PRELIMINARY SITE ASSESSMENT
PARCEL #29
105 NORTH MARTIN LUTHER KING JR. DRIVE
WINSTON-SALEM, NORTH CAROLINA
STATE PROJECT: U-2826B
WBS ELEMENT: 34871.2.1

Prepared for:

NC Department of Transportation
Geotechnical Engineering Unit
GeoEnvironmental Section
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

Prepared by:

Solutions-IES
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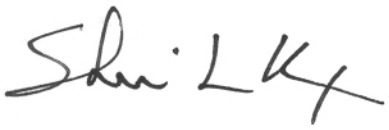
Solutions-IES Project No. 3944.10A3.NDOT

May 13, 2010



Jody Overmyer, P.E.
Project Engineer

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Senior Engineer

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1.0 INTRODUCTION

Parcel #29 in Forsyth County is currently in use as the BP convenience store and gas station located at 105 North Martin Luther King Jr. Drive, Winston-Salem, North Carolina. The location of the property is shown on **Figures 1** and **2**. The NCDOT plans to acquire this property due to the planned widening of Martin Luther King Jr. Drive. This report summarizes the results of field and laboratory activities conducted during the Preliminary Site Assessment (PSA) of the subject parcel. The scope of work executed at the site was performed in general accordance with Solutions-IES proposal NC101062 revised March 1, 2010, and was initiated based on a Notice to Proceed issued by the NCDOT Geotechnical Engineering Unit on March 3, 2010 under contract 7000010453, dated June 25, 2009.

2.0 BACKGROUND AND SITE DESCRIPTION

M.M. Fowler owns Parcel #29 where a BP convenient store and gas station currently operates. It is located in the northeast quadrant of the East First Street and Martin Luther King Jr. Drive intersection. According to the underground storage tank (UST) registry, seven USTs were closed in 1988 and one was closed in 1998 at the property. There are four current USTs on the property. According to the Ground Water Incident registry there are several monitoring wells on the property and Ground Water Incident #13313 has been assigned to this property. The PSA was performed along the proposed right-of-way (ROW) and/or easement stretching north to south along the west side of the storefront and continuing along a west to east trend parallel to First Street. Work was not performed in areas of the properties outside of the proposed ROW and/or easement. Photographs of the site are included in **Appendix A**.

3.0 FIELD ACTIVITIES

Prior to mobilizing to the site to conduct work, Solutions-IES contacted North Carolina One Call to locate underground utilities at the site. Pyramid Environmental & Engineering, P.C. (Pyramid) was contracted to perform a geophysical survey, and mobilized to the study area March 10 and March 15, 2010. The geophysical investigation consisted of electromagnetic (EM) induction-metal detection surveys using a Geonics EM61-MK1 metal detection instrument and ground penetrating radar (GPR) surveys using a GSSI SIR-2000 unit equipped with a 400 MHz antenna. Results of the survey suggested that the surveyed area of the proposed ROW and/or easement at Parcel #29 do not contain metallic underground storage tanks (UST). Images of the EM and GPR findings are included in the geophysical report included as **Appendix B**. After a review of the geophysical report, Solutions-IES mobilized to the site on March

31, 2010, to collect soil samples. Twelve borings were advanced to a depth of 8 feet below ground surface (ft bgs). Eleven soil borings were advanced using a Geoprobe®. One boring was advanced by hand using a 4-inch stainless steel bucket auger. The approximate locations of the soil borings are displayed in **Figure 3**. The GPS coordinates of the boring locations are included in **Appendix C**.

A Macro-Core® sampler fitted with a dedicated polyvinyl chloride (PVC) liner was used to collect samples at 2-foot intervals using the Geoprobe®. Hand augured samples were collected in 1-foot intervals and placed on plastic sheeting. Each soil sample was split into two aliquots. Each aliquot was placed in a separate resealable plastic bag. One bag was placed on ice for possible laboratory analysis, while the other bag was sealed and placed at ambient temperature for field screening with a flame ionization detector (FID). After approximately 20 minutes to allow accumulation of volatile organic compounds (VOCs) in the headspace of the bag, each sealed bag was scanned with the FID. The FID measurements were entered into the field logbook along with the soil description and any indications of petroleum staining or odor. That information was subsequently transferred onto boring logs. The boring logs are provided in **Appendix D** and the field screening results are summarized in **Table 1**. The field screening results are also shown on the boring logs. Borings P29-1 through P29-11 were planned as part of the original assessment. Due to elevated FID results from P29-5, one additional boring was placed around this location to further evaluate the extent of possible contamination.

The subsurface at the site generally consisted of red-brown clays overlying tan sands (Unified Soil Classification CL to SM). Soils were dry to moist and groundwater was not encountered at any of the borings to a depth of 8 ft bgs.

Table 1 shows the FID field screening results of the soils ranged from not detected to 760 parts per million (ppm). P29-5 was the only boring to yield high FID results. One soil sample was collected from each boring at the interval identified in **Table 1**. Each collected sample was placed in laboratory-supplied jars and stored on ice pending courier service to Prism Laboratories in Charlotte, NC. Sample information was recorded on the chain-of-custody form, and the samples were submitted for analysis of gasoline range organics (GRO) and diesel range organics (DRO) total petroleum hydrocarbons (TPH) by EPA Modified Method 8015 with preparation methods 5030 and 3545, respectively. GRO and DRO TPH analysis can be used to screen soil which may be impacted by fuel constituents.

4.0 LABORATORY RESULTS

The laboratory analytical results do not indicate the presence of TPH in soil samples collected from borings P29-1 through P29-12. No concentrations exceed the laboratory reporting limit. The analytical results are summarized in **Table 2**, and the laboratory report is included in **Appendix E**.

5.0 DISCUSSION

The geophysical survey conducted at the site suggested that no buried metallic objects such as a UST are present within the surveyed portion of the proposed ROW and/or easement. Solutions-IES advanced 12 soil borings at the study area to a depth of 8 ft bgs. The highest FID reading measured 760 ppm in boring P29-5 at a depth of 0 to 2 ft bgs. This high result was most likely exacerbated by the presence of asphalt in the sample during screening. To eliminate possible cross-contamination from the asphalt, the sample selected for laboratory analysis was from 2 to 4 ft bgs which had an FID result of 77.6 ppm. One additional boring (P29-12) was advanced in this vicinity to further evaluate presence of possible contamination. None of the other borings had elevated FID readings and TPH (GRO or DRO) was not detected above the laboratory reporting limits in soil samples collected from the site. Therefore, the concentrations do not exceed the tank closure screening level of 10 mg/kg in *Guidelines for Site Checks, Tank Closure, and Initial Response and Abatement*, (*State of North Carolina Department of Environment and Natural Resources [NCDENR], Division of Waste Management [DWM], Underground Storage Tank [UST] Division, March 1, 2007; Version; Change 3, Effective December 1, 2008) (Site Check Guidelines).* Further assessment at this site is not necessary at this time.

TABLES

TABLE 1
Summary of Field Screening Results for Soil
NCDOT Parcel #29
105 North Martin Luther King Jr. Drive
Winston-Salem, North Carolina
WBS Element: 34871.2.1; State Project: U-2826B
Sample Collection Date: March 31, 2010

Sample Depth Below Ground Surface	Soil Boring											
	P29-1	P29-2	P29-3	P29-4	P29-5	P29-6	P29-7	P29-8	P29-9	P29-10	P29-11	P29-12
	FID Reading (ppm)											
0 - 2 feet	0.0	0.0	0.0	0.0	760	0.3	3.8	2.2	5.5	0.0	0.0	5.6
2 - 4 feet	0.0	0.0	0.0	0.0	77.6	0.4	0.3	0.1	0.2	1.3	0.0	3.0
4 - 6 feet	0.0	0.4	0.0	0.0	12.6	0.0	0.5	0.4	0.0	1.3	0.0	0.8
6 - 8 feet	0.0	0.0	0.0	0.0	4.8	0.6	0.9	0.4	0.0	0.0	0.0	0.0

Notes:

Samples denoted by shaded cells were submitted for laboratory analysis.
FID readings were obtained with a Photovac MicroFID Flame Ionization Detector.
ppm = parts per million

TABLE 2
Summary of Soil Analytical Results
NCDOT Parcel #29
105 North Martin Luther King Jr. Drive
Winston-Salem, North Carolina
WBS Element: 34871.2.1; State Project: U-2826B
Sample Collection Date: March 31, 2010

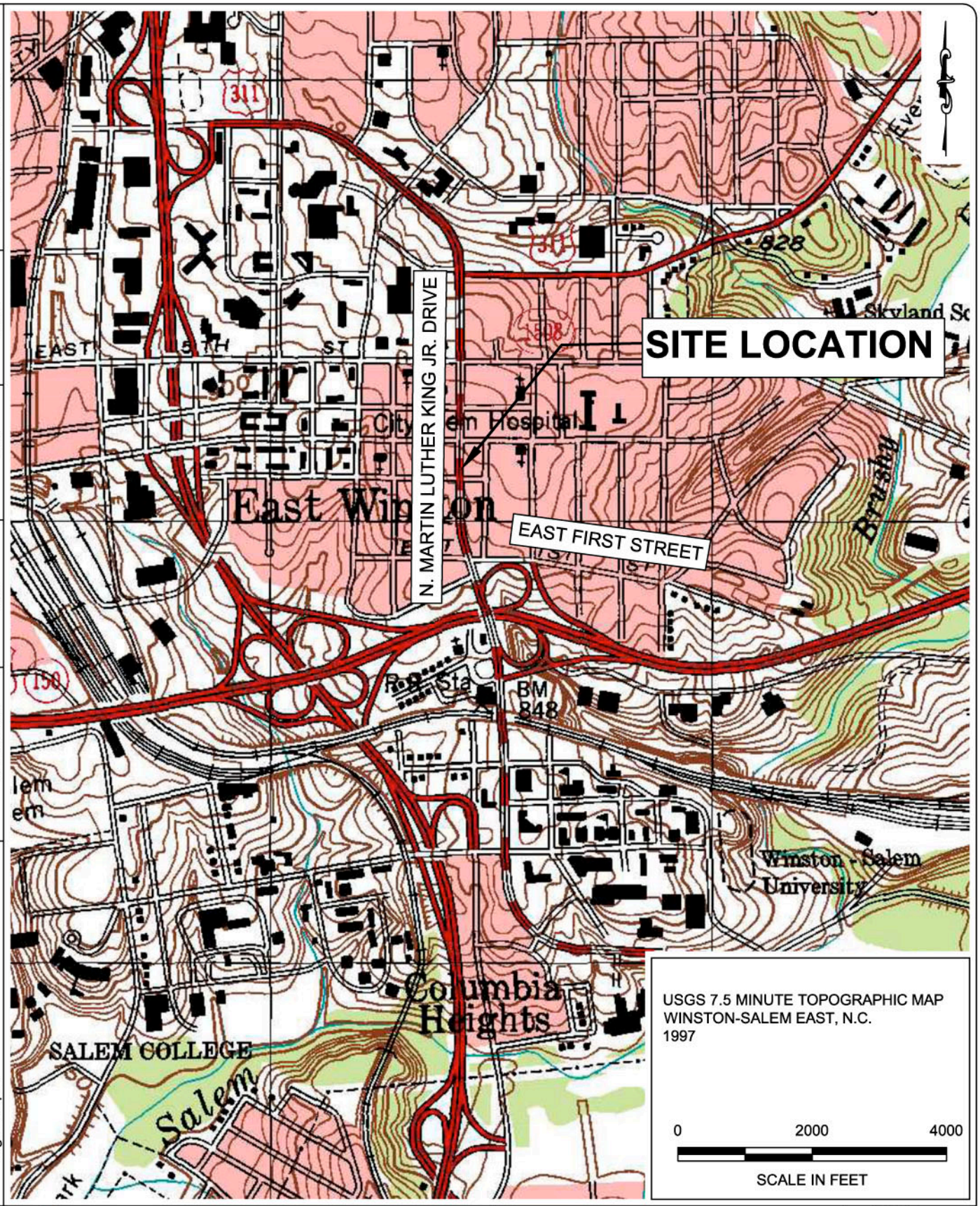
Sample Information		Total Petroleum Hydrocarbons	
Boring Number	**Depth (ft bgs)**	**Gasoline Range[1] (mg/kg)**	**Diesel Range[2] (mg/kg)**
P29-1	6-8	< 6.6	< 9.2
P29-2	6-8	< 6.2	< 8.7
P29-3	6-8	< 5.9	< 8.2
P29-4	6-8	< 5.6	< 7.9
P29-5	2-4	< 6.2	< 8.7
P29-6	6-8	< 7.4	< 10.0
P29-7	6-8	< 7.2	< 10.0
P29-8	0-2	< 5.8	< 8.1
P29-9	0-2	< 6.4	< 8.9
P29-10	4-6	< 6.6	< 9.2
P29-11	6-8	< 6.9	< 9.6
P29-12	2-4	< 6.6	< 9.3

Notes:

1. Total Petroleum Hydrocarbons (TPH) Method 5030/8015MOD - Gasoline Range Hydrocarbons
2. Total Petroleum Hydrocarbons (TPH) Method 3545/8015MOD - Diesel Range Hydrocarbons

mg/kg = milligram per kilogram

FIGURES



PROJECT NUMBER 3944.10A3.NCDOT
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DATE 04/13/2010
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PARCEL # 29
105 N. MARTIN LUTHER KING JR. DRIVE
WINSTON-SALEM, NORTH CAROLINA
STATE PROJECT: U-2826B
WBS ELEMENT: 34871.2.1

FIGURE:
1

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DATE 04/13/2010
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EDDIE L. MCCARTER AND MIRIAM A. MCCARTER

EXIST. ROW

EDDIE L MCCARTER AND MIRIAM A MCCARTER

SAR VENTURES LLC

GEORGE T. POWELL

CHARLIE L. HARDESTY AND VIRGINIA O. HARDESTY

EIP

EAST FIRST STREET

MARTIN LUTHER KING JR. DRIVE

MINNIE M HUGHES

INEZ S. GERALDS

80

GEORGE POWELL AND JANICE POWELL

PROPOSED EASEMENT

PARCEL # 29

M.M. FOWLER INC.

EXIST. ROW

50.00'

WHEELER STREET

RODNEY FUNDERBURK DB 2178 PG 1997

RODNEY FUNDERBURK DB 2178 PG 1997

CAROLYN C. SHELTON

LILLIE M. RAINES

MARY TRUSTEE MICKEY

DANIEL CARPENT

AKRON DRIVE

ERTRAM L. DAVIS

DB 2556 PG 442

CHARMON BAKER KARLTON JONES

BST

D1

LEGEND

PROPOSED RIGHT-OF-WAY LOCATION

PROPERTY BOUNDARY

0 40

SCALE IN FEET

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105 N. MARTIN LUTHER KING JR. DRIVE
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STATE PROJECT: U-2826B
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SITE MAP

FIGURE: 2

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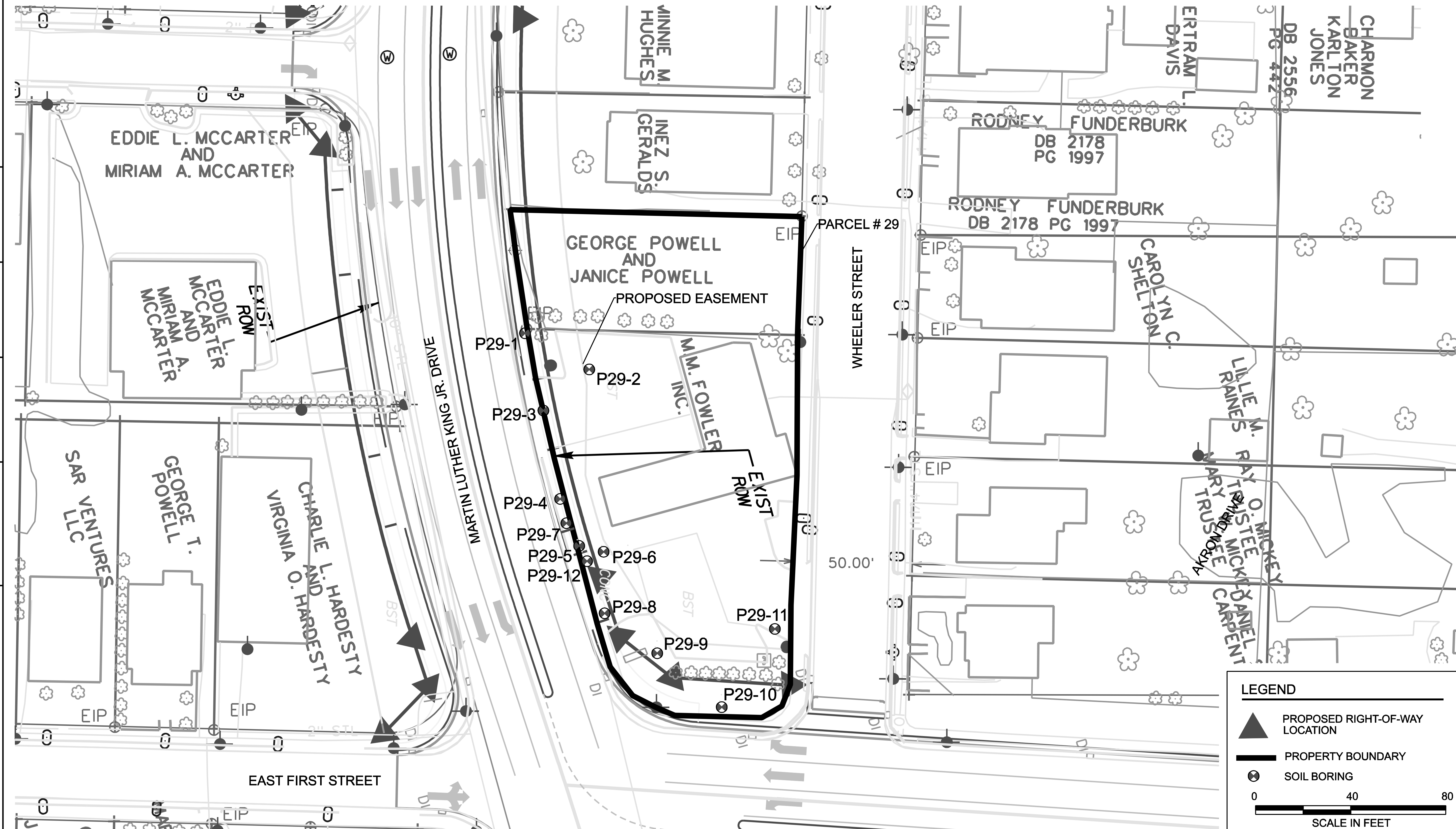

EDDIE L. MCCARTER AND MIRIAM A. MCCARTER
EDDIE L. MCCARTER AND MIRIAM A. MCCARTER
EXIST ROW
SAR VENTURES LLC
GEORGE T. POWELL
CHARLIE L. HARDESTY AND VIRGINIA O. HARDESTY
MARTIN LUTHER KING JR. DRIVE
EAST FIRST STREET
MINNIE M. HUGHES
INEZ S. GERALDS
GEORGE POWELL AND JANICE POWELL
PROPOSED EASEMENT
PARCEL # 29
M.M. FOWLER INC.
EXIST ROW
WHEELER STREET
50.00'
P29-1
P29-2
P29-3
P29-4
P29-7
P29-5
P29-6
P29-12
P29-8
P29-9
P29-10
P29-11
EIP
ERTRAM L. DAVIS
DB 2556 PG 442
CHARMON BAKER KARLTON JONES
RODNEY FUNDERBURK
DB 2178 PG 1997
RODNEY FUNDERBURK
DB 2178 PG 1997
CAROLYN C. SHELTON
LILLIE M. RAINES
RAY O. MICKEY TRUSTEE
MARY MICKEY TRUSTEE
DANIEL CARPENT
AKRON DRIVE
LEGEND
PROPOSED RIGHT-OF-WAY LOCATION
PROPERTY BOUNDARY
SOIL BORING
0 40 80
SCALE IN FEET

PROJECT NUMBER	DRAFTER	CHECKED BY	PROJECT MANAGER	DATE	FILE
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105 N. MARTING LUTHER KING JR. DRIVE
WINSTON-SALEM, NORTH CAROLINA
STATE PROJECT: U-2826B
WBS ELEMENT: 34871.2.1

SOIL BORING LOCATIONS

FIGURE: 3

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APPENDIX A

PHOTOGRAPHS

Appendix A - Photographs

Photograph 1 – View of Parcel #29 store front looking east along Martin Luther King Jr. Drive.

Photograph 2 – View of Parcel #29 bore locations looking south.

Photograph 3 – View of Parcel #29 looking north.

Photograph 4 – View of Parcel #29 looking north.

APPENDIX B

GEOPHYSICAL REPORT

Pyramid Project # 2010044

GEOPHYSICAL INVESTIGATION REPORT

GEOPHYSICAL SURVEYS FOR THE
DETECTION OF METALLIC USTS
Akron Drive & Martin Luther King Jr. Drive Sites
Winston-Salem, North Carolina
Preliminary Site Assessments State Project #U2826B

March 26, 2010

Report prepared for: **Jody Overmyer**
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Prepared by: _____
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GEOPHYSICAL INVESTIGATION REPORT
Akron Drive & Martin Luther King, Jr. Drive Sites
Winston-Salem, North Carolina
Preliminary Site Assessments State Project #U2826B

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1.0 INTRODUCTION

Pyramid Environmental & Engineering, PC conducted geophysical investigations for Solutions - IES during the period of March 8-16, 2010, within the proposed Right-of-Way (ROW) areas at five sites located along Akron Drive and Martin Luther King, Jr. Drive in Winston-Salem, North Carolina. The work was done as part of the North Carolina Department of Transportation (NCDOT) Preliminary Site Assessments State Project #U2826B. The geophysical surveys were conducted to determine if unknown metallic underground storage tanks (UST's) were present beneath the proposed ROW area of each site.

Solutions - IES representative Ms. Jessica Keener, PE provided maps and site photographs during the week of February 15, 2010 that outlined the geophysical survey area of each site. Ms. Keener also provided project management during the geophysical investigation of the sites. The following, listed in geographical order from northern-most to southern-most locations, are the five sites in which geophysical investigations were conducted within the proposed ROW areas.

Property Owner	Parcel	Present Use of Property
Meryl B. Mabe Property	none	Randy Moore's Auto Repair
American Pawn & Jewelry Property	7	Cash America Pawn Shop
Burgerbusters Iii, LLC Property	6	Taco Bell Restaurant
A & M Realty Property	2	Piedmont Garage Doors
M. & M. Fowler Property	29	BP Gas Station/Store

Photographs of the geophysical equipment used in this investigation and the geophysical survey areas of the five sites are shown in **Figure 1**.

2.0 FIELD METHODOLOGY

Prior to conducting the geophysical investigations at the five Winston-Salem sites, a 10-foot by 10-foot survey grid was established across each of the geophysical survey areas using measuring tapes,

pin flags and water-based marking paint. These grid marks were used as X-Y coordinates for location control when collecting the geophysical data and establishing base maps for the geophysical results.

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection surveys using a Geonics EM61-MK1 metal detection instrument. According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. All of the EM61 data were digitally collected at 0.8 foot intervals along northerly-southerly (X-axis) or easterly-westerly (Y-axis), parallel survey lines spaced five feet apart. All of the data were downloaded to a computer and reviewed in the office using the Geonics DAT61W and Surfer for Windows Version 7.0 software programs.

Upon processing and review of the EM61 metal detection data, ground penetrating radar (GPR) surveys were conducted across selected EM61 differential anomalies, areas containing steel reinforced concrete and around areas that contained parked vehicles when the metal detection surveys were conducted. GPR data were collected using a Geophysical Survey Systems SIR-2000 unit equipped with a 400 MHz antenna. Data were digitally collected in a continuous mode along X-axis and/or Y-axis survey lines, spaced 2.5 to 5.0 feet apart using a vertical scan of 512 samples, at a rate of 48 scans per second. A 70 MHz high pass filter and an 800 MHz low pass filter were used during data acquisition with the 400 MHz antenna. GPR data were collected down to a maximum depth of approximately 5.0 feet, based on an estimated two-way travel time of 8 nanoseconds per foot. All of the GPR data were downloaded to a field computer and reviewed in the field and office using Radprint software.

Contour plots of the EM61 bottom coil and differential results are presented in this report for each of the five sites. The bottom coil results represent the most sensitive component of the EM61 instrument and detect metal objects regardless of size. The bottom coil response can be used to delineate metal conduits or utility lines, small, isolated metal objects, and areas containing insignificant metal debris. The differential results are obtained from the difference between the top

and bottom coils of the EM61 instrument. The differential results focus on the larger metal objects such as drums and USTs and ignore the smaller insignificant metal objects.

Preliminary geophysical results obtained from the five Winston-Salem sites were reported to Ms. Keener during the weeks of March 15 and March 22, 2010.

3.0 DISCUSSION OF RESULTS

3.1 Meryl B. Mabe Property

The Meryl B. Mabe property is located at 3810 Leo Street and contains the Randy Moore's Auto Repair & Towing facility. The ROW area consists primarily of flat-lying asphalt pavement with non-operating, parked vehicles. The EM61 bottom coil and differential metal detection results are presented in **Figures 2**. GPR surveys were conducted across several of the differential anomalies and a GPR reconnaissance was conducted around the parked, non-operating vehicles.

The linear EM61 metal detection anomalies intersecting grid coordinates X=340 Y=360 and X=340 Y=405 are probably in response to the metallic fence that runs along the edge of the property. GPR data suggest that the negative EM61 differential anomalies (contours shaded in green) centered near grid coordinates X=316 Y=360, X=330 Y=440 and X=330 Y=470 are probably in response to the parked vehicles. The negative differential anomalies centered near grid coordinates X=345 Y=432 and X=345 Y=447 are probably in response to a water meter and a storm sewer drain, respectively.

The geophysical results suggest that the proposed ROW area at the Meryl B. Mabe property does not contain metallic USTs.

3.2 American Pawn & Jewelry – Burgerbusters, Iii, LLC Properties (Parcels 7 & 6)

The American Pawn & Jewelry property (Parcel 7) is located at 3800 Leo Street and contains the Cash America Pawn Shop. The proposed ROW area consists primarily of flat-lying asphalt or grass

surfaces and includes the east-west trending asphalt access road that runs from the pawn shop parking area to Sheridan Street. The Burgerbusters, Iii, LLC property is located immediately south of Parcel 7 at 349 Akron Drive. The property consists of a Taco Bell Restaurant and lies along the intersection of Akron Drive and Leo Street. The proposed ROW area at Parcel 6 consists of the asphalt access road that runs parallel to Leo Street and terminates in the Taco Bell parking lot and the grass island between the access road and Leo Street. The EM61 bottom coil and differential metal detection results obtained across the proposed ROW areas for the American Pawn and Burgerbusters properties are presented in **Figures 3 and 4**, respectively.

The linear, EM61 bottom coil anomalies intersecting grid coordinates X=15 Y=190, X=280 Y=154 and X=300 Y=324 are probably in response to buried utility lines or conduits. Similarly, the series of linear northeast-southwest trending bottom coil anomalies intersecting grid coordinates X=265 Y=170 may be in response to a buried line or conduit. The numerous bottom coil anomalies located along the grass island immediately west of Leo Street are probably in response to known surface objects or utility-related equipment or lines. GPR data suggest the high amplitude bottom coil anomalies (contours shaded in red) centered near grid coordinates X=237 Y=135 and X=280 Y=130 are in response to the Taco Bell drive thru-related equipment and the large sign poles, respectively.

GPR data suggest the higher amplitude EM61 differential anomaly centered near grid coordinates X=293 Y=300 is in response to utility-related equipment and/or lines. GPR data collected across the negative differential anomalies centered near grid coordinates X=210 Y=203 and X=227 Y=220 are in response to the steel reinforced concrete sidewalk, the pawn shop building and metallic bollards. The negative linear anomaly intersecting grid coordinates X=300 Y=350 is probably in response to the metallic fence. The geophysical investigation suggests that the surveyed portions of Parcels 7 & 6 (proposed ROW areas) do not contain unknown, metallic USTs.

3.3 A & M Realty Company Property (Parcel 2)

The A & M Realty Company property (Parcel 2) is located at 1151 North Martin Luther King, Jr. Drive and contains the Piedmont Garage Doors facility. The proposed ROW area consists of asphalt,

concrete and grass surfaces and includes the eastern and southern portions of the property. The EM61 bottom coil and differential metal detection results obtained across the proposed ROW area at the A & M Realty property are presented in **Figures 5 and 6**, respectively.

The linear, EM61 bottom coil anomalies intersecting grid coordinates X=230 Y=120 and X=249 Y=150 are probably in response to the metallic fence line. The linear bottom coil anomalies intersecting grid coordinates X=60 Y=52, X=75 Y=60, X=220 Y=74, and X=240 Y=53 are probably in response to buried utility lines or conduits. GPR data suggest that the bottom coil anomalies centered near grid coordinates X=120 Y=57 and X=170 Y=55 are in response to the building.

GPR data suggest the EM61 differential anomalies centered near grid coordinates X=225 Y=176 are in response to the dumpsters and metal fence line. Similarly, GPR data suggest the negative differential anomaly centered near grid coordinates X=195 Y=65 is in response to the parked vehicle that was present during the EM61 survey. The remaining negative differential anomalies are probably in response to known surface objects or utility-related equipment. The geophysical investigation suggests that the surveyed portions of Parcel 2 (proposed ROW area) do not contain unknown, metallic USTs.

3.4 M. M. Fowler Property (Parcel 29)

The M. M. Fowler property (Parcel 29) is located at 105 North Martin Luther King, Jr. Drive and contains a BP gas station/store facility. The proposed ROW area consists of asphalt, concrete and grass surfaces and includes the western and southern portions of the property. The EM61 bottom coil and differential metal detection results obtained across the proposed ROW area at the Fowler property are presented in **Figures 7 and 8**, respectively

The linear, EM61 bottom coil anomalies recorded along the edge of Martin Luther King, Jr. Drive and adjacent to East 1st Street (which intersect grid coordinates X=14 Y=140 and X=35 Y=36) are probably in response to buried utility lines. Similarly, the linear bottom coil anomalies intersecting grid coordinates X=27 Y=174 and X=84 Y=26 are probably in response to buried utility lines or

conduits. GPR data suggest that the high amplitude bottom coil anomalies or series of differential anomalies centered near grid coordinates X=30 Y=140 and X=90 Y=70 are in response to steel reinforced concrete.

GPR data suggest the negative EM61 differential anomalies centered near grid coordinates X=28 Y=60 and X=48 Y=76 are in response to the sign poles, telephones and bollards. The remaining differential anomalies are probably in response to known surface objects or utility line-related equipment. The geophysical investigation suggests that the surveyed portions of Parcel 29 (proposed ROW area) do not contain unknown, metallic USTs.

4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 & GPR data acquired across the proposed ROW areas at the five sites located along Akron Drive and Martin Luther King Jr. Drive in Winston-Salem, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the surveyed portions of the sites.

- GPR data suggest that the EM61 differential anomalies recorded at the Meryl B. Mabe property (Tommy Moore's Auto Repair) are in response to the metal fence line, parked, non-operating vehicles or utility-related equipment.

- The geophysical results suggest that the proposed ROW area at the Meryl B. Mabe property does not contain metallic USTs.

- At the American Pawn and Burgerbusters properties (Parcels 7 & 6), GPR data suggest the higher amplitude EM61 differential anomaly centered near grid X=293 Y=300 is in response to utility-related equipment and/or lines. GPR data collected across the remaining negative

differential anomalies are in response to the steel reinforced concrete sidewalk, building, metallic bollards or metallic fence.

- The geophysical investigation suggests that the surveyed portions of Parcels 7 & 6 (proposed ROW areas) do not contain unknown, metallic USTs.

- GPR data acquired at the A & M Realty Company property (Parcel 2) suggest the negative EM61 differential anomalies are in response to dumpsters, a park vehicle, metal fence, known surface objects, or utility-line related equipment.

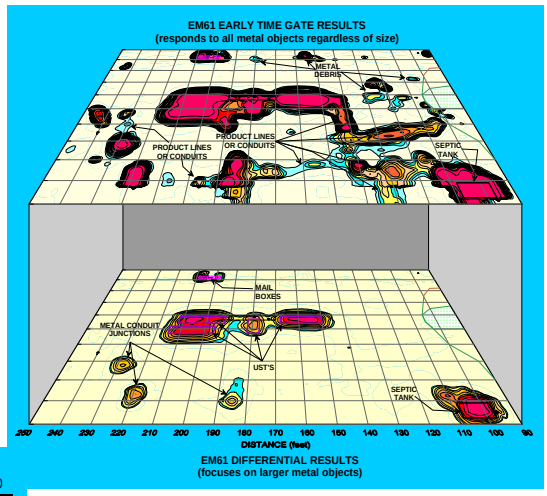
- The geophysical investigation suggests that the surveyed portions of Parcel 2 (proposed ROW area) do not contain unknown, metallic USTs.

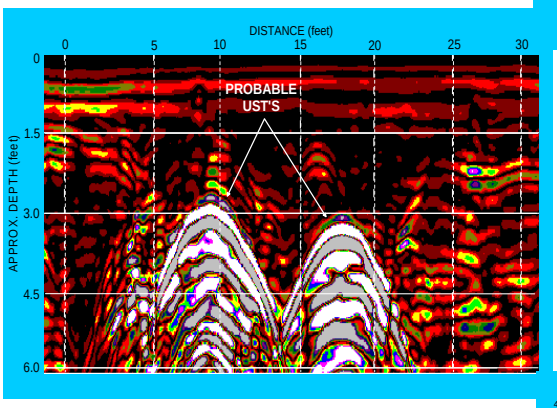
- GPR data acquired at the M. M. Fowler property (Parcel 29) suggest the negative EM61 differential anomalies are in response to steel reinforced concrete, sign poles, possible abandoned wells, known surface objects, or utility-line related objects.

- The geophysical investigation suggests that the surveyed portions of Parcel 29 (proposed ROW area) do not contain unknown, metallic USTs.

5.0 LIMITATIONS

EM61 and GPR surveys have been performed and this report prepared for Solutions-IES in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR surveys are non-unique and may not represent actual subsurface conditions. The EM61 and GPR results obtained across the proposed ROW areas at the five sites located in Winston-Salem have not conclusively determine that the surveyed portions of the sites do not contain buried, unknown, metallic USTs, but that none were detected.

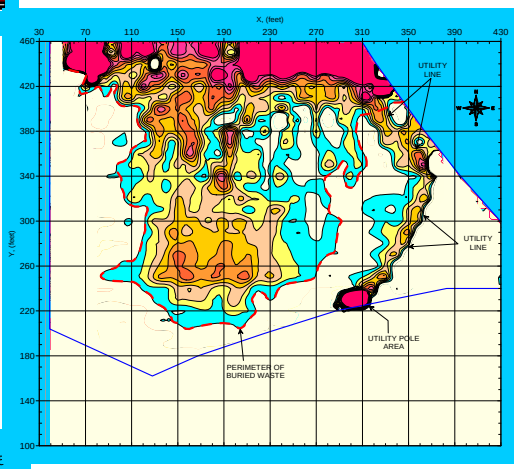


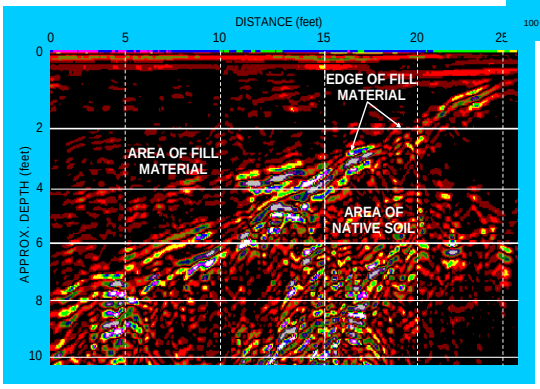


FIGURES

(on the following pages)

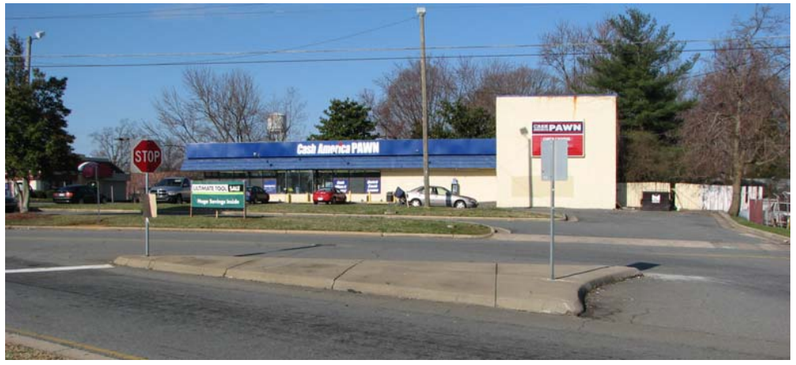
Figures shown on this page are for esthetic purposes only and are not related to the geophysical results discussed in this report





MERYL B. MABE PROPERTY
RANDY MOORE'S AUTO REPAIR & TOWING
3810 LEO STREET

BURGERBUSTERS Iii, LLC PROPERTY (PARCEL 6)
TACO BELL RESTAURANT
349 AKRON DRIVE



AMERICAN PAWN & JEWELRY PROPERTY (PARCEL 7)
CASH AMERICA PAWN SHOP
3800 LEO STREET

A & M REALTY COMPANY PROPERTY (PARCEL 2)
PIEDMONT GARAGE DOORS FACILITY
1151 N. MARTIN LUTHER KING, JR. DRIVE

ACCESS ROAD LOCATED BETWEEN AMERICAN
PAWN & BURGERBUSTERS PROPERTIES
3800 LEO STREET

M. M. FOWLER PROPERTY - (PARCEL 29)
BP GAS STATION/STORE
105 N. MARTIN LUTHER KING, JR. DRIVE

GEOPHYSICAL EQUIPMENT

The photograph shows the Geonics EM61 metal detector that was used to conduct the metal detection survey at the sites in Winston-Salem, North Carolina. The EM61 surveys were conducted during the week of March 8, 2010

The photographs show the SIR-2000 GPR system equipped with a 400 MHz antenna that were used to conduct the ground penetrating radar investigation at the sites in Winston-Salem, North Carolina. The GPR surveys were conducted during the week of March 15, 2010.

SITE PHOTOGRAPHS

This figure shows the photographs of the five sites located along Akron Drive or Martin Luther King, Jr. Drive in Winston-Salem, North Carolina where geophysical investigations were conducted within the ROW areas for the detection of unknown, metallic USTs.

PHOTOGRAPHS OF SITES & GEOPHYSICAL EQUIPMENT

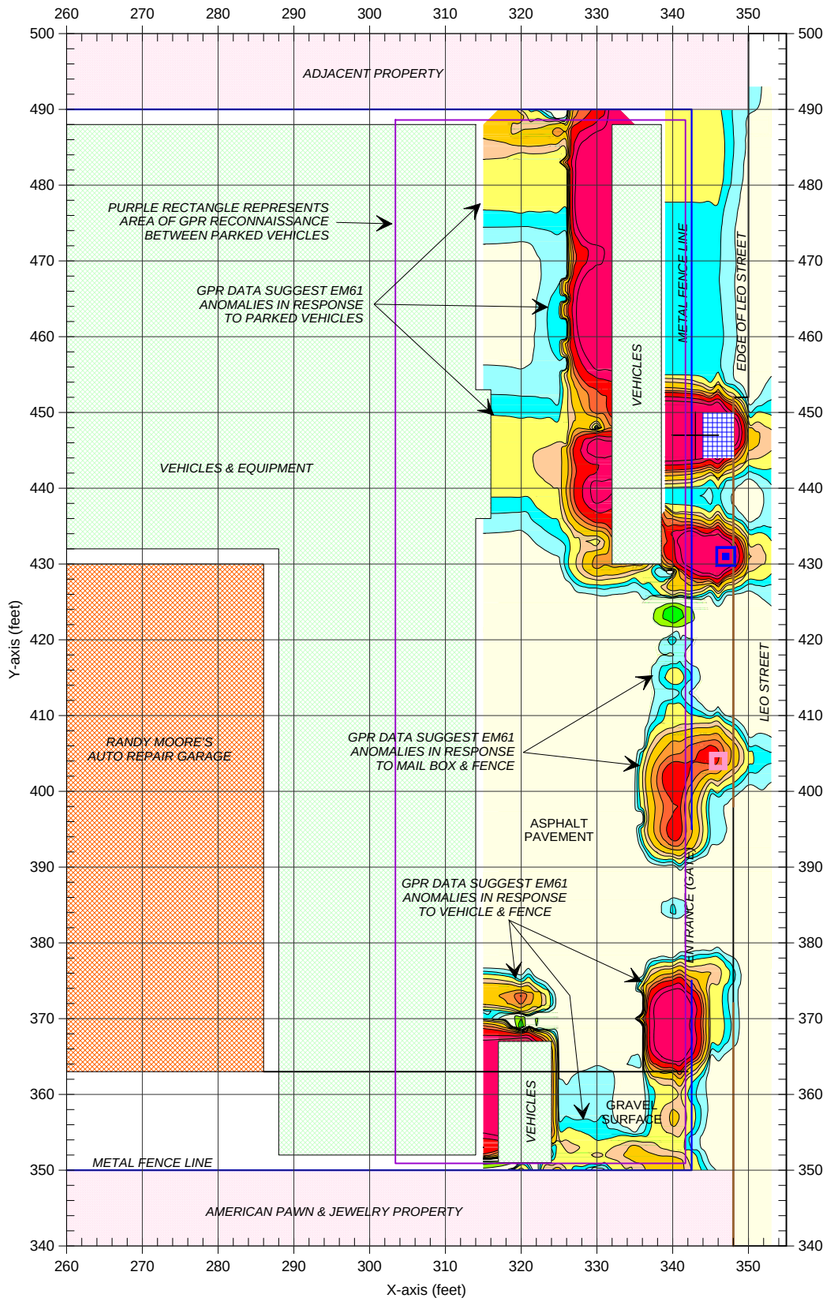
FIGURE 1

GRAPHIC SCALE IN FEET

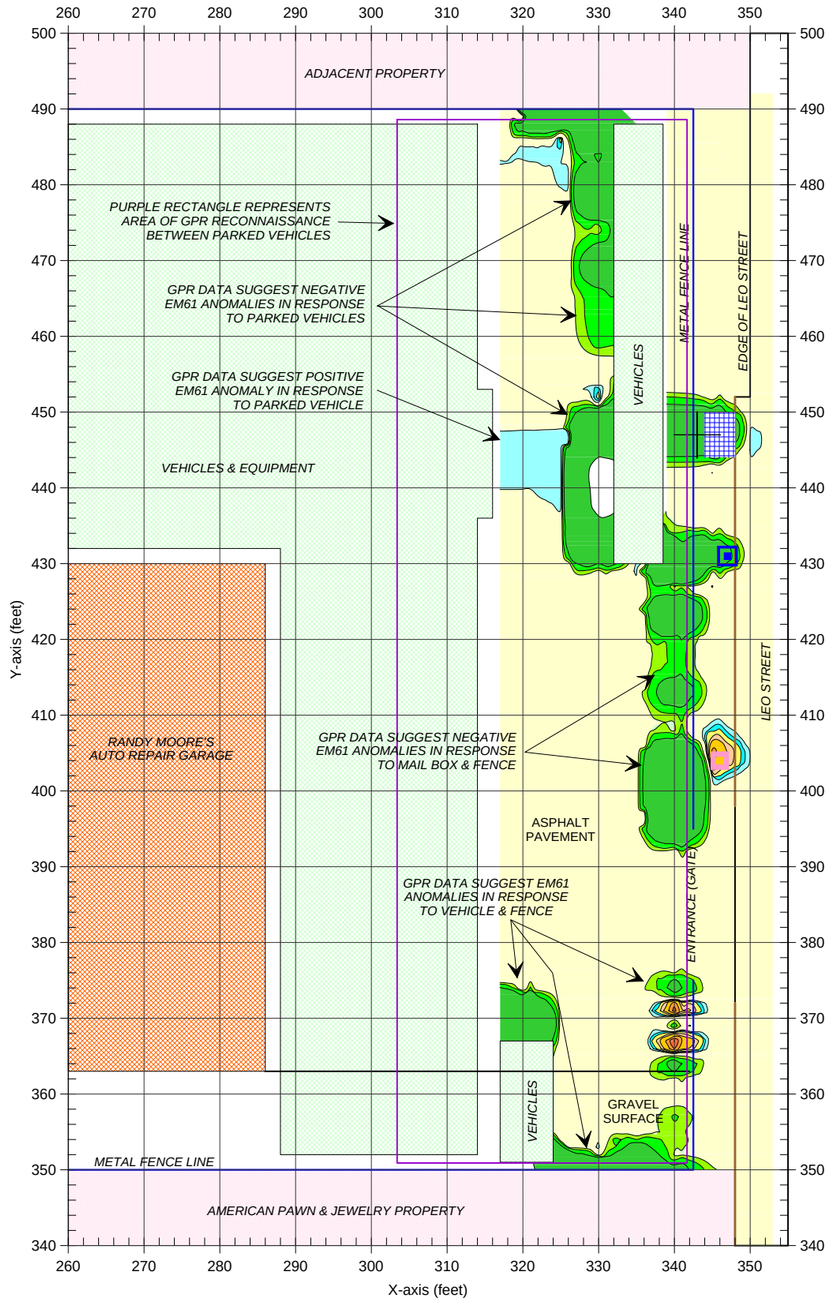
DRWN	CHKD		FIGURE
MJD			
DATE	LAY	DWG	J.NO.
03/25/10			2006-200

CLIENT	SITE	CITY	STATE	TITLE
SOLUTIONS IES	AKRON DRIVE & MARTIN LUTHER KING, JR. DRIVE SITES	WINSTON-SALEM	NORTH CAROLINA	GEOPHYSICAL RESULTS

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.



BOTTOM COIL RESULTS



DIFFERENTIAL RESULTS

APPROXIMATE NORTH

LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS TRENDING LINES SPACED 5 FEET APART
- GPR RECONNAISSANCE AREA
- BUILDING
- FENCE LINE
- MAIL BOX
- RIGHT-OF-WAY MARKER
- ROAD SIGN
- STORM SEWER GRATE
- UTILITY LINE BOX
- PARKED VEHICLES OR EQUIPMENT
- WATER METER BOX

EM61 BOTTOM COIL RESPONSE (MILLIVOLTS)

-5000 -400 -200 -100 -90 -45 -50 -75 -100 -150 -200 -300 -400 -500 -750 -1000

Note: The contour plot shows the bottom coil (most sensitive) response and the differential response of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size.The differential response focuses on larger, buried metallic objects such as drums and USTs and ignores smaller miscellaneous, buried, metal debris. The EM61 survey was collected on March 10, 2010 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on March 15, 2010 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

The geophysical investigation suggests that the surveyed portion of the property does not contain metallic USTs.

EM61 METAL DETECTION RESULTS

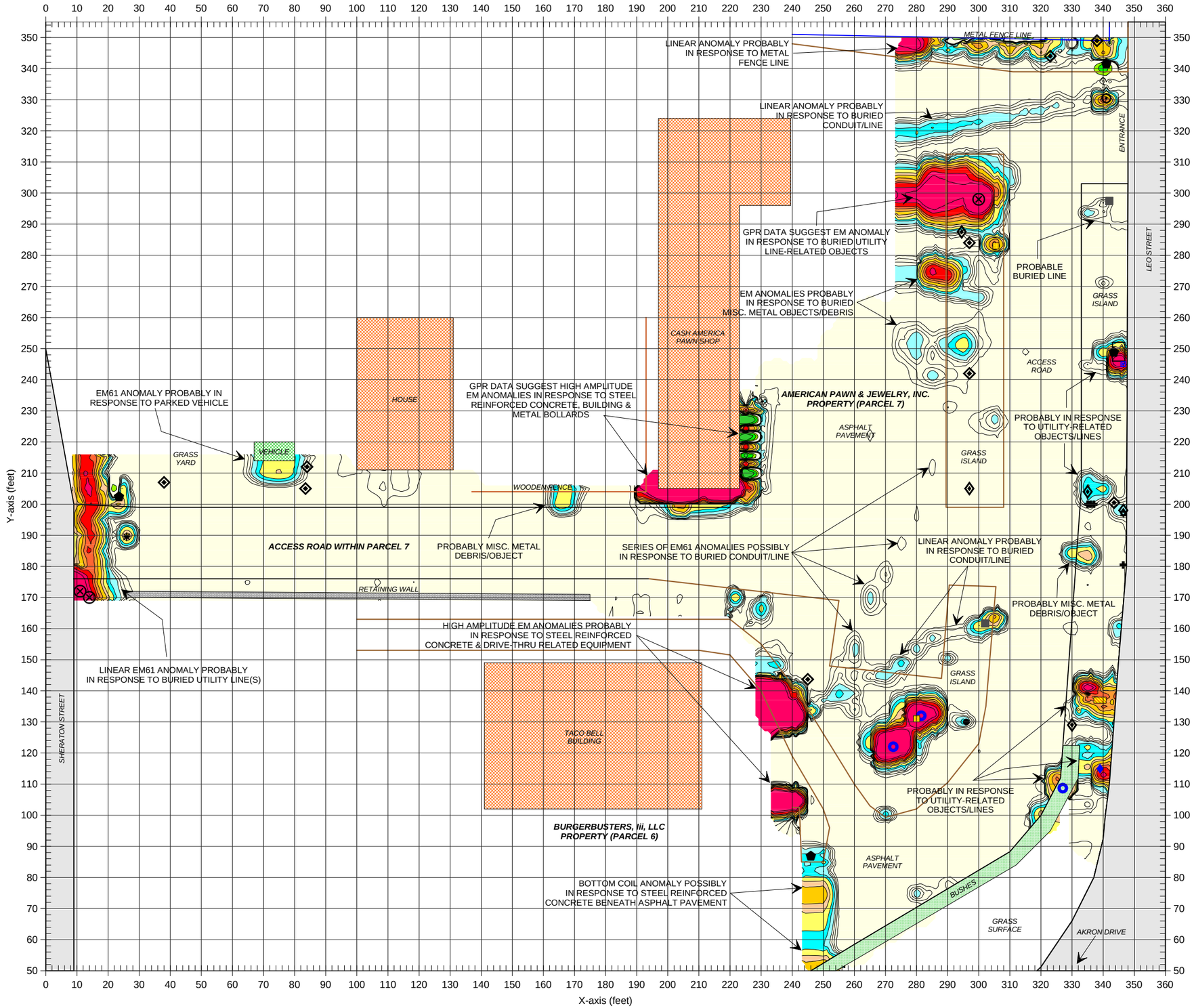
FIGURE 2

GRAPHIC SCALE IN FEET	
DRWN	MJD
CHKD	
DATE	03/25/10
LAY	
DWG	
FIGURE	2010-044
J.-NO.	
CLIENT	SOLUTIONS-IES
SITE	MERYL B. MABE PROPERTY (RANDY MOORE'S AUTO)
CITY	WINSTON-SALEM
STATE	NORTH CAROLINA
TITLE	GEOPHYSICAL RESULTS

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

EM61 METAL DETECTION (BOTTOM COIL RESULTS)

FIGURE 3



N
W E
S
APPROXIMATE NORTH

LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- BUILDING
- STORM SEWER COVER
- BUSINESS SIGN
- BUSINESS SIGN POLE
- CONCRETE CURBING
- ELECTRICAL BOX OR AIR PUMP
- GUY WIRE
- MONITORING WELL
- RIGHT-OF-WAY MARKER
- ROAD SIGN
- STORM SEWER GRATE
- GAS VALVE COVER
- UTILITY POLE
- UTILITY LINE BOX
- VEHICLE
- WATER METER BOX
- VALVE COVER
- FIRE HYDRANT
- CONCRETE ABUTMENT

EM61 BOTTOM COIL RESPONSE (MILLIVOLTS)

-5000 -400 -200 -100 -90 -20 -30 -40 -50 -75 -100 -150 -200 -300 -400 -500 -750 -1000

The contour plot shows the bottom coil (most sensitive) response of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The EM metal detection data were collected on March 9, 2010 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on March 15, 2010 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

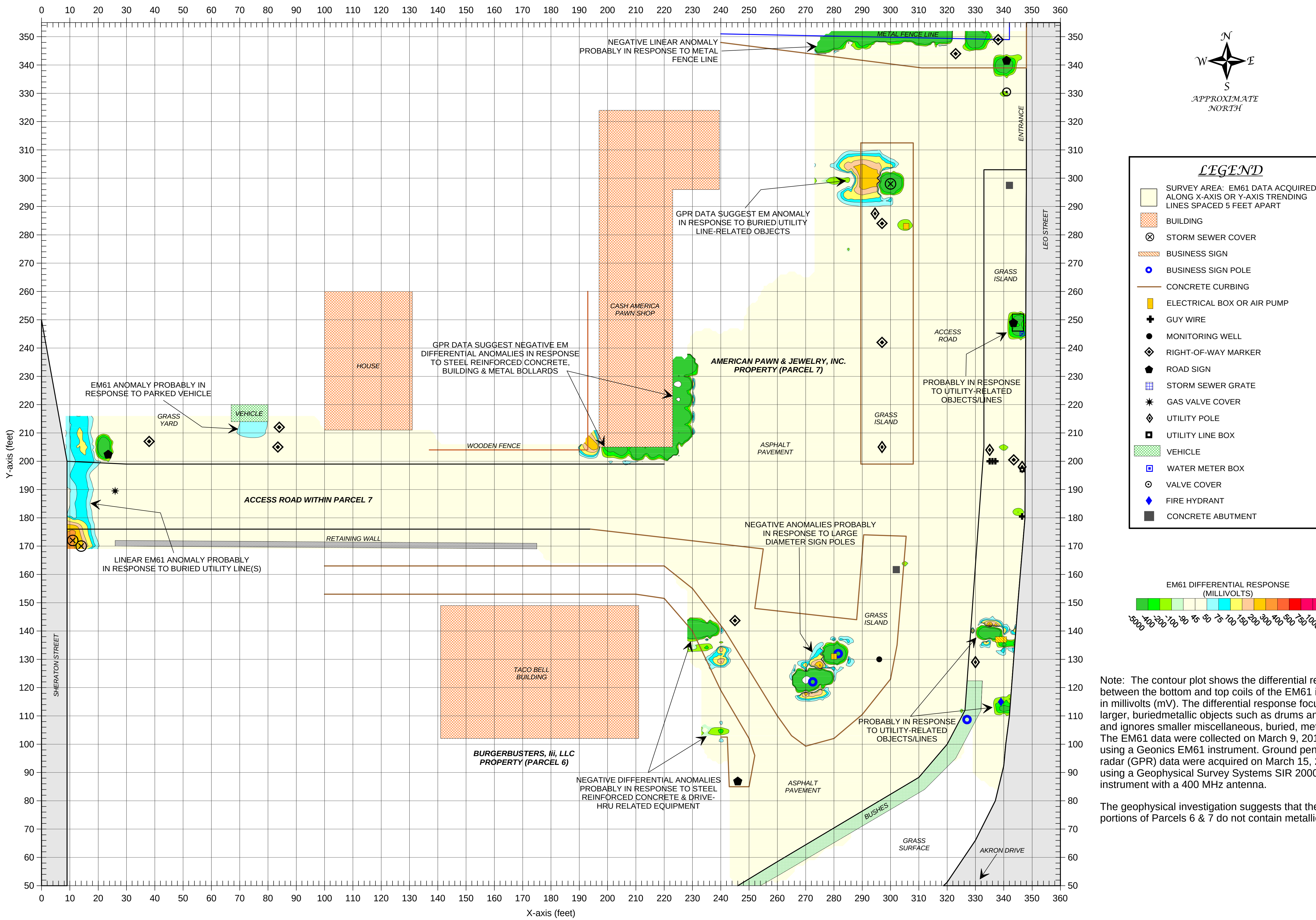
The geophysical investigation suggests that the surveyed portions of Parcels 6 & 7 do not contain metallic USTs.

GRAPHIC SCALE IN FEET

DRWN	CHKD		FIGURE
MJD			
DATE	LAY	DWG	J-NO.
03/25/10			2010-044

CLIENT: SOLUTIONS-IES
SITE: AMERICAN PAWN & BURGERBUSTERS PROPERTIES (PARCELS 7&6)
CITY: WINSTON-SALEM
STATE: NORTH CAROLINA
TITLE: GEOPHYSICAL RESULTS

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.



Note: The contour plot shows the differential response between the bottom and top coils of the EM61 instrument in millivolts (mV). The differential response focuses on larger, buriedmetallic objects such as drums and USTs and ignores smaller miscellaneous, buried, metal debris. The EM61 data were collected on March 9, 2010 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on March 15, 2010 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

The geophysical investigation suggests that the surveyed portions of Parcels 6 & 7 do not contain metallic USTs.

FIGURE 4

EM61 METAL DETECTION (DIFFERENTIAL RESULTS)

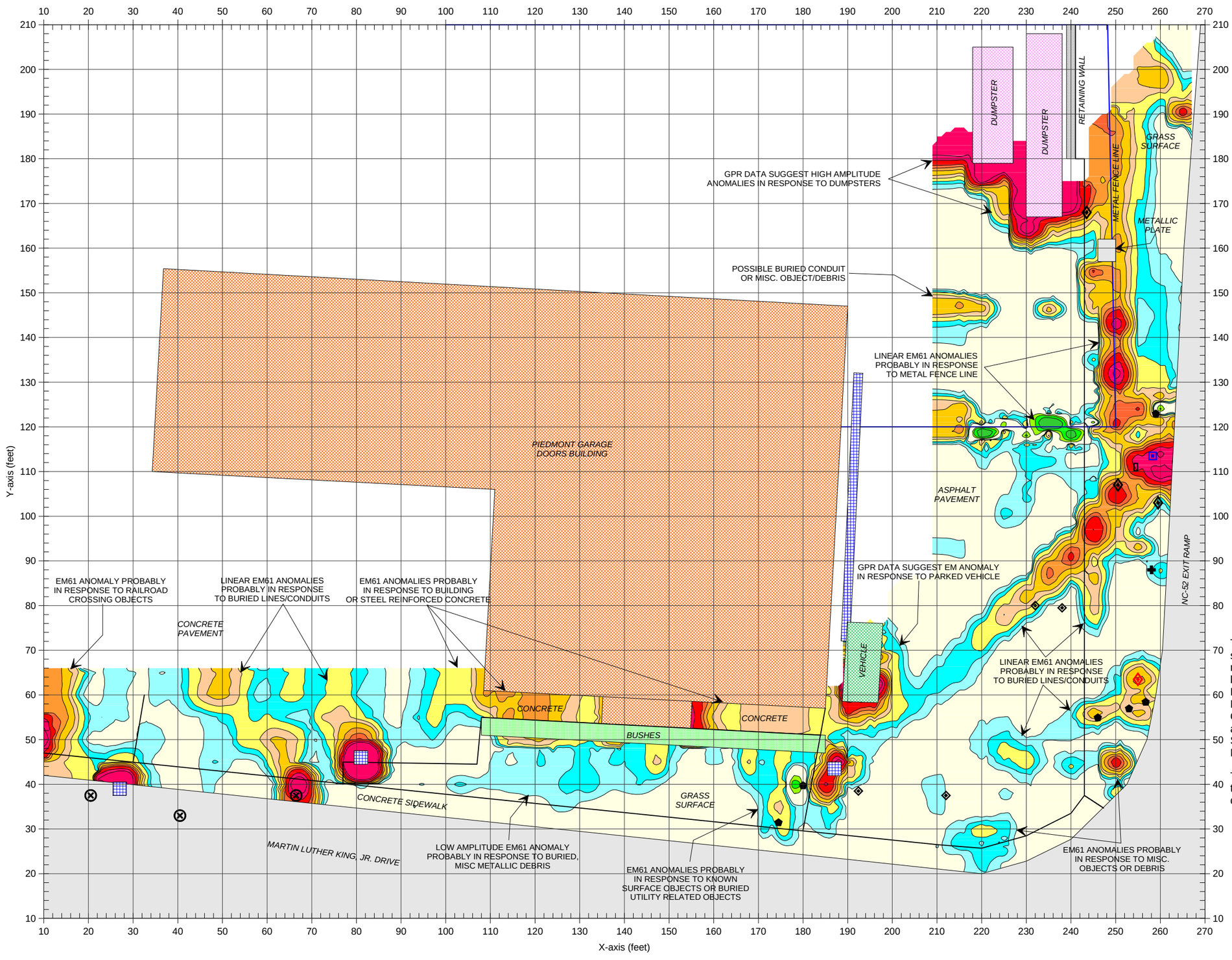
GRAPHIC SCALE IN FEET

DRAWN	MJD
CHK'D	
FIGURE	
DATE	03/25/10
LAY	
DWG	
J-NO.	2010-044
CLIENT	SOLUTIONS-IES
SITE	AMERICAN PAWN & BURGERBUSTERS PROPERTIES (PARCELS 7&6)
CITY	WINSTON-SALEM
STATE	NORTH CAROLINA
TITLE	GEOPHYSICAL RESULTS

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.

EM61 METAL DETECTION (BOTTOM COIL RESULTS)

FIGURE 5



N
W E
S
APPROXIMATE NORTH

LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- BUILDING
- DUMPSTER
- FIRE HYDRANT
- GUY WIRE
- METAL FENCE LINE
- RIGHT-OF-WAY MARKER
- ROAD SIGN
- STORM SEWER GRATE
- STORM SEWER COVER
- UTILITY POLE
- UTILITY LINE BOX
- VEHICLE
- WATER METER BOX
- VALVE COVER

EM61 BOTTOM COIL RESPONSE (MILLIVOLTS)

-9000 -400 -200 -100 -50 -25 -10 10 25 50 100 200 400 800 2000 9000

The contour plot shows the bottom coil (most sensitive) response of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The EM metal detection data were collected on March 9, 2010 using a Geonics EM61instrument. Ground penetrating radar (GPR) data were acquired on March 15, 2010 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

The geophysical investigation suggests that the surveyed portion of Parcel 2 does not contain metallic USTs.

GRAPHIC SCALE IN FEET

CLIENT	SITE	CITY	TITLE
SOLUTIONS-IES	A & M REALTY COMPANY PROPERTY (PARCEL 2)	WINSTON-SALEM	GEOPHYSICAL RESULTS

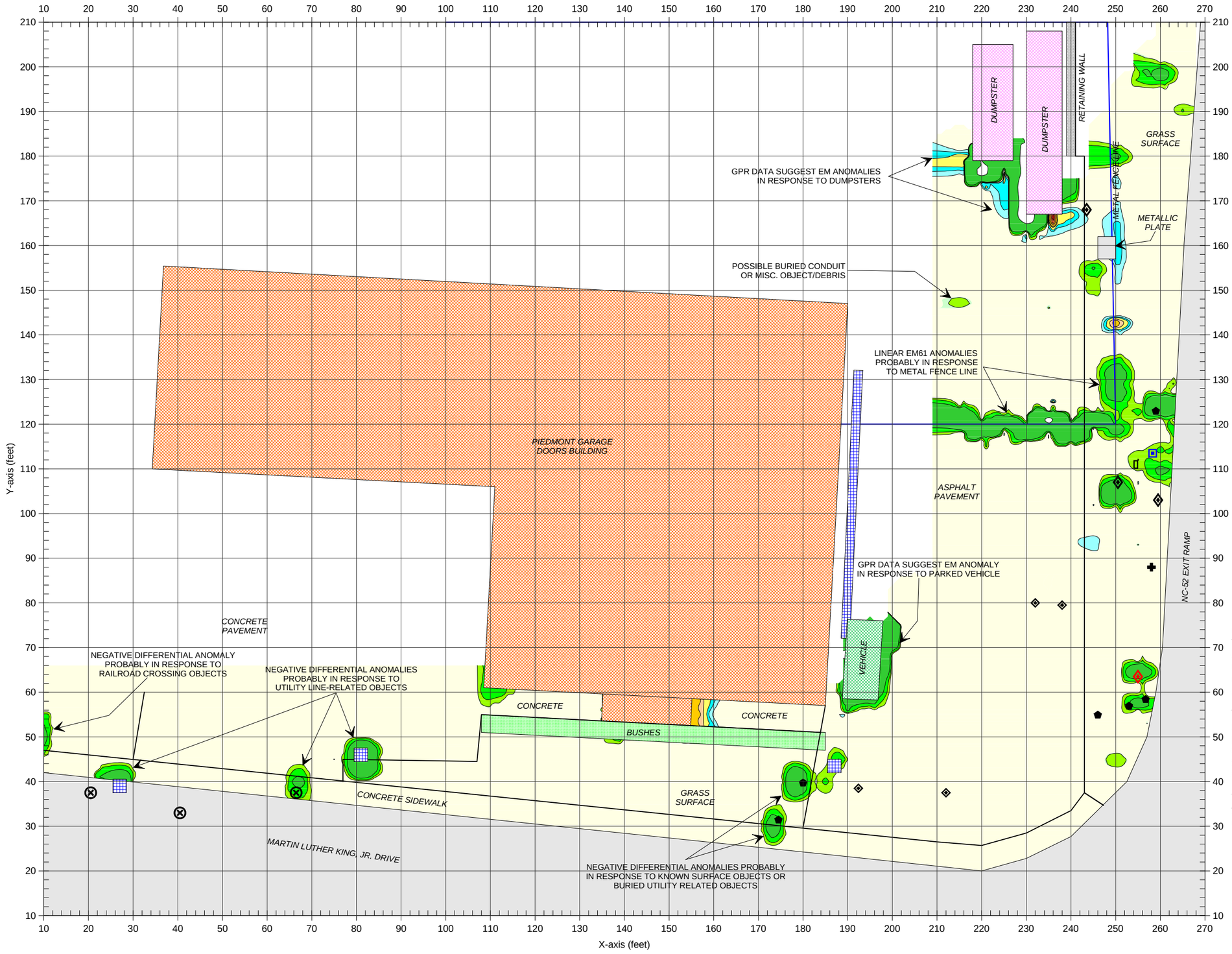
STATE	J.NO.	DWG	LAY	DATE
NORTH CAROLINA	2010-044		MJD	03/25/10

FIGURE	CHKD	DRWN

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

EM61 METAL DETECTION (DIFFERENTIAL RESULTS)

FIGURE 6



LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- BUILDING
- DUMPSTER
- FIRE HYDRANT
- GUY WIRE
- METAL FENCE LINE
- RIGHT-OF-WAY MARKER
- ROAD SIGN
- STORM SEWER GRATE
- STORM SEWER COVER
- UTILITY POLE
- UTILITY LINE BOX
- VEHICLE
- WATER METER BOX
- VALVE COVER

EM61 DIFFERENTIAL RESPONSE (MILLIVOLTS)

-9000 -400 -200 -100 -50 -25 25 50 75 100 150 200 300 400 600 750 1000

Note: The contour plot shows the differential response between the bottom and top coils of the EM61 instrument in millivolts (mV). The differential response focuses on larger, buried metallic objects such as drums and USTs and ignores smaller miscellaneous, buried, metal debris.

The EM61 data were collected on March 9, 2010 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on March 15, 2010 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

The geophysical investigation suggests that the surveyed portion of Parcel 2 does not contain metallic USTs.

GRAPHIC SCALE IN FEET

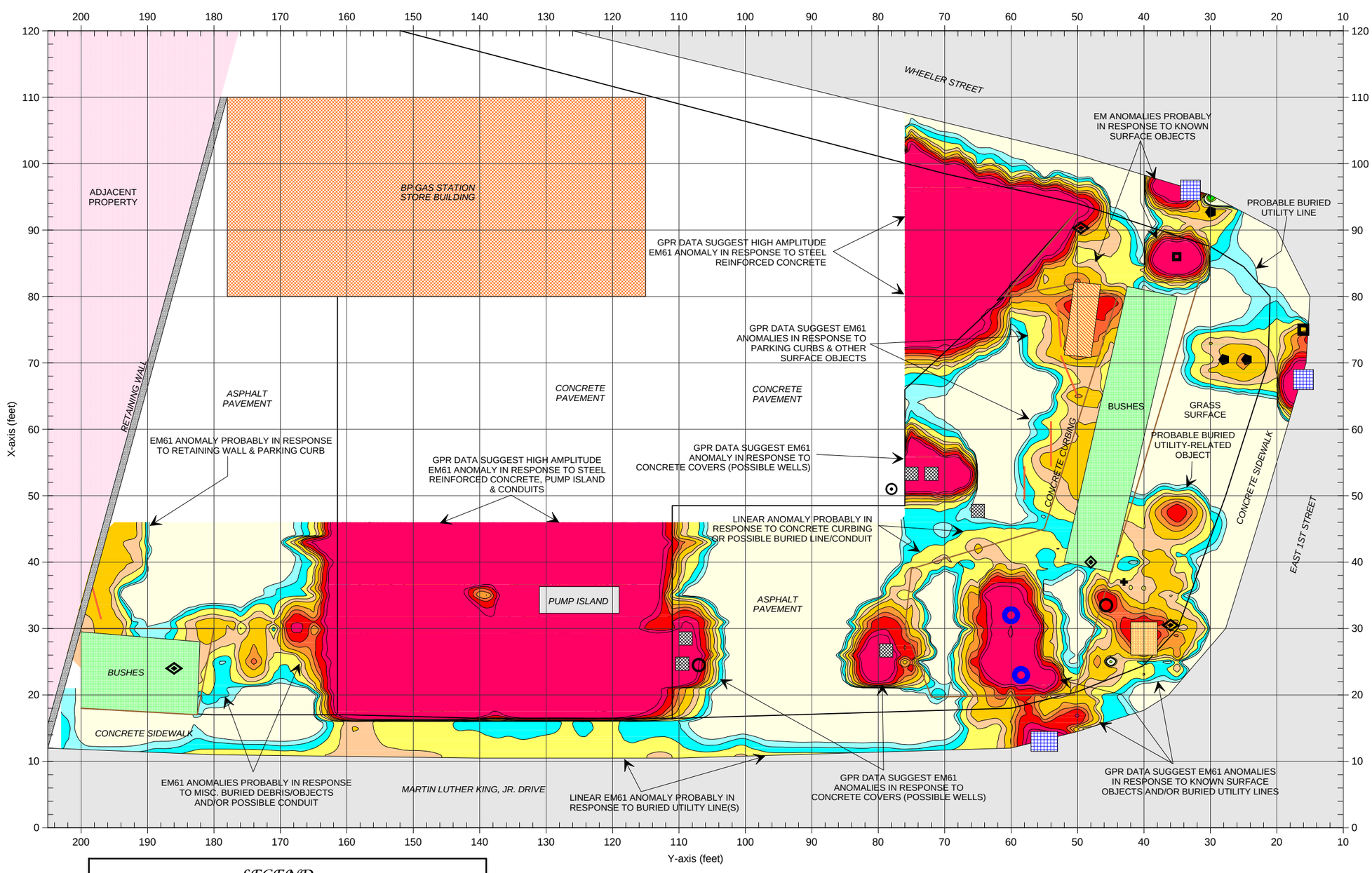
DRWN	CHKD		FIGURE
MJD			
DATE	LAY	DWG	J-NO.
03/25/10			2010-044

CLIENT	SITE	CITY	STATE	TITLE
SOLUTIONS-IES	A & M REALTY COMPANY PROPERTY (PARCEL 2)	WINSTON-SALEM	NORTH CAROLINA	GEOPHYSICAL RESULTS

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

EM61 METAL DETECTION (BOTTOM COIL RESULTS)

FIGURE 7



LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- BUILDING
- 4-INCH DIAMETER PIPES
- TELEPHONES & BOLLARDS
- BUSINESS SIGN POLE
- CONCRETE CURBING
- ELECTRICAL BOX OR AIR PUMP
- VALVE COVER
- GUY WIRE
- RIGHT-OF-WAY MARKER
- ROAD SIGN
- STORM SEWER GRATE
- UTILITY POLE
- UTILITY LINE BOX
- CONCRETE PATCH OR COVER (POSSIBLE ABANDONED WELL)
- CONCRETE PARKING CURB

APPROXIMATE NORTH

EM61 BOTTOM COIL RESPONSE (MILLIVOLTS)

-5000 -400 -200 -100 -80 -55 -60 -75 -100 -150 -200 -300 -400 -500 -750 -1000

The contour plot shows the bottom coil (most sensitive) response of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The EM metal detection data were collected on March 10, 2010 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on March 15, 2010 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

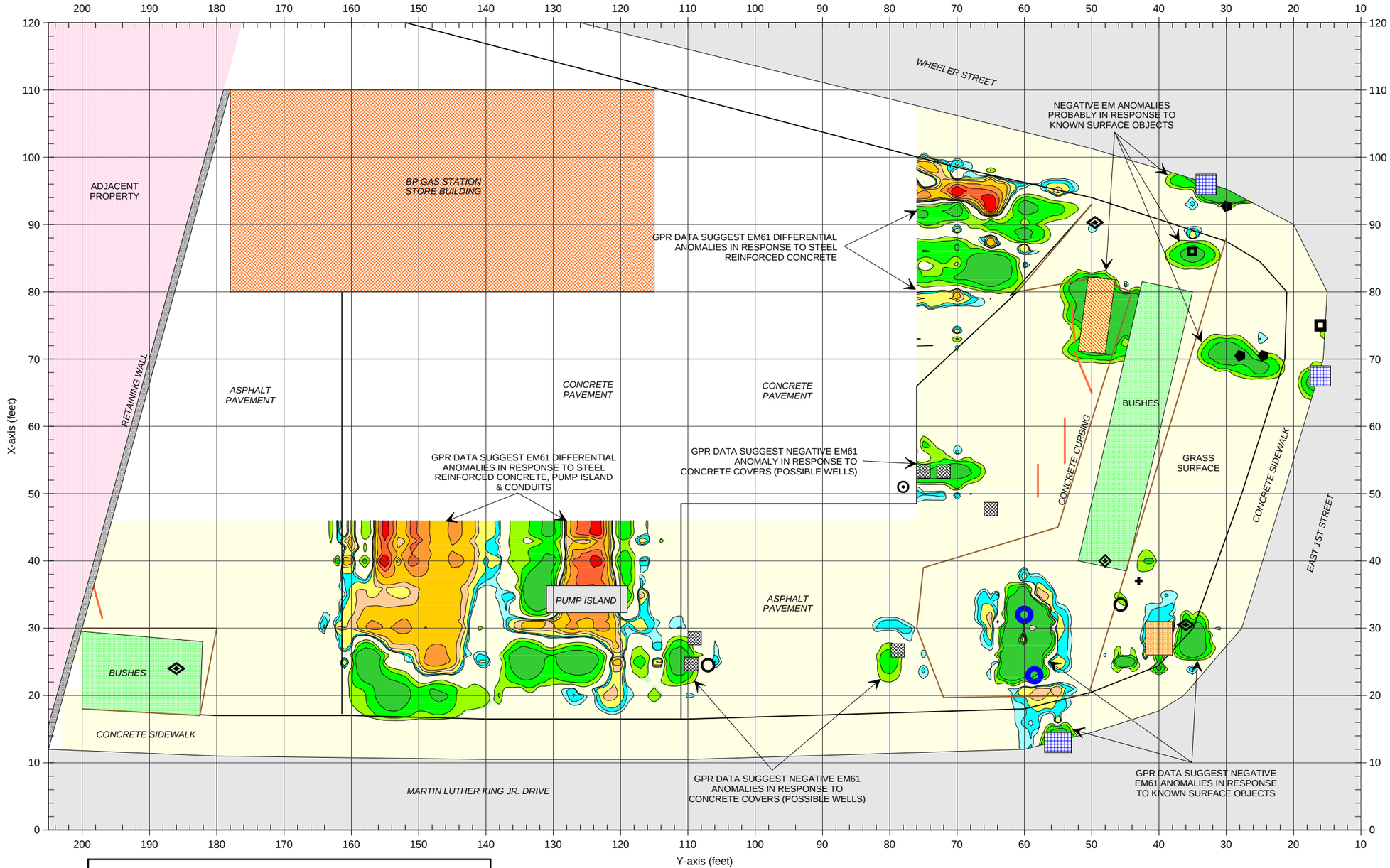
Excluding the active (known) USTs, the geophysical investigation suggests that the surveyed portions of Parcel 29 does not contain unknown metallic USTs.

GRAPHIC SCALE IN FEET

DRWN	CHKD		FIGURE
MJD			
DATE	LAY	DWG	J.-NO.
03/25/10			2010-044

CLIENT	SITE	CITY	STATE	TITLE
SOLUTIONS-IES	M. M. FOWLER PROPERTY - PARCEL 29	WINSTON-SALEM	NORTH CAROLINA	GEOPHYSICAL RESULTS

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.



LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- BUILDING
- 4-INCH DIAMETER PIPES
- TELEPHONES & BOLLARDS
- BUSINESS SIGN POLE
- CONCRETE CURBING
- ELECTRICAL BOX OR AIR PUMP
- VALVE COVER
- GUY WIRE
- RIGHT-OF-WAY MARKER
- ROAD SIGN
- STORM SEWER GRATE
- UTILITY POLE
- UTILITY LINE BOX
- CONCRETE PATCH OR COVER (POSSIBLE ABANDONED WELL)
- CONCRETE PARKING CURB

APPROXIMATE NORTH

EM61 DIFFERENTIAL RESPONSE (MILLIVOLTS)

-5000 -400 -200 -100 -90 -85 -80 -75 -100 -150 -200 -300 -400 -500 -750 -1000

Note: The contour plot shows the differential response between the bottom and top coils of the EM61 instrument in millivolts (mV). The differential response focuses on larger, buriedmetallic objects such as drums and USTs and ignores smaller miscellaneous, buried, metal debris. The EM61 data were collected on March 10, 2010 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on March 15, 2010 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

Excluding the active (known) USTs, the geophysical investigation suggests that the surveyed portions of Parcel 29 does not contain unknown metallic USTs.

EM61 METAL DETECTION (DIFFERENTIAL RESULTS)

FIGURE 8

GRAPHIC SCALE IN FEET

DRWN	CHKD		FIGURE
MJD			
DATE	LAY	DWG	J.NO.
03/25/10			2010-044

CLIENT: SOLUTIONS-IES
SITE: M. M. FOWLER PROPERTY - PARCEL 29
CITY: WINSTON-SALEM
STATE: NORTH CAROLINA
TITLE: GEOPHYSICAL RESULTS

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.

APPENDIX C

GPS COORDINATES

BORING LOCATION GPS COORDINATES
NCDOT Parcel #29
105 North Martin Luther King Jr. Drive
Winston-Salem, North Carolina
WBS Element:34871.2.1; State Project: U-2826B

Boring Identification	Latitude	Longitude
P29-1	36.09691009	-80.22860343
P29-2	36.09688092	-80.22859764
P29-3	36.09684664	-80.2285896
P29-4	36.09675176	-80.2285435
P29-5	36.09668847	-80.22851089
P29-6	36.09667523	-80.22846546
P29-7	36.09666576	-80.22847015
P29-8	36.09661111	-80.22844794
P29-9	36.09656132	-80.22834132
P29-10	36.09650415	-80.22830419
P29-11	36.09660524	-80.22822984
P29-12	36.09673776	-80.22860527

APPENDIX D

BORING LOGS

Log of Soil Boring: P29-1

Project: 3944.10A3.NDOT
Client: NCDOT
WBS # 34871.2.1
State Project # U-2826B
Drilling Method: Hand Auger
Sampler Type: Hand Auger
Logged By: BE

Boring Number: P29-1
Boring Date: 3/31/2010
Total Depth of Boring: 8' bgs
Initial Water Level: N/A
Stabilized Water Level: N/A
Cave In Depth: N/A
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
		Ground Surface						
0								
1	CL	Brown, Moist, Sandy Clay			NS	0.0		
2				100%				
3	CL	Brown-Red, Moist, Sandy Clay			NS	0.0		
4								
5	CL	Red-Orange, Moist, Silty Clay			NS	0.0		
6				100%				
7	CL	Red-Orange, Moist, Silty Clay, Mica Rich			NS	0.0	P29-1-6-8	
8								
9		EOB 729 TD 8' BGS						
10		Boring backfilled with soil cuttings and bentonite. NR - No Recovery						
11								
12								
13								
14								
15								
16								

Solutions-IES, Inc.
1101 Nowell Road
Raleigh, NC 27607
919.873.1060

Solutions-IES
Industrial & Environmental Services

Log of Soil Boring: P29-2

Project: 3944.10A3.NDOT
Client: NCDOT
WBS # 34871.2.1
State Project # U-2826B
Drilling Method: Geoprobe®
Sampler Type: Macro-Core®
Logged By: BE

Boring Number: P29-2
Boring Date: 3/31/2010
Total Depth of Boring: 8' bgs
Initial Water Level: N/A
Stabilized Water Level: N/A
Cave In Depth: N/A
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
0		Ground Surface						
		Black, Sandy Gravel, Asphalt						
1	CL	Red-Brown, Moist, Sandy Clay, Some Silt, Mica Rich		100%	NS	0.0		
2								
3					NS	0.0		
4	CL	Red-Brown, Moist, Sandy Clay, Some Silt, Mica Rich						
5					NS	0.4		
6				100%				
7	SM	Tan, Dry, Silty Sand			NS	0.0	P29-2-6-8	
8								

EOB 805
TD 8' BGS

Boring backfilled with soil cuttings and bentonite.

NR - No Recovery

Solutions-IES, Inc.
1101 Nowell Road
Raleigh, NC 27607
919.873.1060

Solutions-IES
Industrial & Environmental Services

Log of Soil Boring: P29-3

Project: 3944.10A3.NDOT
Client: NCDOT
WBS # 34871.2.1
State Project # U-2826B
Drilling Method: Geoprobe®
Sampler Type: Macro-Core®
Logged By: BE

Boring Number: P29-3
Boring Date: 3/31/2010
Total Depth of Boring: 8' bgs
Initial Water Level: N/A
Stabilized Water Level: N/A
Cave In Depth: N/A
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
0		Ground Surface						
		Concrete						
1	CL	Gray-Red, Moist, Gravelly Clay, Some Sand		80%	NS	0.0		
2	CL	Red, Moist, Sandy Clay						
3					NS	0.0		
4		NR						
	CL	Red, Moist, Sandy Clay		100%				
5	CL	Red, Moist, Clay, Little Silt			NS	0.0		
6								
7	CL	Brown, Mica Rich, Clay, Some Sand			NS	0.0	P29-3-6-8	
	CL	Red, Moist, Sandy Clay						
8								
9								
10								
11								
12								
13								
14								
15								
16								

EOB 840
TD 8' BGS

Boring backfilled with soil cuttings and bentonite.

NR - No Recovery

Solutions-IES, Inc.
1101 Nowell Road
Raleigh, NC 27607
919.873.1060

Solutions-IES
Industrial & Environmental Services

Log of Soil Boring: P29-4

Project: 3944.10A3.NDOT
Client: NCDOT
WBS # 34871.2.1
State Project # U-2826B
Drilling Method: Geoprobe®
Sampler Type: Macro-Core®
Logged By: BE

Boring Number: P29-4
Boring Date: 3/31/2010
Total Depth of Boring: 8' bgs
Initial Water Level: N/A
Stabilized Water Level: N/A
Cave In Depth: N/A
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
0		Ground Surface						
		Concrete						
1	CL	Red-Brown, Gravelly Clay			NS	0.0		
2	CL	Brown, Very Moist, Sandy Clay		100%				
3					NS	0.0		
4	CL	Brown, Very Moist, Sandy Clay						
5	CL	Red, Moist, Silty Clay			NS	0.0		
6	SM	Tan-Brown, Dry, Silty Sand		100%				
7					NS	0.0	P29-4-6-8	
8								

EOB 905
TD 8' BGS

Boring backfilled with soil cuttings and bentonite.

NR - No Recovery

Solutions-IES, Inc.
1101 Nowell Road
Raleigh, NC 27607
919.873.1060

Solutions-IES
Industrial & Environmental Services

Log of Soil Boring: P29-5

Project: 3944.10A3.NDOT
Client: NCDOT
WBS # 34871.2.1
State Project # U-2826B
Drilling Method: Geoprobe®
Sampler Type: Macro-Core®
Logged By: BE

Boring Number: P29-5
Boring Date: 3/31/2010
Total Depth of Boring: 8' bgs
Initial Water Level: N/A
Stabilized Water Level: N/A
Cave In Depth: N/A
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
0		Ground Surface						
		Asphalt		60%	NS	760.0	High FID screen due to asphalt in sample	
1		Brick pieces, Gravel Fill						
2	CL	Red, Moist, Silty Clay						
3		NR			NS	77.6	P29-5-2-4	
4	CL	Red, Moist, Silty Clay		100%				
		Asphalt			NS	12.6		
5								
6	CL	Red, Semi-moist, Silty Clay						
7					NS	4.8		
8								
9		EOB 920 TD 8' BGS						
10		Boring backfilled with soil cuttings and bentonite. NR - No Recovery						
11								
12								
13								
14								
15								
16								

Solutions-IES, Inc.
1101 Nowell Road
Raleigh, NC 27607
919.873.1060

Solutions-IES
Industrial & Environmental Services

Log of Soil Boring: P29-6

Project: 3944.10A3.NDOT
Client: NCDOT
WBS # 34871.2.1
State Project # U-2826B
Drilling Method: Geoprobe®
Sampler Type: Macro-Core®
Logged By: BE

Boring Number: P29-6
Boring Date: 3/31/2010
Total Depth of Boring: 8' bgs
Initial Water Level: N/A
Stabilized Water Level: N/A
Cave In Depth: N/A
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
0		Ground Surface						
		Gray, Sandy Gravel, Asphalt						
1	CL	Red-Brown, Moist, Sandy Clay		55%	NS	0.3		
2								
3		NR			NS	0.4		
4	CL	Redish-Brown, Clay, Some Sand						
5					NS	0.0		
6	CL	Red-Orange, Moist, Silty Clay, Some Sand and Gravel (<5%)		100%				
7					NS	0.6	P29-6-6-8	
8								
9		EOB 1138 TD 8' BGS						
10		Boring backfilled with soil cuttings and bentonite. NR - No Recovery						
11								
12								
13								
14								
15								
16								

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Log of Soil Boring: P29-7

Project: 3944.10A3.NDOT
Client: NCDOT
WBS # 34871.2.1
State Project # U-2826B
Drilling Method: Geoprobe®
Sampler Type: Macro-Core®
Logged By: BE

Boring Number: P29-7
Boring Date: 3/31/2010
Total Depth of Boring: 8' bgs
Initial Water Level: N/A
Stabilized Water Level: N/A
Cave In Depth: N/A
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
0		Ground Surface						
1		Concrete, Asphalt Gravel, Brick pieces, Sand Fill			NS	3.8	Not sampled due to asphalt	
2	CL	Red, Moist, Sandy Clay		50%				
3		NR			NS	0.3		
4	CL	Brown, Moist, Sandy Clay						
		Gravel Layer						
5	CL	Redish-Brown, Moist, Silty Clay		65%	NS	0.5		
6								
7		NR			NS	0.9	P29-7-6-8	
8								
9		EOB 1208 TD 8' BGS						
10		Boring backfilled with soil cuttings and bentonite. NR - No Recovery						
11								
12								
13								
14								
15								
16								

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Log of Soil Boring: P29-8

Project: 3944.10A3.NDOT
Client: NCDOT
WBS # 34871.2.1
State Project # U-2826B
Drilling Method: Geoprobe®
Sampler Type: Macro-Core®
Logged By: BE

Boring Number: P29-8
Boring Date: 3/31/2010
Total Depth of Boring: 8' bgs
Initial Water Level: N/A
Stabilized Water Level: N/A
Cave In Depth: N/A
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
0		Ground Surface						
		Black Mulch, Fill Material						
1	CL	Brown, Mosit, Sandy Clay			NS	2.2	P29-8-0-2 Organics present in sample	
		Asphalt Layer						
2	CL	Red-Brown, Silty Clay, Some Sand		60%				
3		NR			NS	0.1		
4	CL	Red-Brown, Silty Clay, Some Organics			NS	0.4		
5								
6	CL	Brown-Red, Moist, Silty Clay		90%				
7					NS	0.4		
8		NR						

EOB 1100
TD 8' BGS

Boring backfilled with soil cuttings and bentonite.

NR - No Recovery

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Log of Soil Boring: P29-9

Project: 3944.10A3.NDOT
Client: NCDOT
WBS # 34871.2.1
State Project # U-2826B
Drilling Method: Geoprobe®
Sampler Type: Macro-Core®
Logged By: BE

Boring Number: P29-9
Boring Date: 3/31/2010
Total Depth of Boring: 8' bgs
Initial Water Level: N/A
Stabilized Water Level: N/A
Cave In Depth: N/A
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
0		Ground Surface						
		Asphalt, Sand Fill						
1	CL	Red-Brown, Moist, Silty Clay, Some Sand		93%	NS	5.5	P29-9-0-2	
2								
3					NS	0.2		
		NR						
4	CL	Red-Brown, Moist, Silty Clay, Some Sand		100%	NS	0.0		
5								
6								
7					NS	0.0		
	CL	Tan-Brown, Dry, Sandy, Mica Rich, Clay						
8								
9		EOB 1330 TD 8' BGS						
10		Boring backfilled with soil cuttings and bentonite. NR - No Recovery						
11								
12								
13								
14								
15								
16								

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Log of Soil Boring: P29-10

Project: 3944.10A3.NDOT
Client: NCDOT
WBS # 34871.2.1
State Project # U-2826B
Drilling Method: Geoprobe®
Sampler Type: Macro-Core®
Logged By: BE

Boring Number: P29-10
Boring Date: 3/31/2010
Total Depth of Boring: 8' bgs
Initial Water Level: N/A
Stabilized Water Level: N/A
Cave In Depth: N/A
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
0		Ground Surface						
	OH	Black, Organic Rich, Silt and Clay						
1	CL	Red, Moist, Sandy Clay, Mica Rich		100%	NS	0.0		
2								
3					NS	1.3		
4	CL	Red, Moist, Sandy Clay		87%	NS	1.3	P29-10-4-6	
5								
6								
7					NS	0.0		
8		NR						

EOB 1305
TD 8' BGS

Boring backfilled with soil cuttings and bentonite.

NR - No Recovery

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Log of Soil Boring: P29-11

Project: 3944.10A3.NDOT
Client: NCDOT
WBS # 34871.2.1
State Project # U-2826B
Drilling Method: Geoprobe®
Sampler Type: Macro-Core®
Logged By: BE

Boring Number: P29-11
Boring Date: 3/31/2010
Total Depth of Boring: 8' bgs
Initial Water Level: N/A
Stabilized Water Level: N/A
Cave In Depth: N/A
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
0		Ground Surface						
1	CL	Red, Dry, Sandy Clay			NS	0.0		
2	CL	Red, Moist, Silty Clay, Some Sand		100%				
3					NS	0.0		
4	CL	Red, Moist, Silty Clay						
5		Concrete Fill			NS	0.0		
6	CL	Red, Moist, Silty Clay, Mica Rich, Some Sand		87%				
7					NS	0.0	P29-11-6-8	
8		NR						

EOB 1310
TD 8' BGS

Boring backfilled with soil cuttings and bentonite.

NR - No Recovery

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Log of Soil Boring: P29-12

Project: 3944.10A3.NDOT
Client: NCDOT
WBS # 34871.2.1
State Project # U-2826B
Drilling Method: Geoprobe®
Sampler Type: Macro-Core®
Logged By: BE

Boring Number: P29-12
Boring Date: 3/31/2010
Total Depth of Boring: 8' bgs
Initial Water Level: N/A
Stabilized Water Level: N/A
Cave In Depth: N/A
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
0		Ground Surface						
		Gravel Asphalt						
1	CL	Redish-Brown, Moist, Gravelly Clay, Some Sand		60%	NS	5.6		
2							P29-12-2-4	
3		NR			NS	3.0		
4	CL	Brown, Gravelly Clay						
5					NS	0.8		
6	CL	Red, Moist, Silty Clay		100%				
7					NS	0.0		
8								
9		EOB 1250 TD 8' BGS						
10		Boring backfilled with soil cuttings and bentonite. NR - No Recovery						
11								
12								
13								
14								
15								
16								

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APPENDIX E

LABORATORY ANALYTICAL REPORT

PRISM
LABORATORIES, INC.

Case Narrative

Date:	04/13/10	**Client Project ID:**	NCDOT Forsyth Co. PSA-Parcel 29
Company:	N. C. Department of Transportation	**Prism COC Group No:**	G0410029
Contact:	Jodi Overmyer	**Collection Date(s):**	03/31/10
Address:	c/o Solution - IES	**Lab Submittal Date(s):**	04/01/10
	1101 Nowell Road		
	Raleigh, NC 27607	**Client Project Name Or No:**	U-2826-B

This data package contains the analytical results for the project identified above and includes a Case Narrative, Laboratory Report and Quality Control Data totaling 15 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

No Anomalies Reported

Volatile Analysis

Analysis Note for Q49249 MSD Gasoline Range Organics (GRO): MSD recovery outside the control limits.

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:	Robbi A. Jones	**Project Manager:**	Angela D. Overcash
Signature:	Robbi A. Jones	**Signature:**	
Review Date:	04/13/10	**Approval Date:**	04/13/10

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.

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Full Service Analytical & Environmental Solutions

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

Laboratory Report

04/13/10

N. C. Department of Transportation
Attn Jodi Overmyer
c/o Solution - IES
1101 Nowell Road
Raleigh, NC 27607

Project Name: U-2826-B
Project ID: NCDOT Forsyth Co. PSA-Parcel 29
Sample Matrix: Soil

Client Sample ID P29-1-6-8
Prism Sample ID 275473
COC Group: G0410029
Time Collected: 03/31/10 7:55
Time Submitted: 04/01/10 13:50

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	**76.0**	%			1	SM2540 G	04/05/10 13:30	jbrayton	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	**BRL**	mg/kg	9.2	1.5	1	8015B	04/07/10 19:10	jvogel	Q49285
Sample Preparation:			24.98 g	/	1 mL	3545	04/06/10 15:00	athao	P27198

Surrogate	% Recovery	Control Limits
o-Terphenyl	64	49 - 124

Sample Weight Determination									
Weight 1	**5.89**	g			1	GRO	04/06/10 0:00	lbrown	
Weight 2	**5.78**	g			1	GRO	04/06/10 0:00	lbrown	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	**BRL**	mg/kg	6.6	4.1	50	8015B	04/07/10 1:47	heasler	Q49249

Surrogate	% Recovery	Control Limits
aaa-TFT	106	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

04/13/10

N. C. Department of Transportation
Attn Jodi Overmyer
c/o Solution - IES
1101 Nowell Road
Raleigh, NC 27607

Project Name: U-2826-B
Project ID: NCDOT Forsyth Co. PSA-Parcel 29
Sample Matrix: Soil

Client Sample ID P29-2-6-8
Prism Sample ID 275474
COC Group: G0410029
Time Collected: 03/31/10 8:30
Time Submitted: 04/01/10 13:50

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	**80.5**	%			1	SM2540 G	04/05/10 13:30	jbrayton	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	**BRL**	mg/kg	8.7	1.4	1	8015B	04/07/10 19:45	jvogel	Q49285
Sample Preparation:			25.12 g	/	1 mL	3545	04/06/10 15:00	athao	P27198

Surrogate	% Recovery	Control Limits
o-Terphenyl	58	49 - 124

Sample Weight Determination									
Weight 1	**5.41**	g			1	GRO	04/06/10 0:00	lbrown	
Weight 2	**5.44**	g			1	GRO	04/06/10 0:00	lbrown	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	**BRL**	mg/kg	6.2	3.9	50	8015B	04/07/10 14:38	heasler	Q49249

Surrogate	% Recovery	Control Limits
aaa-TFT	81	55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

J- Estimated value between the Reporting Limit and the MDL

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Laboratory Report

04/13/10

N. C. Department of Transportation
Attn Jodi Overmyer
c/o Solution - IES
1101 Nowell Road
Raleigh, NC 27607

Project Name: U-2826-B
Project ID: NCDOT Forsyth Co. PSA-Parcel 29
Sample Matrix: Soil

Client Sample ID P29-3-6-8
Prism Sample ID 275475
COC Group: G0410029
Time Collected: 03/31/10 9:00
Time Submitted: 04/01/10 13:50

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	**84.8**	%			1	SM2540 G	04/05/10 13:30	jbrayton	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	**BRL**	mg/kg	8.2	1.3	1	8015B	04/07/10 20:21	jvogel	Q49285
Sample Preparation:			25.13 g	/	1 mL	3545	04/06/10 15:00	athao	P27198

Surrogate	% Recovery	Control Limits
o-Terphenyl	56	49 - 124

Sample Weight Determination									
Weight 1	**4.97**	g			1	GRO	04/06/10 0:00	lbrown	
Weight 2	**5.70**	g			1	GRO	04/06/10 0:00	lbrown	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	**BRL**	mg/kg	5.9	3.7	50	8015B	04/07/10 2:49	heasler	Q49249

Surrogate	% Recovery	Control Limits
aaa-TFT	113	55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

J- Estimated value between the Reporting Limit and the MDL

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Laboratory Report

04/13/10

N. C. Department of Transportation
Attn Jodi Overmyer
c/o Solution - IES
1101 Nowell Road
Raleigh, NC 27607

Project Name: U-2826-B
Project ID: NCDOT Forsyth Co. PSA-Parcel 29
Sample Matrix: Soil

Client Sample ID P29-4-6-8
Prism Sample ID 275476
COC Group: G0410029
Time Collected: 03/31/10 9:50
Time Submitted: 04/01/10 13:50

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	**89.1**	%			1	SM2540 G	04/05/10 13:30	jbrayton	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	**BRL**	mg/kg	7.9	1.3	1	8015B	04/07/10 20:56	jvogel	Q49285
Sample Preparation:			24.97 g	/	1 mL	3545	04/06/10 15:00	athao	P27198

Surrogate	% Recovery	Control Limits
o-Terphenyl	60	49 - 124

Sample Weight Determination									
Weight 1	**5.15**	g			1	GRO	04/06/10 0:00	lbrown	
Weight 2	**5.28**	g			1	GRO	04/06/10 0:00	lbrown	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	**BRL**	mg/kg	5.6	3.5	50	8015B	04/07/10 3:21	heasler	Q49249

Surrogate	% Recovery	Control Limits
aaa-TFT	113	55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

J- Estimated value between the Reporting Limit and the MDL

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Raleigh, NC 27607

Project Name: U-2826-B
Project ID: NCDOT Forsyth Co. PSA-Parcel 29
Sample Matrix: Soil

Client Sample ID P29-5-2-4
Prism Sample ID 275477
COC Group: G0410029
Time Collected: 03/31/10 10:00
Time Submitted: 04/01/10 13:50

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	**80.2**	%			1	SM2540 G	04/05/10 13:30	jbrayton	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	**BRL**	mg/kg	8.7	1.4	1	8015B	04/07/10 21:31	jvogel	Q49285
Sample Preparation:			24.96 g	/	1 mL	3545	04/06/10 15:00	athao	P27198

Surrogate	% Recovery	Control Limits
o-Terphenyl	59	49 - 124

Sample Weight Determination									
Weight 1	**7.27**	g			1	GRO	04/06/10 0:00	lbrown	
Weight 2	**6.70**	g			1	GRO	04/06/10 0:00	lbrown	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	**BRL**	mg/kg	6.2	3.9	50	8015B	04/07/10 3:52	heasler	Q49249

Surrogate	% Recovery	Control Limits
aaa-TFT	111	55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

J- Estimated value between the Reporting Limit and the MDL

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Raleigh, NC 27607

Project Name: U-2826-B
Project ID: NCDOT Forsyth Co. PSA-Parcel 29
Sample Matrix: Soil

Client Sample ID P29-8-0-2
Prism Sample ID 275478
COC Group: G0410029
Time Collected: 03/31/10 12:35
Time Submitted: 04/01/10 13:50

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	**86.6**	%			1	SM2540 G	04/05/10 13:30	jbrayton	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	**BRL**	mg/kg	8.1	1.3	1	8015B	04/07/10 22:06	jvogel	Q49285
Sample Preparation:				25 g /	1 mL	3545	04/06/10 15:00	athao	P27198

Surrogate	% Recovery	Control Limits
o-Terphenyl	63	49 - 124

Sample Weight Determination									
Weight 1	**7.87**	g			1	GRO	04/06/10 0:00	lbrown	
Weight 2	**7.75**	g			1	GRO	04/06/10 0:00	lbrown	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	**BRL**	mg/kg	5.8	3.6	50	8015B	04/07/10 4:23	heasler	Q49249

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

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Laboratory Report

04/13/10

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c/o Solution - IES
1101 Nowell Road
Raleigh, NC 27607

Project Name: U-2826-B
Project ID: NCDOT Forsyth Co. PSA-Parcel 29
Sample Matrix: Soil

Client Sample ID P29-6-6-8
Prism Sample ID 275479
COC Group: G0410029
Time Collected: 03/31/10 12:30
Time Submitted: 04/01/10 13:50

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	**67.5**	%			1	SM2540 G	04/05/10 13:30	jbrayton	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	**BRL**	mg/kg	10	1.7	1	8015B	04/07/10 22:42	jvogel	Q49285
Sample Preparation:			25.18 g	/	1 mL	3545	04/06/10 15:00	athao	P27198

Surrogate	% Recovery	Control Limits
o-Terphenyl	59	49 - 124

Sample Weight Determination									
Weight 1	**7.07**	g			1	GRO	04/06/10 0:00	lbrown	
Weight 2	**6.22**	g			1	GRO	04/06/10 0:00	lbrown	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	**BRL**	mg/kg	7.4	4.6	50	8015B	04/07/10 4:54	heasler	Q49249

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	134 #	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

449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543

Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

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

Laboratory Report

04/13/10

N. C. Department of Transportation
Attn Jodi Overmyer
c/o Solution - IES
1101 Nowell Road
Raleigh, NC 27607

Project Name: U-2826-B
Project ID: NCDOT Forsyth Co. PSA-Parcel 29
Sample Matrix: Soil

Client Sample ID P29-7-6-8
Prism Sample ID 275480
COC Group: G0410029
Time Collected: 03/31/10 12:40
Time Submitted: 04/01/10 13:50

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	**69.8**	%			1	SM2540 G	04/05/10 13:30	jbrayton	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	**BRL**	mg/kg	10	1.6	1	8015B	04/07/10 23:17	jvogel	Q49285
Sample Preparation:			24.93 g	/	1 mL	3545	04/06/10 15:00	athao	P27198

Surrogate	% Recovery	Control Limits
o-Terphenyl	63	49 - 124

Sample Weight Determination									
Weight 1	**7.01**	g			1	GRO	04/06/10 0:00	lbrown	
Weight 2	**6.85**	g			1	GRO	04/06/10 0:00	lbrown	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	**BRL**	mg/kg	7.2	4.5	50	8015B	04/08/10 13:06	heasler	Q49290

Surrogate	% Recovery	Control Limits
aaa-TFT	74	55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

J- Estimated value between the Reporting Limit and the MDL

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All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

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

Laboratory Report

04/13/10

N. C. Department of Transportation
Attn Jodi Overmyer
c/o Solution - IES
1101 Nowell Road
Raleigh, NC 27607

Project Name: U-2826-B
Project ID: NCDOT Forsyth Co. PSA-Parcel 29
Sample Matrix: Soil

Client Sample ID P29-9-0-2
Prism Sample ID 275481
COC Group: G0410029
Time Collected: 03/31/10 14:10
Time Submitted: 04/01/10 13:50

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	**78.5**	%			1	SM2540 G	04/05/10 13:30	jbrayton	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	**BRL**	mg/kg	8.9	1.4	1	8015B	04/08/10 5:46	jvogel	Q49285
Sample Preparation:			25.05 g	/	1 mL	3545	04/06/10 15:00	athao	P27198

Surrogate	% Recovery	Control Limits
o-Terphenyl	54	49 - 124

Sample Weight Determination									
Weight 1	**6.58**	g			1	GRO	04/06/10 0:00	lbrown	
Weight 2	**7.04**	g			1	GRO	04/06/10 0:00	lbrown	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	**BRL**	mg/kg	6.4	4.0	50	8015B	04/07/10 18:50	heasler	Q49290

Surrogate	% Recovery	Control Limits
aaa-TFT	101	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

449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543

Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

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

Laboratory Report

04/13/10

N. C. Department of Transportation
Attn Jodi Overmyer
c/o Solution - IES
1101 Nowell Road
Raleigh, NC 27607

Project Name: U-2826-B
Project ID: NCDOT Forsyth Co. PSA-Parcel 29
Sample Matrix: Soil

Client Sample ID P29-10-4-6
Prism Sample ID 275482
COC Group: G0410029
Time Collected: 03/31/10 14:15
Time Submitted: 04/01/10 13:50

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	**75.6**	%			1	SM2540 G	04/05/10 13:30	jbrayton	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	**BRL**	mg/kg	9.2	1.5	1	8015B	04/08/10 6:22	jvogel	Q49285
Sample Preparation:			25.06 g	/	1 mL	3545	04/06/10 15:00	athao	P27198

Surrogate	% Recovery	Control Limits
o-Terphenyl	62	49 - 124

Sample Weight Determination									
Weight 1	**6.06**	g			1	GRO	04/06/10 0:00	lbrown	
Weight 2	**5.89**	g			1	GRO	04/06/10 0:00	lbrown	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	**BRL**	mg/kg	6.6	4.1	50	8015B	04/08/10 13:37	heasler	Q49290

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	161 #	55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

J- Estimated value between the Reporting Limit and the MDL

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All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services

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PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

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

Laboratory Report

04/13/10

N. C. Department of Transportation
Attn Jodi Overmyer
c/o Solution - IES
1101 Nowell Road
Raleigh, NC 27607

Project Name: U-2826-B
Project ID: NCDOT Forsyth Co. PSA-Parcel 29
Sample Matrix: Soil

Client Sample ID P29-11
Prism Sample ID 275483
COC Group: G0410029
Time Collected: 03/31/10 14:18
Time Submitted: 04/01/10 13:50

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	**72.3**	%			1	SM2540 G	04/05/10 13:30	jbrayton	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	**BRL**	mg/kg	9.6	1.6	1	8015B	04/07/10 23:52	jvogel	Q49285
Sample Preparation:			25.13 g	/	1 mL	3545	04/06/10 15:00	athao	P27198

Surrogate	% Recovery	Control Limits
o-Terphenyl	64	49 - 124

Sample Weight Determination									
Weight 1	**6.24**	g			1	GRO	04/06/10 0:00	lbrown	
Weight 2	**6.53**	g			1	GRO	04/06/10 0:00	lbrown	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	**BRL**	mg/kg	6.9	4.3	50	8015B	04/07/10 19:53	heasler	Q49290

Surrogate	% Recovery	Control Limits
aaa-TFT	61	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

449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543

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PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

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

Laboratory Report

04/13/10

N. C. Department of Transportation
Attn Jodi Overmyer
c/o Solution - IES
1101 Nowell Road
Raleigh, NC 27607

Project Name: U-2826-B
Project ID: NCDOT Forsyth Co. PSA-Parcel 29
Sample Matrix: Soil

Client Sample ID P29-12
Prism Sample ID 275484
COC Group: G0410029
Time Collected: 03/31/10 14:20
Time Submitted: 04/01/10 13:50

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	**75.7**	%			1	SM2540 G	04/05/10 13:30	jbrayton	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	**BRL**	mg/kg	9.3	1.5	1	8015B	04/08/10 6:58	jvogel	Q49285
Sample Preparation:			24.97 g	/	1 mL	3545	04/06/10 15:00	athao	P27198

Surrogate	% Recovery	Control Limits
o-Terphenyl	55	49 - 124

Sample Weight Determination									
Weight 1	**6.56**	g			1	GRO	04/06/10 0:00	lbrown	
Weight 2	**6.50**	g			1	GRO	04/06/10 0:00	lbrown	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	**BRL**	mg/kg	6.6	4.1	50	8015B	04/07/10 8:24	heasler	Q49290

Surrogate	% Recovery	Control Limits
aaa-TFT	113	55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

J- Estimated value between the Reporting Limit and the MDL

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All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services

449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543

Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

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

Level II QC Report

4/13/10

N. C. Department of Transportation
Attn Jodi Overmyer
c/o Solution - IES
1101 Nowell Road
Raleigh, NC 27607

Project Name: U-2826-B
Project ID: NCDOT Forsyth Co. PSA-Parcel 29

COC Group Number: G0410029
Date/Time Submitted: 4/1/10 13:50

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	Q49249

Laboratory Control Sample

	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
Gasoline Range Organics (GRO)	53.40	50	mg/kg	107	67-116	Q49249

Matrix Spike Duplicate

Sample ID:		Result	Spike Amount	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
275250	Gasoline Range Organics (GRO)	82.25	50	mg/kg	165 #	57-113	4	0 - 23	Q49249

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	Q49285

Laboratory Control Sample

	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
Diesel Range Organics (DRO)	56.8	80	mg/kg	71	55-109	Q49285

Matrix Spike

Sample ID:		Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
275474	Diesel Range Organics (DRO)	56.3	80	mg/kg	70	50-117	Q49285

Matrix Spike Duplicate

Sample ID:		Result	Spike Amount	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
275474	Diesel Range Organics (DRO)	56.7	80	mg/kg	71	50-117	1	0 - 24	Q49285

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

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

Level II QC Report

4/13/10

N. C. Department of Transportation
Attn Jodi Overmyer
c/o Solution - IES
1101 Nowell Road
Raleigh, NC 27607

Project Name: U-2826-B
Project ID: NCDOT Forsyth Co. PSA-Parcel 29

COC Group Number: G0410029
Date/Time Submitted: 4/1/10 13:50

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	Q49290

Laboratory Control Sample	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
Gasoline Range Organics (GRO)	51.10	50	mg/kg	102	67-116	Q49290

Matrix Spike Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
275480 Gasoline Range Organics (GRO)	45.75	50	mg/kg	92	57-113	Q49290

Matrix Spike Duplicate Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
275480 Gasoline Range Organics (GRO)	45.20	50	mg/kg	90	57-113	1	0 - 23	Q49290

#-See Case Narrative

PRISM LABORATORIES, INC.

Full Service Analytical & Environmental Solutions

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

CHAIN OF CUSTODY RECORD

PAGE 1 OF 2 QUOTE # TO ENSURE PROPER BILLING: ______

LAB USE ONLY

	YES	NO	N/A
Samples INTACT upon arrival?	✓		
Received ON WET ICE? Temp 3.1°	✓		
PROPER PRESERVATIVES indicated?	✓		
Received WITHIN HOLDING TIMES?	✓		
CUSTODY SEALS INTACT?			✓
VOLATILES rec'd W/OUT HEADSPACE?			✓
PROPER CONTAINERS used?	✓		

Client Company Name: Solutions IES
Report To/Contact Name: Jody Overmyer
Reporting Address: 1101 Nowell Rd
Raleigh NC 27607
Phone: 919-873-1060 Fax (Yes) (No):
Email (Yes) (No) Email Address jovermyer@solutions-ies.com
EDD Type: X PDF X Excel ___ Other
Site Location Name: Parcel 29
Site Location Physical Address: ______

Project Name: ~~Lits~~ Forsyth CO PSA
Short Hold Analysis: (Yes) (No) UST Project: (Yes) (No)
*Please ATTACH any project specific reporting (QC LEVEL I II III IV) provisions and/or QC Requirements
Invoice To: NCDOT WBS 34871.2.1
Address: State project U-2826 B

Purchase Order No./Billing Reference WBS 34871.2.1
Requested Due Date ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days ☐ 5 Days
"Working Days" ☐ 6-9 Days ☒ Standard 10 days
Samples received after 15:00 will be processed next business day.
Turnaround time is based on business days, excluding weekends and holidays.
(SEE REVERSE FOR TERMS & CONDITIONS REGARDING SERVICES RENDERED BY PRISM LABORATORIES, INC. TO CLIENT)

TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL
Certification: NELAC ___ USACE ___ FL ___ NC X
SC ___ OTHER ___ N/A ___
Water Chlorinated: YES ___ NO ___
Sample Iced Upon Collection: YES X NO ___

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)	SAMPLE CONTAINER *TYPE SEE BELOW	NO.	SIZE	PRESERVATIVES	ANALYSES REQUESTED: GRO 5030	DRO 3545					REMARKS	PRISM LAB ID NO.
P29-1-6-8	3/31/10	755	Soil	CL	3		None/methanol	X	X						275473
P29-2-6-8	↓	830	↓	↓	↓		↓	↓	↓						275474
P29-3-6-8		900													275475
P29-4-6-8		950													275476
P29-5-2-4		1000													275477
P29-8-0-2		1235													275478
P29-6-6-8		1230													275479
P29-7-6-8		1240													275480
P29-9-0-2		1410													275481
P29-10-4-6	↓	1415	↓	↓	↓		↓	↓	↓						275482

Sampler's Signature [signature] Sampled By (Print Name) Brad Elkins Affiliation Solutions-IES

PRESS DOWN FIRMLY - 3 COPIES

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

Relinquished By: (Signature)	Received By: (Signature)	Date	Military/Hours
[signature]	[signature]	4-1-10	1110
Relinquished By: (Signature) [signature] 4-1-10 1350	Received By: (Signature)	Date	
Relinquished By: (Signature)	Received For Prism Laboratories By: [signature]	Date 4/1/10	1350

Method of Shipment: NOTE: ALL SAMPLE COOLERS SHOULD BE TAPED SHUT WITH CUSTODY SEALS FOR TRANSPORTATION TO THE LABORATORY. SAMPLES ARE NOT ACCEPTED AND VERIFIED AGAINST COC UNTIL RECEIVED AT THE LABORATORY.

☐ Fed Ex ☐ UPS ☐ Hand-delivered ☒ Prism Field Service ☐ Other ______

Log-in Group No. 4 G0310029

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

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

SEE REVERSE FOR TERMS & CONDITIONS

ORIGINAL

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

CHAIN OF CUSTODY RECORD

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

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

PAGE 2 OF 2 QUOTE # TO ENSURE PROPER BILLING: _____

Project Name: Forest Cy BSA

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

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

Invoice To: NCDOT WBS 34871.2.1

Address: State project U-2826-B

Client Company Name: Solutions IES

Report To/Contact Name: Jody Overmyer

Reporting Address: 1101 Nowell Rd
Raleigh NC 27607

Phone: 919 873-0660 Fax (Yes) (No): _____

Email (Yes) (No) Email Address jovermyer@solutions-ies.com

EDD Type: PDF X Excel X Other _____

Site Location Name: Parcel 29

Site Location Physical Address: Winston Salem NC

Purchase Order No./Billing Reference WBS 34871.2.1

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

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

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

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

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

LAB USE ONLY

	YES	NO	N/A
Samples INTACT upon arrival?	✓		
Received ON WET ICE? Temp 3.1°	✓		
PROPER PRESERVATIVES Indicated?	✓		
Received WITHIN HOLDING TIMES?	✓		
CUSTODY SEALS INTACT?			✓
VOLATILES rec'd W/OUT HEADSPACE?	✓		✓
PROPER CONTAINERS used?	✓		

TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL

Certification: NELAC ____ USACE ____ FL ____ NC X
SC ____ OTHER ____ N/A ____

Water Chlorinated: YES ____ NO ____

Sample Iced Upon Collection: YES X NO ____

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)	SAMPLE CONTAINER *TYPE SEE BELOW	SAMPLE CONTAINER NO.	SAMPLE CONTAINER SIZE	PRESERVATIVES	ANALYSES REQUESTED GRO 5030	ANALYSES REQUESTED DRO 3545	REMARKS	PRISM LAB ID NO.
P29-11	3/31/10	1418	soil	CL	3		none/methanol	X	X		275483
P29-12	↓	1420	↓	↓	↓			X	X		275484

Sampler's Signature Brad Elkins Sampled By (Print Name) Brad Elkins Affiliation Solutions-IES

PRESS DOWN FIRMLY - 3 COPIES

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

		Date	Military/Hours
Relinquished By: (Signature) Brad Elkins	Received By: (Signature) David Moore	4-1-10	1110
Relinquished By: (Signature) David Moore 4/1/10 1350	Received By: (Signature)	Date	
Relinquished By: (Signature)	Received For Prism Laboratories By:	Date 4/1/10	1350

Method of Shipment: NOTE: ALL SAMPLE COOLERS SHOULD BE TAPED SHUT WITH CUSTODY SEALS FOR TRANSPORTATION TO THE LABORATORY. SAMPLES ARE NOT ACCEPTED AND VERIFIED AGAINST COC UNTIL RECEIVED AT THE LABORATORY.

☐ Fed Ex ☐ UPS ☐ Hand-delivered ☐ Prism Field Service ☐ Other _____

COC Group No. G0410029

Additional Comments:

PRISM USE ONLY

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

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

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

SEE REVERSE FOR TERMS & CONDITIONS

ORIGINAL