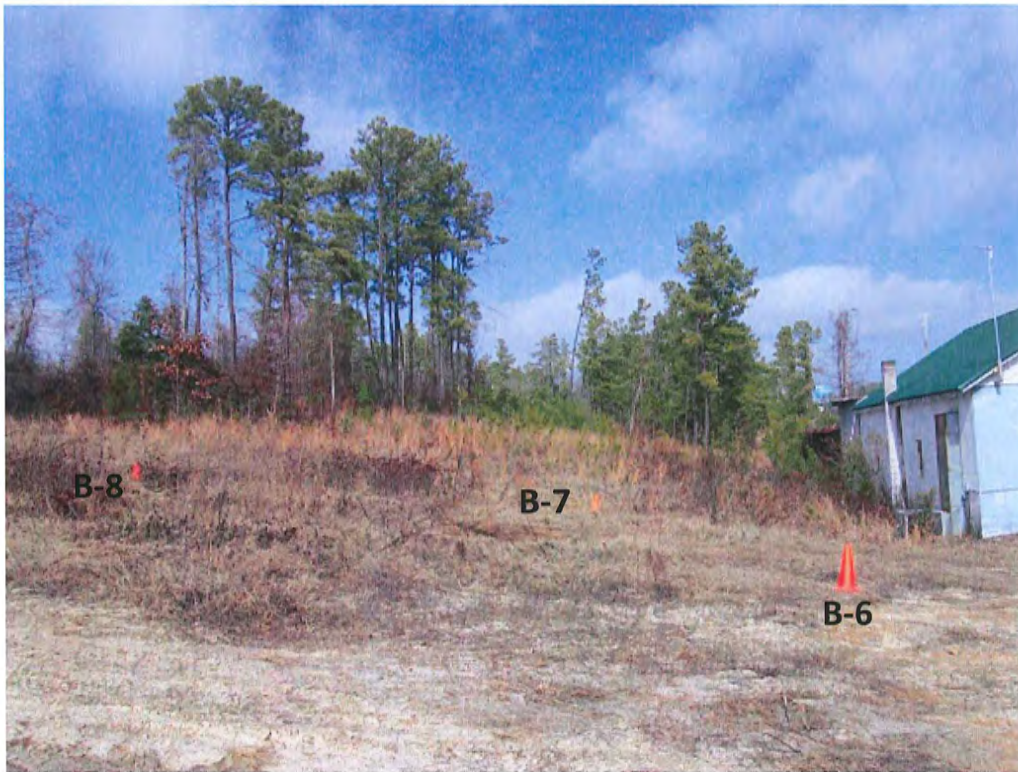


Photo #3: Location of Borings B-6 through B-8 looking north.



Photo #4: Location of Borings B-9 through B-12 looking northeast.

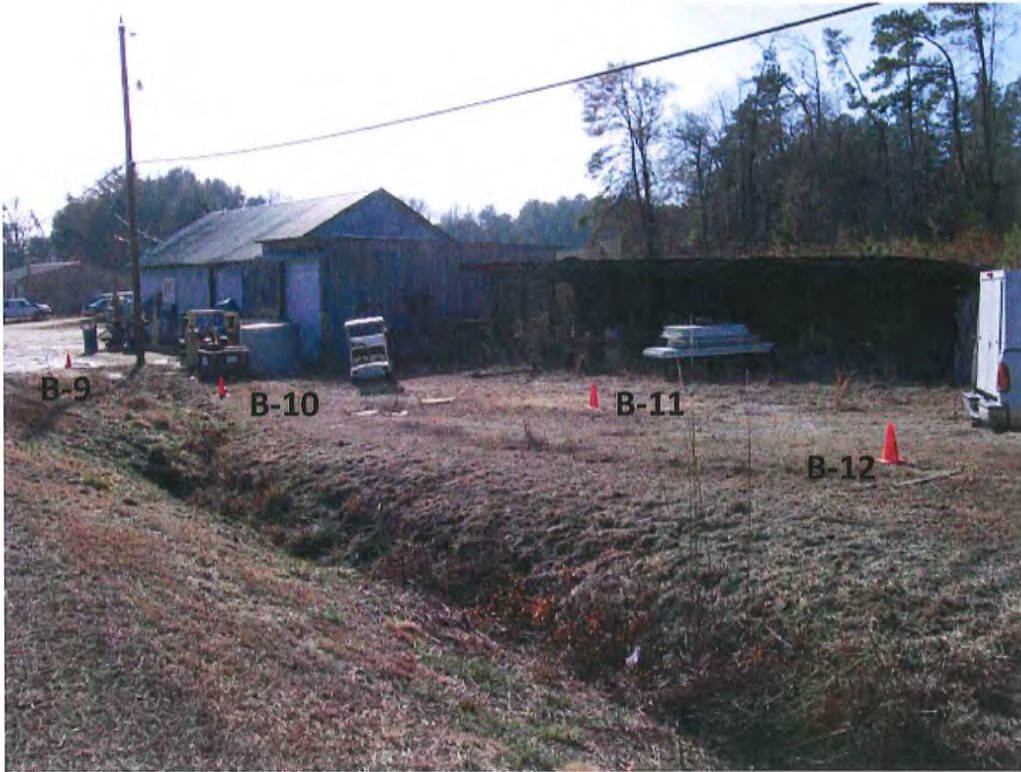


Photo #5: Location of Borings B-9 through B-12 looking southwest.



APPENDIX V

LABORATORY ANALYTICAL RESULTS



Michael Sabodish
NC Dept. of Transportation
310 Hubert Street
Raleigh, NC 27603

Report Number: G625-166

Client Project: NCDOT Richmond City

Dear Michael Sabodish,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or services performed during this project, please call Lori Lockamy at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America, Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America, Inc.

Michael Page

Digitally signed by Michael Page
DN: CN = Michael Page, C = US, OU = SGS Environmental
Reason: I have reviewed this document for Lori Lockamy
Date: 2011.01.26 16:52:37 -05'00'

Project Manager
Lori Lockamy

Date

List of Reporting Abbreviations and Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantitation Limit (RL or MDL)

DF = Dilution Factor

Dup = Duplicate

D = Detected, but RPD is > 40% between results in dual column method.

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL/CL = Reporting Limit / Control Limit

RPD = Relative Percent Difference

mg/kg = milligram per kilogram, ppm, parts per million

ug/kg = micrograms per kilogram, ppb, parts per billion

mg/L = milligram per liter, ppm, parts per million

ug/L = micrograms per liter, ppb, parts per billion

% Rec = Percent Recovery

% solids = Percent Solids

Special Notes:

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



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-4 4'-5'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-22D
Lab Project ID: G625-166

Collection Date: 19-Jan-11 9:34
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 89.8
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Oil Range Organics	BQL	7.00	MG/KG	1	25-Jan-11 23:50

Surrogates

OTP	63.6	40-140	%	1	25-Jan-11 23:50
-----	------	--------	---	---	-----------------

Batch Information

Analytical Batch: EP012511
Analytical Method: 8015DRO
Instrument: GC6
Analyst: DTF

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 31.83
Prep Extract Vol: 10



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-4 4'-5'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-22A
Lab Project ID: G625-166

Collection Date: 19-Jan-11 9:34
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 89.8
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	BQL	5.44	MG/KG	1	25-Jan-11 18:37

Surrogates

BFB	99.6	-	%	1	25-Jan-11 18:37
-----	------	---	---	---	-----------------

Batch Information

Analytical Batch: VP012511
Analytical Method: 8015GRO
Instrument: GC4
Analyst: LMC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 6.14
Prep Extract Vol: 5



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-1 3'-4'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-23D
Lab Project ID: G625-166

Collection Date: 19-Jan-11 9:47
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 92.9
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Oil Range Organics	BQL	6.83	MG/KG	1	25-Jan-11 17:14

Surrogates

OTP	62.9	40-140	%	1	25-Jan-11 17:14
-----	------	--------	---	---	-----------------

Batch Information

Analytical Batch: EP012511
Analytical Method: 8015DRO
Instrument: GC6
Analyst: DTF

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 31.51
Prep Extract Vol: 10



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-1 3'-4'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-23A
Lab Project ID: G625-166

Collection Date: 19-Jan-11 9:47
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 92.9
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	BQL	5.68	MG/KG	1	25-Jan-11 23:05

Surrogates

BFB	99.8	-	%	1	25-Jan-11 23:05
-----	------	---	---	---	-----------------

Batch Information

Analytical Batch: VP012511
Analytical Method: 8015GRO
Instrument: GC4
Analyst: LMC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 5.68
Prep Extract Vol: 5



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-2 7'-8'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-24D
Lab Project ID: G625-166

Collection Date: 19-Jan-11 10:24
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 84.4
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Oil Range Organics	72.4	7.47	MG/KG	1	26-Jan-11 8:28

Surrogates

OTP	61.3	40-140	%	1	26-Jan-11 8:28
-----	------	--------	---	---	----------------

Batch Information

Analytical Batch: EP012611
Analytical Method: 8015DRO
Instrument: GC6
Analyst: DTF

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 31.72
Prep Extract Vol: 10



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-2 7'-8'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-24A
Lab Project ID: G625-166

Collection Date: 19-Jan-11 10:24
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 84.4
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	351	82.5	MG/KG	25	25-Jan-11 23:32

Surrogates

BFB	101.0	-	%	25	25-Jan-11 23:32
-----	-------	---	---	----	-----------------

Batch Information

Analytical Batch: VP012511
Analytical Method: 8015GRO
Instrument: GC4
Analyst: LMC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 7.18
Prep Extract Vol: 5



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-3 11'-12'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-25D
Lab Project ID: G625-166

Collection Date: 19-Jan-11 10:45
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 83.4
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Oil Range Organics	BQL	7.58	MG/KG	1	25-Jan-11 18:11

Surrogates

OTP	56	40-140	%	1	25-Jan-11 18:11
-----	----	--------	---	---	-----------------

Batch Information

Analytical Batch: EP012511
Analytical Method: 8015DRO
Instrument: GC6
Analyst: DTF

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 31.62
Prep Extract Vol: 10



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-3 11'-12'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-25A
Lab Project ID: G625-166

Collection Date: 19-Jan-11 10:45
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 83.4
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	BQL	5.40	MG/KG	1	25-Jan-11 23:59

Surrogates

BFB	102.0	-	%	1	25-Jan-11 23:59
-----	-------	---	---	---	-----------------

Batch Information

Analytical Batch: VP012511
Analytical Method: 8015GRO
Instrument: GC4
Analyst: LMC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 6.66
Prep Extract Vol: 5



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-5 6'-7'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-26D
Lab Project ID: G625-166

Collection Date: 19-Jan-11 11:15
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 87.5
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Oil Range Organics	BQL	6.80	MG/KG	1	25-Jan-11 18:39

Surrogates

OTP	69.3	40-140	%	1	25-Jan-11 18:39
-----	------	--------	---	---	-----------------

Batch Information

Analytical Batch: EP012511
Analytical Method: 8015DRO
Instrument: GC6
Analyst: DTF

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 33.6
Prep Extract Vol: 10



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-5 6'-7'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-26A
Lab Project ID: G625-166

Collection Date: 19-Jan-11 11:15
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 87.5
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RI/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	BQL	4.26	MG/KG	1	26-Jan-11 0:26

Surrogates

BFB	101.0	-	%	1	26-Jan-11 0:26
-----	-------	---	---	---	----------------

Batch Information

Analytical Batch: VP012511
Analytical Method: 8015GRO
Instrument: GC4
Analyst: LMC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 8.05
Prep Extract Vol: 5



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-6 9'-10'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-27D
Lab Project ID: G625-166

Collection Date: 19-Jan-11 12:00
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 87.5
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RI/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Oil Range Organics	BQL	6.90	MG/KG	1	25-Jan-11 19:07

Surrogates

OTP	64.9	40-140	%	1	25-Jan-11 19:07
-----	------	--------	---	---	-----------------

Batch Information

Analytical Batch: EP012511
Analytical Method: 8015DRO
Instrument: GC6
Analyst: DTF

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 33.11
Prep Extract Vol: 10



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-6 9'-10'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-27A
Lab Project ID: G625-166

Collection Date: 19-Jan-11 12:00
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 87.5
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	BQL	5.14	MG/KG	1	26-Jan-11 0:53

Surrogates

BFB	101.0	-	%	1	26-Jan-11 0:53
-----	-------	---	---	---	----------------

Batch Information

Analytical Batch: VP012511
Analytical Method: 8015GRO
Instrument: GC4
Analyst: LMC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 6.67
Prep Extract Vol: 5



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-7 9'-10'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-28D
Lab Project ID: G625-166

Collection Date: 19-Jan-11 12:30
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 85.6
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Oil Range Organics	BQL	7.36	MG/KG	1	25-Jan-11 19:36

Surrogates

OTP	62.4	40-140	%	1	25-Jan-11 19:36
-----	------	--------	---	---	-----------------

Batch Information

Analytical Batch: EP012511
Analytical Method: 8015DRO
Instrument: GC6
Analyst: DTF

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 31.71
Prep Extract Vol: 10



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-7 9'-10'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-28A
Lab Project ID: G625-166

Collection Date: 19-Jan-11 12:30
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 85.6
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	BQL	5.43	MG/KG	1	26-Jan-11 1:20

Surrogates

BFB	103.0	-	%	1	26-Jan-11 1:20
-----	-------	---	---	---	----------------

Batch Information

Analytical Batch: VP012511
Analytical Method: 8015GRO
Instrument: GC4
Analyst: LMC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 6.45
Prep Extract Vol: 5



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-8 9'-10'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-29D
Lab Project ID: G625-166

Collection Date: 19-Jan-11 13:13
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 85.4
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Oil Range Organics	BQL	7.50	MG/KG	1	25-Jan-11 20:04

Surrogates

OTP	62.6	40-140	%	1	25-Jan-11 20:04
-----	------	--------	---	---	-----------------

Batch Information

Analytical Batch: EP012511
Analytical Method: 8015DRO
Instrument: GC6
Analyst: DTF

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 31.21
Prep Extract Vol: 10



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-8 9'-10'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-29A
Lab Project ID: G625-166

Collection Date: 19-Jan-11 13:13
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 85.4
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	BQL	5.01	MG/KG	1	26-Jan-11 1:47

Surrogates

BFB	102.0	-	%	1	26-Jan-11 1:47
-----	-------	---	---	---	----------------

Batch Information

Analytical Batch: VP012511
Analytical Method: 8015GRO
Instrument: GC4
Analyst: LMC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 7.01
Prep Extract Vol: 5



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-9 9'-10'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-30D
Lab Project ID: G625-166

Collection Date: 19-Jan-11 13:45
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 81.0
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Oil Range Organics	BQL	7.73	MG/KG	1	25-Jan-11 20:32

Surrogates

OTP	61	40-140	%	1	25-Jan-11 20:32
-----	----	--------	---	---	-----------------

Batch Information

Analytical Batch: EP012511
Analytical Method: 8015DRO
Instrument: GC6
Analyst: DTF

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 31.91
Prep Extract Vol: 10



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-9 9'-10'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-30A
Lab Project ID: G625-166

Collection Date: 19-Jan-11 13:45
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 81.0
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	BQL	5.20	MG/KG	1	26-Jan-11 2:14

Surrogates

BFB	103.0	-	%	1	26-Jan-11 2:14
-----	-------	---	---	---	----------------

Batch Information

Analytical Batch: VP012511
Analytical Method: 8015GRO
Instrument: GC4
Analyst: LMC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 7.12
Prep Extract Vol: 5



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-10 6'-7'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-31D
Lab Project ID: G625-166

Collection Date: 19-Jan-11 14:00
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 90.8
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Oil Range Organics	BQL	6.93	MG/KG	1	25-Jan-11 21:01

Surrogates

OTP	68.4	40-140	%	1	25-Jan-11 21:01
-----	------	--------	---	---	-----------------

Batch Information

Analytical Batch: EP012511
Analytical Method: 8015DRO
Instrument: GC6
Analyst: DTF

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 31.77
Prep Extract Vol: 10



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-10 6'-7'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-31A
Lab Project ID: G625-166

Collection Date: 19-Jan-11 14:00
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 90.8
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	BQL	5.64	MG/KG	1	26-Jan-11 2:41

Surrogates

BFB	101.0	-	%	1	26-Jan-11 2:41
-----	-------	---	---	---	----------------

Batch Information

Analytical Batch: VP012511
Analytical Method: 8015GRO
Instrument: GC4
Analyst: LMC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 5.86
Prep Extract Vol: 5



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-11 6'-7'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-32D
Lab Project ID: G625-166

Collection Date: 19-Jan-11 14:15
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 88.6
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Oil Range Organics	BQL	7.03	MG/KG	1	25-Jan-11 21:29

Surrogates

OTP	68.6	40-140	%	1	25-Jan-11 21:29
-----	------	--------	---	---	-----------------

Batch Information

Analytical Batch: EP012511
Analytical Method: 8015DRO
Instrument: GC6
Analyst: DTF

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 32.13
Prep Extract Vol: 10



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-11 6'-7'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-32A
Lab Project ID: G625-166

Collection Date: 19-Jan-11 14:15
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 88.6
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	BQL	4.78	MG/KG	1	26-Jan-11 3:08

Surrogates

BFB	102.0	-	%	1	26-Jan-11 3:08
-----	-------	---	---	---	----------------

Batch Information

Analytical Batch: VP012511
Analytical Method: 8015GRO
Instrument: GC4
Analyst: LMC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 7.09
Prep Extract Vol: 5



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-12 9-10'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-33D
Lab Project ID: G625-166

Collection Date: 19-Jan-11 14:35
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 84.5
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Oil Range Organics	BQL	7.29	MG/KG	1	25-Jan-11 21:57

Surrogates

OTP	66.9	40-140	%	1	25-Jan-11 21:57
-----	------	--------	---	---	-----------------

Batch Information

Analytical Batch: EP012511
Analytical Method: 8015DRO
Instrument: GC6
Analyst: DTF

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 32.46
Prep Extract Vol: 10



Print Date: 1/26/2011

Client Sample ID: 66M-0178-0001 B-12 9-10'
Client Project ID: NCDOT Richmond City
Lab Sample ID: G625-166-33A
Lab Project ID: G625-166

Collection Date: 19-Jan-11 14:35
Received Date: 21-Jan-11
Matrix: SOIL
Solids: 84.5
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	BQL	5.66	MG/KG	1	26-Jan-11 3:35

Surrogates

BFB	102.0	-	%	1	26-Jan-11 3:35
-----	-------	---	---	---	----------------

Batch Information

Analytical Batch: VP012511
Analytical Method: 8015GRO
Instrument: GC4
Analyst: LMC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 6.28
Prep Extract Vol: 5

SINCE



®

1881