

Preliminary Site Assessment

**1017 Chestnut Street
Parcel #74, Wachovia Bank
Vacant Residential
Greenville, Pitt County, North Carolina**

State Project No.: U-3315

WBS Element: 35781.1.2

October 10, 2012

Terracon Project No. 70127335



Prepared for:

North Carolina Department of Transportation (NCDOT)
Geotechnical Engineering Unit

Prepared by:

Terracon Consultants, Inc.
Raleigh, North Carolina

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Exhibit 2 – Site Diagram

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Appendix A: Geophysical Survey Report



October 10, 2012

North Carolina Department of Transportation
Attention: Mr. Gordon Box, LG
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, NC 27699

Re: Preliminary Site Assessment (PSA)
Parcel 74, Wachovia Bank
Vacant Residential
1017 Chestnut Street
Greenville, Pit County, North Carolina
Terracon Project No. 70127335
WBS Element: 35781.1.2

Dear Mr. Box:

Terracon Consultants, Inc. (Terracon) is pleased to submit a Preliminary Site Assessment (PSA) report for the above referenced site. This assessment was performed in accordance with our Proposal for Preliminary Site Assessment (Terracon Proposal No.P70127314) dated August 7, 2012. This report includes the findings of the investigation, and provides our conclusions and recommendations.

Terracon appreciates the opportunity to provide these services to NCDOT. If you have any questions concerning this report or need additional information, please contact us at 919-873-2211.

Sincerely,

Terracon Consultants, Inc.

Stephen Kerlin
Environmental Professional

Lori C. Hoffman, PE
Environmental Department Manager



Terracon Consultants, Inc. 5240 Green's Dairy Road Raleigh, NC 27616
P [919] 873 2211 F [919] 873 9555 terracon.com

Geotechnical



Environmental



Construction Materials



Facilities

PRELIMINARY SITE ASSESSMENT

PARCEL 74, WACHOVIA BANK 1017 CHESTNUT STREET GREENVILLE, PITT COUNTY, NORTH CAROLINA

1.0 INTRODUCTION

1.1 Site Description

Site Name	Parcel 74, Wachovia Bank (Vacant Former Residential)
Site Location/Address	1017 Chestnut Street, Greenville, North Carolina
General Site Description	The site includes a two-story vacant residence.

1.2 Site History

According to information provided by NCDOT and collected by Terracon, there are no known facility identification numbers or groundwater incidents associated with the site. The parcel is located within the area of a planned park.

Terracon reviewed Sanborn maps to determine the site's history. From 1916 to 1929, the site is depicted as a residence. From 1946 to 1958, the site is depicted as apartments.

1.3 Scope of Work

At your request, Terracon is preparing the following Preliminary Site Assessment (PSA) scope of work (SOW) in accordance with the NCDOT's Request for Technical and Cost Proposal dated June 19, 2012 and Terracon's Proposal for Preliminary Site Assessment (Proposal No.P70127314) dated August 7, 2012. The scope of work included a geophysical investigation and collection of soil samples if the findings of the geophysical investigation revealed a potential former UST basin.

1.4 Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. Terracon makes no warranties, either express or implied, regarding the findings, conclusions or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies or other third parties supplying information used in the preparation of the report. These PSA services were performed in accordance with the scope of work agreed with you, our client, as reflected in our proposal and were not restricted by ASTM E1903-97.

1.5 Additional Scope Limitations

Findings, conclusions and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this PSA. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations or exploratory services; the data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

1.6 Reliance

This report has been prepared for the exclusive use of North Carolina Department of Transportation (NCDOT), and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of the client and Terracon.

2.0 FIELD ACTIVITIES

The following PSA activities are presented in the order that they were conducted in the field on August 17, and 24 and September 6, 2012. Exhibit 1 presents the general boundaries and topography of the site on portions of the USGS topographic quadrangle map of Greenville SW, North Carolina dated 1998. Exhibit 2 is a site layout plan that indicates the approximate locations of the site features.

2.1 Geophysical Survey

On August 17 and 24, 2012, Pyramid Environmental conducted a geophysical investigation at the site in an effort to determine if unknown, metallic underground storage tanks (USTs) were present beneath the proposed right-of-way (ROW) area. The geophysical investigation included an electromagnetic (EM) induction survey using a Geonics EM-61 MK1 metal detection instrument followed by a ground penetrating radar (GPR) survey using a GSSI SIR-2000 unit.

The geophysical investigation did not reveal metallic USTs in the area of investigation identified for this site.

A copy of the geophysical report that includes a summary of the field findings is included in

Appendix A.

2.2 Soil and Groundwater Sampling

Based on the findings of the geophysical survey, no soil sampling and/or groundwater sampling was performed since potential former UST basins were not found.

3.0 CONCLUSIONS

The findings of this investigation are as follows:

- The geophysical investigation did not reveal any probable metallic USTs in the area of investigation identified for this site.
- At the request of the NCDOT, no further evaluation of the site was completed based on the findings of the geophysical study.

FIGURES

Exhibit 1 – Vicinity Map (Topographic Map)

Exhibit 2 – Site Diagram

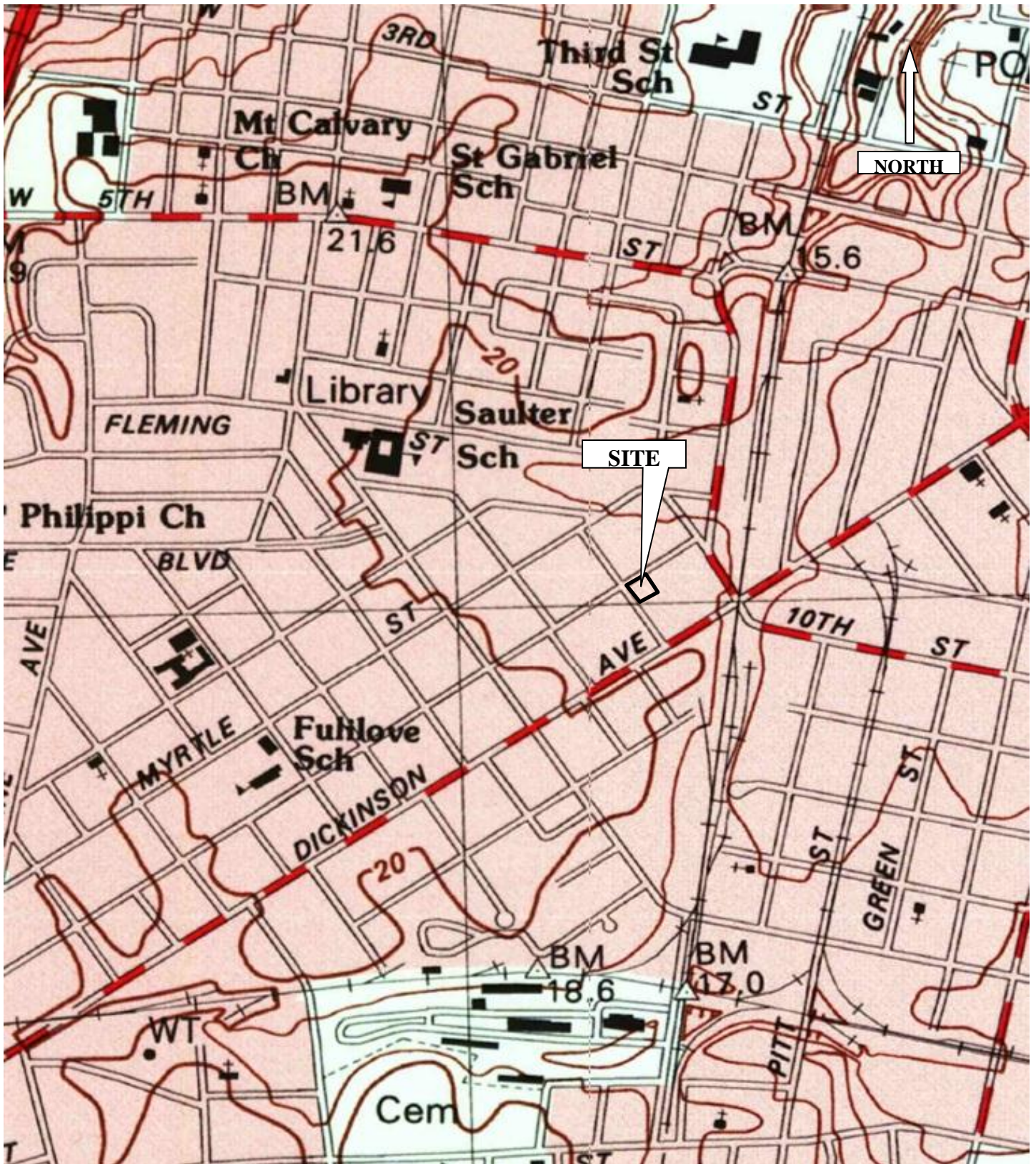


Diagram is for general location only

Site Vicinity Map
Parcel # 74
1017 Chestnut Street
Greenville, Pitt County, North Carolina











Reference: Greenville SW, NC USGS Quadrangle

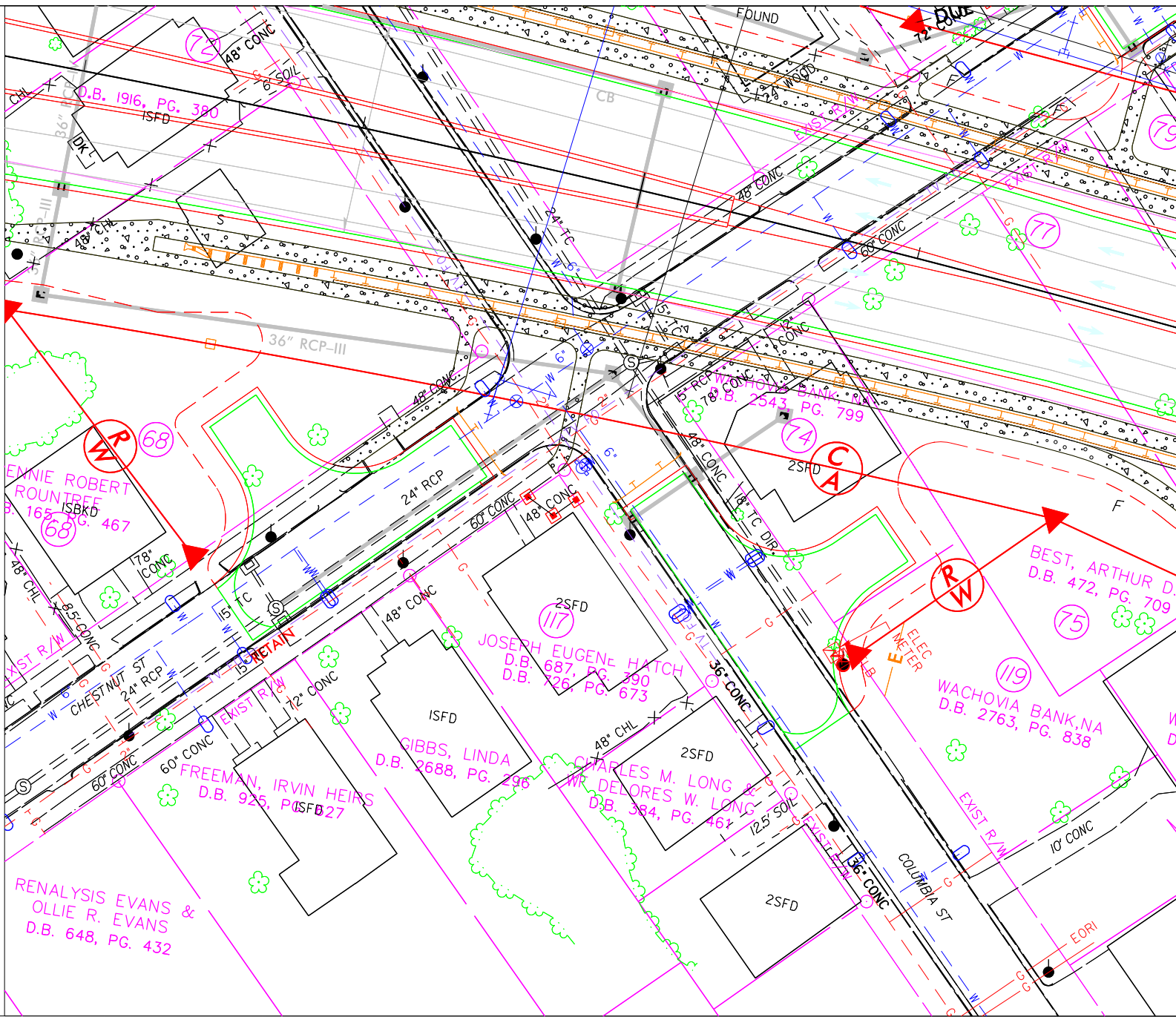
Dated Year: 1998

Terracon

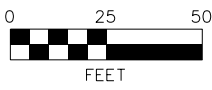
PROJECT NO.:	70127335
DATE: 10/2/12	CONTOUR INT: 2 meters
DRAWN: MDP	CHECK: LCH
SCALE: NTS	Exhibit 1

LEGEND

-  PROPERTY LINE
-  EXISTING RIGHT OF WAY LINE
-  PROPOSED RIGHT OF WAY LINE WITH IRON PIN AND CAP MARKER
-  PROPOSED CONTROL OF ACCESS
-  PROPOSED CONSTRUCTION EASEMENT
-  PROPOSED EDGE OF TRAVEL
-  PROPOSED CUT / FILL LINE
-  PUE - PROPOSED PERMANENT UTILITY EASEMENT
-  PROPOSED CATCH BASIN
-  PROPOSED DRAINAGE PIPING



NOTES:
 1. NCDENR UST SECTION ACTION LEVEL



SCALE: 1:50 DATE: OCTOBER 2012 DRAWN BY: MJA APPROVED BY: LCH / BWS	PROJ. REFERENCE NUMBER: 35781.1.2 TIP NUMBER: U-3315 COUNTY: PITT TERRACON PROJECT: 70127335	 5240 GREEN'S DAIRY ROAD RALEIGH, NC 27616 PH. (919) 873-2211 FAX. (919) 873-9555	<h2 style="margin: 0;">SITE DIAGRAM</h2> <p style="margin: 0;">WACHOVIA BANK, NA PROPERTY - PARCEL 74 -L- STATION 60+50 FORMER RESIDENCE GREENVILLE, PITT COUNTY, NORTH CAROLINA</p>	EXHIBIT <h1 style="font-size: 2em; margin: 0;">2</h1>
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APPENDICES

Appendix A – Geophysical Survey Report

GEOPHYSICAL INVESTIGATION REPORT

EM61 & GPR SURVEYS

CERTAIN HOPE MINISTRIES PROPERTY (PARCEL 74)

**1017 Chestnut Street
Greenville, North Carolina**

September 24, 2012

Report prepared for: **Lori C. Hoffman, PE
Stephen J. Kerlin
Terracon
5240 Green's Dairy Road
Raleigh, North Carolina 27616**

Prepared by:



Mark J. Denil, P.G.

**PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.
P.O. Box 16265
GREENSBORO, NC 27416-0265
(336) 335-3174**

Terracon
GEOPHYSICAL INVESTIGATION REPORT
CERTAIN HOPE MINISTRIES PROPERTY (PARCEL 74)
1017 Chestnut Street
Greenville, North Carolina

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|----------|--|
| Figure 1 | Geophysical Equipment & Site Photographs |
| Figure 2 | EM61 Metal Detection Results |

1.0 INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Terracon across the proposed Right-of-Way (ROW) area at the Certain Hope Ministries property (Parcel 74) located at 1017 Chestnut Street in Greenville, North Carolina. Conducted on August 17 and 24, 2012, the geophysical investigation was performed as part of the North Carolina Department of Transportation (NCDOT) preliminary site assessment for state project number U-3315 (WBS Element 35781.1.2) to determine if unknown, metallic, underground storage tanks (USTs) were present beneath the proposed ROW area of the site.

The Certain Hope Ministries property consists of a vacant house surrounded by grass-covered yards. The proposed ROW area is located in the open back yard immediately southeast of the vacant house. The geophysical survey area that encompasses the proposed ROW area has a maximum length and width of 120 feet and 72 feet, respectively.

Terracon representatives Mr. Stephen Kerlin and Ms. Lori Hoffman, PE provided information and maps identifying the geophysical survey area to Mark Denil, PG prior to conducting the investigation. Photographs of the geophysical equipment used in this investigation and the western portion of the property are shown in **Figure 1**.

2.0 FIELD METHODOLOGY

Prior to conducting the geophysical investigation, a 10-foot by 20-foot survey grid was established across the geophysical survey (proposed ROW) area 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 and ground penetrating radar (GPR) surveys. The EM survey was performed 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. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. All of the EM61 data were digitally collected at approximately 0.8 foot intervals along northeast-southwest trending, parallel survey lines spaced five feet apart. All of the data were downloaded to a computer and reviewed in the field and office using the Geonics DAT61W and Surfer for Windows Version 7.0 software programs.

The GPR investigation was conducted across selected EM61 differential anomalies using a GSSI 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 feet, based on an estimated two-way travel time of 8 nanoseconds per foot.

Verbal, preliminary geophysical results obtained from the site were provided to Mr. Kerlin or Ms Hoffman during the week of August 27, 2012.

3.0 DISCUSSION OF RESULTS

Contour plots of the EM61 bottom coil and differential results are presented in **Figure 2**. 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 drum and UST-size objects and ignore the smaller insignificant metal objects.

The linear EM61 bottom coil anomalies intersecting grid coordinates X=14 Y=50 and X=40 Y=87 are probably in response to buried conduits and/or miscellaneous metal debris/objects. GPR data suggest the EM61 differential anomalies centered near grid coordinates X=14 Y=26, X=14 Y=60,

X=40 Y=26, X=60 Y=54, and X=74 Y=22 are in response to known surface objects, portions of buried conduits, and/or buried miscellaneous metal objects/debris. Similarly, GPR data suggest the EM61 differential anomalies centered near grid coordinates X=29 Y=133 and X=64 Y=92 are in response to buried miscellaneous metal objects/debris.

The remaining EM61 anomalies shown in Figure 2 are probably in response to known surface objects, conduits, or to small, insignificant metal debris/objects. The geophysical investigation suggests that the proposed ROW area at Parcel 74 does not contain metallic USTs within the surveyed portion of the site.

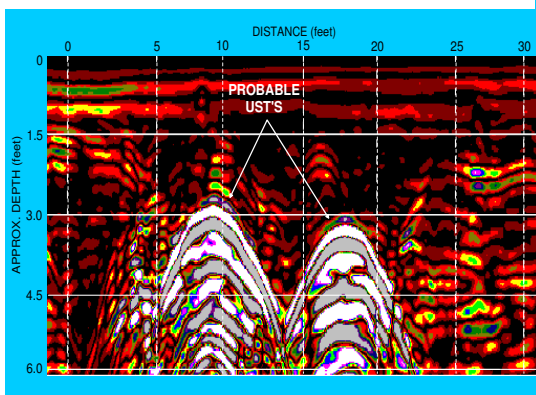
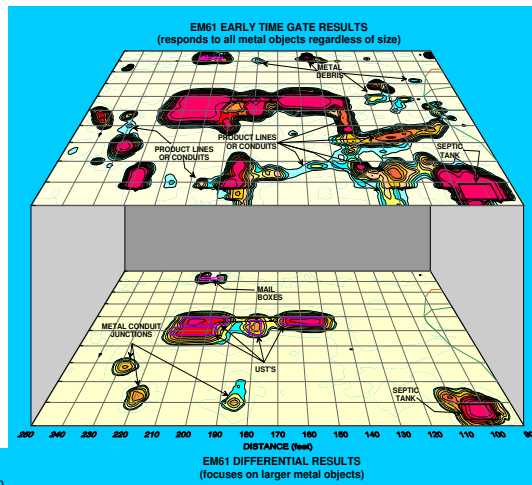
4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 and GPR data collected across the Certain Hope Ministries property (Parcel 74) located at 1017 Chestnut Street in Greenville, 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 portion of the site.
- The linear EM61 bottom coil anomalies intersecting grid coordinates X=14 Y=50 and X=40 Y=87 are probably in response to buried conduits and/or miscellaneous metal debris/objects.
- The remaining EM61 anomalies shown in Figure 2 are probably in response to known surface objects, conduits, or to small, insignificant metal debris/objects.
- The geophysical investigation suggests that the proposed ROW area at Parcel 74 does not contain metallic USTs within the surveyed portion of the site.

5.0 LIMITATIONS

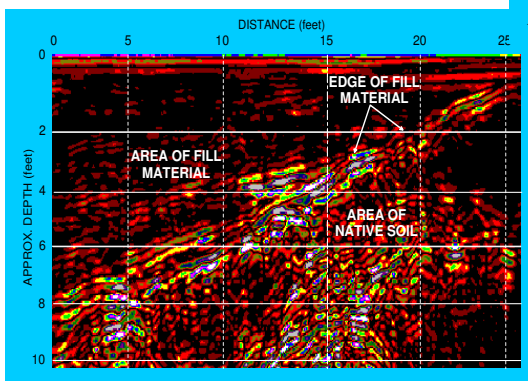
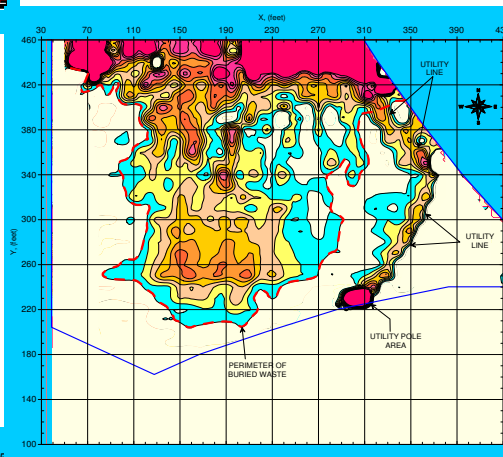
EM61 and GPR surveys have been performed and this report prepared for Terracon Consultants, Inc. in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR are non-unique and may not represent actual subsurface conditions. The EM61 and GPR results obtained for this project have not conclusively determined that the area of interest does not contain buried, metallic USTs, but that none were detected.



FIGURES

(on the following pages)

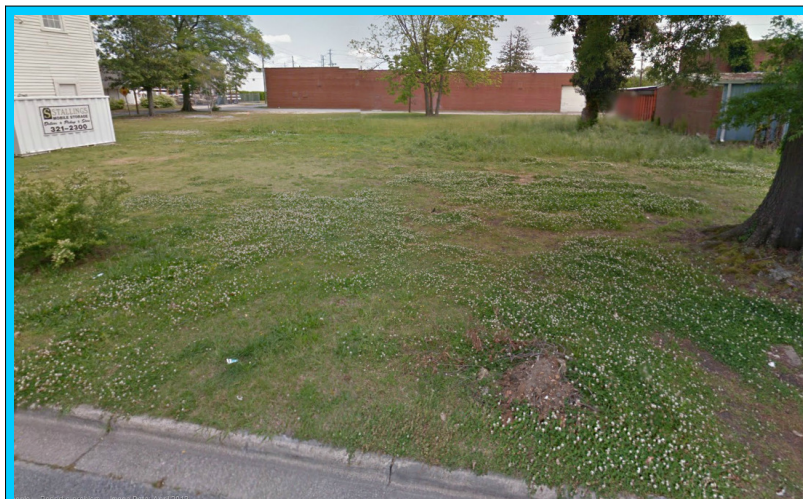
Figures shown on this page are for esthetic purposes only and are not related to the geophysical results discussed in this report.



The photograph shows the Geonics EM61 metal detector that was used to conduct the metal detection survey across the proposed Right-of-Way area at the Certain Hope Ministries property (Parcel 74) on August 17, 2012.



The photographs show the SIR-2000 GPR system equipped with a 400 MHz antenna that were used to conduct the ground penetrating radar investigation across selected EM61 differential anomalies at the Parcel 74 site on August 24, 2012.



The photograph shows the proposed Right-of-Way area at the Certain Hope Ministries property (Parcel 74) located at 1017 Chestnut Street in Greenville, North Carolina. The photograph is viewed in a northeasterly direction.



CLIENT	TERRACON CONSULTANTS, INC.	DATE	09/24/12	DRWN	MJD
SITE	CERTAIN HOPE MINISTRIES PROPERTY (PARCEL 74)	LAY		CHKD	
CITY	GREENVILLE	STATE	NORTH CAROLINA	DATE	
TITLE	GEOPHYSICAL RESULTS	PLNG	2012-212	PROJ#	

GEOPHYSICAL EQUIPMENT
& SITE PHOTOGRAPHS

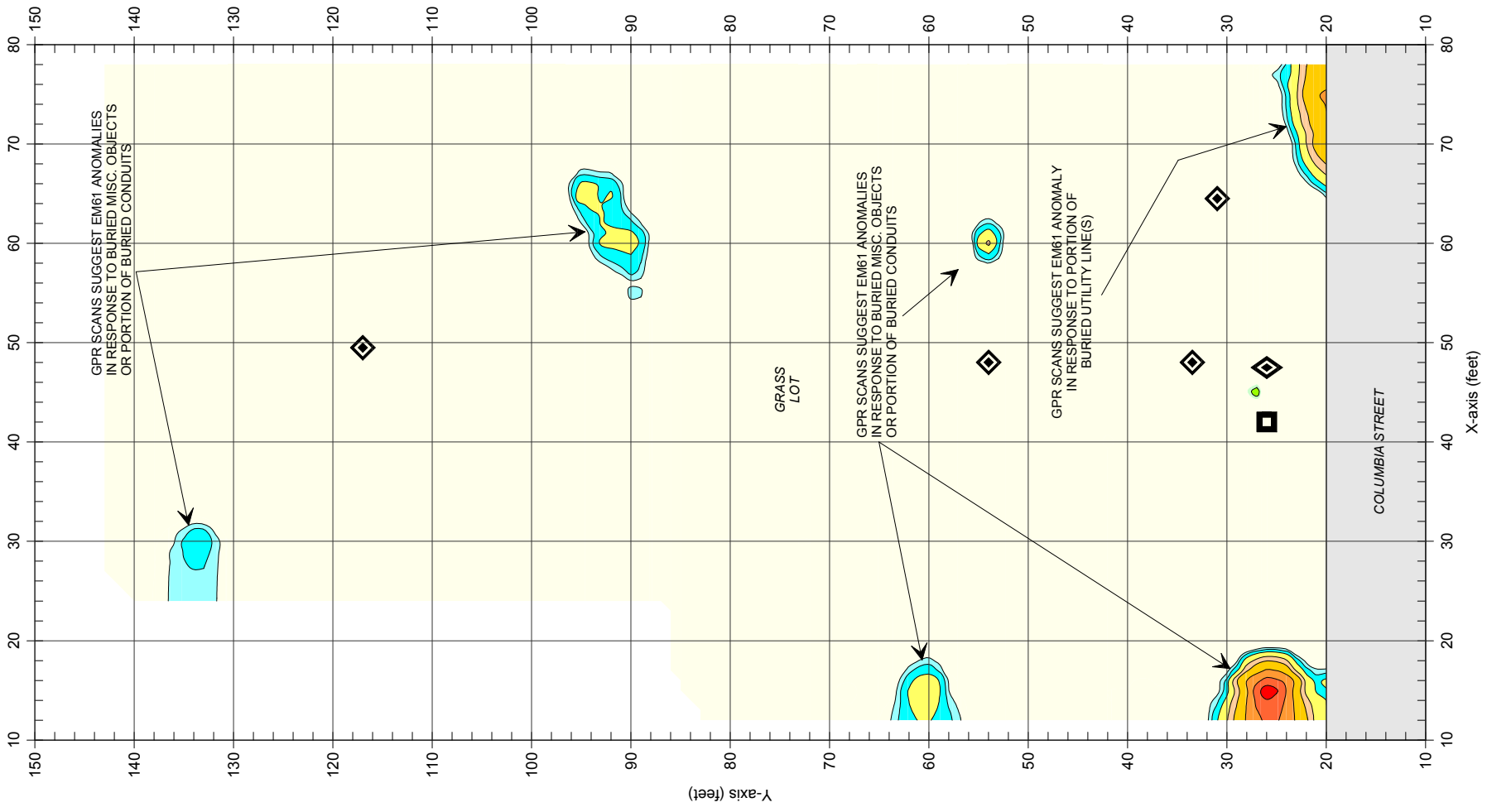
FIGURE 1

CLIENT	TERRACON CONSULTANTS, INC.	DATE	09/24/12
SITE	CERTAIN HOPE MINISTRIES PROPERTY (PARCEL 74)	LAY	
CITY	GREENVILLE	DWG	
STATE	NORTH CAROLINA	DWG	2012-212
TITLE	GEOPHYSICAL RESULTS	DRAWN	MJD

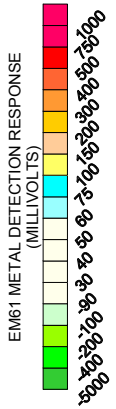
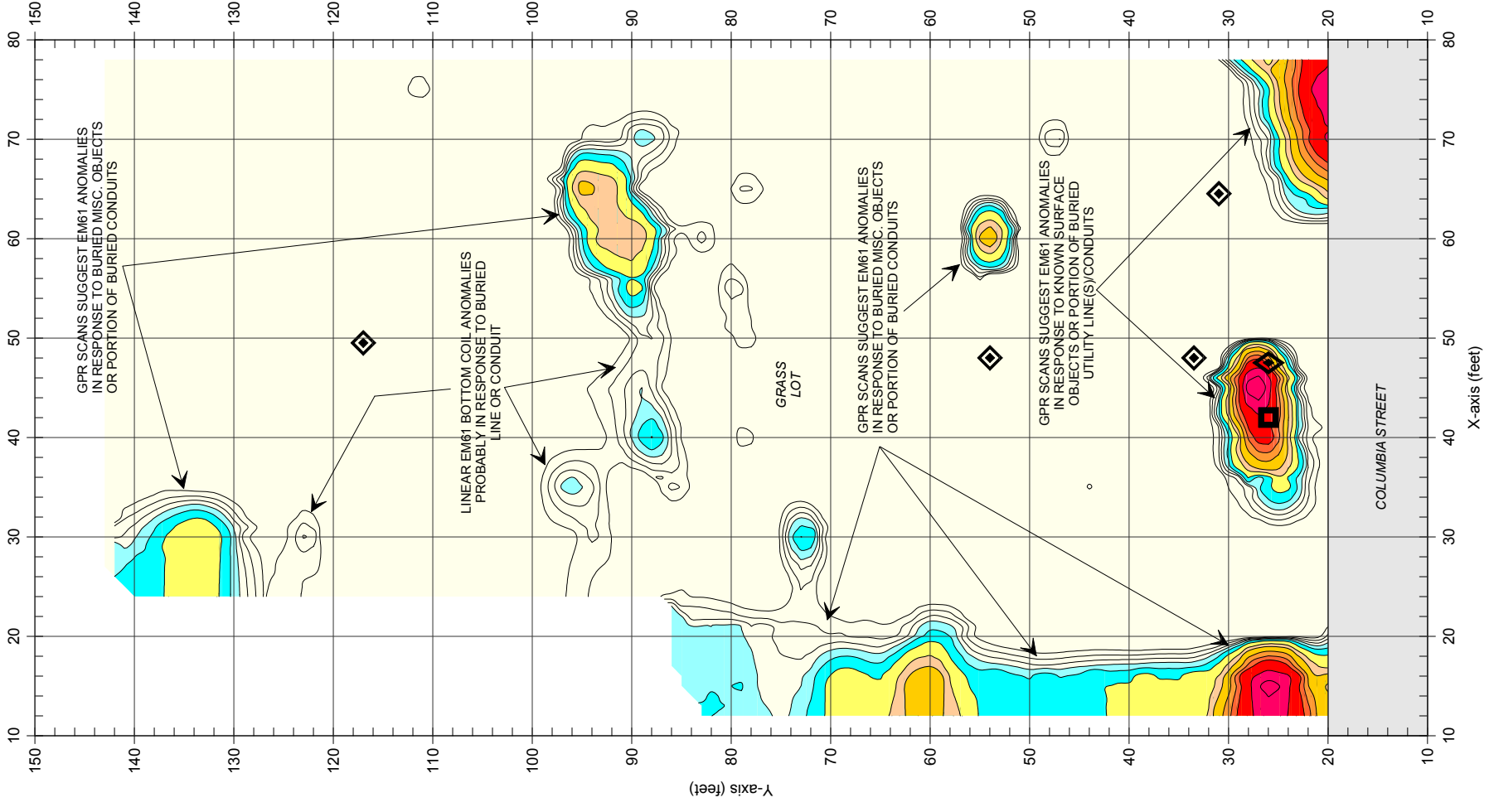
EM61 METAL DETECTION RESULTS

FIGURE 2

DIFFERENTIAL RESULTS



BOTTOM COIL RESULTS



LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS TRENCH LINES SPACED 5 FEET APART
- UTILITY POLE
- UTILITY LINE BOX
- PROPOSED RIGHT-OF-WAY MARKER



The contour plot shows the bottom coil (most sensitive) and differential results 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 data were collected on August 17, 2012 using a Geonics EM61 instrument.

Ground penetrating radar (GPR) data were acquired across selected EM61 anomalies on August 24, 2012 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

GRAPHIC SCALE IN FEET