

**REPORT OF
PRELIMINARY SITE ASSESSMENT**

**JERRY AND STEVE ISAACS PROPERTY, PARCEL #2
STATE PROJECT U-2550B, TIP NO. 34831.1.1
2205 SOUTH STERLING STREET
MORGANTON, NORTH CAROLINA**

Prepared for:

**North Carolina Department of Transportation
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699**

Prepared by:

**MACTEC Engineering and Consulting, Inc.
3301 Atlantic Avenue
Raleigh, North Carolina 27604**

May 3, 2010

MACTEC Project No. 6470-10-0057



engineering and constructing a better tomorrow

May 3, 2010

Mr. Terry W. Fox, L.G.
Geoenvironmental Project Manager
NCDOT Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699

Subject: **Report of Preliminary Site Assessment
Jerry and Steve Isaacs Property, Parcel #2
State Project U-2550B, TIP No. 34831.1.1
2205 South Sterling Street
Morganton, North Carolina
MACTEC Project No. 6470-10-0057**

Dear Mr. Fox:

As authorized by Cathy Houser's acceptance of MACTEC Proposal No. PROP 10-RAL-126 dated March 10, 2010, MACTEC Engineering and Consulting, Inc. (MACTEC) is pleased to submit the attached Report of Preliminary Site Assessment for the above-referenced site.

This report is intended for the use of NCDOT subject to contractual terms between NCDOT and MACTEC. Reliance on this document by any other party is not allowed without the expressed, written consent of MACTEC. Use of this report for purposes beyond those reasonably intended by NCDOT and MACTEC will be at the sole risk of the user.

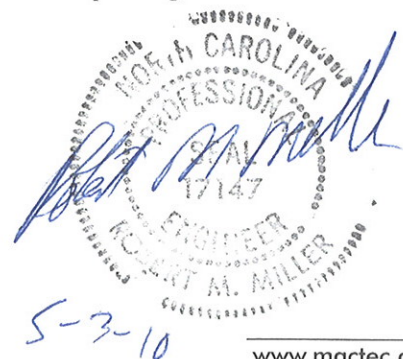
This report presents project information and assessment activities conducted, along with our findings, conclusions and recommendations. We appreciate your selection of MACTEC for this project and look forward to assisting you further on this and other projects. If you have any questions, please do not hesitate to contact us.

Sincerely,

MACTEC ENGINEERING AND CONSULTING, INC.

Matthew J. Gillis
Staff Scientist

Robert M. Miller, P.E.
Senior Project Manager/Principal Engineer



MACTEC Engineering and Consulting, Inc.

3301 Atlantic Avenue, Raleigh, NC 27604 • Phone: 919.876.0416 • Fax:
License Number: NC Engineering F-0653 NC Geology C-247

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Appendix C – Soil Boring Records

Appendix D – Laboratory Analytical Reports and Chain-of-Custody Records

1.0 INTRODUCTION

MACTEC Engineering and Consulting, Inc. (MACTEC) was contracted by North Carolina Department of Transportation (NCDOT) to perform a Preliminary Site Assessment of the Jerry and Steve Isaacs property (Isaacs property) located at 2205 South Sterling Street in Morganton, Burke County, North Carolina (Figure 1). This property was one in a series of four sites that were investigated by MACTEC in conjunction with State Project U-2550B. MACTEC understands that NCDOT is planning road improvements to the area. Expanded right-of-way is being acquired by the NCDOT for this project. NCDOT requested that MACTEC assess the subject site to evaluate the extent (if any) of soil contamination related to the operation of the current building located on site and the impact (if any) of this operation on the proposed road improvements. This report presents a description of MACTEC's assessment activities, findings, conclusions and recommendations.

1.1 Site Location

The Isaacs property is located at 2205 South Sterling Street in Morganton, Burke County, North Carolina. The site is developed with a Hess gas station/convenience store. The Burke County Geographic Information Services (GIS) shows the property owner as Williams Properties LLC., and identifies the site as parcel identification number (PIN) 2712182917. The site is bound to the northeast by cleared and wooded, undeveloped land and a McDonalds; to the southeast by South Sterling Street, across which is cleared and wooded, undeveloped land and Interstate 40; to the Southwest by South Sterling Street, across which is a Sonic restaurant and Zeko's Village Pizza Inn; and to the northwest by Hospital Drive, across which is a Wendy's restaurant (Figure 2).

1.2 Background Information

The gas station building is constructed with a slab-on-grade concrete foundation and brick exterior. The asphalt parking lot provides access to South Sterling Street. According to the North Carolina Department of Environment and Natural Resources Underground Storage Tank (UST) Registry, one UST was removed in 1999. The subject site is identified by Facility I.D. No. 0-007338 and Incident No. 16200. According to NCDOT three USTs were removed from the property in 1990 and three other USTs were removed in 1998. Contamination was found during the 1990 removal.

2.0 ASSESSMENT ACTIVITIES

Prior to field activities, MACTEC prepared a site health and safety plan in accordance with OSHA 1910.120 requirements. MACTEC contacted ULOCO and contracted Priority Underground Locating to mark the locations of underground utilities at the site. NCDOT contracted with Schnabel Engineering (Schnabel) to perform a geophysical survey to identify suspected USTs on the property and to identify buried utilities at the site. Schnabel provided paint mark outs of buried utilities and suspected UST locations to MACTEC prior to our assessment activities. Schnabel did not identify anomalies that may be USTs in the right-of-way, however, ground penetrating radar indicated the presence of a known UST located approximately 10 feet northwest of the westernmost canopy corner in between soil borings SB-25 and SB-26. This UST is located outside the limits of the planned right-of-way. Schnabel's Geophysical Survey Report is included in Appendix A.

2.1 Soil Assessment

On April 2, 2010, Troxler Geologic Services, Inc. (Troxler), under contract to MACTEC, advanced six soil borings (Nos. SB-22 through SB-27) at the subject site using a Geoprobe™ direct-push technology. Soil boring locations were selected based on the proposed NCDOT right-of-way, results of the geophysical investigation and field observations. Figure 2 shows a site layout and the locations of the soil borings.

MACTEC collected a soil sample from each boring location using the procedures outlined in Appendix B. Copies of soil boring records are included in Appendix C.

MACTEC instructed Troxler to advance each soil boring to 12 feet below ground surface (bgs). MACTEC screened soil samples from each boring at one-foot intervals for volatile organic vapors using a photoionization detector (PID) and selected one soil sample from each boring for laboratory testing. MACTEC selected the soil sample that exhibited the highest PID measurement or the deepest, unsaturated soil sample if the PID did not detect organic vapors. Soil borings SB-22 through SB-27 were backfilled with the excess soil cuttings and bentonite chips.

2.2 Soil Analysis

MACTEC submitted the soil samples to Prism Laboratories (Prism) of Charlotte, North Carolina for analysis for total petroleum hydrocarbons (TPH) diesel range organics (DRO) according to EPA Preparation/Test Methods 3550/8015 and TPH gasoline range organics (GRO) according to EPA Preparation/Testing Methods 5035/8015.

3.0 LABORATORY RESULTS

The laboratory test results are summarized on Table 1. The laboratory test reports and chain-of-custody records are included in Appendix D. TPH was not detected in soil borings SB-22 through SB-27 at concentrations that exceed the laboratory reporting limits.

4.0 CONCLUSIONS AND RECOMMENDATIONS

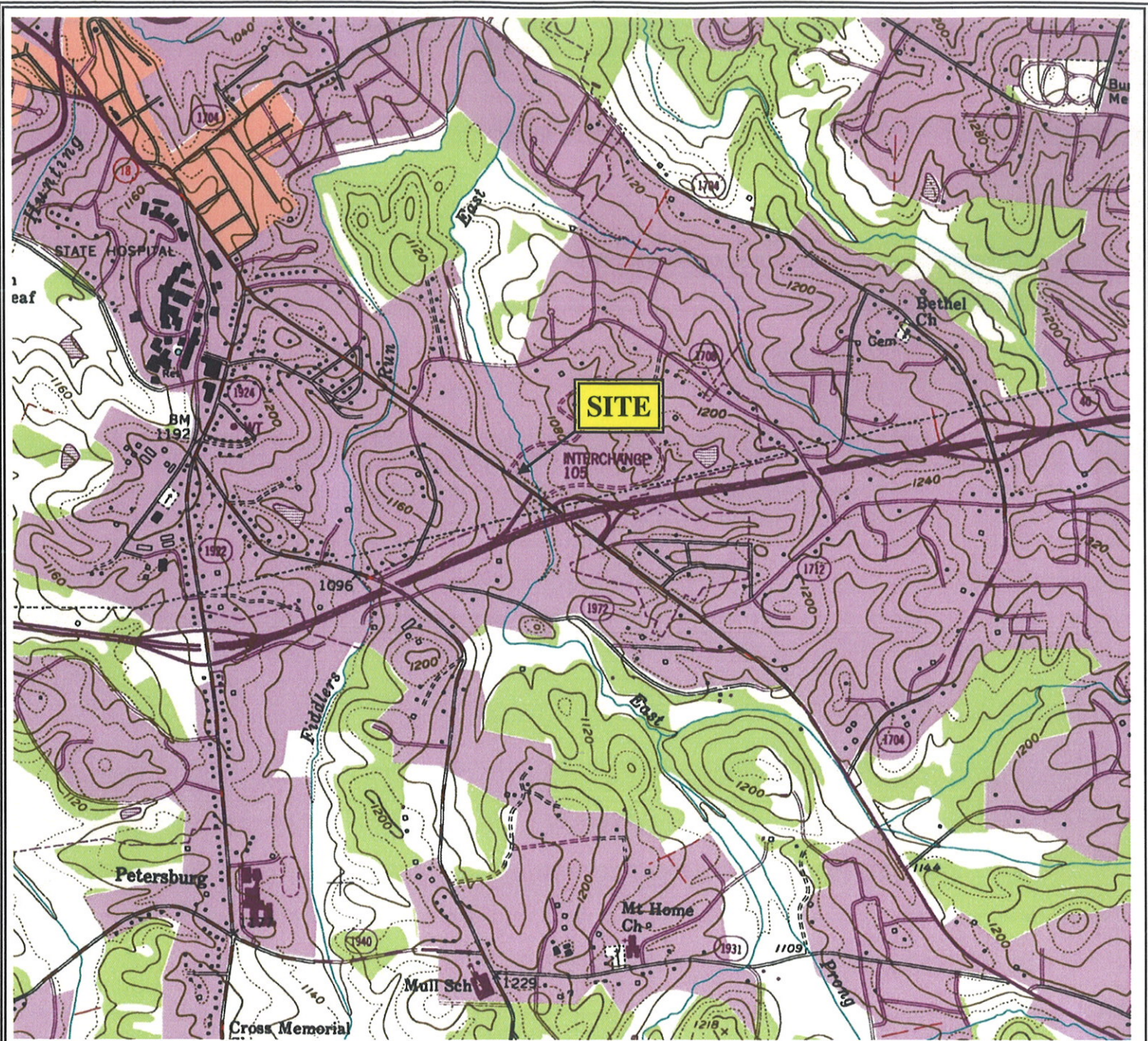
Based on the Preliminary Site Assessment, MACTEC offers the following conclusions and recommendations:

- MACTEC did not find evidence of a petroleum release in the vicinity of soil borings SB-22 through SB-27.
- MACTEC does not have evidence to support the need for further environmental assessment by NCDOT at this time.

5.0 QUALIFICATIONS

This assessment was performed under a limited scope for those purposes described above. The conclusions and recommendations presented in this report are based upon the data that were reviewed and documented in this report along with our experience on similar projects. The discovery of any additional information concerning environmental conditions at the site should be reported to MACTEC for additional review so that potential environmental impacts can be reassessed and the conclusions and recommendations modified, if appropriate.

FIGURES



NORTH



MORGANTON SOUTH, NC

35081-F6-TF-024

1993

DMA 4655 II NW-SERIES V842

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



QUADRANGLE LOCATION

NOTE: SITE LOCATION IS APPROXIMATE

MACTEC

MACTEC ENGINEERING AND CONSULTING, INC.
3301 ATLANTIC AVENUE
RALEIGH, NORTH CAROLINA

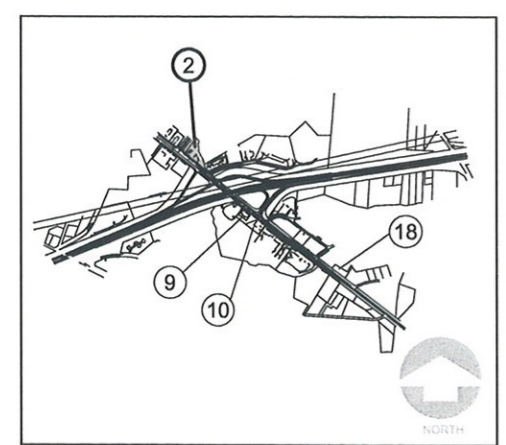
**TOPOGRAPHIC SITE MAP
JERRY & STEVE ISAACS PROPERTY
PARCEL #2
MORGANTON, NORTH CAROLINA**

DRAWN: MJG	DATE: APRIL 2010	DRAWING 1
ENG CHECK: CBS	SCALE: 1 : 24000	
APPROVAL:	JOB: 6470-10-0057	

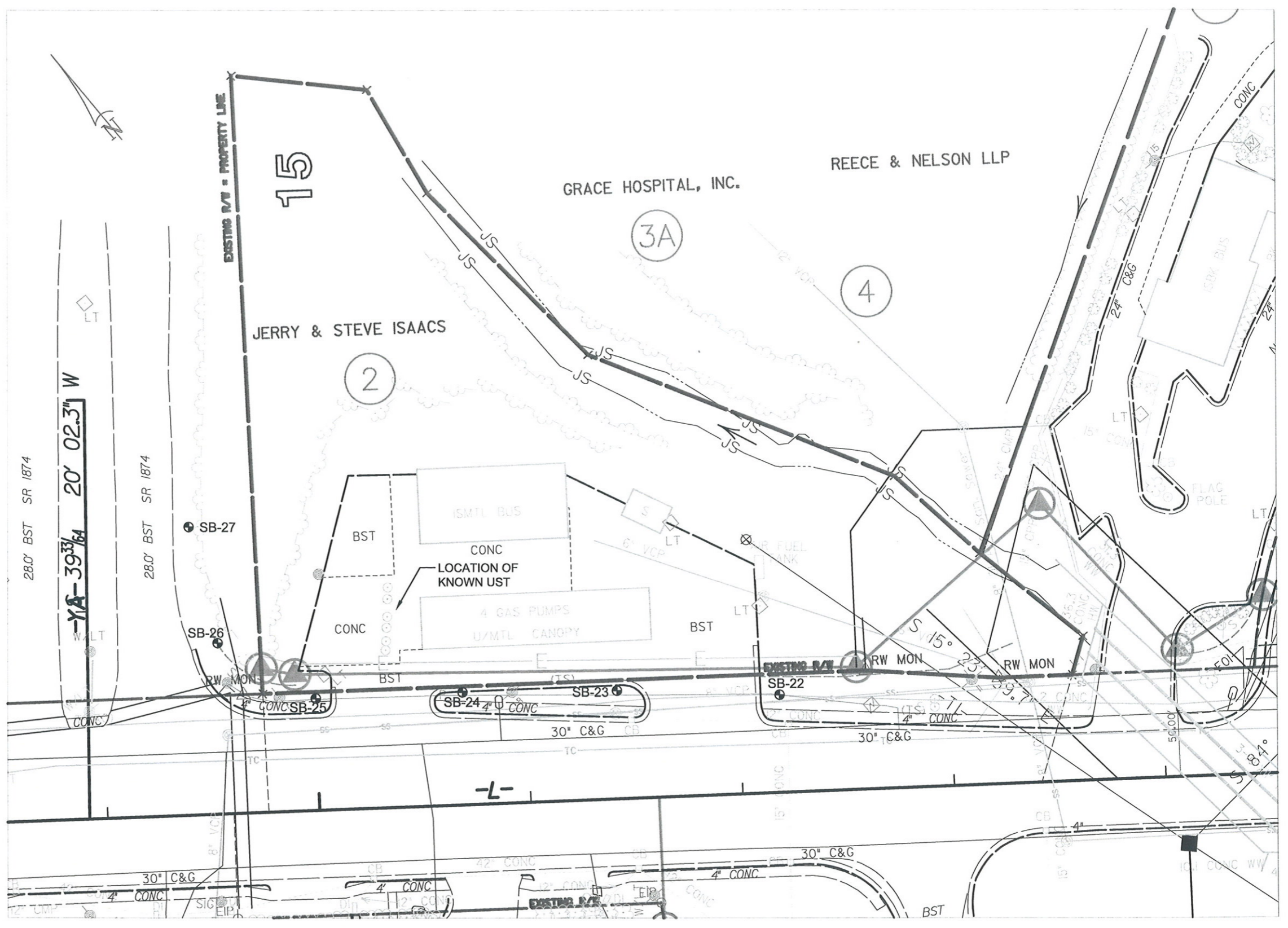
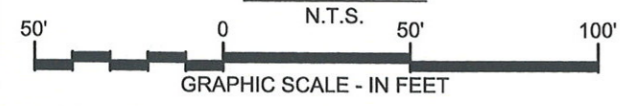
P:\6470\10\0057 DOT Morganton Sites Drawings\MS Files\Base Plan Final.dwg Mon, 05 May 2010 - 12:49pm rrb/rlh

LEGEND:

- EXISTING PROPERTY LINE
- EXISTING RIGHT OF WAY LINE
- - - EXISTING ROAD SOILS
- SS EXISTING UTILITY UG SANITARY SEWER LINE
- W EXISTING UTILITY UG WATER LINE
- EXISTING STRUCTURE
- ⊙ PROPOSED RIGHT OF WAY LINE
- PUE PROPOSED EASEMENT PERMANENT UTILITY
- ⊕ EXISTING VEGETATION TREE
- ⊕ EXISTING VEGETATION WOOD LINE
- EXISTING UTILITY POLE
- ⊕ SB- SOIL BORING LOCATION



SITE KEY MAP
N.T.S.



SITE LOCATION MAP
JERREY & STEVE ISAACS PROPERTY, PARCEL #2
NCDOT PROJECT NO. U-2550B
MORGANTON, NORTH CAROLINA

DRAWN: R.R.	DATE: MAY 2010
ENG CHECK: <i>[Signature]</i>	SCALE: AS SHOWN
APPROVAL: <i>[Signature]</i>	JOB No.: 6470-10-0057

DRAWING
2

REFERENCE: BASE DRAWING PROVIDED BY NCDOT; MACTEC FIELD NOTES.

TABLE

<p align="center"> Table 1 Summary of Laboratory Test Results State Project U-2550B, TIP No. 34831.1.1 Jerry & Steve Isaacs Property, Parcel #2 Morganton, North Carolina MACTEC Job No. 6470-10-0057 </p>				
Analytical Method →		EPA 8015	EPA 8015	EPA 8015
Contaminant of Concern →		TPH-DRO	TPH-DRO	TPH-GRO
Sample ID	Date Collected	Sample Depth	mg/Kg	
SB-22	4/2/2010	11'-12'	<8.8	<6.3
SB-23	4/2/2010	11'-12'	<8.5	<6.1
SB-24	4/2/2010	11'-12'	<9.4	<6.7
SB-25	4/2/2010	11'-12'	<9.3	<6.7
SB-26	4/2/2010	11'-12'	<9.4	<6.7
SB-27	4/2/2010	11'-12'	<8.9	<6.4
NCDENR Action Level			10	10

Notes:

NCDENR <# North Carolina Department of Environment and Natural Resources
 Analyte not detected above the Reporting Limit shown

Prepared by: MSB Date: 4-28-10

Checked by: CBS Date: 4/28/10

APPENDIX A

**SCHNABEL ENGINEERING
GEOPHYSICAL SURVEY REPORT**



April 26, 2010

Mr. Robert Miller, PE, Senior Principal Engineer
Mactec Engineering and Consulting, Inc
3301 Atlantic Avenue
Raleigh, NC 27604

RE: State Project: U-2550B
 WBS Element: 34831.1.1
 County: Burke
 Description: Morganton – NC 18 (Sterling Street) and I-40 Interchange

**Subject: Report on Geophysical Surveys for Parcel 2, Morganton, NC
 Schnabel Engineering Project 09210013.19**

Dear Mr. Miller:

Schnabel Engineering South, P.C. (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.

1.0 INTRODUCTION

The work described in this report was conducted on March 25 and 31, 2010, by Schnabel under our 2009 contract with the NCDOT. The work was conducted within the accessible areas of the proposed right-of-way and/or easement as indicated by the NCDOT to support their environmental assessment of Parcel 2 (Jerry and Steve Issacs Property, NC Express). Photographs of the parcel are included on Figure 1. The purpose of the geophysical surveys was to locate possible metal underground storage tanks (UST's) and associated metal product lines 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.

2.0 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 (building, curbs, 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 two orthogonal directions over anomalous EM readings not attributed to cultural features. The GPR data were reviewed in the field to evaluate the possible presence of UST's. The GPR data also were recorded digitally and later transferred to a desktop computer for further review.

Preliminary results for Parcel 2 were sent to Robert Miller and Matt Gillis of Mactec and Terry Fox of the NCDOT on April 1, 2010.

3.0 DISCUSSION OF RESULTS

The contoured EM61 data for Parcel 2 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, regardless of size. 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 UST's.

The early time gate and differential results show anomalies apparently caused by buried utilities, buried metal, or known site features (Figures 3 and 4). The GPR data collected near the westernmost canopy corner on Parcel 2 indicated the presence of a known UST located approximately 10 feet northwest of the westernmost canopy corner. The UST is outside the limits of the planned right-of way and/or easement. An example GPR image showing the reflection from the known UST on Parcel 2 is shown on Figures 3 and 4. Figures 3 and 4 also include the location of the known UST as marked in the field. The GPR data indicate that the known UST on Parcel 2 is buried approximately 2.5 to 3.5 feet below ground surface and is about 5 feet in diameter and about 18 feet long, equivalent to a capacity of about 3000 gallons. Photographs of the known UST location, as marked in the field, are included on Figure 5.

4.0 CONCLUSIONS

Our evaluation of the geophysical data collected on Parcel 2 on Project U-2550B in Morganton, NC indicates the following:

The geophysical data indicate the presence of a known UST on Parcel 2 located approximately 10 feet northwest of the westernmost canopy corner. The UST is outside the planned right-of-way and/or easement. The known UST is about 270-gallon capacity and is buried about 2.5 to 3.5 feet below ground surface.

5.0 LIMITATIONS

These services have been performed and this report prepared for 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.

Thank you for the opportunity to serve you on this project. Please call if you need additional information or have any questions.

Sincerely,

SCHNABEL ENGINEERING SOUTH, PC



James W. Whitt
Staff Geophysicist



Edward D. Billington, LG
Senior Vice President

JW:NB

Attachment: Figures (5)

FILE: G:\2009 PROJECTS\09210013 (NCDOT 2009 GEOTECH UNIT SERVICES)\09210013.19 (U-2550B, BURKE CO.)\REPORT\PARCEL 2\PARCEL 2 (U-2550B).DOC



Parcel 2 – Jerry & Steve Issacs Property, looking northeast



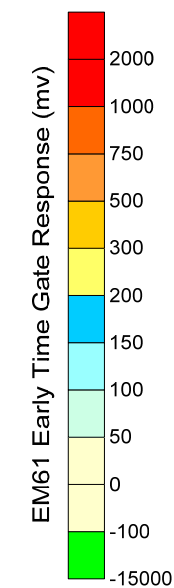
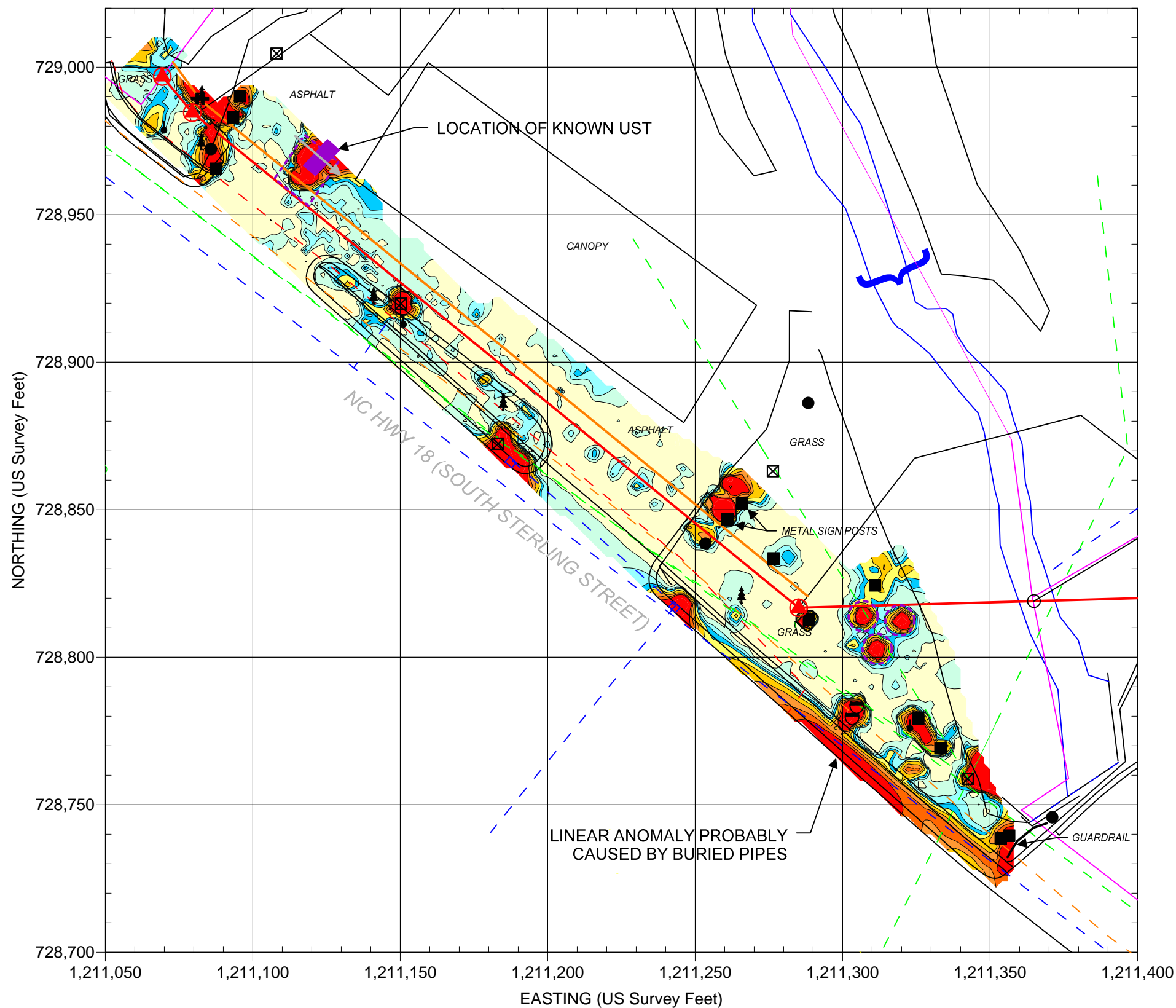
Parcel 2 – Jerry & Steve Issacs Property, looking north



Geonics EM61-MK2



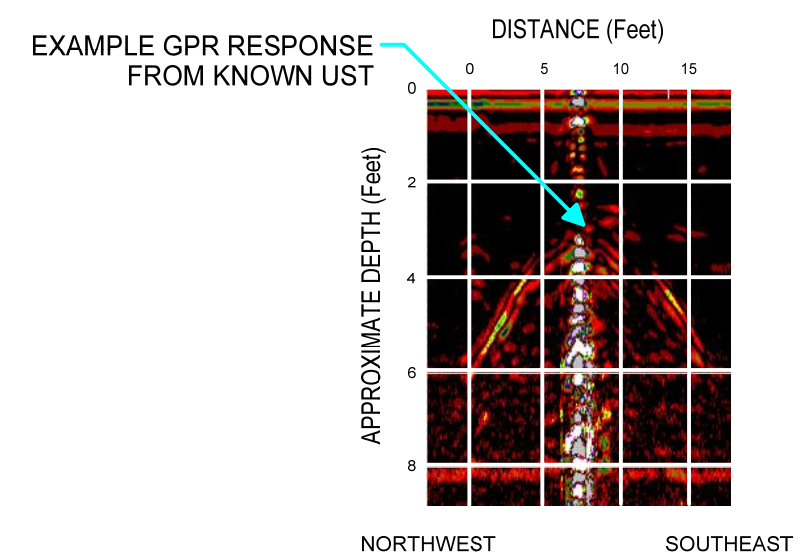
GSSI SIR-3000



EXPLANATION

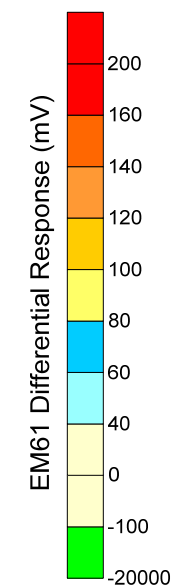
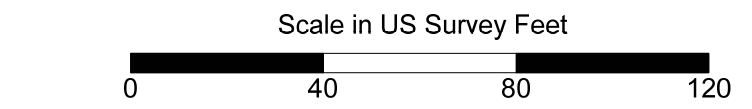
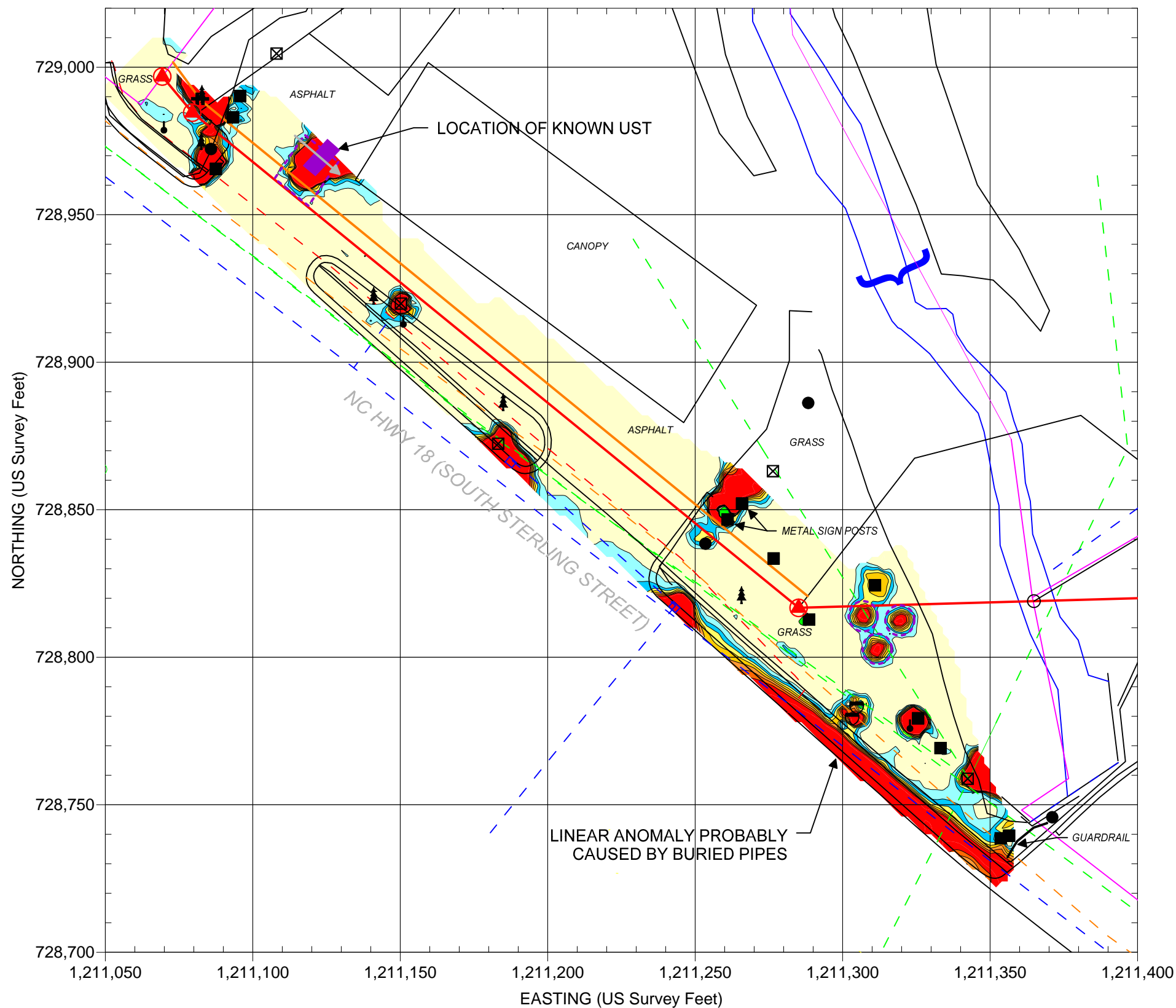
	SIGN
	UTILITY POLE
	GUY WIRE
	MISCELLANEOUS METALLIC OBJECT
	UTILITY MANHOLE, METER, BOX, ETC.
	LIGHT POLE
	STORM SEWER INLET
	UST LID
	DOT PROPOSED RW
	DOT PROPOSED UTILITY EASEMENT
	PROPERTY LINE
	UTILITY (AS MARKED BY OTHERS OR AS PROVIDED BY NCDOT [VARIOUS COLORS])
	EXAMPLE GPR LINE LOCATION
	GPR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

REF.: NCDOT FILE: u2550b_rdy_psh04.dgn
(FOR SOME SITE FEATURES)



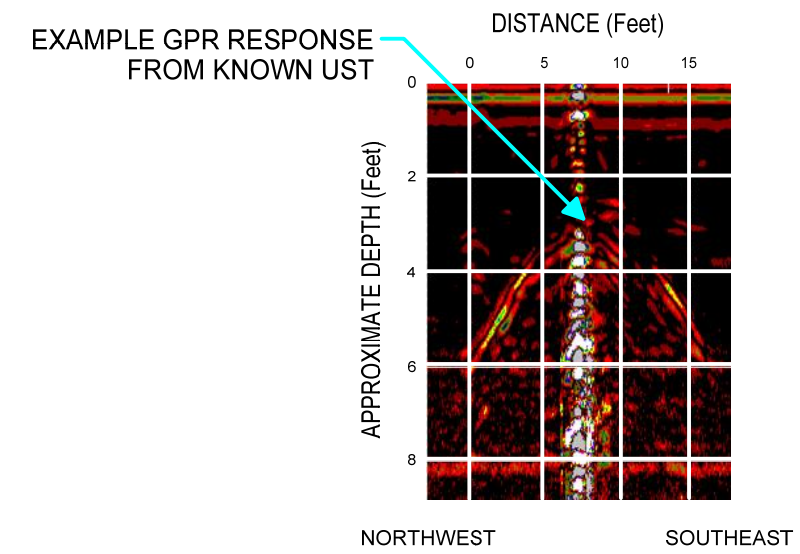
Note: The contour plot shows the earliest and most sensitive time gate of the EM61 bottom coil/channel in millivolts (mV). The EM data were collected on March 25, 2010, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina Zone 3200, using the NAD 1983 datum. GPR data were acquired on March 31, 2010, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.

	STATE PROJECT U-2550B BURKE COUNTY, NORTH CAROLINA NC DEPARTMENT OF TRANSPORTATION PROJECT NO. 09210013.19	PARCEL 2 EM61 EARLY TIME GATE RESPONSE FIGURE 3
--	---	--



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

REF.: NCDOT FILE: u2550b_rdy_psh04.dgn
(FOR SOME SITE FEATURES)



Note: The contour plot shows the difference, in millivolts (mV), between the readings from the top and bottom coils of the EM61. The difference is taken to reduce the effect of shallow metal objects and emphasize anomalies caused by deeper metallic objects, such as drums and tanks. The EM data were collected on March 25, 2010, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina 3200 Zone, using the NAD 1983 datum. GPR data were acquired on March 31, 2010, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.

	STATE PROJECT U-2550B BURKE COUNTY, NORTH CAROLINA NC DEPARTMENT OF TRANSPORTATION PROJECT NO. 09210013.19	PARCEL 2 EM61 DIFFERENTIAL RESPONSE
	FIGURE 4	



Parcel 2 – Jerry & Steve Issacs Property, looking northeast. Photo shows approximate marked location of the known UST near the westernmost corner of the canopy.



Parcel 2 – Jerry & Steve Issacs Property, looking northwest. Photo shows approximate marked location of the known UST near the westernmost corner of the canopy.



STATE PROJECT U-2550B
 BURKE CO., NORTH CAROLINA
 NC DEPT. OF TRANSPORTATION
 PROJECT NO. 09210013.19

PHOTOS OF
 KNOWN
 UST LOCATION

FIGURE 5

APPENDIX B

PROCEDURES FOR COLLECTING SOIL SAMPLES

Procedure for Collecting Soil Samples for Laboratory Testing Using the Geoprobe

- MACTEC will collect the soil samples using the Geoprobe hammer impact system. Downforce or percussion will be utilized to advance the sampler to the desired depth to obtain the soil sample.
- Soil cores will be retrieved from the sampler and classified by an on-site geologist or engineer. The one-inch diameter cores are approximately four feet in length and are contained within a pre-cleaned, disposable plastic sleeve.
- Soil samples from the boring soil cores will be placed in pre-labeled, airtight, plastic "twin" bags.
- After several minutes, the gas contained in the "headspace" or void area within one of the twin bags will be tested with a photoionization detector (PID) or flame ionization detector (FID).
- The duplicate of the sample that exhibits the highest headspace reading will be submitted to the laboratory for testing. The remaining portion of the soil core will be utilized for classification purposes.
- The soils will be classified in accordance with the Unified Soils Classification System.
- The soil sample will be placed into laboratory-supplied bottles.
- Sample bottles will be labeled prior to sample collection.
- Caps will be secured on bottles.
- All sample containers will be placed in plastic bags and the bags sealed.
- Documentation, including chain-of-custody record and laboratory analytical request form, will be completed for all samples.
- Samples will be packed in coolers with "bubble wrap" and ice packs for shipment to the laboratory.
- The chain-of-custody record and analytical request form will be placed inside the cooler, which will be sealed with security tape.
- Samples will be sent to the analytical laboratory by overnight courier.

APPENDIX C
SOIL BORING RECORDS



MACTEC Engineering and Consulting, Inc.
3301 Atlantic Avenue
Raleigh, North Carolina

Soil Boring Sample Record

MACTEC Project ID: NCDOT Morganton
Parcel #2 Isaacs Property

MACTEC Field Representative

MACTEC Project #: 6470-10-0057

Lloyd

Date: 4/2/2010

Boring ID: SB-22

Depth Interval	Soil Description	Time	Headspace Screening Results (in ppm)		Comments
			PID		
0-1	Mulch		0		
1-2	Reddish brown (5YR 4/4) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		No unusual odors or stains Very loose material, low recovery
2-3	Reddish brown (5YR 4/4) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
3-4	Reddish brown (5YR 4/4) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
4-5	Reddish yellow (7.5YR 6/6) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		No unusual odors or stains
5-6	Reddish yellow (7.5YR 6/6) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
6-7	Reddish yellow (7.5YR 6/6) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
7-8	Reddish yellow (7.5YR 6/6) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
8-9	Reddish yellow (7.5YR 6/6) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
9-10	Reddish yellow (7.5YR 6/6) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
10-11	Reddish yellow (7.5YR 6/6) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
11-12	11'-12' Very dark gray (10YR 3/1) CLAYEY SILT, soft, plastic, trace mica. Moist.	1010	8.2		Faint petroleum odor/Sample

Prepared by: MJG Date: 4-28-10
Checked by: CBS Date: 4/28/10



MACTEC Engineering and Consulting, Inc.
3301 Atlantic Avenue
Raleigh, North Carolina

Soil Boring Sample Record

MACTEC Project ID: NCDOT Morganton
Parcel #2 Isaacs Property

MACTEC Field Representative

MACTEC Project #: 6470-10-0057

Lloyd

Date: 4/2/2010

Boring ID: SB-23

Depth Interval	Soil Description	Time	Headspace Screening Results (in ppm)		Comments
			PID		
0-1	Grass and roots		0		
1-2	Reddish brown (5YR 4/4) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		No unusual odors or stains Very loose material, low recovery
2-3	Reddish brown (5YR 4/4) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
3-4	Reddish brown (5YR 4/4) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
4-5	Reddish yellow (7.5YR 6/6) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		No unusual odors or stains
5-6	Reddish yellow (7.5YR 6/6) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
6-7	Reddish yellow (7.5YR 6/6) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
7-8	Reddish yellow (7.5YR 6/6) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		Gravelly layer 7.5' -8'
8-9	Reddish yellow (7.5YR 6/6) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
9-10	Reddish yellow (7.5YR 6/6) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
10-11	Reddish yellow (7.5YR 6/6) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
11-12	Very dark gray (10YR 3/1) CLAYEY SILT, soft, plastic, trace mica. Moist.	1025	2.9		No unusual odors or stains/Sample

Prepared by: MSG Date: 4-28-10
Checked by: CBS Date: 4/28/10



MACTEC Engineering and Consulting, Inc.
3301 Atlantic Avenue
Raleigh, North Carolina

Soil Boring Sample Record

MACTEC Project ID: NCDOT Morganton
Parcel #2 Isaacs Property

MACTEC Field Representative

MACTEC Project #: 6470-10-0057

Lloyd

Date: 4/2/2010

Boring ID: SB-24

Depth Interval	Soil Description	Time	Headspace Screening Results (in ppm)		Comments
			PID		
0-1	Grass and roots		0		
1-2	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		No unusual odors or stains
2-3	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist to damp.		0		No unusual odors or stains
3-4	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist to damp.		0		
4-5	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist to damp.		0		
5-6	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		No unusual odors or stains
6-7	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
7-8	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
8-9	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
9-10	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist.		0		No unusual odors or stains
10-11	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist.		0		
11-12	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist.	1040	0		Sample

Prepared by: MSG Date: 4-28-10
Checked by: CBS Date: 4/28/10



MACTEC Engineering and Consulting, Inc.
3301 Atlantic Avenue
Raleigh, North Carolina

Soil Boring Sample Record

MACTEC Project ID: NCDOT Morganton
Parcel #2 Isaacs Property

MACTEC Field Representative

MACTEC Project #: 6470-10-0057

Lloyd

Date: 4/2/2010

Boring ID: SB-25

Depth Interval	Soil Description	Time	Headspace Screening Results (in ppm)		Comments
			PID		
0-1	Grass and roots		0		
1-2	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		No unusual odors or stains
2-3	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist to damp.		0		No unusual odors or stains
3-4	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist to damp.		0		
4-5	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist to damp.		0		
5-6	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		No unusual odors or stains
6-7	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
7-8	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
8-9	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
9-10	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist.		0		No unusual odors or stains
10-11	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist.		0		
11-12	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist.	1040	0		Sample

Prepared by: MJG Date: 4-28-10
Checked by: CBS Date: 4/28/10



MACTEC Engineering and Consulting, Inc.
3301 Atlantic Avenue
Raleigh, North Carolina

Soil Boring Sample Record

MACTEC Project ID: NCDOT Morganton
Parcel #2 Isaacs Property

MACTEC Field Representative

MACTEC Project #: 6470-10-0057

Lloyd

Date: 4/2/2010

Boring ID: SB-26

Depth Interval	Soil Description	Time	Headspace Screening Results (in ppm)		Comments
			PID		
0-1	Grass and roots		0		
1-2	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		No unusual odors or stains
2-3	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist to damp.		0		No unusual odors or stains
3-4	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist to damp.		0		
4-5	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist to damp.		0		
5-6	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		No unusual odors or stains
6-7	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
7-8	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
8-9	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
9-10	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist.		0		No unusual odors or stains
10-11	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist.		0		
11-12	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist.	1040	0		Sample

Prepared by: MJC Date: 4-28-10
Checked by: CBS Date: 4/28/10



MACTEC Engineering and Consulting, Inc.
3301 Atlantic Avenue
Raleigh, North Carolina

Soil Boring Sample Record

MACTEC Project ID: NCDOT Morganton
Parcel #2 Isaacs Property

MACTEC Field Representative

MACTEC Project #: 6470-10-0057

Lloyd

Date: 4/2/2010

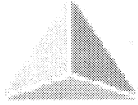
Boring ID: SB-27

Depth Interval	Soil Description	Time	Headspace Screening Results (in ppm)		Comments
			PID		
0-1	Grass and roots		0		
1-2	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		No unusual odors or stains
2-3	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist to damp.		0		No unusual odors or stains
3-4	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist to damp.		0		
4-5	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist to damp.		0		
5-6	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		No unusual odors or stains
6-7	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
7-8	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
8-9	Red (2.5YR 5/8) SILT, soft, slightly plastic, some mica, some coarse sand. Moist.		0		
9-10	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist.		0		No unusual odors or stains
10-11	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist.		0		
11-12	Reddish yellow (7.5YR 6/6) SANDY SILT, soft, slightly plastic, micaceous. Moist.	1040	0		Sample

Prepared by: MJB Date: 4-28-10
Checked by: CBS Date: 4/28/10

APPENDIX D

**LABORATORY ANALYTICAL REPORTS
AND CHAIN-OF-CUSTODY RECORDS**



PRISM
LABORATORIES, INC.

Case Narrative

Date: 04/19/10
Company: N.C. Department of Transportation
Contact: Matt Gillis
Address: c/o MACTEC Eng. & Consulting, Inc
3301 Atlantic Ave.
Raleigh, NC 27604

Client Project ID: NCDOT Morganton
Prism COC Group No: G0410079
Collection Date(s): 03/31/10 thru 04/02/10
Lab Submittal Date(s): 04/05/10

Client Project Name Or No: Morganton, NC WBS# 34831.1.1

This data package contains the analytical results for the project identified above and includes a Case Narrative, Laboratory Report and Quality Control Data totaling 32 pages. A chain-of-custody is also attached for the samples submitted to Prism for this project.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative. Quality control statements and/or sample specific remarks are included in the sample comments section of the laboratory report for each sample affected.

Semi Volatile Analysis

Analysis Note for Q49432 MS Diesel Range Organics (DRO): Sample concentration too high for recovery evaluation.

Analysis Note for Q49432 MSD Diesel Range Organics (DRO): Sample concentration too high for recovery evaluation.

Volatile Analysis

No Anomalies Reported

Metals Analysis

N/A

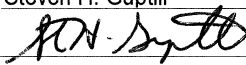
Wet Lab and Micro Analysis

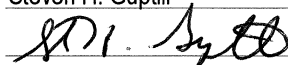
N/A

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

Data Reviewed by: Steven H. Guptill

Project Manager: Steven H. Guptill

Signature: 

Signature: 

Review Date: 04/19/10

Approval Date: 04/19/10

Data Qualifiers Key Reference:

B: Compound also detected in the method blank.

#: Result outside of the QC limits.

DO: Compound diluted out.

E: Estimated concentration, calibration range exceeded.

J: The analyte was positively identified but the value is estimated below the reporting limit.

H: Estimated concentration with a high bias.

L: Estimated concentration with a low bias.

M: A matrix effect is present.

Notes: This report should not be reproduced, except in its entirety, without the written consent of Prism Laboratories, Inc. The results in this report relate only to the samples submitted for analysis.



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

Laboratory Report

04/19/10

N.C. Department of Transportation
 Attn: Matt Gillis
 c/o MACTEC Eng. & Consulting, Inc
 3301 Atlantic Ave.
 Raleigh, NC 27604

Project Name: Morganton, NC
Project ID: NCDOT Morganton
Project No.: WBS# 34831.1.1
Sample Matrix: Soil

Client Sample ID: SB-22
Prism Sample ID: 275770
COC Group: G0410079
Time Collected: 04/02/10 10:10
Time Submitted: 04/05/10 15:50

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Percent Solids Determination</u>									
Percent Solids	78.8	%			1	SM2540 G	04/08/10 15:30	jbrayton	
<u>Diesel Range Organics (DRO) by GC-FID</u>									
Diesel Range Organics (DRO)	BRL	mg/kg	8.8	1.4	1	8015B	04/16/10 17:56	jvogel	Q49472
Sample Preparation:				25.16 g	/	1 mL	3545	04/15/10 16:00	athao P27278
				Surrogate			% Recovery	Control Limits	
				o-Terphenyl			74	49 - 124	
<u>Sample Weight Determination</u>									
Weight 1	13.12	g			1	GRO	04/08/10 0:00	lbrown	
Weight 2	10.54	g			1	GRO	04/08/10 0:00	lbrown	
<u>Gasoline Range Organics (GRO) by GC-FID</u>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.3	4.0	50	8015B	04/14/10 18:19	heasler	Q49444
				Surrogate			% Recovery	Control Limits	
				aaa-TFT			115	55 - 129	

Sample Comment(s):

BRL = Below Reporting Limit

J- Estimated value between the Reporting Limit and the MDL.

The results in this report relate only to the samples submitted for analysis and meet state certification requirements other than NELAC certification except for those instances indicated in the case narrative and/or test comments.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services



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

Laboratory Report

04/19/10

N.C. Department of Transportation
 Attn: Matt Gillis
 c/o MACTEC Eng. & Consulting, Inc
 3301 Atlantic Ave.
 Raleigh, NC 27604

Project Name: Morganton, NC
Project ID: NCDOT Morganton
Project No.: WBS# 34831.1.1
Sample Matrix: Soil

Client Sample ID: SB-23
Prism Sample ID: 275771
COC Group: G0410079
Time Collected: 04/02/10 10:25
Time Submitted: 04/05/10 15:50

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Percent Solids Determination</u>									
Percent Solids	82.5	%			1	SM2540 G	04/08/10 15:30	jbrayton	
<u>Diesel Range Organics (DRO) by GC-FID</u>									
Diesel Range Organics (DRO)	BRL	mg/kg	8.5	1.4	1	8015B	04/16/10 18:31	jvogel	Q49472
Sample Preparation:			25.09 g	/	1 mL	3545	04/15/10 16:00	athao	P27278
						Surrogate	% Recovery	Control Limits	
						o-Terphenyl	81	49 - 124	
<u>Sample Weight Determination</u>									
Weight 1	13.73	g			1	GRO	04/08/10 0:00	lbrown	
Weight 2	8.53	g			1	GRO	04/08/10 0:00	lbrown	
<u>Gasoline Range Organics (GRO) by GC-FID</u>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.1	3.8	50	8015B	04/15/10 9:59	heasler	Q49444
						Surrogate	% Recovery	Control Limits	
						aaa-TFT	92	55 - 129	

Sample Comment(s):

BRL = Below Reporting Limit

J- Estimated value between the Reporting Limit and the MDL.

The results in this report relate only to the samples submitted for analysis and meet state certification requirements other than NELAC certification except for those instances indicated in the case narrative and/or test comments.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services

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

Laboratory Report

04/19/10

N.C. Department of Transportation
 Attn: Matt Gillis
 c/o MACTEC Eng. & Consulting, Inc
 3301 Atlantic Ave.
 Raleigh, NC 27604

Project Name: Morganton, NC
Project ID: NCDOT Morganton
Project No.: WBS# 34831.1.1
Sample Matrix: Soil

Client Sample ID: SB-24
Prism Sample ID: 275772
COC Group: G0410079
Time Collected: 04/02/10 10:40
Time Submitted: 04/05/10 15:50

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

Percent Solids	74.6	%			1	SM2540 G	04/08/10 15:30	jbrayton	
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Diesel Range Organics (DRO) by GC-FID

Diesel Range Organics (DRO)	BRL	mg/kg	9.4	1.5	1	8015B	04/16/10 19:07	jvogel	Q49472
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Sample Preparation: 25.05 g / 1 mL 3545 04/15/10 16:00 athao P27278

Surrogate	% Recovery	Control Limits
o-Terphenyl	73	49 - 124

Sample Weight Determination

Weight 1	9.62	g			1	GRO	04/08/10 0:00	lbrown	
Weight 2	8.20	g			1	GRO	04/08/10 0:00	lbrown	

Gasoline Range Organics (GRO) by GC-FID

Gasoline Range Organics (GRO)	BRL	mg/kg	6.7	4.2	50	8015B	04/14/10 19:22	heasler	Q49444
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Surrogate recovery was outside the control limits. No target compounds were detected in this sample that were associated with this surrogate. No further action was taken.

Surrogate	% Recovery	Control Limits
aaa-TFT	124	55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

J- Estimated value between the Reporting Limit and the MDL.

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

Laboratory Report

04/19/10

N.C. Department of Transportation
 Attn: Matt Gillis
 c/o MACTEC Eng. & Consulting, Inc
 3301 Atlantic Ave.
 Raleigh, NC 27604

Project Name: Morganton, NC
Project ID: NCDOT Morganton
Project No.: WBS# 34831.1.1
Sample Matrix: Soil

Client Sample ID: SB-25
Prism Sample ID: 275773
COC Group: G0410079
Time Collected: 04/02/10 11:10
Time Submitted: 04/05/10 15:50

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Percent Solids Determination</u>									
Percent Solids	75.0	%			1	SM2540 G	04/08/10 15:30	jbrayton	
<u>Diesel Range Organics (DRO) by GC-FID</u>									
Diesel Range Organics (DRO)	BRL	mg/kg	9.3	1.5	1	8015B	04/16/10 19:42	jvogel	Q49472
Sample Preparation:			25.12 g	/	1 mL	3545	04/15/10 16:00	athao	P27278
						Surrogate	% Recovery	Control Limits	
						o-Terphenyl	73	49 - 124	
<u>Sample Weight Determination</u>									
Weight 1	7.83	g			1	GRO	04/08/10 0:00	lbrown	
Weight 2	8.03	g			1	GRO	04/08/10 0:00	lbrown	
<u>Gasoline Range Organics (GRO) by GC-FID</u>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.7	4.2	50	8015B	04/14/10 19:53	heasler	Q49444
						Surrogate	% Recovery	Control Limits	
						aaa-TFT	124	55 - 129	

Sample Comment(s):

BRL = Below Reporting Limit

J- Estimated value between the Reporting Limit and the MDL.

The results in this report relate only to the samples submitted for analysis and meet state certification requirements other than NELAC certification except for those instances indicated in the case narrative and/or test comments.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services

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Laboratory Report

04/19/10

N.C. Department of Transportation
 Attn: Matt Gillis
 c/o MACTEC Eng. & Consulting, Inc
 3301 Atlantic Ave.
 Raleigh, NC 27604

Project Name: Morganton, NC
Project ID: NCDOT Morganton
Project No.: WBS# 34831.1.1
Sample Matrix: Soil

Client Sample ID: SB-26
Prism Sample ID: 275774
COC Group: G0410079
Time Collected: 04/02/10 11:20
Time Submitted: 04/05/10 15:50

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Percent Solids Determination</u>									
Percent Solids	74.2	%			1	SM2540 G	04/08/10 15:30	jbrayton	
<u>Diesel Range Organics (DRO) by GC-FID</u>									
Diesel Range Organics (DRO)	BRL	mg/kg	9.4	1.5	1	8015B	04/16/10 20:17	jvogel	Q49472
Sample Preparation:			25.06 g	/	1 mL	3545	04/15/10 16:00	athao	P27278
						Surrogate	% Recovery	Control Limits	
						o-Terphenyl	62	49 - 124	
<u>Sample Weight Determination</u>									
Weight 1	8.28	g			1	GRO	04/08/10 0:00	lbrown	
Weight 2	9.47	g			1	GRO	04/08/10 0:00	lbrown	
<u>Gasoline Range Organics (GRO) by GC-FID</u>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.7	4.2	50	8015B	04/14/10 20:24	heasler	Q49444
						Surrogate	% Recovery	Control Limits	
						aaa-TFT	105	55 - 129	

Sample Comment(s):

BRL = Below Reporting Limit

J- Estimated value between the Reporting Limit and the MDL.

The results in this report relate only to the samples submitted for analysis and meet state certification requirements other than NELAC certification except for those instances indicated in the case narrative and/or test comments.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services

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

Laboratory Report

04/19/10

N.C. Department of Transportation
 Attn: Matt Gillis
 c/o MACTEC Eng. & Consulting, Inc
 3301 Atlantic Ave.
 Raleigh, NC 27604

Project Name: Morganton, NC
Project ID: NCDOT Morganton
Project No.: WBS# 34831.1.1
Sample Matrix: Soil

Client Sample ID: SB-27
Prism Sample ID: 275775
COC Group: G0410079
Time Collected: 04/02/10 11:30
Time Submitted: 04/05/10 15:50

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

Percent Solids	78.3	%			1	SM2540 G	04/08/10 15:30	jbrayton	
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Diesel Range Organics (DRO) by GC-FID

Diesel Range Organics (DRO)	BRL	mg/kg	8.9	1.4	1	8015B	04/16/10 20:52	jvogel	Q49472
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Sample Preparation: 25.09 g / 1 mL 3545 04/15/10 16:00 athao P27278

Surrogate	% Recovery	Control Limits
o-Terphenyl	73	49 - 124

Sample Weight Determination

Weight 1	9.17	g			1	GRO	04/08/10 0:00	lbrown	
Weight 2	9.88	g			1	GRO	04/08/10 0:00	lbrown	

Gasoline Range Organics (GRO) by GC-FID

Gasoline Range Organics (GRO)	BRL	mg/kg	6.4	4.0	50	8015B	04/14/10 20:55	heasler	Q49444
-------------------------------	-----	-------	-----	-----	----	-------	----------------	---------	--------

Surrogate recovery was outside the control limits. No target compounds were detected in this sample that were associated with this surrogate. No further action was taken.

Surrogate	% Recovery	Control Limits
aaa-TFT	150 #	55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

J- Estimated value between the Reporting Limit and the MDL.

The results in this report relate only to the samples submitted for analysis and meet state certification requirements other than NELAC certification except for those instances indicated in the case narrative and/or test comments.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services

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

Level II QC Report

04/19/10

N.C. Department of Transportation
 Attn: Matt Gillis
 c/o MACTEC Eng. & Consulting, Inc
 3301 Atlantic Ave.
 Raleigh, NC 27604

Project Name: Morganton, NC
Project ID: NCDOT Morganton
Project No.: WBS# 34831.1.1

COC Group Number: G0410079
Date/Time Submitted: 04/05/10 15:50

Gasoline Range Organics (GRO) by GC-FID, method 8015B

Method Blank

	Result	RL	Control Limit	Units	QC Batch ID
Gasoline Range Organics (GRO)	ND	5	<2.5	mg/kg	Q49295

Laboratory Control Sample

	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
Gasoline Range Organics (GRO)	50.20	50	mg/kg	100	67-116	Q49295

Matrix Spike

Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
275461 Gasoline Range Organics (GRO)	41.90	50	mg/kg	84	57-113	Q49295

Matrix Spike Duplicate

Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
275461 Gasoline Range Organics (GRO)	44.10	50	mg/kg	88	57-113	5	0 - 23	Q49295

Gasoline Range Organics (GRO) by GC-FID, method 8015B

Method Blank

	Result	RL	Control Limit	Units	QC Batch ID
Gasoline Range Organics (GRO)	ND	5	<2.5	mg/kg	Q49314

Laboratory Control Sample

	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
Gasoline Range Organics (GRO)	49.60	50	mg/kg	99	67-116	Q49314

Matrix Spike

Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
275755 Gasoline Range Organics (GRO)	37.45	50	mg/kg	75	57-113	Q49314

Matrix Spike Duplicate

Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
275755 Gasoline Range Organics (GRO)	37.25	50	mg/kg	75	57-113	1	0 - 23	Q49314

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COC Group Number: G0410079
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Diesel Range Organics (DRO) by GC-FID, method 8015B

Method Blank								QC Batch ID	
	Result	RL	Control Limit	Units					
Diesel Range Organics (DRO)	ND	7	<3.5	mg/kg				Q49319	
Laboratory Control Sample								QC Batch ID	
	Result	Spike Amount		Units	Recovery %	Recovery Ranges %			
Diesel Range Organics (DRO)	51.0	80		mg/kg	64	55-109		Q49319	
Matrix Spike								QC Batch ID	
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %			
275749 Diesel Range Organics (DRO)	54.8	80		mg/kg	69	50-117		Q49319	
Matrix Spike Duplicate								QC Batch ID	
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	
275749 Diesel Range Organics (DRO)	55.7	80		mg/kg	70	50-117	2	0 - 24	Q49319

Gasoline Range Organics (GRO) by GC-FID, method 8015B

Method Blank								QC Batch ID	
	Result	RL	Control Limit	Units					
Gasoline Range Organics (GRO)	ND	5	<2.5	mg/kg				Q49405	
Laboratory Control Sample								QC Batch ID	
	Result	Spike Amount		Units	Recovery %	Recovery Ranges %			
Gasoline Range Organics (GRO)	48.25	50		mg/kg	97	67-116		Q49405	
Matrix Spike								QC Batch ID	
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %			
275831 Gasoline Range Organics (GRO)	46.00	50		mg/kg	92	57-113		Q49405	
Matrix Spike Duplicate								QC Batch ID	
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	
275831 Gasoline Range Organics (GRO)	47.80	50		mg/kg	96	57-113	4	0 - 23	Q49405

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COC Group Number: G0410079
Date/Time Submitted: 04/05/10 15:50

Diesel Range Organics (DRO) by GC-FID, method 8015B

Method Blank							QC Batch ID		
	Result	RL	Control Limit	Units					
Diesel Range Organics (DRO)	ND	7	<3.5	mg/kg			Q49432		
Laboratory Control Sample							QC Batch ID		
	Result	Spike Amount		Units	Recovery %	Recovery Ranges %			
Diesel Range Organics (DRO)	54.8	80		mg/kg	69	55-109	Q49432		
Matrix Spike							QC Batch ID		
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %			
276286 Diesel Range Organics (DRO)	391	80		mg/kg	-8 #	50-117	Q49432		
Matrix Spike Duplicate							QC Batch ID		
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	
276286 Diesel Range Organics (DRO)	302	80		mg/kg	-119 #	50-117	26 #	0 - 24	Q49432

Gasoline Range Organics (GRO) by GC-FID, method 8015B

Method Blank							QC Batch ID		
	Result	RL	Control Limit	Units					
Gasoline Range Organics (GRO)	ND	5	<2.5	mg/kg			Q49444		
Laboratory Control Sample							QC Batch ID		
	Result	Spike Amount		Units	Recovery %	Recovery Ranges %			
Gasoline Range Organics (GRO)	47.65	50		mg/kg	95	67-116	Q49444		
Matrix Spike							QC Batch ID		
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %			
275668 Gasoline Range Organics (GRO)	43.30	50		mg/kg	87	57-113	Q49444		
Matrix Spike Duplicate							QC Batch ID		
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	
275668 Gasoline Range Organics (GRO)	44.60	50		mg/kg	89	57-113	3	0 - 23	Q49444

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COC Group Number: G0410079
Date/Time Submitted: 04/05/10 15:50

Diesel Range Organics (DRO) by GC-FID, method 8015B

Method Blank

	Result	RL	Control Limit	Units	QC Batch ID
Diesel Range Organics (DRO)	ND	7	<3.5	mg/kg	Q49472

Laboratory Control Sample

	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
Diesel Range Organics (DRO)	54.6	80	mg/kg	68	55-109	Q49472

Matrix Spike

Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
275759 Diesel Range Organics (DRO)	69.9	80	mg/kg	87	50-117	Q49472

Matrix Spike Duplicate

Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
275759 Diesel Range Organics (DRO)	73.4	80	mg/kg	92	50-117	5	0 - 24	Q49472

#-See Case Narrative

