

Preliminary Site Assessment
Giles O'Neal Property Parcel #30
Boone, Watauga County, NC

H&H Job No. ROW-148
State Project U-4020
WBS Element # 35015.1.1
May 29, 2008



2923 South Tryon Street
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704-586-0007

3334 Hillsborough Street
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**Preliminary Site Assessment
Giles O’Neal Property Parcel #30
Boone, Watauga County, North Carolina
H&H Project ROW-148**

Table of Contents

<u>Section</u>	<u>Page No.</u>
1.0 Introduction.....	1
2.0 Site Assessment.....	1
3.0 Analytical Results.....	2
4.0 Summary and Regulatory Considerations	3
5.0 Signature Page.....	4

List of Tables

Table 1 Soil Analytical Results – Giles O’Neal Property Parcel #30

List of Figures

Figure 1 Site Location Map
Figure 2 Site Map and Soil Analytical Results

List of Appendices

Appendix A NC DOT Preliminary Plan
Appendix B URS Geophysical Report
Appendix C Soil Boring Logs
Appendix D Laboratory Analytical Report

**Preliminary Site Assessment Report
Giles O'Neal Property Parcel #30
Boone, Watauga County, North Carolina
H&H Project ROW-148**

1.0 Introduction

Hart & Hickman PC (H&H) has prepared this Preliminary Site Assessment (PSA) report documenting assessment activities performed at the Giles O'Neal property (NC DOT Parcel #30) located at 340 East King Street in Boone, Watauga County, North Carolina. This assessment was conducted on behalf of the North Carolina Department of Transportation (NC DOT) in accordance with the scope of work outlined in our February 29, 2008 proposal.

The purpose of this assessment was to determine the presence or absence of impacted soil at the subject property in the proposed construction areas related to the widening of US Highway 421 (State Project U-4020). This property is expected to be a total take by NC DOT. A site location map is included as Figure 1 and a site map is presented as Figure 2. The NC DOT preliminary plan of the US Highway 421 widening area near the Giles O'Neal property is included in Appendix A.

Based on information provided by the NC DOT and property neighbors, the Giles O'Neal property may have operated as a gas station at some unspecified time in the past. H&H did not observe surface evidence of current USTs or of a previous UST removal on this property.

2.0 Site Assessment

Soil Assessment Field Activities

H&H mobilized to the Giles O'Neal property on March 31, 2008 to advance four soil borings (30-1 through 30-4) by direct push technology (DPT). Prior to advancing the soil borings, H&H reviewed a geophysical survey performed by URS Corporation (URS) between March 18 and March 22, 2008. URS utilized ground penetrating radar (GPR) and time domain electromagnetic (TDEM) technology to identify geophysical anomalies and potential USTs at the site. No anomalies or USTs were identified by URS at the Giles O'Neal Property. URS's report including a site map depicting the results of the GPR and TDEM results is included in Appendix B.

Prior to conducting soil borings, utilities were marked by NC One Call and by DOT's contractor Vaughn and Melton. Borings were also cleared to a five foot depth by hand auger. H&H utilized Geologic Exploration, Inc. of Statesville, North Carolina to advance soil borings 30-1 through 30-4 (Figure 2). To facilitate the selection of soil samples for laboratory analysis, soil from each boring was screened continuously for the presence of volatile organic compounds (VOCs) with an organic vapor analyzer (OVA). Additionally, H&H observed the soil for visual and olfactory indications of petroleum impacts. In general, soil samples that exhibited the highest readings on the OVA were selected for laboratory analysis. Soil boring logs are included in Appendix C.

H&H submitted four samples (30-1 @ 8-10 ft; 30-2 @ 4-6 ft; 30-3 @ 2-4 ft; and 30-4 @ 4-6 ft) for laboratory analysis. Soil samples are identified by the NC DOT Parcel number, soil boring, and the depth interval in ft. Samples were sent to Prism Laboratories under standard chain of custody for analysis. Three of the soil samples (30-1 @ 8-10 ft; 30-2 @ 4-6 ft; and 30-4 @ 4-6 ft) were analyzed for total petroleum hydrocarbons (TPH) for gasoline-range organics (GRO) and diesel-range organics (DRO) by EPA Method 8015B. Sample 30-4, was also advanced to assess potential soil impacts associated with a UST identified by URS on neighboring NC DOT Parcel #31. Sample location 30-3 is situated topographically downgradient from a dry cleaning facility located on the west side of Horn in the West Drive. Therefore, sample (30-3 @ 2-4 ft) was analyzed for VOCs and polynuclear aromatic hydrocarbons (PAHs) by EPA Methods 8260B and 8270C, respectively. Sample depths and analytical results are summarized in Table 1. Laboratory analytical data sheets for the Parcel 30 samples and chain-of-custody documentation are provided in Appendix D. The chain-of-custody form includes samples collected from other nearby parcels. The analytical results are discussed below.

3.0 Analytical Results

PH GRO and DRO were not detected in the soil samples analyzed for Parcel #30. In addition, no VOCs or PAHs were identified in the soil sample collected topographically downgradient of the off-site dry cleaner.

Based on laboratory analytical results and OVA readings, it appears that no impacted soil is present at the site in the vicinity of the soil boring locations. DOT plans indicate a proposed fill of 2 to 3 ft in this area. Based on the proposed fill and results of soil sampling activities noted above, impacted soil should not be encountered at this site during NC DOT road work.

4.0 Summary and Regulatory Considerations

H&H has reviewed geophysical survey results and collected soil samples at Parcel 30. No USTs appear to be present on this parcel. Target compounds were not detected on Parcel #30. DOT plans indicate a proposed fill of 2 to 3 ft in this area. Based on the results of soil sampling activities, impacted soil should not be encountered at this site during NC DOT road work.

5.0 Signature Page

This report was prepared by:



Mike Falknor
Staff Scientist for
Hart and Hickman, PC

This report was reviewed by:



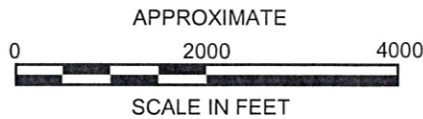
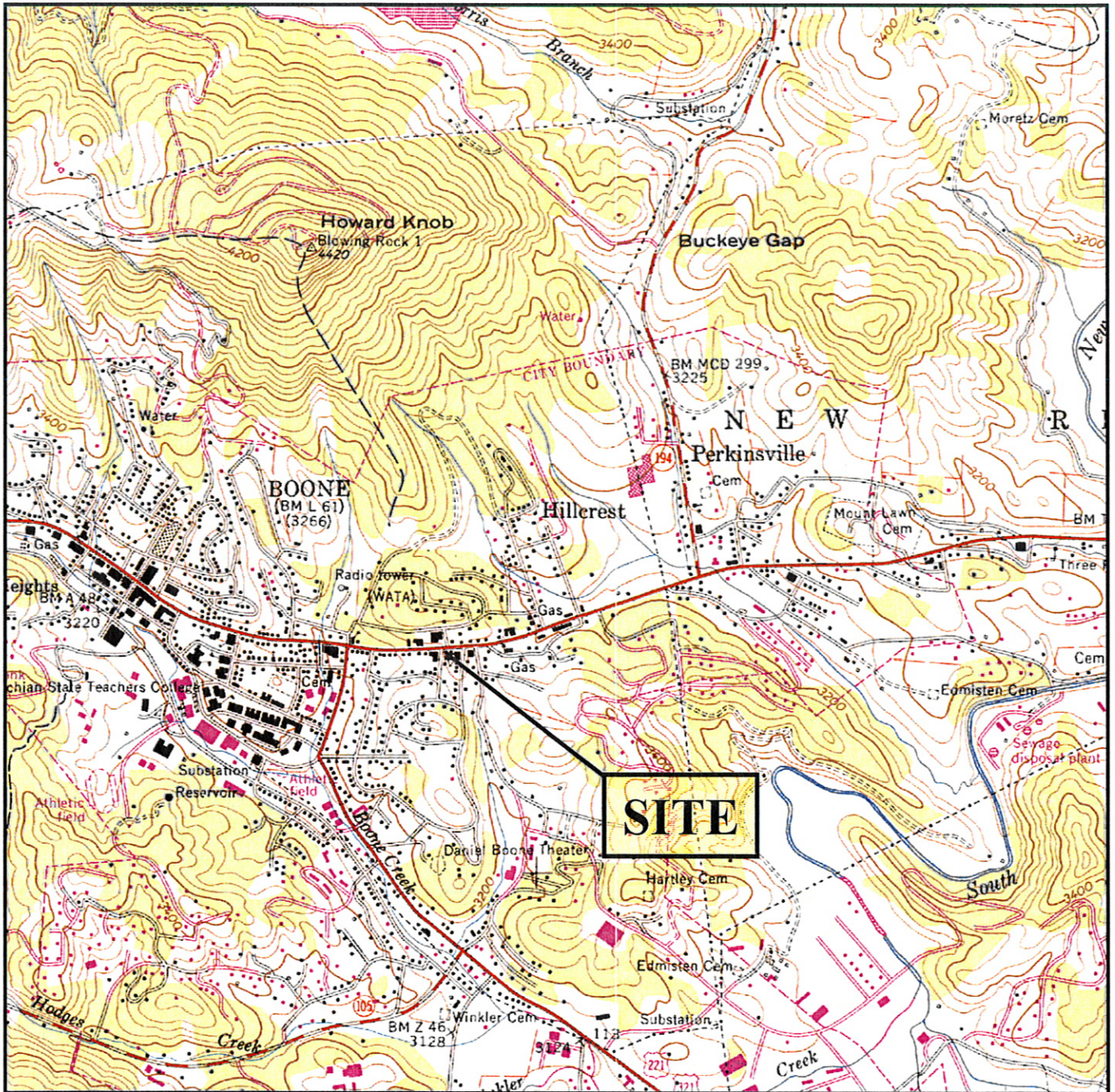
Matt Bramblett, PE
Principal and Project Manager for
Hart and Hickman, PC

Table 1
Soil Analytical Results
Giles O'Neal Property, Parcel #30
Boone, North Carolina
H&H Job No. ROW-148

Sample ID	30-1	30-2	30-3	30-4	EPA Region 9 PRGs Migration to Ground Water (mg/kg)
	8-10 3/31/2008 (mg/kg)	4-6 3/31/2008 (mg/kg)	2-4 3/31/2008 (mg/kg)	4-6 3/31/2008 (mg/kg)	
<u>VOCs (5035/8260B)</u>	NA	NA	BRL	NA	varies
<u>PAH's (8270C)</u>	NA	NA	BRL	NA	varies
<u>TPH-DRO/GRO (8015B)</u> Diesel-Range Organics (DRO) Gasoline-Range Organics (GRO)	<8.2 <6.0	<9.9 <7.1	NA NA	<10 <7.2	NC DENR Action Level (mg/kg)

Notes:


EPA Method follows parameter in parenthesis; NA = Not analyzed
 PRGs = Preliminary Remediation Goals using a dilution attenuation factor of 20.
 BRL = Below laboratory reporting limit; VOCs = Volatile organic compounds
 TPH = Total petroleum hydrocarbons; PAHs = Polynuclear Aromatic Hydrocarbons



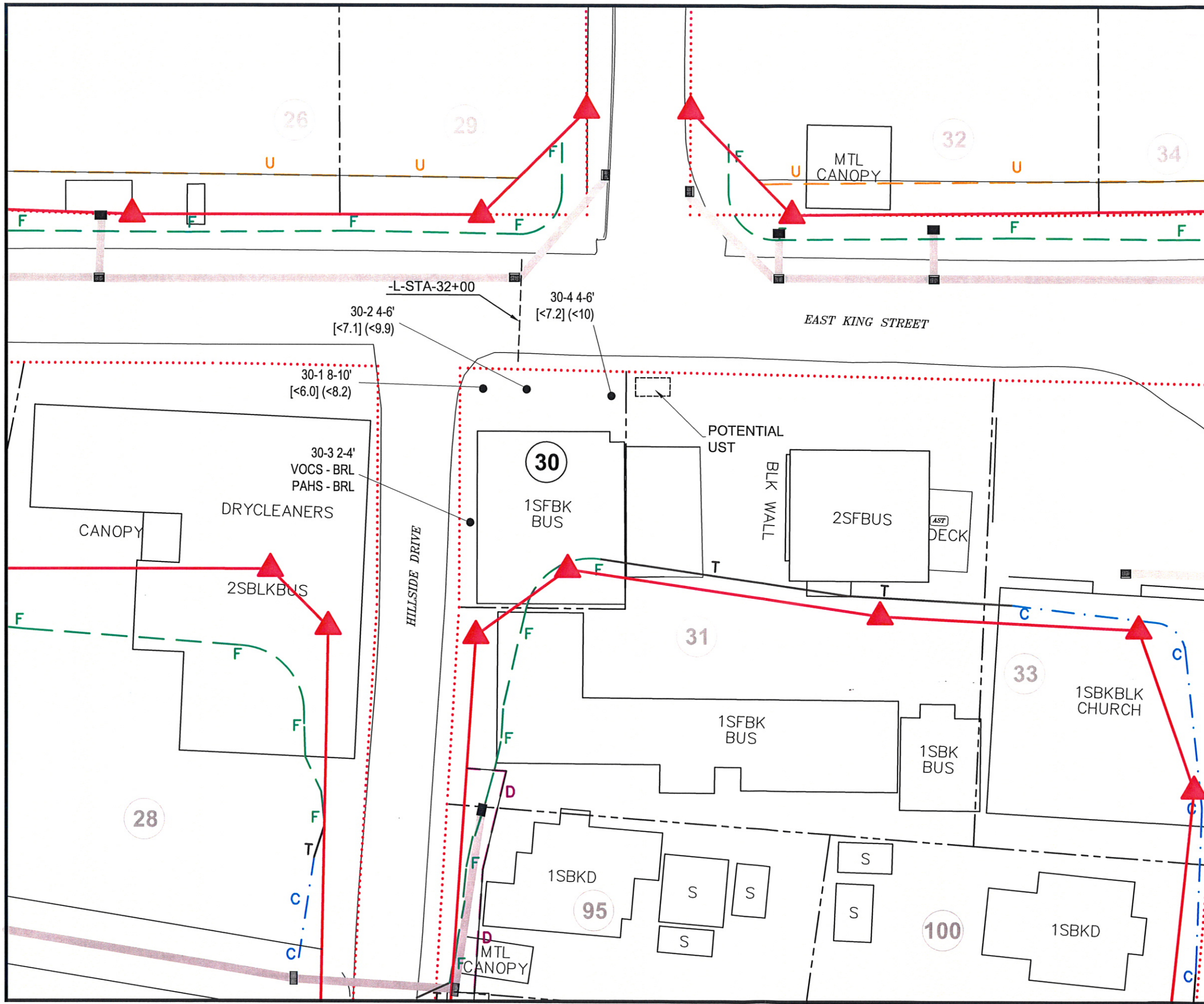
U.S.G.S. QUADRANGLE MAP

**BOONE, NC 1959
PHOTOREVISED 1978**

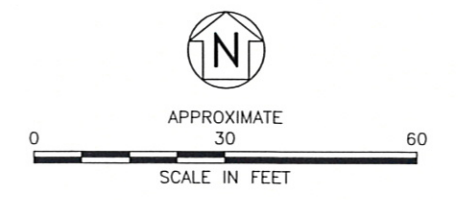
QUADRANGLE
7.5 MINUTE SERIES (TOPOGRAPHIC)

TITLE	SITE LOCATION MAP		
PROJECT	GILES O'NEAL PROPERTY PARCEL #30 BOONE, NORTH CAROLINA		
 2923 South Tryon Street-Suite 100 Charlotte, North Carolina 28203 A PROFESSIONAL CORPORATION 704-586-0007 (p) 704-586-0370 (f)			
DATE:	4-28-08	REVISION NO:	0
JOB NO:	ROW-148	FIGURE NO:	1

S:\AAA-Master Projects\NC DOT Right-of-Way - ROW\148 Boone PSA\Files from DOT\Proj\FIGURES\30_31_32_35 A.dwg, 30, 5/29/2008 12:33:37 PM, 1:1



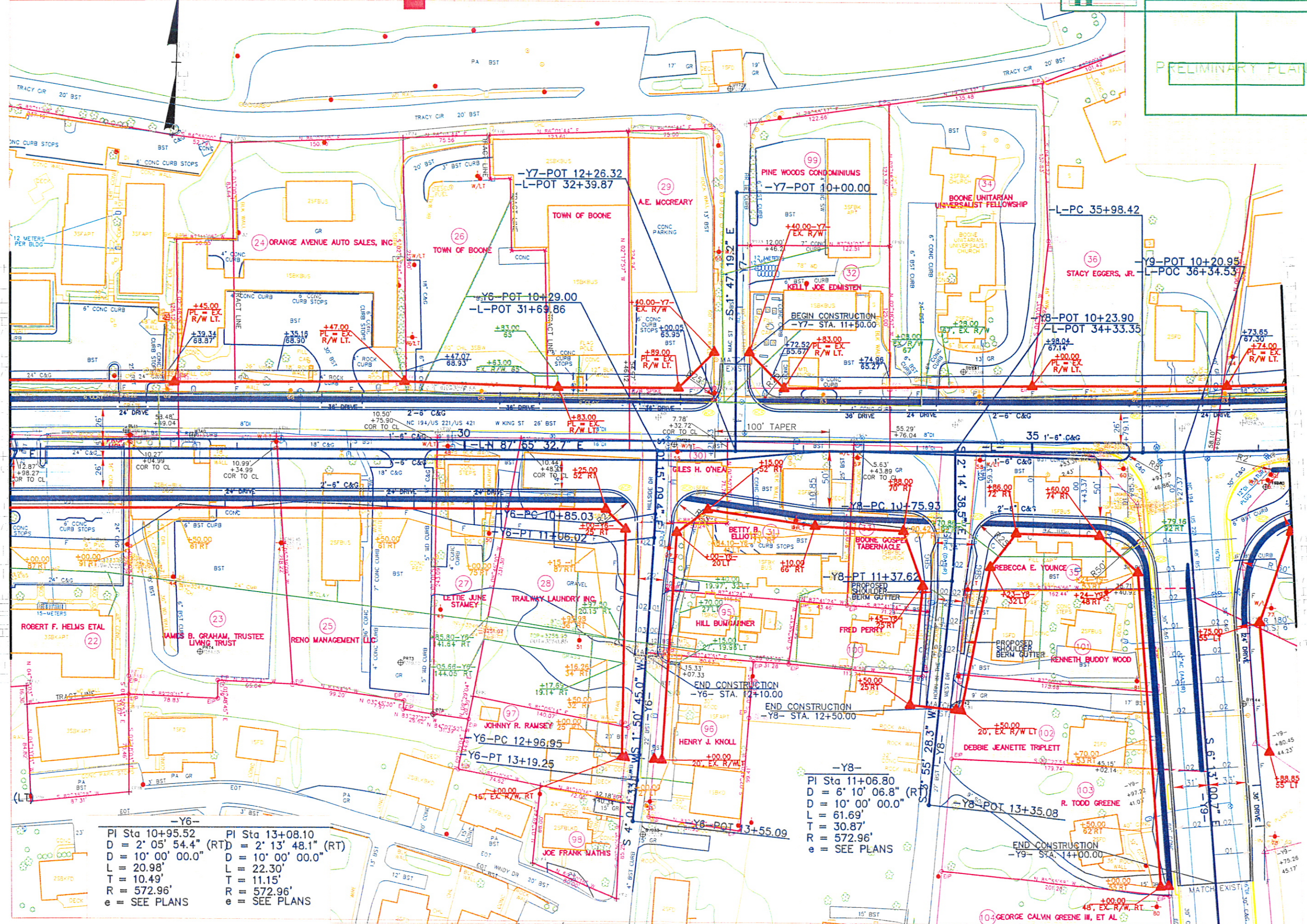
- LEGEND**
- PROPERTY LINE
 - EXISTING RIGHT-OF-WAY
 - ▲ PROPOSED RIGHT-OF-WAY
 - C- PROPOSED CUT LINE
 - F- PROPOSED FILL LINE
 - T- PROPOSED TRANSITION LINE
 - D- PROPOSED DRAINAGE EASEMENT
 - U- PROPOSED UTILITY EASEMENT
 - PROPOSED DRAINAGE PIPE
 - PROPOSED CATCH BASIN
 - SOIL BORING
 - 30 PARCEL NUMBER
 - AST ABOVE GROUND STORAGE TANK
 - [] = TPH GRO IN mg/kg
 - () = TPH DRO IN mg/kg
 - BRL = BELOW REPORTING LIMIT
 - VOCs = VOLATILE ORGANIC COMPOUNDS
 - PAHs = POLYNUCLEAR AROMATIC HYDROCARBONS



TITLE SITE MAP AND SOIL ANALYTICAL RESULTS	
PROJECT GILES O'NEAL PROPERTY PARCEL #30 BOONE, NORTH CAROLINA	
Hart & Hickman <small>A PROFESSIONAL CORPORATION</small>	
2923 South Tryon Street-Suite 100 Charlotte, North Carolina 28203 704-586-0007(p) 704-586-0373(f)	
DATE: 4-24-08	REVISION NO. 0
JOB NO: ROW-148	FIGURE: 2

Appendix A
NC DOT Preliminary Plan

PRELIMINARY PLANS



-Y6-	
PI Sta 10+95.52	PI Sta 13+08.10
D = 2° 05' 54.4" (RT)	D = 2° 13' 48.1" (RT)
L = 10' 00' 00.0"	L = 10' 00' 00.0"
T = 20.98'	L = 22.30'
T = 10.49'	T = 11.15'
R = 572.96'	R = 572.96'
e = SEE PLANS	e = SEE PLANS

-Y8-	
PI Sta 11+06.80	
D = 6° 10' 06.8" (RT)	
D = 10' 00' 00.0"	
L = 61.69'	
T = 30.87'	
R = 572.96'	
e = SEE PLANS	

Appendix B
URS Geophysical Report



March 31, 2008

Mr. Matt Bramblett, P.E.
Hart & Hickman
2923 South Tryon Street
Suite 100
Charlotte, North Carolina 28203

**Subject: Geophysical Investigation Report and UST Delineation
NCDOT State Project U-4020, Watauga County
Parcels #30, 31, 33, 35, 37, 38
Boone, North Carolina
URS Project No. 31825704**

Dear Mr. Bramblett:

In accordance with our technical and cost proposal (TCP) submitted to North Carolina Department of Transportation (NCDOT) on March 7, 2008, URS Corporation (URS) is pleased to present the findings of the geophysical investigation conducted as part of NCDOT State Project U-4020, Watauga County, WBS Element 35015.1.1. The objective of the investigation was to locate underground storage tanks (USTs) within the NCDOT right-of-way and construction easements along US 421/King Street in Boone, North Carolina. The geophysical investigation was conducted in advance of proposed widening of US 421/King Street and will be used to assist with the Preliminary Site Assessment (PSA) of individual parcels within the right-of-way and easement.

Site Description

The geophysical investigation was conducted for Hart & Hickman at Parcels #30, 31, 33, 35, 37, and 38. According to the Request for Proposal (RFP) issued by NCDOT, dated February 20, 2008, Parcels #30, 33, and 35 are expected to be total takes. Therefore, all accessible portions of these parcels were surveyed for this investigation. For Parcels #31, 37, and 38, the right-of-way and construction easements were surveyed for this investigation. These limits had been physically marked in the field by others prior to conducting the geophysical investigation. None of these parcels were abandoned at the time of the geophysical investigation. The majority of the survey areas consisted of asphalt driveways or parking lots.

Survey Methods

The geophysical investigation was conducted using primarily the electromagnetic (EM) method. The Geonics, Ltd. EM-61 MKII (EM-61) instrument was used to perform the investigation. Ground-penetrating radar (GPR) was used as a follow-up technique to the

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Mr. Matt Bramblett, P.E.
Hart & Hickman
March 31, 2008
Page 2

EM-61 survey. The GPR survey was completed using a Sensors & Software, Inc. Noggin PLUS Smart Cart System with a 250 MHz scanning antenna.

Electromagnetic Surveying with the EM-61 MKII (EM-61)

The EM-61 is a time domain EM instrument specifically designed to detect buried metal objects. The EM-61 generates rapid EM pulses through a transmitter coil. These pulses induce secondary EM fields in the near subsurface. The secondary EM fields induced from moderately conductive subsurface materials (i.e. soil and rock) are of relatively short duration. However, the secondary EM fields induced from metallic objects, such as reinforced concrete or steel drums, are of relatively long duration. The EM-61 measures this prolonged response from metallic objects after the EM response from conductive earth materials dissipates. This design provides high resolution of metallic targets. The depth of investigation of the instrument is relatively unaffected by site specific subsurface conditions.

The EM-61 measures the EM response in milliVolts (mV). The variations in EM response readings from some background level are more diagnostic than the absolute values. EM response values can be plotted and contoured to evaluate the variations across the site. Variations in the EM response resulting from buried metallic objects such as cast iron pipes are generally manifested by relatively large amplitude (greater than about 50 mV) anomalies.

The response amplitude for a given buried metallic object is primarily a function of burial depth and size of the object. It is thus useful to have some means of interpreting the depth of a given object. The EM-61 uses a two receiver coil system consisting of a top coil and a bottom coil. This design facilitates the recognition of near-surface objects from deeper targets. The EM-61 record includes the response from the top coil, the bottom coil and the differential response between the two coils. Near surface objects, such as small pieces of scrap metal, can mask the response from larger objects, such as utility lines, drums or underground storage tanks, at deeper depths. The two-coil design of the EM-61, and differential processing, allows for this masking effect to be significantly reduced. Although the EM-61 is designed to mitigate interference from surface features, large metallic objects at the surface, such as cars, buildings, and fences can effectively saturate the EM response and mask potential buried metal objects below.

Ground Penetrating Radar (GPR)

The GPR method involves transmitting relatively high-frequency electromagnetic pulses into the subsurface using a transducer antenna, and recording the subsequent signal from reflected and refracted electromagnetic energy using a receiving antenna. The electromagnetic pulses, or radar waves are influenced by many factors in the subsurface, the most important being the dielectric constant of the soil. The dielectric constant is the ratio of the speed of light in a vacuum (0.3m/ns) to the velocity of the GPR wave, quantity squared. Therefore, changes in dielectric constant correspond to changes in electromagnetic wave propagation velocity. When the wavelength is short compared to the thickness of soil layers, which is generally

Mr. Matt Bramblett, P.E.
Hart & Hickman
March 31, 2008
Page 3

true, electromagnetic waves are reflected at the interfaces of dielectric contrast in accordance with the principles of optics.

GPR is useful in mapping and locating subsurface features and stratigraphy under a variety of conditions. The method is useful in many types of geologic, environmental, and engineering applications including: locating and mapping buried waste materials; locating and delineating metallic and nonmetallic utilities, pipes, underground storage tanks and drums; mapping geological strata, fractures, and voids; and delineating and mapping previously excavated and backfilled areas.

The effectiveness of GPR surveying at a given site is directly related to the dielectric properties of the subsurface materials. The effective depth of exploration provided by the method can be limited by subsurface materials characterized with high conductivity and dielectric constants, including clay, metal and metallic minerals, or reinforced pavement, all of which absorb radar energy instead of reflecting waves back to the surface receiver. In general, the depth of investigation at a given site is inversely proportional to frequency and the degree of feature resolution is proportional to frequency. Irregular and/or rough terrain can negatively impact the quality of GPR data.

Field Investigation

The field investigation was conducted between March 18 and 22, 2008. EM-61 data were collected along parallel profiles spaced approximately 3 feet apart across the portions of the survey areas that were accessible with the EM-61. Inaccessible areas included portions of the parcels containing parked cars, dumpsters, and landscaping features. EM-61 data were recorded at a rate of 5 readings per second, which equates to an along-profile data point spacing of less than 1 foot.

A Trimble ProXRS global positioning system (GPS) was used to record simultaneous positional data coincident with the EM-61 data. The ProXRS system provides real-time differential corrections via an Omnistar subscription service. The acquired differential GPS (DGPS) have a horizontal accuracy of approximately 3 feet. URS also used the GPS system to record the locations of relevant site features.

Prior to conducting the GPR investigation, URS performed preliminary in-field analysis of the EM-61 data to identify anomalies potentially indicative of USTs. GPR follow-up was conducted at individual point target locations identified in the EM-61 data or within the sections of the parcels that could not be accessed using the EM-61. Because GPR was used as a follow-up technique, no data sets were post-processed for purposes of this investigation.

Data Processing

Mr. Matt Bramblett, P.E.
Hart & Hickman
March 31, 2008
Page 4

The EM-61 data were pre-processed using the program DAT61 MK2, issued by Geonics Ltd. The program was used primarily to prepare the data for contouring in Surfer, issued by Golden Software. Contoured data represent EM-61 Channel 3 response data. Channel 3 data include milliVolt readings recorded at a relatively later time interval during the measured response from the secondary EM field. Thus, this channel generally records secondary field responses from depths consistent with USTs. Interference from surface or near-surface features (e.g. reinforced concrete, buried catch basin, etc.) will also be recorded by this channel, which is why the GPR follow-up survey was conducted over EM-61 anomalies that could not be readily attributed to existing site features.

Investigation Results

The results of the geophysical investigation for Parcels #30, 31, and 33 are presented as **Figure 1**. The results for Parcel #35 are presented as **Figures 2 and 3**. The results for Parcels #37 and 38 are presented as **Figures 4 and 5**, respectively.

Responses from metallic objects are represented by color-shaded contours outside the interpreted background response range. Relatively strong responses (i.e. yellow to dark red contours) generally indicate buried objects of significant metal mass or surface or near-surface features (e.g. reinforced concrete pad). Relatively muted responses (i.e. dark blue contours) generally indicate decreased metal mass or metallic objects potentially buried to greater depths. Sources of known or suspected metallic interference are identified accordingly in **Figures 1 through 5**. Anomalies consistent with EM-61 response patterns for USTs are identified in **Figures 1 through 5** with either green or magenta ellipses. These anomalies were subsequently targeted for GPR follow-up surveying.

The EM-61 anomaly annotated with the green ellipse in **Figure 1** indicates a potential UST as indicated by both the EM-61 and GPR surveys. GPR surveying across this anomaly revealed parabolic-shaped reflection patterns that are consistent with USTs. The EM-61 anomalies annotated with magenta ellipses in **Figures 1, 4, and 5** indicate that the GPR follow-up survey did not reveal the characteristic parabolic-shaped reflection patterns typically associated with USTs. However, it should be noted that USTs that may no longer be intact may not exhibit characteristic GPR reflection patterns. Therefore, intrusive investigations of the EM-61 anomalies annotated with magenta ellipses in **Figures 1, 4, and 5** may be warranted if it is necessary for completion of the PSA to have confirmation of the identity of these anomalies.

A single UST appears to be buried along the southern edge of the building situated at Parcel #35. The EM-61 results in **Figure 2** indicate high-amplitude responses consistent with the presence of a UST. Follow-up GPR surveying also revealed the presence of parabolic-shaped reflection patterns associated with USTs. A fill port is situated within the center of the geophysical anomaly. The GPR antenna was used to identify the perimeter of the UST.

Mr. Matt Bramblett, P.E.
Hart & Hickman
March 31, 2008
Page 5

Figure 3 presents a photo of the field markings that indicate the interpreted UST perimeter at Parcel #35.

In general, sections of the parcels that are represented by the interpreted background range of colors in the EM-61 results appear to be free of buried metal to depths within the survey capabilities of the instrument. The results presented in **Figures 1 through 5** do not constitute an underground utility avoidance survey and therefore should be used in conjunction with proper utility marking protocol prior to beginning any intrusive work at these parcels.

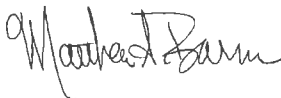
Limitations

This geophysical investigation was conducted in accordance with reasonable and accepted engineering geophysics practices, and the interpretations and conclusions are rendered in a manner consistent with other consultants in our profession. All geophysical techniques have some level of uncertainty and limitations. No other representations of the reported information is expressed or implied, and no warranty or guarantee is included or intended.

We greatly appreciate the opportunity to work with you on this project. We will transmit AutoCAD files (.DXF type) of the geophysical results in a separate submittal. Please contact Matt Barner at (704) 716-0737 if you have any questions regarding this report.

Very truly yours,

URS Corporation – North Carolina



Matthew A. Barner
Senior Geophysicist



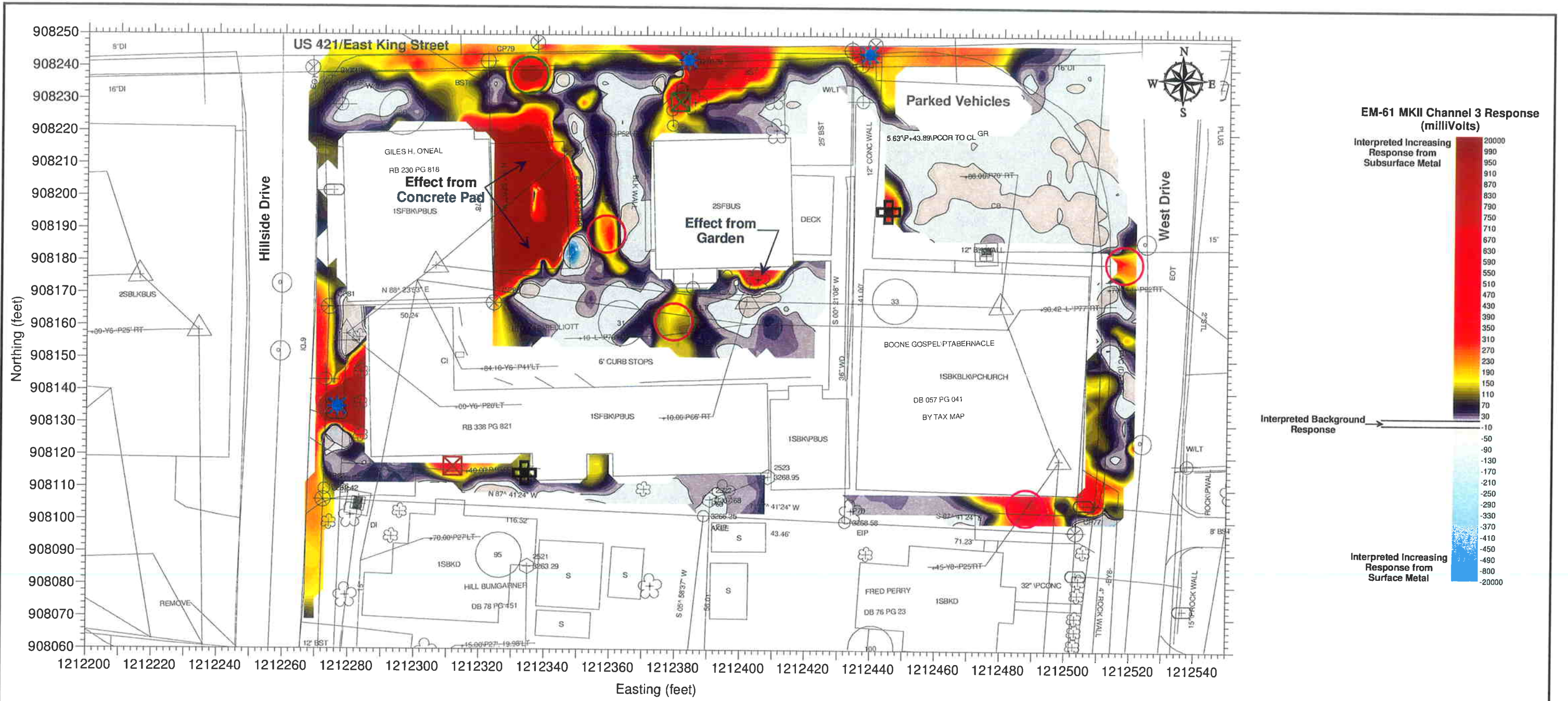
Timothy J. King
Principal Geophysicist



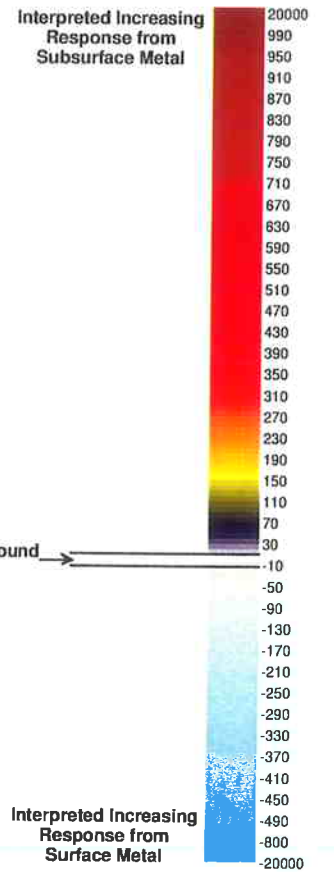
Walt Plekan, L.G.
Project Manager

- Enc.: Figure 1 – Geophysical Investigation Results, Parcels #30, 31, 33
Figure 2 – Geophysical Investigation Results, Parcel #35
Figure 3 – Site Photograph, Parcel #35
Figure 4 – Geophysical Investigation Results, Parcel #37
Figure 5 – Geophysical Investigation Results, Parcel #38

- 1c: Vernon Keys, URS, Raleigh
File 3182 5704 – 4.2



EM-61 MKII Channel 3 Response (millivolts)



Legend

- EM-61 Anomaly Surveyed with GPR Follow-Up (Both Surveys Indicate Potential UST)
- EM-61 Anomaly Surveyed with GPR Follow-Up (GPR Does not Indicate Potential UST)
- ⊕ AST
- ★ Utility Feature
- ⊠ Flower Bed
- ⊠ Electrical Box

Notes:

1. Coordinates in NC State Plane, NAD-83 datum.
2. Data from Geonics, Ltd. EM-61 MKII instrument.
3. Base drawing from U-4020 contract drawings provided by NCDOT.
4. EM-61 location control and additional site features from DGPS survey by URS Corporation.

		6135 Park South Dr., Ste. 300 Charlotte, NC 28210 (704) 522-0330	
Geophysical Investigation Results Parcels #30, 31, 33			
NCDOT State Project U-4020, Watauga County Boone, North Carolina			
DESIGNED BY	DRAWN BY	CHECKED BY	JOB NUMBER
MAB	03/27/08	MAB	03/27/08
		SJH	03/28/08
			31825704
			Figure 1

Appendix C
Soil Boring Logs



BORING NUMBER 30-1

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)

3334 Hillsborough Street
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

PROJECT: Boone PSAs
JOB NUMBER: ROW-148
LOCATION: Boone, NC

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0						ASPHALT		0
			1.8	2		CONCRETE		
						Brown, Sandy SILT, Slightly Moist, Loose		
				2.5				
						Light Brown, Silty Medium SAND, Slightly Moist, Loose		
				3				
				2.8				
						Medium Brown, Silty Medium SAND, Slightly Moist, Loose		
				3.3				
				3.3				
						Bottom of borehole at 12.0 feet.		

LOG OF BORING - HART HICKMAN.GDT - 5/23/08 15:22 - S:\AAA-MASTER PROJECTS\NC DOT RIGHT-OF-WAY-ROW\ROW-148 BOONE PSAS\BORING LOGS\ROW-148 (30).GPJ

DRILLING CONTRACTOR: GEOLOGIC EXPLORATION
DRILL RIG/ METHOD: Geoprobe 6620DT
SAMPLING METHOD: DPT Sleeves
LOGGED BY: GAB
DRAWN BY:

BORING STARTED: 3/31/08
BORING COMPLETED: 3/31/08
TOTAL DEPTH: 12
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
Borehole hand-augered to 5 feet. Soil sample collected at 8-10 feet for laboratory analysis.



BORING NUMBER 30-2

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)

3334 Hillsborough Street
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

PROJECT: Boone PSAs
JOB NUMBER: ROW-148
LOCATION: Boone, NC

LOG OF BORING - HART HICKMAN.GDT - 5/23/08 15:22 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW\ROW-148 BOONE PSAS\BORING LOGS\ROW-148 (30).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0			0.9		ASPHALT			0
				1.5	CONCRETE			
				1.2	Medium Brown, Silty Medium SAND, Slightly Moist, Loose			
5				1.2	Medium Brown, Silty Medium SAND, some Partially Weathered Rock, Slightly Moist, Loose			5
				1.3				
				1.2				
10	75			1.3				10
15								15
20								20

Bottom of borehole at 12.0 feet.

DRILLING CONTRACTOR: GEOLOGIC EXPLORATION
DRILL RIG/ METHOD: Geoprobe 6620DT
SAMPLING METHOD: DPT Sleeves
LOGGED BY: GAB
DRAWN BY:

BORING STARTED: 3/31/08
BORING COMPLETED: 3/31/08
TOTAL DEPTH: 12
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
Borehole hand-augered to 5 feet. Soil sample collected from 4-6 feet for laboratory analysis.



BORING NUMBER 30-3

2923 South Tryon Street-Suite 100
 Charlotte, North Carolina 28203
 704-586-0007(p) 704-586-0373(f)

3334 Hillsborough Street
 Raleigh, North Carolina 27607
 919-847-4241(p) 919-847-4261(f)

PROJECT: Boone PSAs
JOB NUMBER: ROW-148
LOCATION: Boone, NC

LOG OF BORING - HART HICKMAN.GDT - 5/29/08 08:20 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW-148 BOONE PSAS\BORING LOGS\ROW-148 (30).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0			1.3			Orange/ Dark Brown, SILT, Slightly Moist		0
100			1.4			Light Brown, SILT, some Fine Sand, Slightly Moist		
5			1.4			Light Brown/ White, Sandy SILT, Slightly Moist		5
100			1.4			Light Orange/ Brown, Sandy SILT, Slightly Moist		
10	50		1.6			Light Orange/ Brown Sandy SILT, some Clay, Slightly Moist		10
			1.6					
			1.9					
						Bottom of borehole at 12.0 feet.		
15								15
20								20

DRILLING CONTRACTOR: GEOLOGIC EXPLORATION **BORING STARTED** 3/31/08
DRILL RIG/ METHOD: Geoprobe 6620DT **BORING COMPLETED:** 3/31/08
SAMPLING METHOD: DPT Sleeves **TOTAL DEPTH:** 12
LOGGED BY: GAB **SURFACE ELEV:**
DRAWN BY: **DEPTH TO WATER:**

Remarks:
 Borehole hand-augered to 5 feet. Soil sample collected from 2-4 feet for laboratory analysis.



BORING NUMBER 30-4

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)

3334 Hillsborough Street
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

PROJECT: Boone PSAs
JOB NUMBER: ROW-148
LOCATION: Boone, NC

LOG OF BORING - HART HICKMAN.GDT - 5/29/08 08:20 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW\ROW-148 BOONE PSAS\BORING LOGS\ROW-148 (30).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0						ASPHALT		0
			1			CONCRETE		
				1.7		Light to Medium Brown, Silty Medium SAND, Slightly Moist, Loose		
100						Dark Brown, Fine Sandy SILT, slightly Moist		
				1.6				
5				2		Light Brown, Silty Medium SAND, some Partially Weathered Rock, Slightly Moist, Loose		5
						Medium Brown, Silty Medium SAND, some Partially Weathered Rock, Slightly Moist, Loose		
				1.6				
				1.9		Orange/ Brown, Silty Medium SAND, some Partially Weathered Rock, Slightly Moist, Loose		
10	75			1.9		Medium Brown, Silty Medium SAND, some Partially Weathered Rock, Slightly Moist, Loose		10
						Bottom of borehole at 12.0 feet.		
15								15
20								20

DRILLING CONTRACTOR: GEOLOGIC EXPLORATION
DRILL RIG/ METHOD: Geoprobe 6620DT
SAMPLING METHOD: DPT Sleeves
LOGGED BY: GAB
DRAWN BY:

BORING STARTED: 3/31/08
BORING COMPLETED: 3/31/08
TOTAL DEPTH: 12
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
Borehole hand-augered to 5 feet. Soil sample collected from 4-6 feet for laboratory analysis.

Appendix D

Laboratory Analytical Report



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

Laboratory Report

04/18/08

North Carolina Department of
 Transportation
 Attn: David Graham
 c/o Hart and Hickman
 2923 South Tryon St. Ste 100
 Charlotte, NC 28203

Project Name: Boone PSAs
 Project ID: ROW-148
 Project No.: WBS# 35015.1.1
 Sample Matrix: Soil

Client Sample ID: 30-1 (8-10')
 Prism Sample ID: 210361
 COC Group: G0408076
 Time Collected: 03/31/08 13:40
 Time Submitted: 04/03/08 8:30

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Percent Solids Determination</u>									
Percent Solids	84.0	%			1	SM2540 G	04/04/08 13:30	mbarber	
<u>Diesel Range Organics (DRO) by GC-FID</u>									
Diesel Range Organics (DRO)	BRL	mg/kg	8.2	1.3	1	8015B	04/08/08 17:59	jvogel	Q31590
Sample Preparation:			25.42 g	/	1 mL	3545	04/07/08 16:00	Wcorder	P21277
						Surrogate	% Recovery	Control Limits	
						o-Terphenyl	80	49 - 124	
<u>Sample Weight Determination</u>									
Weight 1	4.32	g			1	GRO	04/04/08 0:00	lbrown	
Weight 2	4.43	g			1	GRO	04/04/08 0:00	lbrown	
<u>Gasoline Range Organics (GRO) by GC-FID</u>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.0	3.7	50	8015B	04/09/08 16:50	wbradley	Q31604
						Surrogate	% Recovery	Control Limits	
						aaa-TFT	94	55 - 129	

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limit only. No J-Flags applied.

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

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services

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

Laboratory Report

04/18/08

North Carolina Department of
 Transportation
 Attn: David Graham
 c/o Hart and Hickman
 2923 South Tryon St. Ste 100
 Charlotte, NC 28203

Project Name: Boone PSAs
 Project ID: ROW-148
 Project No.: WBS# 35015.1.1
 Sample Matrix: Soil

Client Sample ID: 30-2 (4-6')
 Prism Sample ID: 210364
 COC Group: G0408076
 Time Collected: 03/31/08 15:25
 Time Submitted: 04/03/08 8:30

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	70.8	%			1	SM2540 G	04/04/08 13:30	mbarber	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	BRL	mg/kg	9.9	1.6	1	8015B	04/08/08 19:10	jvogel	Q31590
Sample Preparation:			25.07 g	/	1 mL	3545	04/07/08 16:00	Weonder	P21277
						Surrogate	% Recovery	Control Limits	
						o-Terphenyl	64	49 - 124	
Sample Weight Determination									
Weight 1	4.67	g			1	GRO	04/04/08 0:00	lbrown	
Weight 2	4.46	g			1	GRO	04/04/08 0:00	lbrown	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	BRL	mg/kg	7.1	4.4	50	8015B	04/09/08 18:25	wbradley	Q31604
						Surrogate	% Recovery	Control Limits	
						aaa-TFT	98	55 - 129	

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limit only. No J-Flags applied.

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Laboratory Report

04/18/08

North Carolina Department of
 Transportation
 Attn: David Graham
 c/o Hart and Hickman
 2923 South Tryon St. Ste 100
 Charlotte, NC 28203

Project Name: Boone PSAs
 Project ID: ROW-148
 Project No.: WBS# 35015.1.1
 Sample Matrix: Soil

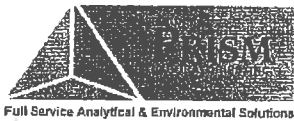
Client Sample ID: 30-3 (2-4')
 Prism Sample ID: 210360
 COC Group: G0408076
 Time Collected: 03/31/08 12:05
 Time Submitted: 04/03/08 8:30

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Percent Solids Determination</u>									
Percent Solids	84.4	%			1	SM2540 G	04/04/08 13:30	mbarber	
<u>Sample Weight Determination</u>									
Weight Bisulfate 1	4.11	g			1	5035	04/04/08 0:00	lbrown	
Weight Bisulfate 2	4.19	g			1	5035	04/04/08 0:00	lbrown	
Weight Methanol	4.39	g			1	5035	04/04/08 0:00	lbrown	
<u>Volatile Organic Compounds by GC/MS</u>									
1,1,1-Trichloroethane	BRL	mg/kg	0.0072	0.00085	1	8260B	04/04/08 22:50	lwitry	Q31423
1,1,2,2-Tetrachloroethane	BRL	mg/kg	0.0072	0.00052	1	8260B	04/04/08 22:50	lwitry	Q31423
1,1,2-Trichloroethane	BRL	mg/kg	0.0072	0.00076	1	8260B	04/04/08 22:50	lwitry	Q31423
1,1-Dichloroethane	BRL	mg/kg	0.0072	0.00082	1	8260B	04/04/08 22:50	lwitry	Q31423
1,1-Dichloroethene	BRL	mg/kg	0.0072	0.0012	1	8260B	04/04/08 22:50	lwitry	Q31423
1,1-Dichloropropene	BRL	mg/kg	0.0072	0.00085	1	8260B	04/04/08 22:50	lwitry	Q31423
1,2,3-Trichlorobenzene	BRL	mg/kg	0.0072	0.00082	1	8260B	04/04/08 22:50	lwitry	Q31423
1,2,3-Trichloropropane	BRL	mg/kg	0.0072	0.00097	1	8260B	04/04/08 22:50	lwitry	Q31423
1,2,4-Trichlorobenzene	BRL	mg/kg	0.0072	0.00094	1	8260B	04/04/08 22:50	lwitry	Q31423
1,2,4-Trimethylbenzene	BRL	mg/kg	0.0072	0.00036	1	8260B	04/04/08 22:50	lwitry	Q31423
1,2-Dibromoethane (EDB)	BRL	mg/kg	0.0072	0.00089	1	8260B	04/04/08 22:50	lwitry	Q31423
1,2-Dichlorobenzene	BRL	mg/kg	0.0072	0.00046	1	8260B	04/04/08 22:50	lwitry	Q31423
1,2-Dichloroethane	BRL	mg/kg	0.0072	0.00081	1	8260B	04/04/08 22:50	lwitry	Q31423
1,2-Dichloropropane	BRL	mg/kg	0.0072	0.0017	1	8260B	04/04/08 22:50	lwitry	Q31423
1,3,5-Trimethylbenzene	BRL	mg/kg	0.0072	0.00061	1	8260B	04/04/08 22:50	lwitry	Q31423
1,3-Dichlorobenzene	BRL	mg/kg	0.0072	0.00048	1	8260B	04/04/08 22:50	lwitry	Q31423
1,3-Dichloropropane	BRL	mg/kg	0.0072	0.0003	1	8260B	04/04/08 22:50	lwitry	Q31423
1,4-Dichlorobenzene	BRL	mg/kg	0.0072	0.00092	1	8260B	04/04/08 22:50	lwitry	Q31423
2,2-Dichloropropane	BRL	mg/kg	0.0072	0.0010	1	8260B	04/04/08 22:50	lwitry	Q31423
2-Chlorotoluene	BRL	mg/kg	0.0072	0.0004	1	8260B	04/04/08 22:50	lwitry	Q31423

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

Laboratory Report

04/18/08

North Carolina Department of
 Transportation
 Attn: David Graham
 c/o Hart and Hickman
 2923 South Tryon St. Ste 100
 Charlotte, NC 28203

Project Name: Boone PSAs
 Project ID: ROW-148
 Project No.: WBS# 35015.1.1
 Sample Matrix: Soil

Client Sample ID: 30-3 (2-4)
 Prism Sample ID: 210360
 COC Group: G0408076
 Time Collected: 03/31/08 12:05
 Time Submitted: 04/03/08 8:30

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
2-Hexanone	BRL	mg/kg	0.072	0.0062	1	8260B	04/04/08 22:50	lwitry	Q31423
4-Chlorotoluene	BRL	mg/kg	0.0072	0.00053	1	8260B	04/04/08 22:50	lwitry	Q31423
4-Methyl-2-pentanone (MIBK)	BRL	mg/kg	0.072	0.0075	1	8260B	04/04/08 22:50	lwitry	Q31423
Acetone	BRL	mg/kg	0.072	0.021	1	8260B	04/04/08 22:50	lwitry	Q31423
Benzene	BRL	mg/kg	0.0043	0.00061	1	8260B	04/04/08 22:50	lwitry	Q31423
Bromobenzene	BRL	mg/kg	0.0072	0.00092	1	8260B	04/04/08 22:50	lwitry	Q31423
Bromochloromethane	BRL	mg/kg	0.0072	0.00059	1	8260B	04/04/08 22:50	lwitry	Q31423
Bromodichloromethane	BRL	mg/kg	0.0072	0.00078	1	8260B	04/04/08 22:50	lwitry	Q31423
Bromoform	BRL	mg/kg	0.0072	0.00065	1	8260B	04/04/08 22:50	lwitry	Q31423
Bromomethane	BRL	mg/kg	0.014	0.0016	1	8260B	04/04/08 22:50	lwitry	Q31423
Carbon tetrachloride	BRL	mg/kg	0.0072	0.00048	1	8260B	04/04/08 22:50	lwitry	Q31423
Chlorobenzene	BRL	mg/kg	0.0072	0.00074	1	8260B	04/04/08 22:50	lwitry	Q31423
Chlorodibromomethane	BRL	mg/kg	0.0072	0.00066	1	8260B	04/04/08 22:50	lwitry	Q31423
Chloroethane	BRL	mg/kg	0.014	0.0024	1	8260B	04/04/08 22:50	lwitry	Q31423
Chloroform	BRL	mg/kg	0.0072	0.0012	1	8260B	04/04/08 22:50	lwitry	Q31423
Chloromethane	BRL	mg/kg	0.0072	0.0017	1	8260B	04/04/08 22:50	lwitry	Q31423
cis-1,2-Dichloroethene	BRL	mg/kg	0.0072	0.0012	1	8260B	04/04/08 22:50	lwitry	Q31423
cis-1,3-Dichloropropene	BRL	mg/kg	0.0072	0.00095	1	8260B	04/04/08 22:50	lwitry	Q31423
Dichlorodifluoromethane	BRL	mg/kg	0.0072	0.0020	1	8260B	04/04/08 22:50	lwitry	Q31423
Ethylbenzene	BRL	mg/kg	0.0072	0.00033	1	8260B	04/04/08 22:50	lwitry	Q31423
Isopropyl ether (IPE)	BRL	mg/kg	0.0072	0.00066	1	8260B	04/04/08 22:50	lwitry	Q31423
Isopropylbenzene	BRL	mg/kg	0.0072	0.00042	1	8260B	04/04/08 22:50	lwitry	Q31423
m,p-Xylenes	BRL	mg/kg	0.014	0.0012	1	8260B	04/04/08 22:50	lwitry	Q31423
Methyl ethyl ketone (MEK)	BRL	mg/kg	0.14	0.021	1	8260B	04/04/08 22:50	lwitry	Q31423
Methyl t-butyl ether (MTBE)	BRL	mg/kg	0.014	0.00061	1	8260B	04/04/08 22:50	lwitry	Q31423
Methylene chloride	BRL	mg/kg	0.0072	0.0012	1	8260B	04/04/08 22:50	lwitry	Q31423
n-Butylbenzene	BRL	mg/kg	0.0072	0.00052	1	8260B	04/04/08 22:50	lwitry	Q31423

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

Laboratory Report

04/18/08

North Carolina Department of
 Transportation
 Attn: David Graham
 c/o Hart and Hickman
 2923 South Tryon St. Ste 100
 Charlotte, NC 28203

Project Name: Boone PSAs
 Project ID: ROW-148
 Project No.: WBS# 35015.1.1
 Sample Matrix: Soil

Client Sample ID: 30-3 (2-4')
 Prism Sample ID: 210360
 COC Group: G0408076
 Time Collected: 03/31/08 12:05
 Time Submitted: 04/03/08 8:30

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
n-Propylbenzene	BRL	mg/kg	0.0072	0.00048	1	8260B	04/04/08 22:50	lwitry	Q31423
Naphthalene	BRL	mg/kg	0.014	0.00086	1	8260B	04/04/08 22:50	lwitry	Q31423
o-Xylene	BRL	mg/kg	0.0072	0.0003	1	8260B	04/04/08 22:50	lwitry	Q31423
p-Isopropyltoluene	BRL	mg/kg	0.0072	0.00058	1	8260B	04/04/08 22:50	lwitry	Q31423
sec-Butylbenzene	BRL	mg/kg	0.0072	0.00049	1	8260B	04/04/08 22:50	lwitry	Q31423
Styrene	BRL	mg/kg	0.0072	0.00081	1	8260B	04/04/08 22:50	lwitry	Q31423
tert-Butylbenzene	BRL	mg/kg	0.0072	0.00061	1	8260B	04/04/08 22:50	lwitry	Q31423
Tetrachloroethene	BRL	mg/kg	0.0072	0.00065	1	8260B	04/04/08 22:50	lwitry	Q31423
Toluene	BRL	mg/kg	0.0072	0.00053	1	8260B	04/04/08 22:50	lwitry	Q31423
trans-1,2-Dichloroethene	BRL	mg/kg	0.0072	0.00092	1	8260B	04/04/08 22:50	lwitry	Q31423
trans-1,3-Dichloropropene	BRL	mg/kg	0.0072	0.00085	1	8260B	04/04/08 22:50	lwitry	Q31423
Trichloroethene	BRL	mg/kg	0.0072	0.0011	1	8260B	04/04/08 22:50	lwitry	Q31423
Trichlorofluoromethane	BRL	mg/kg	0.0072	0.0013	1	8260B	04/04/08 22:50	lwitry	Q31423
Vinyl acetate	BRL	mg/kg	0.036	0.0020	1	8260B	04/04/08 22:50	lwitry	Q31423
Vinyl chloride	BRL	mg/kg	0.0072	0.0013	1	8260B	04/04/08 22:50	lwitry	Q31423

Surrogate	% Recovery	Control Limits
Toluene-d8	100	81 - 128
Dibromofluoromethane	98	67 - 143
Bromofluorobenzene	98	77 - 128

Semi-volatile Organic Compounds by GC/MS

2-Methylnaphthalene	BRL	mg/kg	0.39	0.044	1	8270C	04/10/08 12:33	rselph	Q31608
Acenaphthene	BRL	mg/kg	0.39	0.053	1	8270C	04/10/08 12:33	rselph	Q31608
Acenaphthylene	BRL	mg/kg	0.39	0.037	1	8270C	04/10/08 12:33	rselph	Q31608
Anthracene	BRL	mg/kg	0.39	0.028	1	8270C	04/10/08 12:33	rselph	Q31608
Benzo(a)anthracene	BRL	mg/kg	0.39	0.044	1	8270C	04/10/08 12:33	rselph	Q31608
Benzo(a)pyrene	BRL	mg/kg	0.39	0.049	1	8270C	04/10/08 12:33	rselph	Q31608

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Laboratory Report

04/18/08

North Carolina Department of
 Transportation
 Attn: David Graham
 c/o Hart and Hickman
 2923 South Tryon St. Ste 100
 Charlotte, NC 28203

Project Name: Boone PSAs
 Project ID: ROW-148
 Project No.: WBS# 35015.1.1
 Sample Matrix: Soil

Client Sample ID: 30-3 (2-4')
 Prism Sample ID: 210360
 COC Group: G0408076
 Time Collected: 03/31/08 12:05
 Time Submitted: 04/03/08 8:30

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Benzo(b)fluoranthene	BRL	mg/kg	0.39	0.080	1	8270C	04/10/08 12:33	rselph	Q31608
Benzo(g,h,i)perylene	BRL	mg/kg	0.39	0.050	1	8270C	04/10/08 12:33	rselph	Q31608
Benzo(k)fluoranthene	BRL	mg/kg	0.39	0.10	1	8270C	04/10/08 12:33	rselph	Q31608
Chrysene	BRL	mg/kg	0.39	0.026	1	8270C	04/10/08 12:33	rselph	Q31608
Dibenzo(a,h)anthracene	BRL	mg/kg	0.39	0.036	1	8270C	04/10/08 12:33	rselph	Q31608
Fluoranthene	BRL	mg/kg	0.39	0.069	1	8270C	04/10/08 12:33	rselph	Q31608
Fluorene	BRL	mg/kg	0.39	0.056	1	8270C	04/10/08 12:33	rselph	Q31608
Indeno(1,2,3-cd)pyrene	BRL	mg/kg	0.39	0.037	1	8270C	04/10/08 12:33	rselph	Q31608
Naphthalene	BRL	mg/kg	0.39	0.047	1	8270C	04/10/08 12:33	rselph	Q31608
Phenanthrene	BRL	mg/kg	0.39	0.033	1	8270C	04/10/08 12:33	rselph	Q31608
Pyrene	BRL	mg/kg	0.39	0.075	1	8270C	04/10/08 12:33	rselph	Q31608

Surrogate recovery was outside of the control limits. Matrix interference is suspected.

Sample Preparation: 30 g / 1 mL 3550B 04/09/08 11:00 pbarr P21289

Surrogate	% Recovery	Control Limits
Terphenyl-d14	102	41 - 136
Phenol-d5	70	13 - 95
Nitrobenzene-d5	86	14 - 103
2-Fluorophenol	60	14 - 89
2-Fluorobiphenyl	114 #	21 - 108
2,4,6-Tribromophenol	91	25 - 123

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Laboratory Report

04/18/08

North Carolina Department of
 Transportation
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 2923 South Tryon St. Ste 100
 Charlotte, NC 28203

Project Name: Boone PSAs
 Project ID: ROW-148
 Project No.: WBS# 35015.1.1
 Sample Matrix: Soil

Client Sample ID: 30-3 (2-4')
 Prism Sample ID: 210360
 COC Group: G0408076
 Time Collected: 03/31/08 12:05
 Time Submitted: 04/03/08 8:30

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limit only. No J-Flags applied.

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

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services



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

Laboratory Report

04/18/08

North Carolina Department of
 Transportation
 Attn: David Graham
 c/o Hart and Hickman
 2923 South Tryon St. Ste 100
 Charlotte, NC 28203

Project Name: Boone PSAs
 Project ID: ROW-148
 Project No.: WBS# 35015.1.1
 Sample Matrix: Soil

Client Sample ID: 30-4 (4-6')
 Prism Sample ID: 210365
 COC Group: G0408076
 Time Collected: 03/31/08 16:05
 Time Submitted: 04/03/08 8:30

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

Percent Solids	69.5	%			1	SM2540 G	04/04/08 13:30	mbarber	
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Diesel Range Organics (DRO) by GC-FID

Diesel Range Organics (DRO)	BRL	mg/kg	10	1.6	1	8015B	04/08/08 19:46	jvogel	Q31590
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Sample Preparation: 25.26 g / 1 mL 3545 04/07/08 16:00 Wconder P21277

Surrogate	% Recovery	Control Limits
o-Terphenyl	51	49 - 124

Sample Weight Determination

Weight 1	4.92	g			1	GRO	04/04/08 0:00	lbrown	
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Weight 2	4.80	g			1	GRO	04/04/08 0:00	lbrown	
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Gasoline Range Organics (GRO) by GC-FID

Gasoline Range Organics (GRO)	BRL	mg/kg	7.2	4.5	50	8015B	04/09/08 18:56	wbradley	Q31604
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Surrogate	% Recovery	Control Limits
aaa-TFT	99	55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limit only. No J-Flags applied.

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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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



Full Service Analytical & Environmental Solutions

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

Client Company Name: HART HICKMAN
 Report To/Contact Name: DAVID GRAHAM
 Reporting Address: 2923 S. TRON ST. SUITE 100
CHARLOTTE, NC 28203

Phone: 704 887 4630 Fax (Yes) (No):
 Email (Yes) (No) Email Address:
 EDD Type: PDF Excel Other
 Site Location Name: BOONE PSAs
 Site Location Physical Address: US 421 - BOONE, NC

CHAIN OF CUSTODY RECORD

PAGE 1 OF 3 QUOTE # TO ENSURE PROPER BILLING:

Project Name: BOONE PSAs UST Project: (Yes) (No)
 Short Hold Analysis: (Yes) (No) UST Project: (Yes) (No)
 *Please ATTACH any project specific reporting (QC LEVEL I III III IV) provisions and/or QC Requirements
 Invoice To: NCDOT STATE PROJECT U-4020
 Address:

Purchase Order No./Billing Reference: WBS 35015.1
 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

Samples INTACT upon arrival?	YES	NO	N/A
Received ON WET ICE? Temp <u>29</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PROPER PRESERVATIVES indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Received WITHIN HOLDING TIMES?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUSTODY SEALS INTACT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VOLATILES sealed W/OUT HEADSPACE?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PROPER CONTAINERS used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)	SAMPLE CONTAINER			PRESERVATIVES	ANALYSES REQUESTED	REMARKS	PRISM LAB ID NO.
				*TYPE SEE BELOW	NO.	SIZE				
31-1 (4-6')	033108	1115	Soil	CIG	5			DRY WT. BASIS		210758
31-2 (4-6')		1140			5					210759
30-2 (2-4')		1205			5				30-3 (2-4')	210760
30-1 (8-10')		1340		CIG, VOA, P, G	2/1	40ml/4oz.	methanol			210761
31-3 (4-6')		1430			2/1					210762
31-4 (4-6')		1450			2/1					210763
30-2 (4-6')		1525			2/1					210764
30-4 (4-6')		1605			2/1					210765
31-5 (2-4')		1640			2/1					210766
Sampler's Signature: <u>C.V.P. Matthews</u> Sampled By (Print Name): <u>CAROL MATTHEWS/MIKE FRANKS/Affiliation: HART & HICKMAN</u> 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.										Additional Comments: Mileage/Hours: <u>1234</u> Date: <u>4/2/08</u> Date: <u>4/3/08</u> 0830 Date: <u>4/3/08</u> 0830 COC Group No.: <u>60408076</u>

PRESS DOWN FIRMLY - 3 COPIES

PRISM USE ONLY

Site Arrival Time	
Site Departure Time	
Field Tech Fee	
Mileage	

18
15
33

SEE REVERSE FOR TERMS & CONDITIONS

ORIGINAL

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 LOG UNTIL RECEIVED AT THE LABORATORY.
 Fed Ex UPS Hand-delivered Prism Field Service Other
 NPDES: NC SC NC SC NC SC NC SC NC SC
 DRINKING WATER: NC SC NC SC NC SC
 SOLID WASTE: NC SC NC SC
 RCRA: NC SC NC SC
 CERCLA: NC SC NC SC
 LANDFILL: NC SC NC SC
 OTHER: 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)