

**Preliminary Site Assessment**  
**Betty Elliott Property Parcel #31**  
**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  
Suite 100  
Charlotte, NC 28203  
704-586-0007

3334 Hillsborough Street  
Raleigh, NC 27607  
919-847-4241

**Preliminary Site Assessment  
Betty Elliott Property, Parcel #31  
Boone, Watauga County, North Carolina  
H&H Project ROW-148**

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**Preliminary Site Assessment  
Betty Elliott Property, Parcel #31  
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 Betty Elliott property (NC DOT Parcel #31) located at 358 East King Street (US Highway 421) between Hillside Drive and Horn in the West Drive 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). 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 Betty Elliott property is included in Appendix A.

Based on information provided by NC DOT and property neighbors, the subject site may have operated as a grocery store at some unspecified time in the past. According to an Environmental Data Resources (EDR) report for the site vicinity, the property does not appear on the North Carolina Underground Storage Tank (UST) database, and H&H did not observe surface evidence of current USTs or of previous UST removal on the property.

**2.0 Site Assessment**

Soil Assessment Field Activities

H&H mobilized to the Betty Elliott property on March 31, 2008 to advance six soil borings (31-1 through 31-6) 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. The URS results indicated a magnetic anomaly on the northwestern portion of the property as a potential UST. Follow-up with GPR also showed evidence of one potential UST. There is no surface evidence of the UST. The UST appears to be situated on the northwestern corner of the property along the existing curb of East King Street and the property line of NC DOT Parcel #30. URS's report including a site map depicting the results of the GPR and TDEM results is included in Appendix B.

Prior to advancing 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 of Statesville, North Carolina to advance soil borings 31-1 through 31-6 by DPT (see Figure 2). The borings were installed to depths of 8 to 12 ft. To facilitate the selection of soil samples for laboratory analysis from these borings, soil 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, a soil sample from each boring that exhibited the highest reading on the OVA was selected for laboratory analysis. Soil boring logs are included in Appendix C.

H&H submitted 6 samples (31-1 @ 4-6 ft; 31-2 @ 4-6 ft; 31-3 @ 4-6 ft; 31-4 @ 4-6 ft; 31-5 @ 2-4 ft; and 31-6 @ 6-8 ft) for laboratory analysis. Since one end of the potential UST location mentioned above is situated on the property line of NC DOT Parcels #30 and #31, soil sample 30-4 @ 2-4 ft, collected on NC DOT Parcel #30 adjacent to the western end of the potential UST, is included as part of the analytical discussion for Parcel #31. Soil samples are identified by the NC DOT Parcel number, soil boring, and the depth interval in feet of sample collection. Samples were sent to Prism Laboratories Inc. (Prism), of Charlotte, North Carolina, for laboratory analysis. Five of the soil samples 30-4 (2-4 ft), 31-3 (4-6 ft), 31-4 (4-6 ft), 31-5 (2-4 ft), and 31-6 (6-8 ft) were analyzed for total petroleum hydrocarbons (TPH) by EPA Method 8015B for gasoline-range organics (GRO) and diesel-range organics (DRO). Sample locations 31-1 and 31-2 are situated topographically downgradient proximity to a dry cleaning facility located northwest of the subject property. Therefore, samples 31-1 (4-6 ft) and 31-2 (4-6 ft) were 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 and chain-of-custody documentation for this site and Parcel #30 are provided in Appendix D. The

chain-of-custody form includes samples collected from other nearby properties. The analytical results are discussed below.

### **3.0 Analytical Results**

No target analytes were detected in the soil samples collected from Parcel #31 or sample 30-4 collected from Parcel #30. No concentrations of TPH GRO and DRO were detected in the soil samples analyzed. In addition, no VOCs or PAHs were identified in the soil samples analyzed.

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 cut of 2 ft in this area. Based on the proposed cut and results of soil sampling activities noted above, impacted soil should not be encountered at this site during NC DOT road work.

One UST appears to be present within the proposed right-of-way (ROW) area. No soil impacts were detected in the soil borings conducted near this UST. This UST and its contents should be removed and disposed in accordance with NCDENR regulations.

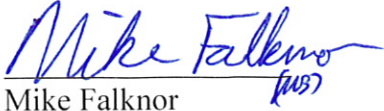
### **4.0 Summary and Regulatory Considerations**

H&H has reviewed Geophysical survey results and collected soil samples at Parcel 31. One UST appears to be present within the proposed ROW area. Target compounds were not detected on Parcel #31. DOT plans indicate a proposed cut of 2 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.

One UST appears to be present within the proposed ROW area. No soil impacts were detected in the soil borings conducted near this UST. This UST and its contents should be removed and disposed in accordance with NC DENR regulations. If soil impacts are encountered during UST removal, impacted soil that is removed should be properly managed and disposed at a permitted facility.

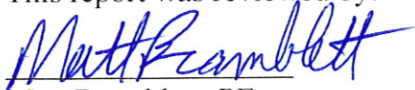
## 5.0 Signature Page

This report was prepared by:

Handwritten signature of Mike Falknor in blue ink, with the initials "MS" written below the signature.

Mike Falknor  
Staff Scientist for  
Hart and Hickman, PC

This report was reviewed by:

Handwritten signature of Matt Bramblett in blue ink.

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

Table 1  
**Soil Analytical Results**  
**Betty Elliot Property, Parcel #31**  
**Boone, North Carolina**  
**H&H Job No. ROW-148**

Sample ID	Sample Depth (ft)	Sample Date	Units	30-4	31-1	31-2	31-3	31-4	31-5	31-6	EPA Region 9 PRGs (mg/kg)
				4-6 3/31/2008 (mg/kg)	4-6 3/31/2008 (mg/kg)	4-6 3/31/2008 (mg/kg)	4-6 3/31/2008 (mg/kg)	4-6 3/31/2008 (mg/kg)	4-6 3/31/2008 (mg/kg)	6-8 4/1/2008 (mg/kg)	
<u>VOCs (5035/8260B)</u>				NA	BRL	BRL	NA	NA	NA	NA	varies
<u>PAH's (8270C)</u>				NA	BRL	BRL	NA	NA	NA	NA	varies
<u>TPH-DRO/GRO (8015B)</u> Diesel-Range Organics (DRO) Gasoline-Range Organics (GRO)				<8.2 <6.0	NA NA	NA NA	<8.0 <5.5	<9.7 <8.5	<10 <7.7	<9.1 <6.6	NC DENR Action Level (mg/kg)  10 10

**Notes:**

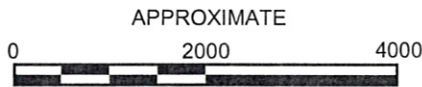
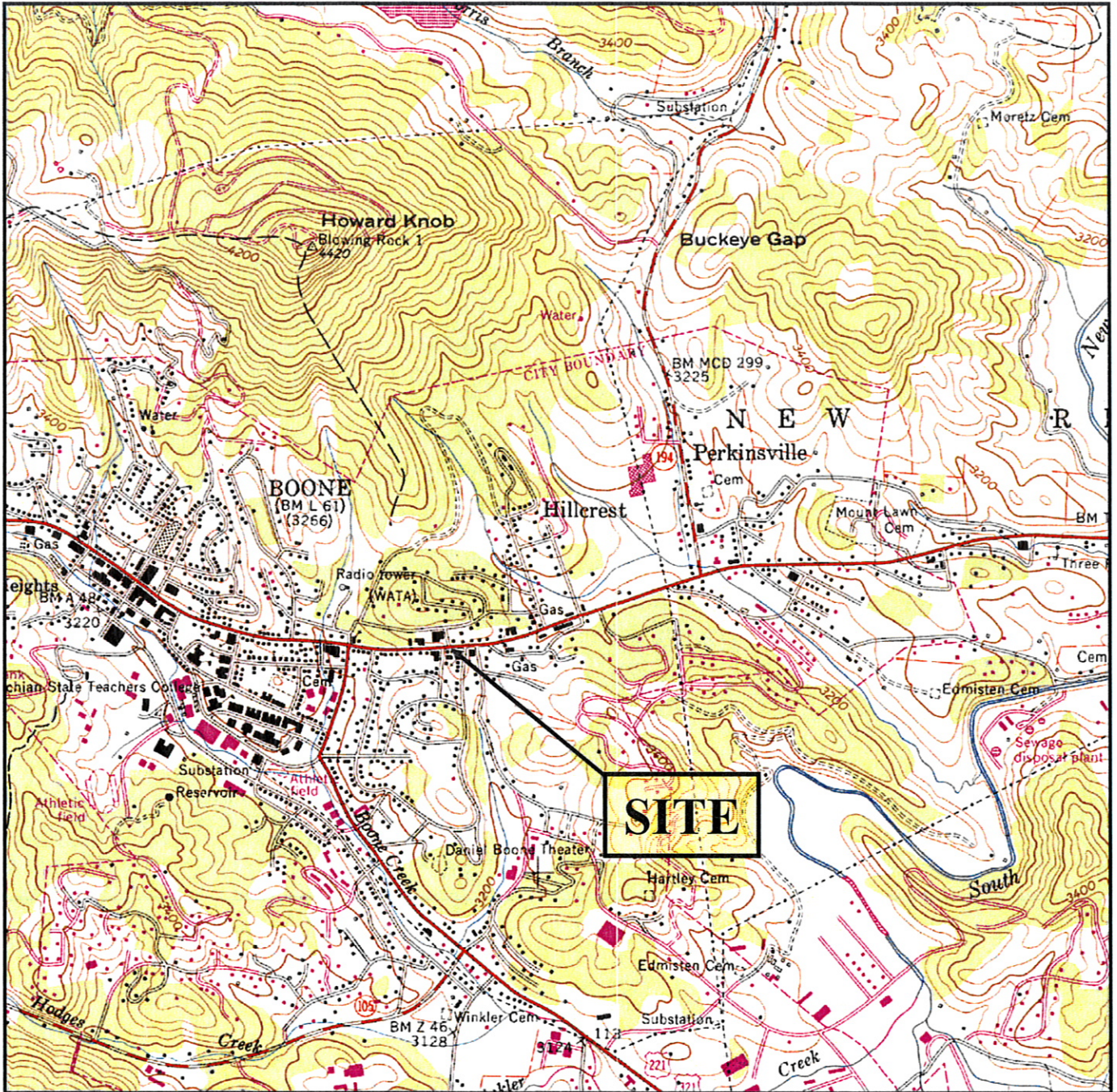
EPA Method follows parameter in parenthesis; PRGs=Preliminary Remediation Goal

BRL=Below laboratory reporting limit; NA= Not analyzed

VOCs=volatile organic compounds

TPH=total petroleum hydrocarbons; PAHs= Polycyclic Aromatic Hydrocarbons

Soil sample 30-4 @ 4-6 was collected on adjacent NC DOT Parcel #30 to assess a potential UST identified by URS geophysical survey.




SCALE IN FEET

U.S.G.S. QUADRANGLE MAP

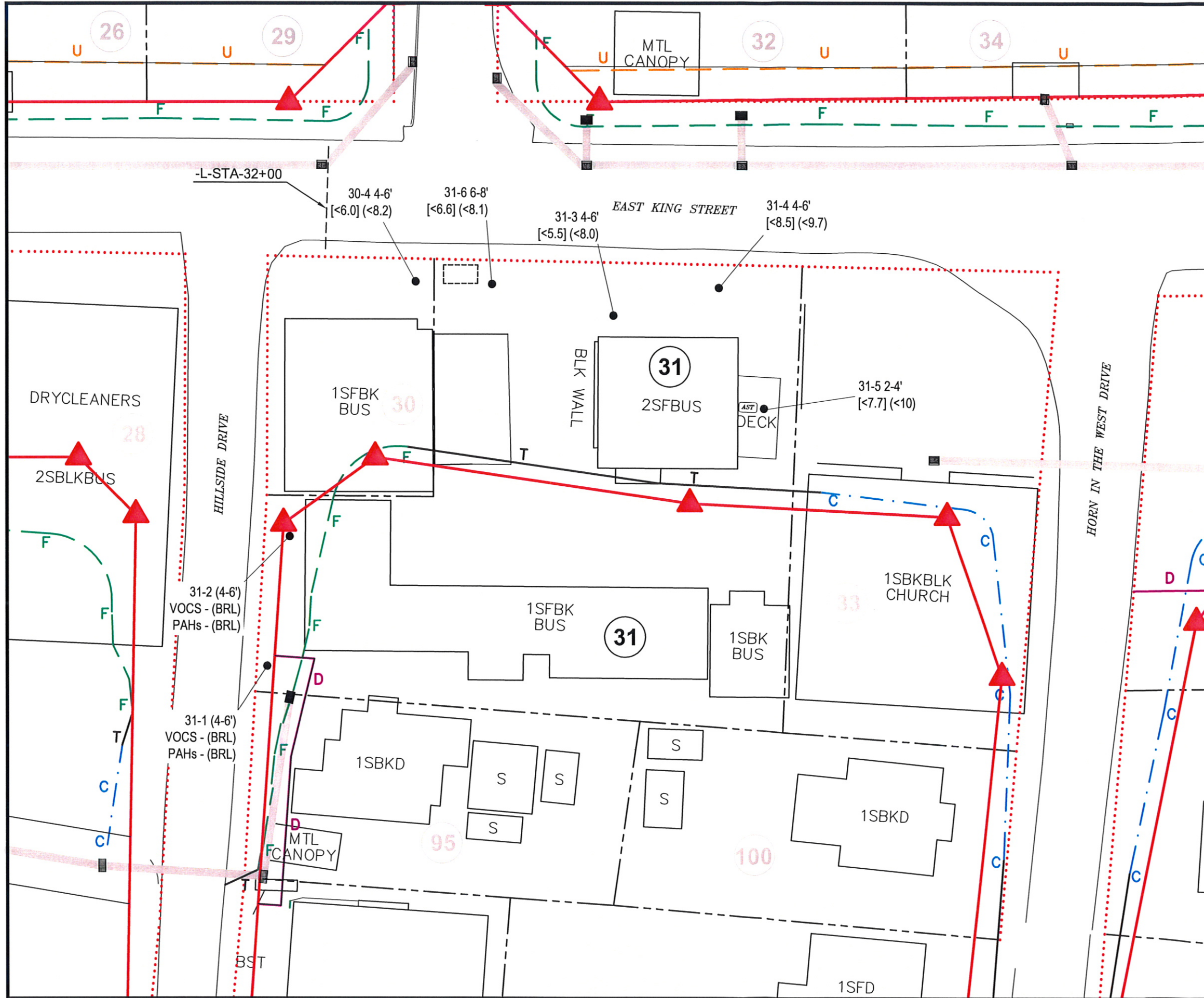
**BOONE, NC 1959  
PHOTOREVISED 1978**

QUADRANGLE  
7.5 MINUTE SERIES (TOPOGRAPHIC)

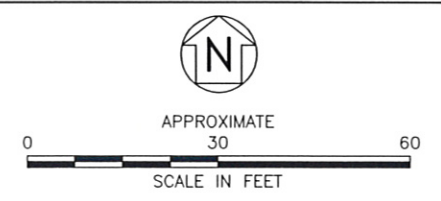
TITLE	SITE LOCATION MAP	
PROJECT	BETTY ELLIOTT PROPERTY PARCEL #31 BOONE, NORTH CAROLINA	
 <b>Hart &amp; Hickman</b> <small>A PROFESSIONAL CORPORATION</small>		
<small>2923 South Tryon Street-Suite 100 Charlotte, North Carolina 28203 704-586-0007 (p) 704-586-0370 (f)</small>		
DATE:	4-28-08	REVISION NO: 0
JOB NO:	ROW-148	FIGURE NO: 1



S:\AAA-Master Projects\NC DOT Right-of-Way - ROW\ROW-148 Boone PSAs\Files from DOT\Proj\FIGURES\30,31,32,35 A.dwg, 31, 5/28/2008 12:39:06 PM, 1:1



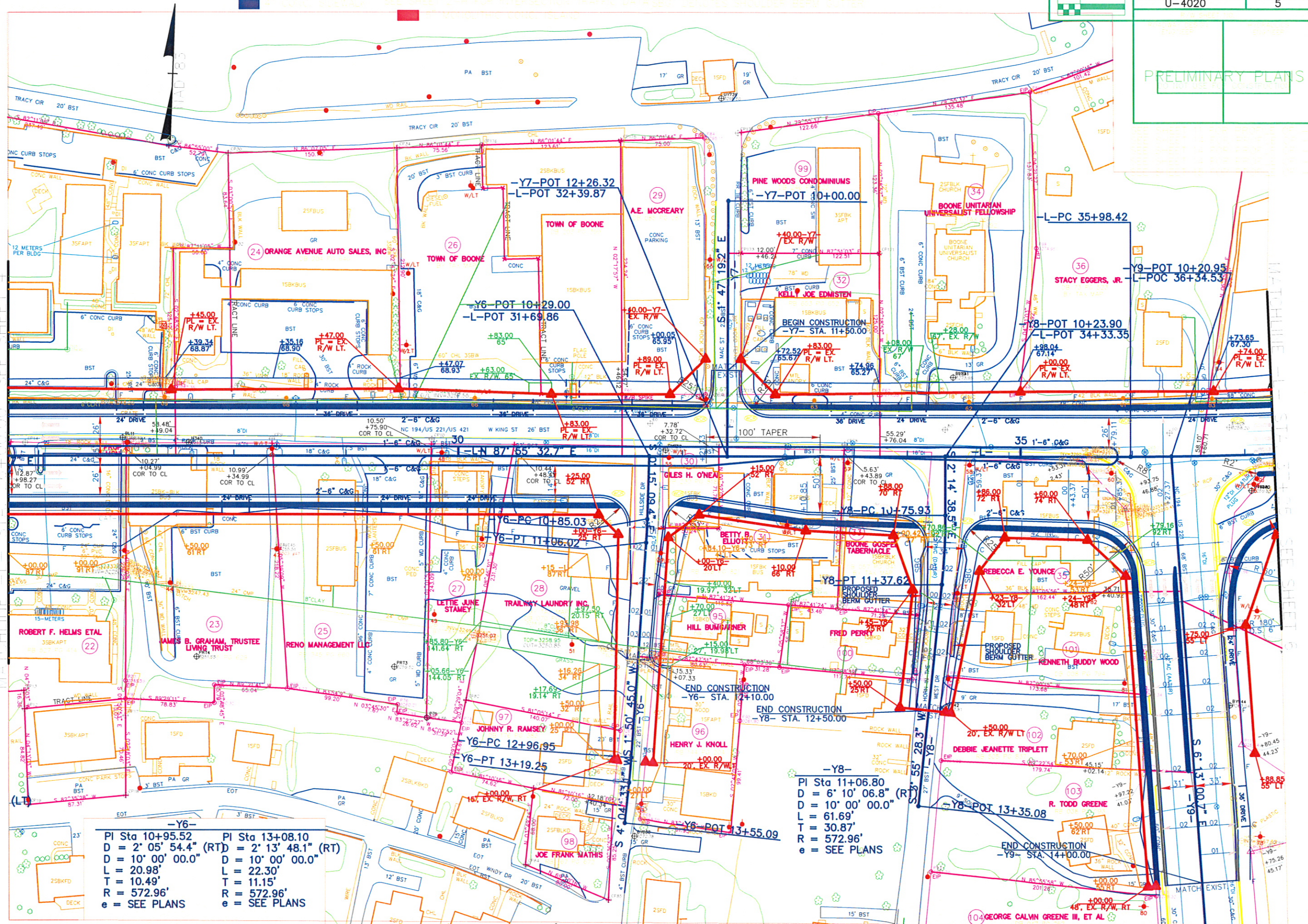
- LEGEND**
- PROPERTY LINE
  - ..... EXISTING RIGHT-OF-WAY
  - ▲ PROPOSED RIGHT-OF-WAY
  - C- PROPOSED CUT LINE
  - F- PROPOSED FILL LINE
  - T- PROPOSED TRANSITION LINE
  - D- PROPOSED DRAINAGE EASEMENT
  - U- PROPOSED UTILITY EASEMENT
  - PROPOSED DRAINAGE PIPE
  - CB PROPOSED CATCH BASIN
  - SOIL BORING
  - POTENTIAL UST (IDENTIFIED BY URS)
  - 31** 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 <b>SITE MAP AND SOIL ANALYTICAL RESULTS</b>	
PROJECT BETTY ELLIOTT PROPERTY PARCEL #31 BOONE, NORTH CAROLINA	
<b>Hart &amp; Hickman</b> <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



<b>-Y6-</b>	
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"
L = 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 Investigation 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

URS Corporation – North Carolina  
6135 Park South Drive, Suite 300  
Charlotte, NC 28210  
Tel: 704.522.0330  
Fax: 704.522.0063  
www.urscorp.com

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March 31, 2008  
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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  
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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**

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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  
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**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.

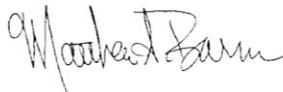
### **Limitations**

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



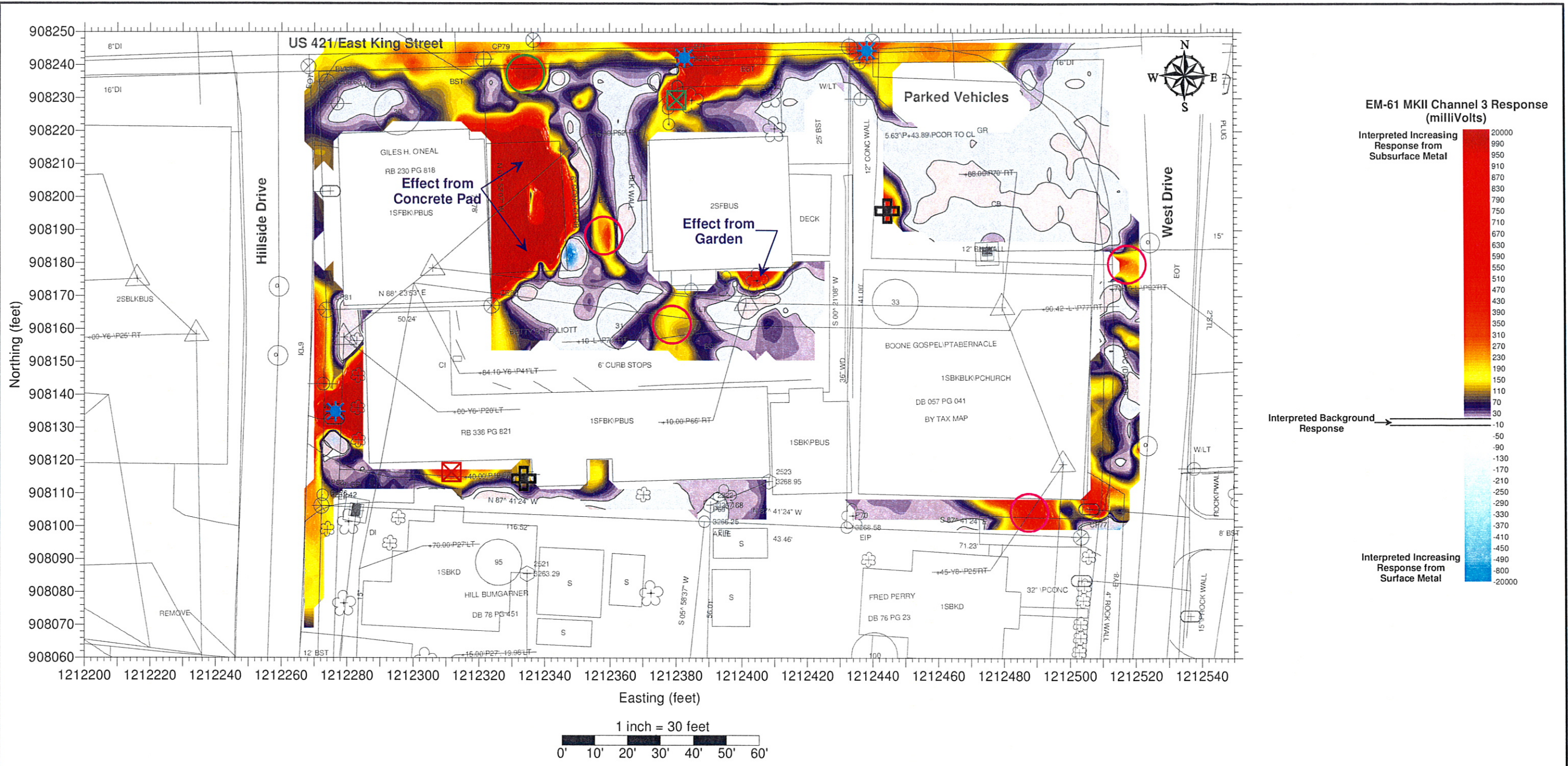
Timothy J. King  
Principal Geophysicist



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

lc: Vernon Keys, URS, Raleigh  
File 3182 5704 – 4.2



**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			
<b>Geophysical Investigation Results</b> Parcels #30, 31, 33			
<b>NCDOT State Project U-4020, Watauga County</b> Boone, North Carolina			
DESIGNED BY	DRAWN BY	CHECKED BY	JOB NUMBER
MAB	03/27/08	MAB	03/27/08
			Figure 1

**Appendix C**  
**Soil Boring Logs**



# BORING NUMBER 31-1

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

LOG OF BORING - HART HICKMAN.GDT - 5/21/08 09:13 - S:\AAA-MASTER PROJECTS\NC DOT RIGHT-OF-WAY -ROW\ROW-148 BOONE PSAS\BORING LOGS\ROW-148 (31).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0			0.1			Brown, Sandy SILT, Dry		0
100			0.4			Light Brown, Sandy SILT, Dry		
5			0.4			Dark Brown, SILT, Dry		5
90			0.4			Brown/ Orange, Sandy SILT		
10			0.5			Dark Brown/ Orange, Sandy SILT, some Clay		10
100			0.4					
						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.



# BORING NUMBER 31-2

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 - 5/21/08 09:13 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW\ROW-148 BOONE PSAs\BORING LOGS\ROW-148 (31).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0						Brown, Sandy SILT, some Clay, Slightly Moist		0
0.4			0.4	0.5				
100				0.6		Brown, Sandy SILT, Slightly Moist		
5				1.7		Orange/ Brown, Sandy SILT, Slightly Moist		5
				2.2		White/ Brown, Sandy SILT, Slightly Moist		
100				2.3				
10				2.3		White/ Dark Brown, Sandy SILT, Slightly Moist		10
100				2.3				
15						Bottom of borehole at 12.0 feet.		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.



# BORING NUMBER 31-3

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 - 5/22/08 16:12 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW\ROW-148 BOONE PSAS\BORING LOGS\ROW-148 (31).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0						Dark Brown, Fine Sandy SILT, Slightly Moist, Loose		0
100			1.1	1.3		Brown, Medium Sandy SILT, Slightly Moist		
5						Light Brown, SILT, some Partially Weathered Rock, Dry, Loose		5
50								
						DPT Refusal at 8 feet Bottom of borehole at 8.0 feet.		
10								10
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:** 8  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

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



# BORING NUMBER 31-4

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 - 5/22/08 16:16 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW\ROW-148 BOONE PSAs\BORING LOGS\ROW-148 (31).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0						Brown, Fine Sandy SILT, Slightly Moist, Loose		0
1								
1.2						Dark Brown, Fine Sandy SILT, Slightly Moist, Loose		
100								
1.2								
5								5
1.2						Orange/ Brown sandy SILT, some Partially Weathered Rock		
100								
1.3						PARTIALLY WEATHERED ROCK		
						DPT refusal at 8 feet Bottom of borehole at 8.0 feet.		
10								10
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:** 8  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

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



# BORING NUMBER 31-5

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 - 5/22/08 16:12 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW\ROW-148 BOONE PSAs\BORING LOGS\ROW-148 (31).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0						MULCH		0
			1.3	1.7		Brown, Silty Medium SAND, Slightly Moist, Loose		
				1.4		Dark Brown, Fine Sandy SILT, some Organics, Slightly Moist, Loose		
5	100			1.4		Grey/ Brown, Silty Fine SAND, Slightly Moist, Loose		5
				1.4		Brown, Silty Fine SAND, Slightly Moist, Loose		
				1.3				
10						Hand Auger Refusal at 10 feet Bottom of borehole at 10.0 feet.		10
15								15
20								20

**DRILLING CONTRACTOR:** GEOLOGIC EXPLORATION  
**DRILL RIG/ METHOD:** Hand Auger  
**SAMPLING METHOD:** Hand Auger  
**LOGGED BY:** GAB  
**DRAWN BY:**

**BORING STARTED:** 3/31/08  
**BORING COMPLETED:** 3/31/08  
**TOTAL DEPTH:** 10  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
Borehole hand-augered to 10 feet.  
Soil sample collected from 2-4 feet for laboratory analysis.





# BORING NUMBER 31-6

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 - 5/21/08 09:13 - S:\AAA-MASTER PROJECTS\NC DOT RIGHT-OF-WAY -ROW-148 BOONE PSAs\BORING LOGS\ROW-148 (31).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0						ASPHALT		0
						CONCRETE		
			0.6	1.1		Orange/ Brown, Fine Sandy SILT, Slightly Moist, Loose		
100						Orange/ Brown, Medium Sandy SILT, Slightly Moist		
			1	1.2				
5			1.5	1.7		Dark Brown, Sandy SILT, some Clay, Slightly Compact		5
			2.1	3.6		Brown/ Orange, Medium Sandy SILT, Slightly Moist, Loose		
90			2.1	2.5		Brown, Sandy SILT, some Partially Weathered Rock		
			2.1	2.5		Dark Brown, Sandy SILT, Slightly Compact, Slightly Moist		10
10			2.1	2.5				
75						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:** 4/1/08  
**BORING COMPLETED:** 4/1/08  
**TOTAL DEPTH:** 12  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
 Borehole hand-augered to 5 feet.  
 Soil sample collected from 6-8 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

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						Light Brown, Silty Medium SAND, some Partially Weathered Rock, Slightly Moist, Loose		5
				2				
100						Medium Brown, Silty Medium SAND, some Partially Weathered Rock, Slightly Moist, Loose		
				1.6				
						Orange/ Brown, Silty Medium SAND, some Partially Weathered Rock, Slightly Moist, Loose		
				1.9				
10	75					Medium Brown, Silty Medium SAND, some Partially Weathered Rock, Slightly Moist, Loose		10
				1.9				
						Bottom of borehole at 12.0 feet.		
15								15
20								20

LOG OF BORING - HART HICKMAN GDT - 5/27/08 13:45 - S:\AAA-MASTER PROJECTS\INC 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 from 2-4 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: 31-1 (4-6")  
 Prism Sample ID: 210358  
 COC Group: G0408076  
 Time Collected: 03/31/08 11:15  
 Time Submitted: 04/03/08 8:30

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b><u>Percent Solids Determination</u></b>									
Percent Solids	79.5	%			1	SM2540 G	04/04/08 13:30	mbarber	
<b><u>Sample Weight Determination</u></b>									
Weight Bisulfate 1	5.51	g			1	5035	04/04/08 0:00	lbrown	
Weight Bisulfate 2	5.30	g			1	5035	04/04/08 0:00	lbrown	
Weight Methanol	6.01	g			1	5035	04/04/08 0:00	lbrown	
<b><u>Volatile Organic Compounds by GC/MS</u></b>									
1,1,1-Trichloroethane	BRL	mg/kg	0.0057	0.00067	1	8260B	04/04/08 21:22	lwitry	Q31423
1,1,2,2-Tetrachloroethane	BRL	mg/kg	0.0057	0.00041	1	8260B	04/04/08 21:22	lwitry	Q31423
1,1,2-Trichloroethane	BRL	mg/kg	0.0057	0.0006	1	8260B	04/04/08 21:22	lwitry	Q31423
1,1-Dichloroethane	BRL	mg/kg	0.0057	0.00065	1	8260B	04/04/08 21:22	lwitry	Q31423
1,1-Dichloroethene	BRL	mg/kg	0.0057	0.00098	1	8260B	04/04/08 21:22	lwitry	Q31423
1,1-Dichloropropene	BRL	mg/kg	0.0057	0.00067	1	8260B	04/04/08 21:22	lwitry	Q31423
1,2,3-Trichlorobenzene	BRL	mg/kg	0.0057	0.00065	1	8260B	04/04/08 21:22	lwitry	Q31423
1,2,3-Trichloropropane	BRL	mg/kg	0.0057	0.00076	1	8260B	04/04/08 21:22	lwitry	Q31423
1,2,4-Trichlorobenzene	BRL	mg/kg	0.0057	0.00074	1	8260B	04/04/08 21:22	lwitry	Q31423
1,2,4-Trimethylbenzene	BRL	mg/kg	0.0057	0.00029	1	8260B	04/04/08 21:22	lwitry	Q31423
1,2-Dibromoethane (EDB)	BRL	mg/kg	0.0057	0.00071	1	8260B	04/04/08 21:22	lwitry	Q31423
1,2-Dichlorobenzene	BRL	mg/kg	0.0057	0.00037	1	8260B	04/04/08 21:22	lwitry	Q31423
1,2-Dichloroethane	BRL	mg/kg	0.0057	0.00064	1	8260B	04/04/08 21:22	lwitry	Q31423
1,2-Dichloropropane	BRL	mg/kg	0.0057	0.0014	1	8260B	04/04/08 21:22	lwitry	Q31423
1,3,5-Trimethylbenzene	BRL	mg/kg	0.0057	0.00048	1	8260B	04/04/08 21:22	lwitry	Q31423
1,3-Dichlorobenzene	BRL	mg/kg	0.0057	0.00038	1	8260B	04/04/08 21:22	lwitry	Q31423
1,3-Dichloropropane	BRL	mg/kg	0.0057	0.00024	1	8260B	04/04/08 21:22	lwitry	Q31423
1,4-Dichlorobenzene	BRL	mg/kg	0.0057	0.00073	1	8260B	04/04/08 21:22	lwitry	Q31423
2,2-Dichloropropane	BRL	mg/kg	0.0057	0.00082	1	8260B	04/04/08 21:22	lwitry	Q31423
2-Chlorotoluene	BRL	mg/kg	0.0057	0.00032	1	8260B	04/04/08 21:22	lwitry	Q31423

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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



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

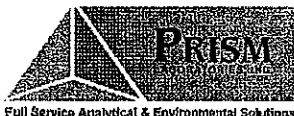
Client Sample ID: 31-1 (4-6')  
 Prism Sample ID: 210358  
 COC Group: G0408076  
 Time Collected: 03/31/08 11:15  
 Time Submitted: 04/03/08 8:30

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
2-Hexanone	BRL	mg/kg	0.057	0.0049	1	8260B	04/04/08 21:22	lwitry	Q31423
4-Chlorotoluene	BRL	mg/kg	0.0057	0.00042	1	8260B	04/04/08 21:22	lwitry	Q31423
4-Methyl-2-pentanone (MIBK)	BRL	mg/kg	0.057	0.0059	1	8260B	04/04/08 21:22	lwitry	Q31423
Acetone	BRL	mg/kg	0.057	0.017	1	8260B	04/04/08 21:22	lwitry	Q31423
Benzene	BRL	mg/kg	0.0034	0.00048	1	8260B	04/04/08 21:22	lwitry	Q31423
Bromobenzene	BRL	mg/kg	0.0057	0.00073	1	8260B	04/04/08 21:22	lwitry	Q31423
Bromochloromethane	BRL	mg/kg	0.0057	0.00047	1	8260B	04/04/08 21:22	lwitry	Q31423
Bromodichloromethane	BRL	mg/kg	0.0057	0.00062	1	8260B	04/04/08 21:22	lwitry	Q31423
Bromoform	BRL	mg/kg	0.0057	0.00051	1	8260B	04/04/08 21:22	lwitry	Q31423
Bromomethane	BRL	mg/kg	0.011	0.0013	1	8260B	04/04/08 21:22	lwitry	Q31423
Carbon tetrachloride	BRL	mg/kg	0.0057	0.00038	1	8260B	04/04/08 21:22	lwitry	Q31423
Chlorobenzene	BRL	mg/kg	0.0057	0.00058	1	8260B	04/04/08 21:22	lwitry	Q31423
Chlorodibromomethane	BRL	mg/kg	0.0057	0.00053	1	8260B	04/04/08 21:22	lwitry	Q31423
Chloroethane	BRL	mg/kg	0.011	0.0019	1	8260B	04/04/08 21:22	lwitry	Q31423
Chloroform	BRL	mg/kg	0.0057	0.00095	1	8260B	04/04/08 21:22	lwitry	Q31423
Chloromethane	BRL	mg/kg	0.0057	0.0014	1	8260B	04/04/08 21:22	lwitry	Q31423
cis-1,2-Dichloroethene	BRL	mg/kg	0.0057	0.00091	1	8260B	04/04/08 21:22	lwitry	Q31423
cis-1,3-Dichloropropene	BRL	mg/kg	0.0057	0.00075	1	8260B	04/04/08 21:22	lwitry	Q31423
Dichlorodifluoromethane	BRL	mg/kg	0.0057	0.0016	1	8260B	04/04/08 21:22	lwitry	Q31423
Ethylbenzene	BRL	mg/kg	0.0057	0.00026	1	8260B	04/04/08 21:22	lwitry	Q31423
Isopropyl ether (IPE)	BRL	mg/kg	0.0057	0.00053	1	8260B	04/04/08 21:22	lwitry	Q31423
Isopropylbenzene	BRL	mg/kg	0.0057	0.00033	1	8260B	04/04/08 21:22	lwitry	Q31423
m,p-Xylenes	BRL	mg/kg	0.011	0.00094	1	8260B	04/04/08 21:22	lwitry	Q31423
Methyl ethyl ketone (MEK)	BRL	mg/kg	0.11	0.017	1	8260B	04/04/08 21:22	lwitry	Q31423
Methyl t-butyl ether (MTBE)	BRL	mg/kg	0.011	0.00048	1	8260B	04/04/08 21:22	lwitry	Q31423
Methylene chloride	BRL	mg/kg	0.0057	0.00094	1	8260B	04/04/08 21:22	lwitry	Q31423
n-Butylbenzene	BRL	mg/kg	0.0057	0.00041	1	8260B	04/04/08 21:22	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: 31-1 (4-6')  
 Prism Sample ID: 210358  
 COC Group: G0408076  
 Time Collected: 03/31/08 11:15  
 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	0.0057	0.00038	1	8260B	04/04/08 21:22	lwitry	Q31423
Naphthalene	BRL	mg/kg	0.011	0.00068	1	8260B	04/04/08 21:22	lwitry	Q31423
o-Xylene	BRL	mg/kg	0.0057	0.00024	1	8260B	04/04/08 21:22	lwitry	Q31423
p-Isopropyltoluene	BRL	mg/kg	0.0057	0.00046	1	8260B	04/04/08 21:22	lwitry	Q31423
sec-Butylbenzene	BRL	mg/kg	0.0057	0.00039	1	8260B	04/04/08 21:22	lwitry	Q31423
Styrene	BRL	mg/kg	0.0057	0.00064	1	8260B	04/04/08 21:22	lwitry	Q31423
tert-Butylbenzene	BRL	mg/kg	0.0057	0.00048	1	8260B	04/04/08 21:22	lwitry	Q31423
Tetrachloroethene	BRL	mg/kg	0.0057	0.00051	1	8260B	04/04/08 21:22	lwitry	Q31423
Toluene	BRL	mg/kg	0.0057	0.00042	1	8260B	04/04/08 21:22	lwitry	Q31423
trans-1,2-Dichloroethene	BRL	mg/kg	0.0057	0.00073	1	8260B	04/04/08 21:22	lwitry	Q31423
trans-1,3-Dichloropropene	BRL	mg/kg	0.0057	0.00067	1	8260B	04/04/08 21:22	lwitry	Q31423
Trichloroethene	BRL	mg/kg	0.0057	0.00083	1	8260B	04/04/08 21:22	lwitry	Q31423
Trichlorofluoromethane	BRL	mg/kg	0.0057	0.0010	1	8260B	04/04/08 21:22	lwitry	Q31423
Vinyl acetate	BRL	mg/kg	0.029	0.0016	1	8260B	04/04/08 21:22	lwitry	Q31423
Vinyl chloride	BRL	mg/kg	0.0057	0.00099	1	8260B	04/04/08 21:22	lwitry	Q31423

Surrogate	% Recovery	Control Limits
Toluene-d8	99	81 - 128
Dibromofluoromethane	97	67 - 143
Bromofluorobenzene	99	77 - 128

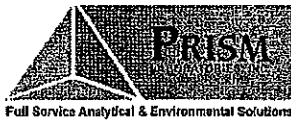
Semi-volatile Organic Compounds by GC/MS

2-Methylnaphthalene	BRL	mg/kg	0.41	0.046	1	8270C	04/10/08 11:26	rselfh	Q31608
Acenaphthene	BRL	mg/kg	0.41	0.056	1	8270C	04/10/08 11:26	rselfh	Q31608
Acenaphthylene	BRL	mg/kg	0.41	0.039	1	8270C	04/10/08 11:26	rselfh	Q31608
Anthracene	BRL	mg/kg	0.41	0.030	1	8270C	04/10/08 11:26	rselfh	Q31608
Benzo(a)anthracene	BRL	mg/kg	0.41	0.047	1	8270C	04/10/08 11:26	rselfh	Q31608
Benzo(a)pyrene	BRL	mg/kg	0.41	0.052	1	8270C	04/10/08 11:26	rselfh	Q31608

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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: 31-1 (4-6')  
 Prism Sample ID: 210358  
 COC Group: G0408076  
 Time Collected: 03/31/08 11:15  
 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	0.41	0.085	1	8270C	04/10/08 11:26	rselph	Q31608
Benzo(g,h,i)perylene	BRL	mg/kg	0.41	0.053	1	8270C	04/10/08 11:26	rselph	Q31608
Benzo(k)fluoranthene	BRL	mg/kg	0.41	0.11	1	8270C	04/10/08 11:26	rselph	Q31608
Chrysene	BRL	mg/kg	0.41	0.028	1	8270C	04/10/08 11:26	rselph	Q31608
Dibenzo(a,h)anthracene	BRL	mg/kg	0.41	0.039	1	8270C	04/10/08 11:26	rselph	Q31608
Fluoranthene	BRL	mg/kg	0.41	0.073	1	8270C	04/10/08 11:26	rselph	Q31608
Fluorene	BRL	mg/kg	0.41	0.059	1	8270C	04/10/08 11:26	rselph	Q31608
Indeno(1,2,3-cd)pyrene	BRL	mg/kg	0.41	0.039	1	8270C	04/10/08 11:26	rselph	Q31608
Naphthalene	BRL	mg/kg	0.41	0.049	1	8270C	04/10/08 11:26	rselph	Q31608
Phenanthrene	BRL	mg/kg	0.41	0.035	1	8270C	04/10/08 11:26	rselph	Q31608
Pyrene	BRL	mg/kg	0.41	0.079	1	8270C	04/10/08 11:26	rselph	Q31608

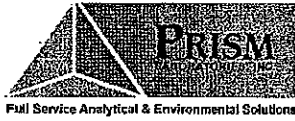
Sample Preparation: 30.09 g / 1 mL 3550B 04/09/08 11:00 pbarr P21289

Surrogate	% Recovery	Control Limits
Terphenyl-d14	89	41 - 136
Phenol-d5	45	13 - 95
Nitrobenzene-d5	60	14 - 103
2-Fluorophenol	38	14 - 89
2-Fluorobiphenyl	88	21 - 108
2,4,6-Tribromophenol	80	25 - 123

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NC Certification No. 402  
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 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: 31-1 (4-6')  
 Prism Sample ID: 210358  
 COC Group: G0408076  
 Time Collected: 03/31/08 11:15  
 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*

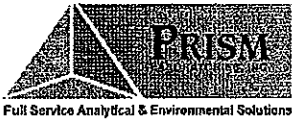
*Values are reported down to the reporting limit only. No J-Flags applied.*

*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  
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 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

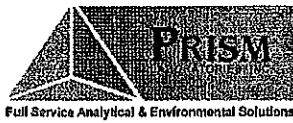
Client Sample ID: 31-2 (4-6')  
 Prism Sample ID: 210359  
 COC Group: G0408076  
 Time Collected: 03/31/08 11:40  
 Time Submitted: 04/03/08 8:30

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b><u>Percent Solids Determination</u></b>									
Percent Solids	62.8	%			1	SM2540 G	04/04/08 13:30	mbarber	
<b><u>Sample Weight Determination</u></b>									
Weight Bisulfate 1	4.95	g			1	5035	04/04/08 0:00	lbrown	
Weight Bisulfate 2	4.30	g			1	5035	04/04/08 0:00	lbrown	
Weight Methanol	4.32	g			1	5035	04/04/08 0:00	lbrown	
<b><u>Volatile Organic Compounds by GC/MS</u></b>									
1,1,1-Trichloroethane	BRL	mg/kg	0.0081	0.00095	1	8260B	04/04/08 22:06	lwitry	Q31423
1,1,2,2-Tetrachloroethane	BRL	mg/kg	0.0081	0.00058	1	8260B	04/04/08 22:06	lwitry	Q31423
1,1,2-Trichloroethane	BRL	mg/kg	0.0081	0.00086	1	8260B	04/04/08 22:06	lwitry	Q31423
1,1-Dichloroethane	BRL	mg/kg	0.0081	0.00092	1	8260B	04/04/08 22:06	lwitry	Q31423
1,1-Dichloroethene	BRL	mg/kg	0.0081	0.0014	1	8260B	04/04/08 22:06	lwitry	Q31423
1,1-Dichloropropene	BRL	mg/kg	0.0081	0.00095	1	8260B	04/04/08 22:06	lwitry	Q31423
1,2,3-Trichlorobenzene	BRL	mg/kg	0.0081	0.00092	1	8260B	04/04/08 22:06	lwitry	Q31423
1,2,3-Trichloropropane	BRL	mg/kg	0.0081	0.0011	1	8260B	04/04/08 22:06	lwitry	Q31423
1,2,4-Trichlorobenzene	BRL	mg/kg	0.0081	0.0010	1	8260B	04/04/08 22:06	lwitry	Q31423
1,2,4-Trimethylbenzene	BRL	mg/kg	0.0081	0.0004	1	8260B	04/04/08 22:06	lwitry	Q31423
1,2-Dibromoethane (EDB)	BRL	mg/kg	0.0081	0.0010	1	8260B	04/04/08 22:06	lwitry	Q31423
1,2-Dichlorobenzene	BRL	mg/kg	0.0081	0.00052	1	8260B	04/04/08 22:06	lwitry	Q31423
1,2-Dichloroethane	BRL	mg/kg	0.0081	0.0009	1	8260B	04/04/08 22:06	lwitry	Q31423
1,2-Dichloropropane	BRL	mg/kg	0.0081	0.0020	1	8260B	04/04/08 22:06	lwitry	Q31423
1,3,5-Trimethylbenzene	BRL	mg/kg	0.0081	0.00068	1	8260B	04/04/08 22:06	lwitry	Q31423
1,3-Dichlorobenzene	BRL	mg/kg	0.0081	0.00053	1	8260B	04/04/08 22:06	lwitry	Q31423
1,3-Dichloropropane	BRL	mg/kg	0.0081	0.00034	1	8260B	04/04/08 22:06	lwitry	Q31423
1,4-Dichlorobenzene	BRL	mg/kg	0.0081	0.0010	1	8260B	04/04/08 22:06	lwitry	Q31423
2,2-Dichloropropane	BRL	mg/kg	0.0081	0.0012	1	8260B	04/04/08 22:06	lwitry	Q31423
2-Chlorotoluene	BRL	mg/kg	0.0081	0.00045	1	8260B	04/04/08 22:06	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: 31-2 (4-6')  
 Prism Sample ID: 210359  
 COC Group: G0408076  
 Time Collected: 03/31/08 11:40  
 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	0.081	0.0070	1	8260B	04/04/08 22:06	lwitry	Q31423
4-Chlorotoluene	BRL	mg/kg	0.0081	0.0006	1	8260B	04/04/08 22:06	lwitry	Q31423
4-Methyl-2-pentanone (MIBK)	BRL	mg/kg	0.081	0.0084	1	8260B	04/04/08 22:06	lwitry	Q31423
Acetone	BRL	mg/kg	0.081	0.024	1	8260B	04/04/08 22:06	lwitry	Q31423
Benzene	BRL	mg/kg	0.0048	0.00068	1	8260B	04/04/08 22:06	lwitry	Q31423
Bromobenzene	BRL	mg/kg	0.0081	0.0010	1	8260B	04/04/08 22:06	lwitry	Q31423
Bromochloromethane	BRL	mg/kg	0.0081	0.00066	1	8260B	04/04/08 22:06	lwitry	Q31423
Bromodichloromethane	BRL	mg/kg	0.0081	0.00087	1	8260B	04/04/08 22:06	lwitry	Q31423
Bromoform	BRL	mg/kg	0.0081	0.00073	1	8260B	04/04/08 22:06	lwitry	Q31423
Bromomethane	BRL	mg/kg	0.016	0.0018	1	8260B	04/04/08 22:06	lwitry	Q31423
Carbon tetrachloride	BRL	mg/kg	0.0081	0.00053	1	8260B	04/04/08 22:06	lwitry	Q31423
Chlorobenzene	BRL	mg/kg	0.0081	0.00082	1	8260B	04/04/08 22:06	lwitry	Q31423
Chlorodibromomethane	BRL	mg/kg	0.0081	0.00074	1	8260B	04/04/08 22:06	lwitry	Q31423
Chloroethane	BRL	mg/kg	0.016	0.0027	1	8260B	04/04/08 22:06	lwitry	Q31423
Chloroform	BRL	mg/kg	0.0081	0.0013	1	8260B	04/04/08 22:06	lwitry	Q31423
Chloromethane	BRL	mg/kg	0.0081	0.0019	1	8260B	04/04/08 22:06	lwitry	Q31423
cis-1,2-Dichloroethene	BRL	mg/kg	0.0081	0.0013	1	8260B	04/04/08 22:06	lwitry	Q31423
cis-1,3-Dichloropropene	BRL	mg/kg	0.0081	0.0011	1	8260B	04/04/08 22:06	lwitry	Q31423
Dichlorodifluoromethane	BRL	mg/kg	0.0081	0.0022	1	8260B	04/04/08 22:06	lwitry	Q31423
Ethylbenzene	BRL	mg/kg	0.0081	0.00037	1	8260B	04/04/08 22:06	lwitry	Q31423
Isopropyl ether (IPE)	BRL	mg/kg	0.0081	0.00074	1	8260B	04/04/08 22:06	lwitry	Q31423
Isopropylbenzene	BRL	mg/kg	0.0081	0.00047	1	8260B	04/04/08 22:06	lwitry	Q31423
m,p-Xylenes	BRL	mg/kg	0.016	0.0013	1	8260B	04/04/08 22:06	lwitry	Q31423
Methyl ethyl ketone (MEK)	BRL	mg/kg	0.16	0.024	1	8260B	04/04/08 22:06	lwitry	Q31423
Methyl t-butyl ether (MTBE)	BRL	mg/kg	0.016	0.00068	1	8260B	04/04/08 22:06	lwitry	Q31423
Methylene chloride	BRL	mg/kg	0.0081	0.0013	1	8260B	04/04/08 22:06	lwitry	Q31423
n-Butylbenzene	BRL	mg/kg	0.0081	0.00058	1	8260B	04/04/08 22:06	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: 31-2 (4-6')  
 Prism Sample ID: 210359  
 COC Group: G0408076  
 Time Collected: 03/31/08 11:40  
 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	0.0081	0.00053	1	8260B	04/04/08 22:06	lwitry	Q31423
Naphthalene	BRL	mg/kg	0.016	0.00097	1	8260B	04/04/08 22:06	lwitry	Q31423
o-Xylene	BRL	mg/kg	0.0081	0.00034	1	8260B	04/04/08 22:06	lwitry	Q31423
p-Isopropyltoluene	BRL	mg/kg	0.0081	0.00065	1	8260B	04/04/08 22:06	lwitry	Q31423
sec-Butylbenzene	BRL	mg/kg	0.0081	0.00055	1	8260B	04/04/08 22:06	lwitry	Q31423
Styrene	BRL	mg/kg	0.0081	0.0009	1	8260B	04/04/08 22:06	lwitry	Q31423
tert-Butylbenzene	BRL	mg/kg	0.0081	0.00068	1	8260B	04/04/08 22:06	lwitry	Q31423
Tetrachloroethene	BRL	mg/kg	0.0081	0.00073	1	8260B	04/04/08 22:06	lwitry	Q31423
Toluene	BRL	mg/kg	0.0081	0.0006	1	8260B	04/04/08 22:06	lwitry	Q31423
trans-1,2-Dichloroethene	BRL	mg/kg	0.0081	0.0010	1	8260B	04/04/08 22:06	lwitry	Q31423
trans-1,3-Dichloropropene	BRL	mg/kg	0.0081	0.00095	1	8260B	04/04/08 22:06	lwitry	Q31423
Trichloroethene	BRL	mg/kg	0.0081	0.0012	1	8260B	04/04/08 22:06	lwitry	Q31423
Trichlorofluoromethane	BRL	mg/kg	0.0081	0.0014	1	8260B	04/04/08 22:06	lwitry	Q31423
Vinyl acetate	BRL	mg/kg	0.040	0.0023	1	8260B	04/04/08 22:06	lwitry	Q31423
Vinyl chloride	BRL	mg/kg	0.0081	0.0014	1	8260B	04/04/08 22:06	lwitry	Q31423

Surrogate	% Recovery	Control Limits
Toluene-d8	98	81 - 128
Dibromofluoromethane	102	67 - 143
Bromofluorobenzene	96	77 - 128

**Semi-volatile Organic Compounds by GC/MS**

2-Methylnaphthalene	BRL	mg/kg	0.53	0.059	1	8270C	04/10/08 11:59	rselph	Q31608
Acenaphthene	BRL	mg/kg	0.53	0.072	1	8270C	04/10/08 11:59	rselph	Q31608
Acenaphthylene	BRL	mg/kg	0.53	0.050	1	8270C	04/10/08 11:59	rselph	Q31608
Anthracene	BRL	mg/kg	0.53	0.038	1	8270C	04/10/08 11:59	rselph	Q31608
Benzo(a)anthracene	BRL	mg/kg	0.53	0.059	1	8270C	04/10/08 11:59	rselph	Q31608
Benzo(a)pyrene	BRL	mg/kg	0.53	0.067	1	8270C	04/10/08 11:59	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: 31-2 (4-6')  
 Prism Sample ID: 210359  
 COC Group: G0408076  
 Time Collected: 03/31/08 11:40  
 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	0.53	0.11	1	8270C	04/10/08 11:59	rselph	Q31608
Benzo(g,h,i)perylene	BRL	mg/kg	0.53	0.067	1	8270C	04/10/08 11:59	rselph	Q31608
Benzo(k)fluoranthene	BRL	mg/kg	0.53	0.14	1	8270C	04/10/08 11:59	rselph	Q31608
Chrysene	BRL	mg/kg	0.53	0.035	1	8270C	04/10/08 11:59	rselph	Q31608
Dibenzo(a,h)anthracene	BRL	mg/kg	0.53	0.049	1	8270C	04/10/08 11:59	rselph	Q31608
Fluoranthene	BRL	mg/kg	0.53	0.093	1	8270C	04/10/08 11:59	rselph	Q31608
Fluorene	BRL	mg/kg	0.53	0.075	1	8270C	04/10/08 11:59	rselph	Q31608
Indeno(1,2,3-cd)pyrene	BRL	mg/kg	0.53	0.050	1	8270C	04/10/08 11:59	rselph	Q31608
Naphthalene	BRL	mg/kg	0.53	0.063	1	8270C	04/10/08 11:59	rselph	Q31608
Phenanthrene	BRL	mg/kg	0.53	0.045	1	8270C	04/10/08 11:59	rselph	Q31608
Pyrene	BRL	mg/kg	0.53	0.10	1	8270C	04/10/08 11:59	rselph	Q31608

Sample Preparation: 30.01 g / 1 mL 3550B 04/09/08 11:00 pbarr P21289

Surrogate	% Recovery	Control Limits
Terphenyl-d14	102	41 - 136
Phenol-d5	80	13 - 95
Nitrobenzene-d5	58	14 - 103
2-Fluorophenol	81	14 - 89
2-Fluorobiphenyl	90	21 - 108
2,4,6-Tribromophenol	82	25 - 123

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# Laboratory Report

04/18/08

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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: 31-2 (4-6')  
 Prism Sample ID: 210359  
 COC Group: G0408076  
 Time Collected: 03/31/08 11:40  
 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



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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: 31-3 (4-6')  
 Prism Sample ID: 210362  
 COC Group: G0408076  
 Time Collected: 03/31/08 14:30  
 Time Submitted: 04/03/08 8:30

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b><u>Percent Solids Determination</u></b>									
Percent Solids	90.3	%			1	SM2540 G	04/04/08 13:30	mbarber	
<b><u>Diesel Range Organics (DRO) by GC-FID</u></b>									
Diesel Range Organics (DRO)	BRL	mg/kg	8.0	1.3	1	8015B	04/08/08 18:34	jvogel	Q31590
Sample Preparation:			24.28 g	/	1 mL	3545	04/07/08 16:00	Wcorder	P21277
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						o-Terphenyl	55	49 - 124	
<b><u>Sample Weight Determination</u></b>									
Weight 1	5.56	g			1	GRO	04/04/08 0:00	lbrown	
Weight 2	5.33	g			1	GRO	04/04/08 0:00	lbrown	
<b><u>Gasoline Range Organics (GRO) by GC-FID</u></b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	5.5	3.5	50	8015B	04/09/08 17:22	wbradley	Q31604
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						aaa-TFT	104	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.

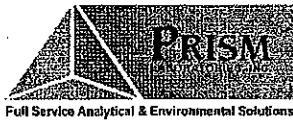
All results are reported on a dry-weight basis

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



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: 31-4 (4-6')  
 Prism Sample ID: 210363  
 COC Group: G0408076  
 Time Collected: 03/31/08 14:50  
 Time Submitted: 04/03/08 8:30

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b><u>Percent Solids Determination</u></b>									
Percent Solids	58.7	%			1	SM2540 G	04/04/08 13:30	mbarber	
<b><u>Diesel Range Organics (DRO) by GC-FID</u></b>									
Diesel Range Organics (DRO)	BRL	mg/kg	9.7	1.9	1	8015B	04/08/08 19:10	jvogel	Q31590
Sample Preparation:			25.86 g	/	1 mL	3545	04/07/08 16:00	Wconder	P21277
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						o-Terphenyl	63	49 - 124	
<b><u>Sample Weight Determination</u></b>									
Weight 1	5.16	g			1	GRO	04/04/08 0:00	lbrown	
Weight 2	5.13	g			1	GRO	04/04/08 0:00	lbrown	
<b><u>Gasoline Range Organics (GRO) by GC-FID</u></b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	8.5	5.3	50	8015B	04/09/08 17:54	wbradley	Q31604
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						aaa-TFT	56	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.*

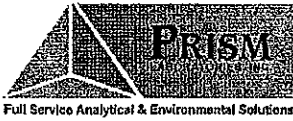
*All results are reported on a dry-weight basis*

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: 31-5 (2-4')  
 Prism Sample ID: 210366  
 COC Group: G0408076  
 Time Collected: 03/31/08 16:40  
 Time Submitted: 04/03/08 8:30

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>Percent Solids Determination</b>									
Percent Solids	64.8	%			1	SM2540 G	04/04/08 13:30	mbarber	
<b>Diesel Range Organics (DRO) by GC-FID</b>									
Diesel Range Organics (DRO)	BRL	mg/kg	10	1.7	1	8015B	04/08/08 20:57	jvoegel	Q31590
Sample Preparation:			25.73 g	/	1 mL	3545	04/07/08 16:00	Wcorder	P21277
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						o-Terphenyl	74	49 - 124	
<b>Sample Weight Determination</b>									
Weight 1	5.11	g			1	GRO	04/04/08 0:00	lbrown	
Weight 2	5.59	g			1	GRO	04/04/08 0:00	lbrown	
<b>Gasoline Range Organics (GRO) by GC-FID</b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	7.7	4.8	50	8015B	04/09/08 19:28	wbradley	Q31604
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						aaa-TFT	87	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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All results are reported on a dry-weight basis

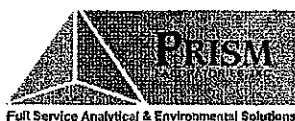
Angela D. Overcash, V.P. Laboratory Services

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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: 31-6 (6-8')  
 Prism Sample ID: 210367  
 COC Group: G0408076  
 Time Collected: 04/01/08 8:45  
 Time Submitted: 04/03/08 8:30

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>Percent Solids Determination</b>									
Percent Solids	75.5	%			1	SM2540 G	04/07/08 13:45	mbarber	
<b>Diesel Range Organics (DRO) by GC-FID</b>									
Diesel Range Organics (DRO)	BRL	mg/kg	9.1	1.5	1	8015B	04/08/08 21:33	jvoegel	Q31590
Sample Preparation:			25.4 g	/	1 mL	3545	04/07/08 16:00	Wconder	P21277
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						o-Terphenyl	65	49 - 124	
<b>Sample Weight Determination</b>									
Weight 1	4.71	g			1	GRO	04/14/08 0:00	lbrown	
Weight 2	4.65	g			1	GRO	04/14/08 0:00	lbrown	
<b>Gasoline Range Organics (GRO) by GC-FID</b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.6	4.1	50	8015B	04/09/08 20:00	wbradley	Q31604
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						aaa-TFT	76	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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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: 30-4 (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
<b>Percent Solids Determination</b>									
Percent Solids	69.5	%			1	SM2540 G	04/04/08 13:30	mbarber	
<b>Diesel Range Organics (DRO) by GC-FID</b>									
Diesel Range Organics (DRO)	BRL	mg/kg	10	1.6	1	8015B	04/08/08 19:46	jvogel	Q31590
Sample Preparation:			25.26 g	/	1 mL	3545	04/07/08 16:00	Wcander	P21277
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						o-Terphenyl	51	49 - 124	
<b>Sample Weight Determination</b>									
Weight 1	4.92	g			1	GRO	04/04/08 0:00	lbrown	
Weight 2	4.80	g			1	GRO	04/04/08 0:00	lbrown	
<b>Gasoline Range Organics (GRO) by GC-FID</b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	7.2	4.5	50	8015B	04/09/08 18:56	wbradley	Q31604
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						aaa-TFT	99	55 - 129	

**Sample Comment(s):**

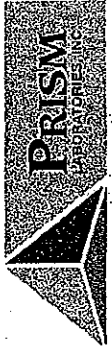
BRL = Below Reporting Limit  
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 All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services

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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: ROW-148 BOONE PSAs

Short Hold Analysis: (Yes) (No) UST Project: (Yes) (No)  
 \*Please ATTACH any project specific reporting (QC LEVEL I III IV)  
 provisions and/or QC Requirements

Invoice To: NCDOI (STATE PROTECT 11-4020)  
 Address: \_\_\_\_\_

Purchase Order No./Billing Reference: WBS 35015.1.1

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)

ANALYSES REQUESTED: Dry Wt, BAsis

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)	SAMPLE CONTAINER			PRESERVATIVES	REMARKS	PRISM LAB ID NO.
				*TYPE SEE BELOW	NO.	SIZE			
31-1 (4-6')	033108	1115	Soil	CIG	5				210753
31-2 (4-6')		1140		↓	5				210359
30-2 (2-4')		1205			5			30-3 (2-4')	210760
30-1 (8-10')		1340		CIG, VOA, B.G.	2/1	40ml/4cc	methanol		210361
31-3 (4-6')		1430		↓	2/1				210762
31-4 (4-6')		1450		↓	2/1				210363
30-2 (4-6')		1525		↓	2/1				210364
30-4 (4-6')		1605		↓	2/1				210765
31-5 (2-4')		1640		↓	2/1				210766

**PRESS DOWN FIRMLY - 3 COPIES**

Sampler's Signature: C. V. P. Matthews Sampled By (Print Name): Carol Matthews / PRISM Environmental Services / Affiliation: Hart & Hickman

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) C. V. P. Matthews Received By: (Signature) David M. Moore Military Hours: 1234

Relinquished By: (Signature) David M. Moore Received By: (Signature) David M. Moore Date: 4/3/08 Time: 0830

Relinquished By: (Signature) David M. Moore Received By: (Signature) David M. Moore Date: 4/3/08 Time: 0830

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  UPS  Hand-delivered  Prism Field Service  Other \_\_\_\_\_

NPDES:  NC  SC  NC  SC  NC  SC  NC  SC  NC  SC  NC  SC

Drinking Water:  NC  SC  NC  SC  NC  SC  NC  SC

Groundwater:  NC  SC  NC  SC  NC  SC  NC  SC

Solid Waste:  NC  SC  NC  SC  NC  SC  NC  SC

RCRA:  NC  SC  NC  SC  NC  SC  NC  SC

CERCLA:  NC  SC  NC  SC  NC  SC  NC  SC

Other:  Landfill  NC  SC  NC  SC

Other:  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)

**PRISM USE ONLY**

Site Address \_\_\_\_\_  
 Site Department \_\_\_\_\_  
 Site Name \_\_\_\_\_  
 Site Phone \_\_\_\_\_  
 Site Fax \_\_\_\_\_

118  
 125  
 33

SEE REVERSE FOR TERMS & CONDITIONS

ORIGINAL



Full Service Analytical & Environmental Solutions  
 449 Springbrook Road • P.O. Box 240543 • Charlotte, NC 28224-0543  
 Phone: 704/528-6364 • Fax: 704/525-0409

Client Company Name: HART & HICKMAN  
 Report To/Contact Name: DAVID GRAHAM  
 Reporting Address:

Phone: 887-4630 Fax (Yes) (No):  
 Email (Yes) (No) Email Address:  
 EDD Type: PDF  Excel  Other  
 Site Location Name: BOONE PSA's  
 Site Location Physical Address:

# CHAIN OF CUSTODY RECORD

PAGE 3 OF 3 QUOTE # TO ENSURE PROPER BILLING:

Project Name: RW-148 - Boone PSA's      US Project: (Yes) (No)  
 Short Hold Analysis: (Yes) (No)      UST Project: (Yes) (No) (No)  
 \*Please ATTACH any project specific reporting (QC LEVEL III III IV) provisions and/or QC Requirements  
 Invoice To: ACDOT  
 Address:

Purchase Order No./Billing Reference: MBS 35015.1.1  
 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 (no tampering)  YES  NO  N/A  
 Received on VeriSeal Temp. Bag   
 Proper Preservation Methods Indicated   
 Sealed Within Holding Times   
 Custody/Seals Intact   
 Vials/Seals without Headspace   
 Proper Containers Used

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				
31-6 (6-8')	040108	0845	Soil	C.G. VOA	2/1	40ml	methanol	✓		2103768
33-1 (3-5')		0910		C.G.	2/1	40ml		✓		2103768
33-2 (4-6')		0940			2/1			✓		2103769
33-3 (6-8')		1000			2/1			✓		2103770
33-4 (4-6')		1015			2/1			✓		2103771
35-1 (10-12')		1100		C.G.	5			✓		2103772
35-2 (6-8')		1115			5			✓		2103773
35-3 (6-8')		1145			5			✓		2103774
35-4 (6-8')		1315			5			✓		2103775
42-1 (10-12')		1430		C.G. VOA	2/1	40ml		✓		2103776

PRISM USE ONLY  
 Site VeriSeal Temp.   
 Site Preservation Time   
 Field Seals Intact   
 Mileage

Press Down Firmly - 3 COPIES  
 Date: 4-2-08 1234  
 Date: 4/3/08 0830  
 Date: 4/3/08 0830  
 Additional Comments:  
 Military Hours  
 Date: 4-2-08 1234  
 Date: 4/3/08 0830  
 Date: 4/3/08 0830  
 COC-Group No. G0428276

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  
 NPDES:  NC  SC  NC  SC  NC  SC  NC  SC  NC  SC  
 UST:  NC  SC  NC  SC  NC  SC  NC  SC  
 DRINKING WATER:  NC  SC  NC  SC  
 SOLID WASTE:  NC  SC  
 RCRA:  NC  SC  NC  SC  
 CERCLA:  NC  SC  NC  SC  
 LANDFILL:  NC  SC  NC  SC  
 OTHER:  NC  SC  
 \*CONTAINER TYPE CODES: A = Amber C = Clear G = Glass P = Plastic; TL = Teflon-Lined Cap VOA = Volatile Organics Analysis (Zero-Head Space)

38  
 SEE REVERSE FOR TERMS & CONDITIONS.  
 ORIGINAL