

**Preliminary Site Assessment**  
**Buddy Wood Property, Parcel #50 and #52**  
**Boone, Watauga County, NC**

**State Project U-4020**  
**WBS Element # 35015.1.1**  
**H&H Job No. ROW-148**  
**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  
Buddy Wood Property, Parcel #50 and #52  
Boone, Watauga County, North Carolina  
H&H Project ROW-148**

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**Preliminary Site Assessment Report  
Buddy Wood Property Parcel #50 and #52  
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 Buddy Wood property (NC DOT Parcels #50 & 52) located at 663 East King Street (US Highway 421) between Farthing Street and Chestnut 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 right-of-way construction areas related to the widening of US Highway 421 (State Project U-4020). A site location map is presented 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 Buddy Wood property (NC DOT Parcels #50 & 52) is included in Appendix A. It is expected that these parcels will be total takes by NC DOT.

Based on information provided by NC DOT, the Buddy Wood property is operated as Austin Auto Sales, a used car retailer. According to an Environmental Data Resources (EDR) report for the site vicinity, the Buddy Wood 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 a previous UST removal on the subject properties.

**2.0 Site Assessment**

Soil Assessment Field Activities

H&H mobilized to the Buddy Wood property on April 7, 2008 to advance twelve soil borings (50-1 through 50-12) on Parcel #50 and four soil borings on Parcel #52 (52-1 through 52-4) by direct push technology (DPT). Prior to advancing the soil borings, H&H reviewed the preliminary results of a

geophysical survey conducted at the Buddy Wood property on March 11 and March 18, 2008 by Schnabel Engineering (Schnabel). Schnabel utilized ground penetrating radar (GPR) and time domain electromagnetic (TDEM) technology to identify potential geophysical anomalies and potential USTs at the site. The Schnabel Report on Geophysical Surveys dated April 28, 2008, documents the results of the EM and GPR surveys, including a site map summarizing the results. The results are included in Appendix B. The report concludes that geophysical data do not indicate the presence of USTs within the DOT target area.

Prior to installing soil borings, utilities were marked by NC One Call and by DOT's contractor, Vaughn and Melton. Borings were also cleared to a 5 foot depth by hand auger. H&H utilized Geologic Exploration of Statesville, North Carolina to advance soil borings 50-1 through 50-12 and 52-1 through 52-4 by DPT (See Figure 2). 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, soil samples that exhibited the highest reading on the OVA were selected for laboratory analysis. Soil boring logs are included in Appendix C.

H&H collected twelve soil samples from Parcel #50 and four soil samples from Parcel #52 for laboratory analysis (Table 1). Because of potential impacts on Parcel 52 and the nearby downgradient location of a proposed jack and bore for a stream culvert on Parcel 54, H&H also collected a soil sample from the capillary fringe near the proposed jack and bore. The samples were sent to Prism Laboratories, Inc. of Charlotte, North Carolina under standard chain-of-custody procedures for analysis of total petroleum hydrocarbons (TPH) for gasoline-range organics (GRO) and diesel-range organics (DRO) by EPA Method 8015B. Sample intervals and analytical results are summarized in Table 1. Laboratory analytical data sheets 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**

Target analytes were detected in the soil samples collected on Parcels 50 and 52. TPH GRO was not detected in any samples. However, TPH DRO concentrations (up to 340 mg/kg) were detected above the NC DENR Action Level of 10 mg/kg in samples 50-4 @ 3-5 ft; 50-6 @ 5-7 ft; 50-7 @ 2-5 ft; 50-10 @ 0-2 ft; and 52-3 @ 2-4 ft. TPH GRO and DRO were not detected at the proposed jack and bore location.

Based on laboratory analytical results, impacted soils are present in the northern portion of Parcel 50 and in the northwestern portion of Parcel 52. H&H estimates that there are a total of 430 cubic yards (600 tons) of impacted soil between the soil surface and 10 ft at Parcel 50. H&H estimates that there are a total of 110 cubic yards (150 tons) of impacted soil between the soil surface and 10 ft on Parcel 52. Impacts may extend beyond 10 ft depth. The impacted soil areas are situated just east of the existing southern curb of East King Street. DOT plans indicate a cut approximately 1 ft in this area. Because this is a shallow cut area, most of the impacted soil will not likely be disturbed, except for potential utility work and soil grading work below the existing grade. Of the above impacted soil amount, H&H estimates that 80 cubic yards (110 tons) of impacted soil will be removed during grading work on this site. If grading depth exceeds 1 to 1.5 ft, additional impacted soil will be generated. Impacted soil that is removed should be properly managed and disposed at a permitted facility.

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

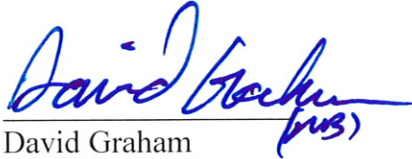
H&H has reviewed geophysical survey results and collected soil samples at Parcels 50 and 52. No potential USTs were identified in DOT target areas on these parcels. TPH DRO concentrations were detected above the NC DENR Action Level of 10 mg/kg on Parcels 50 and 52. No impacts were detected at the nearby jack and bore location on Parcel 54.

H&H estimates that there are a total of 430 cubic yards (600 tons) of impacted soil between the soil surface and 10 ft at Parcel 50. H&H estimates that there are a total of 110 cubic yards (150 tons) of

impacted soil between the soil surface and 10 ft on Parcel 52. Impacts may extend beyond 10 ft depth. The impacted soil areas are situated just east of the existing southern curb of East King Street. DOT plans indicate a cut approximately 1 ft in this area. Because this is a shallow cut area, most of the impacted soil will not likely be disturbed, except for potential utility work and soil grading work below the existing grade. Of the above impacted soil amount, H&H estimates that 80 cubic yards (110 tons) of impacted soil will be removed during grading work on this site. If grading depth exceeds 1 to 1.5 ft, additional impacted soil will be generated. Impacted soil that is removed should be properly managed and disposed at a permitted facility.

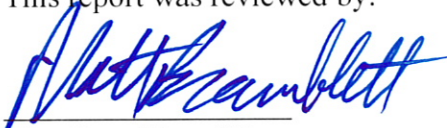
## 5.0 Signature Page

This report was prepared by:

A handwritten signature in blue ink that reads "David Graham" with a stylized flourish underneath.

David Graham  
Project Geologist for  
Hart and Hickman, PC

This report was reviewed by:

A handwritten signature in blue ink that reads "Matt Bramblett" with a stylized flourish underneath.

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

Table 1 (Page 1 of 2)  
 Soil Analytical Results  
 Buddy Wood Property, Parcels 50 & 52  
 Boone, North Carolina  
 H&H Job No. ROW-148

Sample ID	50-1	50-2	50-3	50-4	50-5	50-6	50-7	50-8	50-9	NC DENR Action Level (mg/kg)
	Sample Depth (ft) Sample Date Units	2-5 4/7/2008 (mg/kg)	2-5 4/7/2008 (mg/kg)	2-5 4/7/2008 (mg/kg)	3-5 4/7/2008 (mg/kg)	0-2 4/7/2008 (mg/kg)	5-7 4/7/2008 (mg/kg)	2-5 4/7/2008 (mg/kg)	2-5 4/7/2008 (mg/kg)	
<b>TPH-DRO/GRO (8015B)</b> Diesel-Range Organics (DRO) Gasoline-Range Organics (GRO)	<8.8 <6.3	<8.8 <6.3	<8.3 <5.9	20 <5.9	<8.6 <6.2	15 <6.6	12 <6.0	<8.8 <6.4	<8.5 <6.2	10 10

Notes:

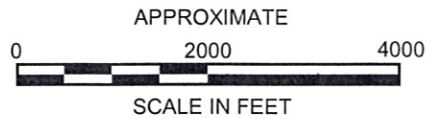
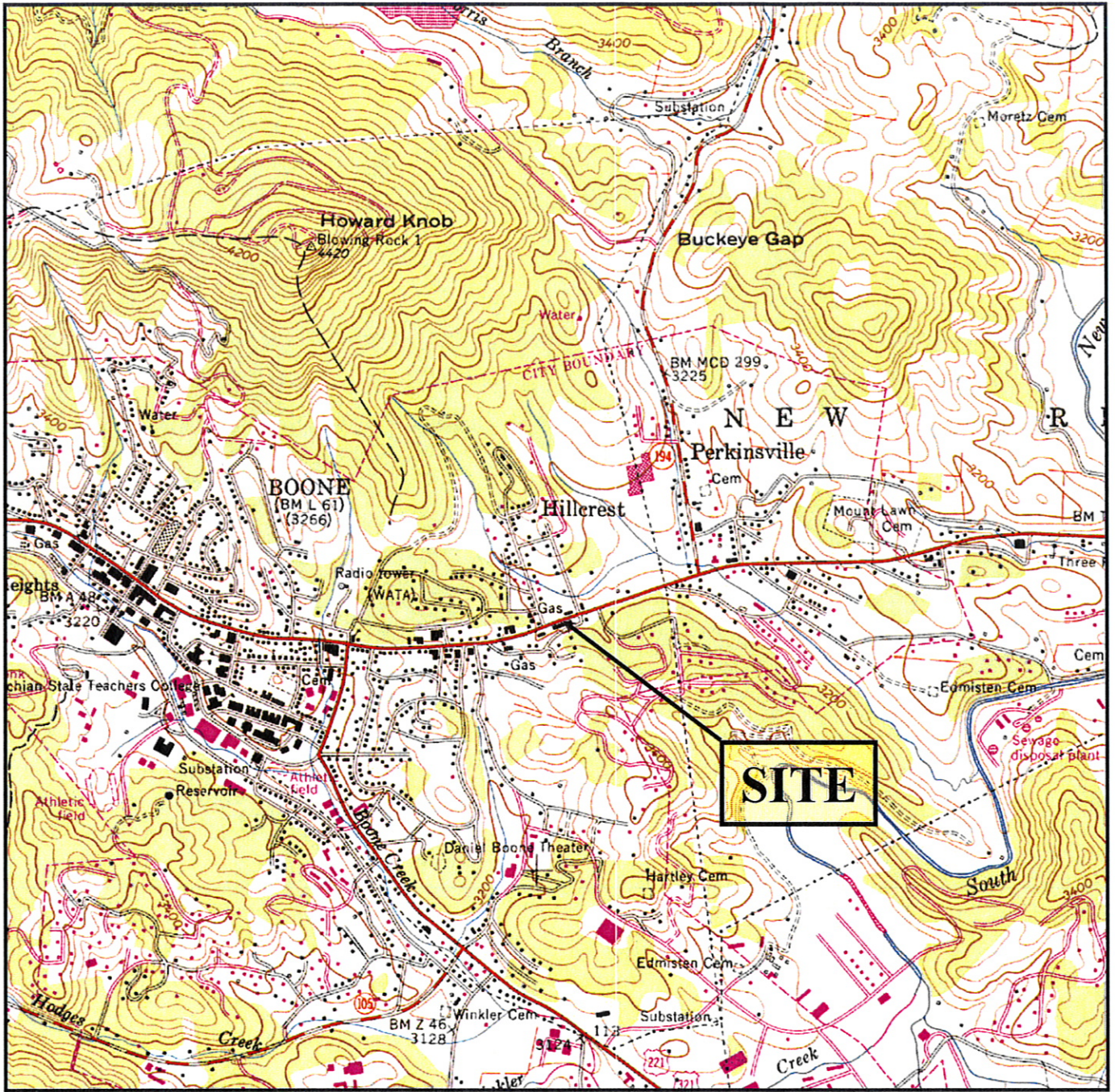
EPA Method follows parameter in parenthesis  
 Bold denotes value in excess of NC DENR Action Levels  
 TPH = Total petroleum hydrocarbons



Table 1 (Page 2 of 2)  
 Soil Analytical Results  
 Buddy Wood Property, Parcels 50 & 52  
 Boone, North Carolina  
 H&H Job No. ROW-148

Sample ID Sample Depth (ft) Sample Date Units	50-10	50-11	50-12	52-1	52-2	52-3	52-4	54-13J	NC DENR Action Level (mg/kg)
	0-2 4/7/2008 (mg/kg)	4-6 4/7/2008 (mg/kg)	5-8 4/7/2008 (mg/kg)	2-5 4/7/2008 (mg/kg)	5-7 4/7/2008 (mg/kg)	2-4 4/7/2008 (mg/kg)	5-7 4/7/2008 (mg/kg)	4-6 4/7/2008 (mg/kg)	
<b>TPH-DRO/GRO (8015B)</b> Diesel-Range Organics (DRO) Gasoline-Range Organics (GRO)	49 <5.5	<8.7 <6.2	<9.2 <6.7	<9.8 <7.1	<9.2 <6.6	340 <6.7	<8.9 <6.4	<8.3 <6.0	10 10


Notes:  
 EPA Method follows parameter in parenthesis  
 Bold denotes value in excess of NC DENR Action  
 TPH = Total petroleum hydrocarbons



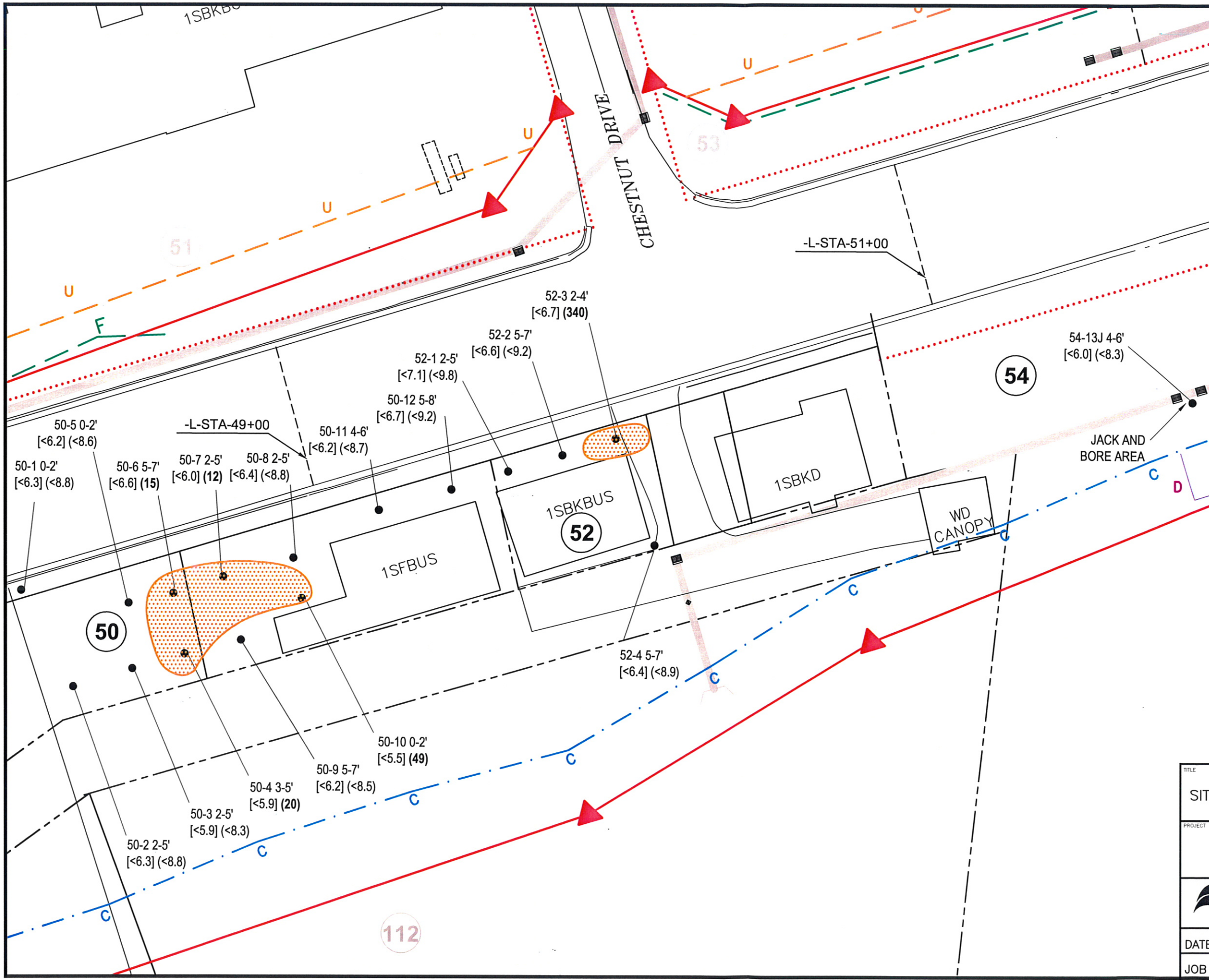
U.S.G.S. QUADRANGLE MAP

BOONE, NC 1959  
PHOTOREVISED 1978

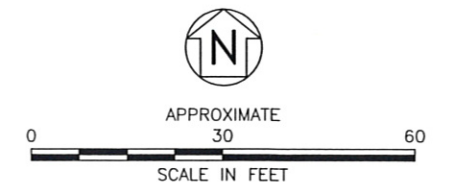
QUADRANGLE  
7.5 MINUTE SERIES (TOPOGRAPHIC)

TITLE	SITE LOCATION MAP	
PROJECT	BUDDY WOOD PROPERTY PARCEL #50 & 52 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\DOT Right-of-Way - ROW\148 Boone PSAs\Files from DOT\Proj\FIGURES\50-54\_A.dwg 50-52 5/29/2008 12:01:23 PM 1:1



- LEGEND**
- PROPERTY LINE
  - ..... EXISTING RIGHT-OF-WAY
  - ▲ PROPOSED RIGHT-OF-WAY
  - C- PROPOSED CUT LINE
  - F- PROPOSED FILL LINE
  - U- PROPOSED UTILITY EASEMENT
  - ▨ IMPACTED SOIL AREA
  - PROPOSED DRAINAGE PIPE
  - PROPOSED CATCH BASIN
  - SOIL BORING
  - 50 PARCEL NUMBER
  - [ ] = TPH GRO mg/kg
  - ( ) = TPH DRO mg/kg
  - BOLD DENOTES EXCEEDANCE OF NCDENR ACTION LEVEL**

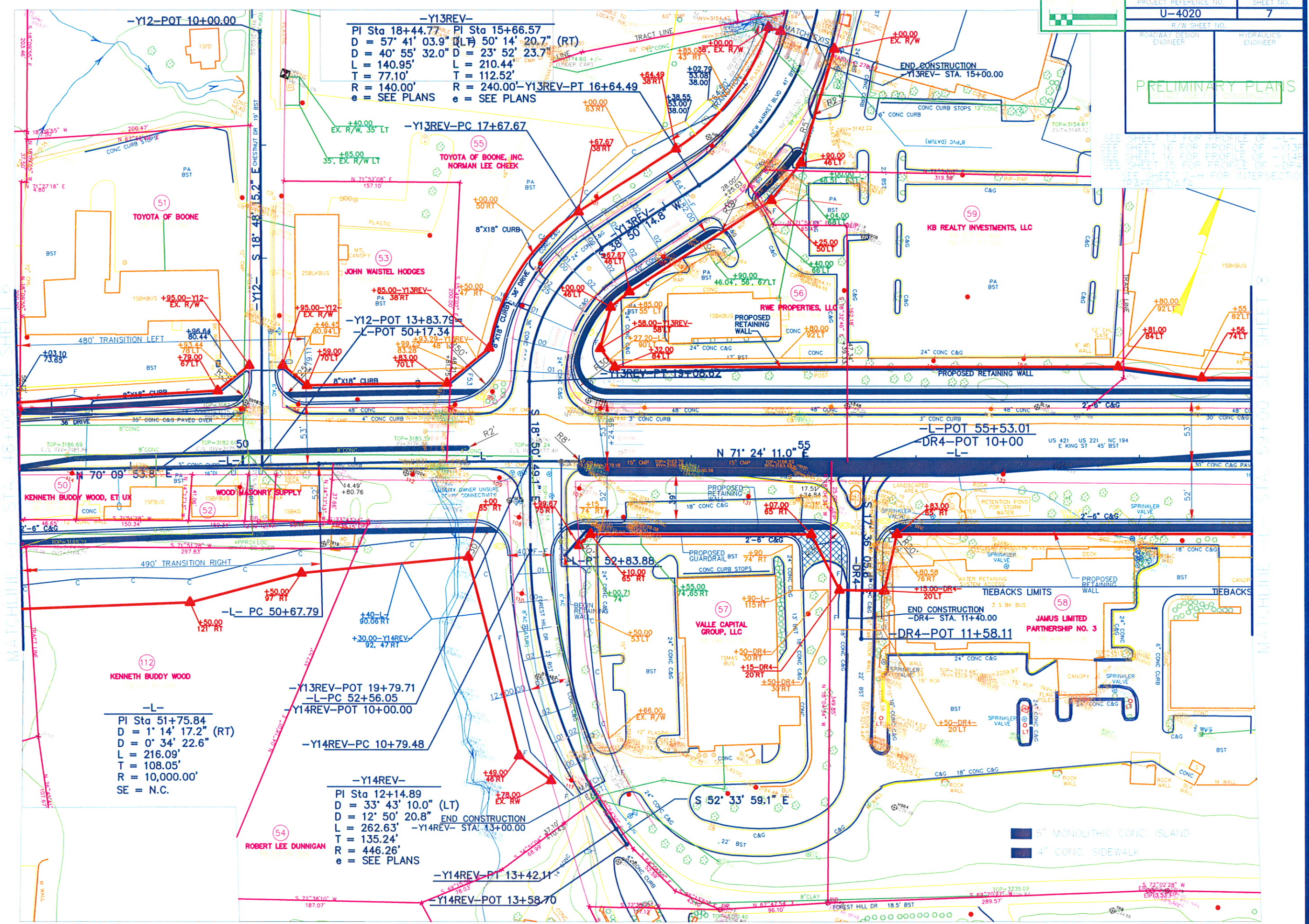


TITLE <b>SITE MAP AND SOIL ANALYTICAL RESULTS</b>	
PROJECT BUDDY WOOD PROPERTY PARCEL # 50 & 52 BOONE, NORTH CAROLINA	
<b>Hart &amp; Hickman</b> <small>A PROFESSIONAL CORPORATION</small>	
2923 South Tryon Street-Suite 100 Charlotte, North Carolina 28203 704-586-0007(p) 704-586-0373(f)	
DATE: 4-24-08	REVISION NO. 0
JOB NO: ROW-148	FIGURE: 2

**Appendix A**  
**NC DOT Preliminary Plan**

PRELIMINARY PLANS  
NOT TO BE USED FOR CONSTRUCTION

RIGHT SHEET 12 FOR PROFILE OF -L- SHEET 16 FOR PROFILE OF -Y13- SHEET 18 FOR PROFILE OF -Y14- SEE SHEET 2-4 FOR INTERSECTION TRAFFIC DATA



**-Y13REV-**  
 PI Sta 18+44.77 PI Sta 15+66.57  
 D = 57° 41' 03.9" (L) 50° 14' 20.7" (RT)  
 D = 40° 55' 32.0" D = 23° 52' 23.7"  
 L = 140.95' L = 210.44'  
 T = 77.10' T = 112.52'  
 R = 140.00' R = 240.00'  
 e = SEE PLANS e = SEE PLANS

**-Y12-POT 13+83.79**  
**-L-POT 50+17.34**

**-L-**  
 PI Sta 51+75.84  
 D = 1° 14' 17.2" (RT)  
 D = 0° 34' 22.6"  
 L = 216.09'  
 T = 108.05'  
 R = 10,000.00'  
 SE = N.C.

**-Y13REV-POT 19+79.71**  
**-L-PC 52+56.05**  
**-Y14REV-POT 10+00.00**

**-Y14REV-PC 10+79.48**

**-Y14REV-**  
 PI Sta 12+14.89  
 D = 33° 43' 10.0" (LT)  
 D = 12° 50' 20.8" END CONSTRUCTION  
 L = 262.63' -Y14REV- STA: 13+00.00  
 T = 135.24'  
 R = 446.26'  
 e = SEE PLANS

**-Y14REV-PT 13+42.11**

**-Y14REV-POT 13+58.70**

5" MONOLITHIC CONC. ISLAND  
 4" CONC. SIDEWALK

**Appendix B**

**Schnabel Report on Geophysical Surveys**

April 28, 2008

Mr. Matt Bramblett, PE  
Hart & Hickman, PC  
2923 South Tryon Street, Suite 100  
Charlotte, NC 28203

RE: State Project: U-4020  
WBS Element: 35015.1.1  
County: Watauga  
Description: US 421 (King Street) from US 321 (Hardin Street) to east  
of NC 194 (Jefferson Road) in Boone

SUBJECT: Report on Geophysical Surveys of Parcels 50 & 52  
Schnabel Engineering Project No. 07210023.07

Dear Mr. Bramblett:

This letter contains our report on the geophysical surveys we conducted on the subject properties. We understand this letter report will be included as an appendix in your report to the NCDOT. The report includes two 11x17 color figures.

## **1.0 INTRODUCTION**

Schnabel Engineering conducted geophysical surveys on March 11 and March 18, 2008, in the accessible areas of Parcels 50 & 52 (Buddy Wood Properties, Austin Auto Sales and a private residence) under our 2007 contract with the NCDOT. Parcels 50 and 52 are located on the south side of US 421 (King Street) between Farthing Street and Chestnut Drive. The work was conducted at the location indicated by the NCDOT to support their environmental assessment of the subject parcels. The purpose of the geophysical surveys was to locate possible metal underground storage tanks (UST's) and associated metal product lines in the accessible areas of the sites.

## **2.0 FIELD METHODOLOGY**

Locations of geophysical data points were obtained using a sub-meter Trimble Pro-XRS DGPS system. References to direction and location in this report are based on the US State Plane 1983 system, North Carolina 3200 zone, using the NAD 83 datum, with units in US survey feet. The locations of existing site features (building, curbs, signs, etc.) were recorded for later correlation with the geophysical data and for location references to the NCDOT drawings. The geophysical investigation consisted of electromagnetic (EM) induction surveys using a Geonics EM61-MK2 instrument, and ground-penetrating radar surveys using a Geophysical Survey Systems SIR-3000 system equipped with a 400 MHz antenna.

The EM61 data were collected along parallel survey lines spaced about 2.5 feet apart. The EM61 and DGPS data were recorded digitally using a field computer and later transferred to a desktop computer for data processing. The GPR data were collected along survey lines spaced two feet apart in orthogonal directions over anomalous EM readings not attributed to cultural features.

Preliminary results were sent to David Graham and Matt Bramblett of Hart & Hickman on March 24, 2008.

## **3.0 DISCUSSION OF RESULTS**

The contoured EM61 data are shown on Figures 1 and 2. The EM61 early time gate results are plotted on Figure 1. The early time gate data provide the most sensitive detection of metal object targets, regardless of size. Figure 2 shows the difference between the response of the top and bottom coils of the EM61 instrument (differential response). The difference is taken to remove the effect of surface and very shallowly buried metallic objects. Typically, the differential response emphasizes anomalies from deeper and larger objects such as UST's.



The early time gate and differential results show linear anomalies probably caused by buried utilities, reinforced concrete, and known site features (Figures 1 and 2). GPR data indicated the presence of reinforced concrete in front of the adjacent buildings on Parcel 50 and Parcel 52, but did not indicate the presence of UST's in the areas surveyed.

#### **4.0 CONCLUSIONS**

Our evaluation of the geophysical data collected on Parcels 50 and 52 of Project U-4020 in Boone, NC indicates the following:

- The geophysical data do not indicate the presence of UST's in the areas surveyed.

## 5.0 LIMITATIONS

These services have been performed and this report prepared for Hart & Hickman and the North Carolina Department of Transportation in accordance with generally accepted guidelines for conducting geophysical surveys. It is generally recognized that the results of geophysical surveys are non-unique and may not represent actual subsurface conditions.

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

Sincerely,

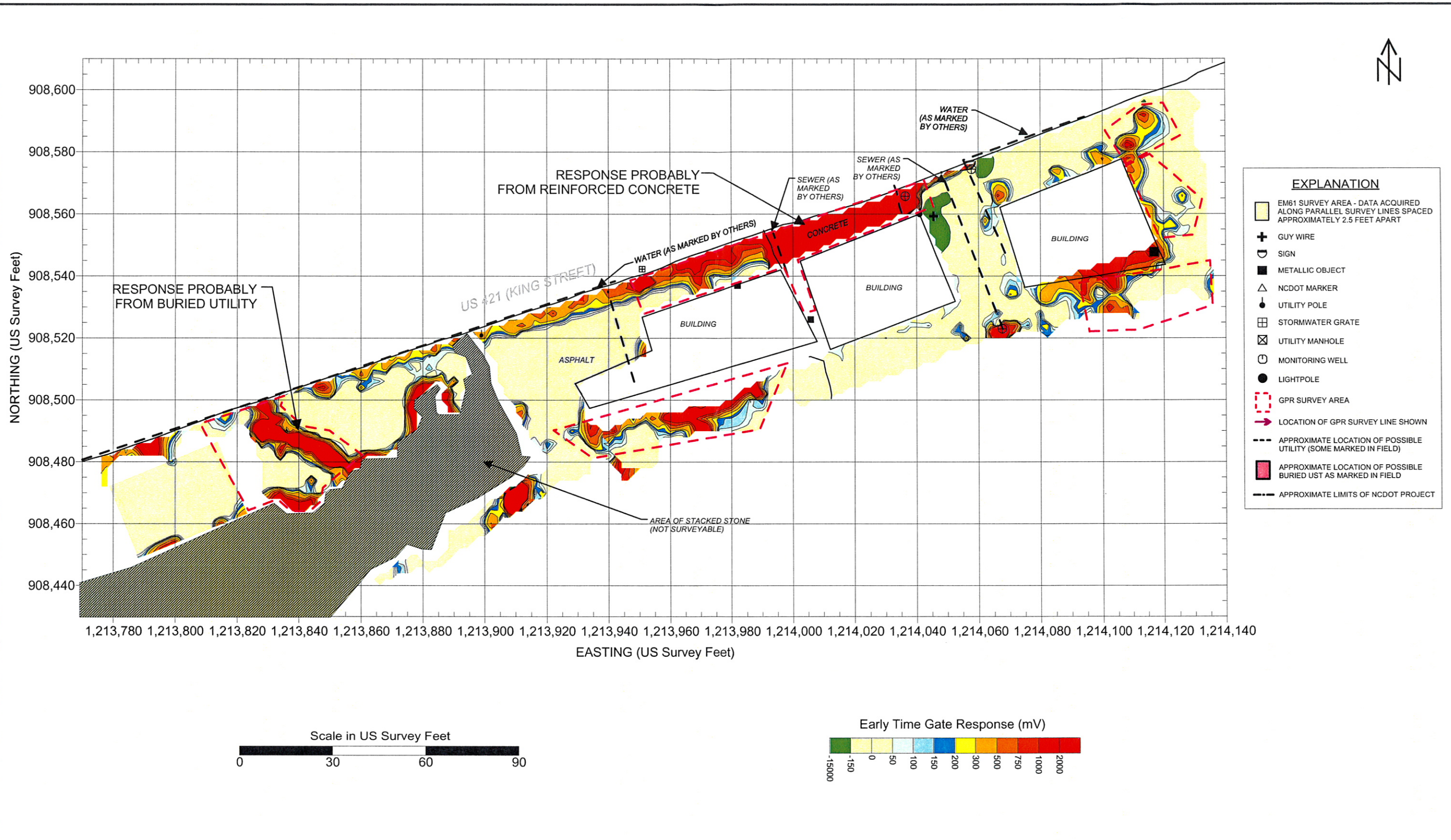


Jeremy S. Strohmeyer, P.G.  
Project Manager


JW/JS/NB

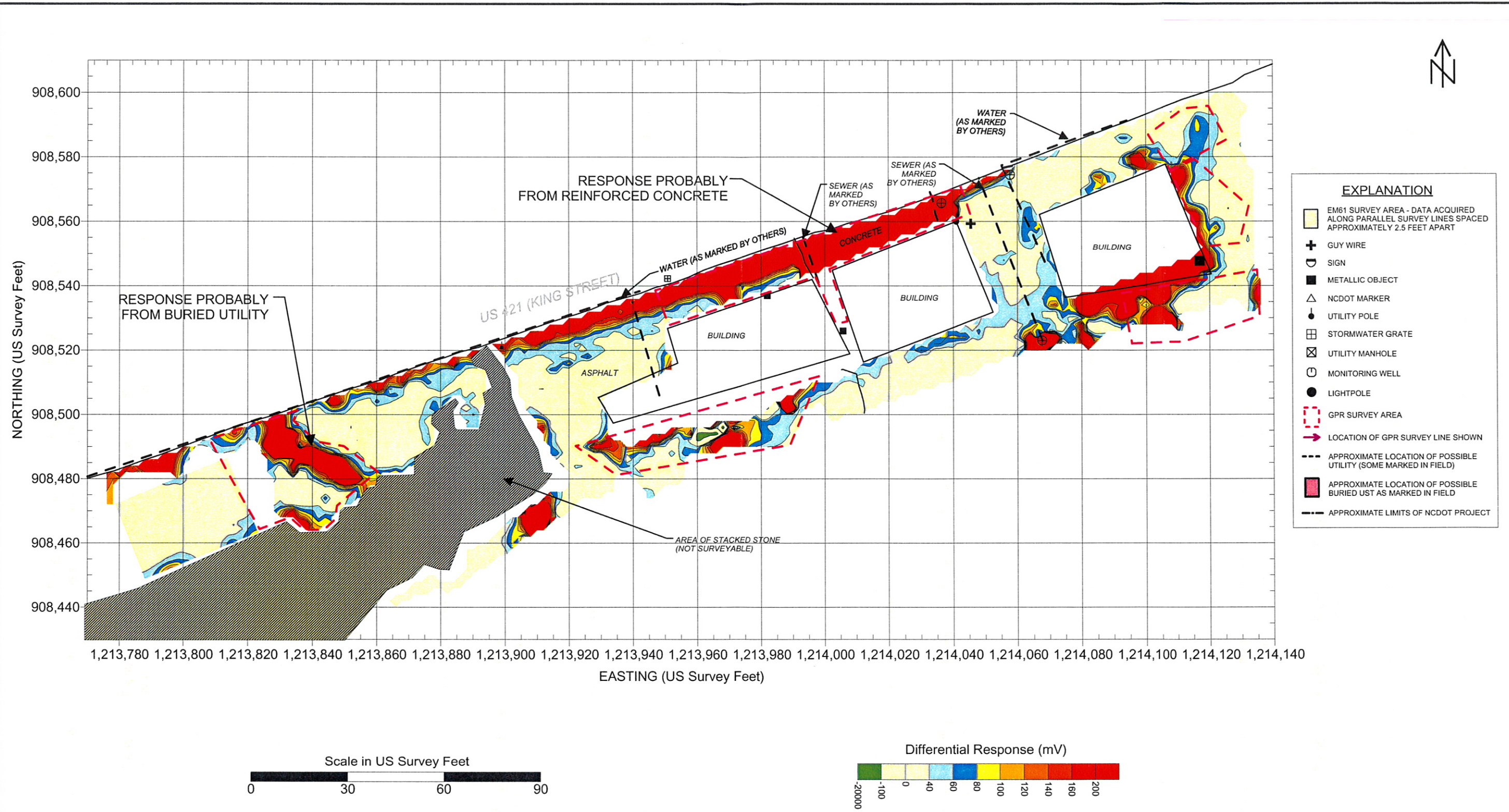
Attachment: Figures (2)

FILE: G:\2007 PROJECTS\07210023 (NCDOT 2007 GEOPHYSICAL SERVICES) PHASE 07 (U-4020 - WATAUGA COUNTY) REPORT HART & HICKMAN PARCELS 50 & 52 REPORT ON PARCELS 50 & 52.DOC



Note: The contour plot shows the earliest and most sensitive time gate of the EM61 bottom coil/channel in millivolts (mV). The EM data were collected on March 11, 2008, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina Zone 3200, using the NAD 1983 datum. GPR data were acquired on March 18, 2008, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.

	NC Department of Transportation Geotechnical Engineering Unit	<b>PARCELS 50 AND 52          EM61 EARLY TIME          GATE RESPONSE</b>  FIGURE 1
	State Project No. U-4020 Watauga County, North Carolina	



Note: The contour plot shows the difference, in millivolts (mV), between the readings from the top and bottom coils of the EM61. The difference is taken to reduce the effect of shallow metal objects and emphasize anomalies caused by deeper metallic objects, such as pipes and tanks. The EM data were collected on March 11, 2008, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina 3200 Zone, using the NAD 1983 datum. GPR data were acquired on March 18, 2008, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.



NC Department of Transportation  
Geotechnical Engineering Unit

State Project No. U-4020  
Watauga County, North Carolina

**PARCELS 50 AND 52  
EM61 DIFFERENTIAL  
RESPONSE**

FIGURE 2

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



# BORING NUMBER 50-1

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:** Parcel 50  
**JOB NUMBER:** ROW-148  
**LOCATION:** Boone, North Carolina

LOG OF BORING - HART HICKMAN.GDT - 5/25/08 09:43 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW\ROW-148 BOONE PS\ASIBORING LOGS\ROW-148 (50).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Light brown, silty SAND, some partially weathered rock		0.0
5.0	50		0	0.6				
2.5	50			0.2		Light brown, silty SAND, some partially weathered rock, hand auger refusal at 4 ft		2.5
5.0	50			0.1		Light brown/tan, silty SAND, and partially weathered rock fragments. REFUSAL @ 7'		5.0
7.5						Bottom of borehole at 7.0 feet.		7.5
10.0								10.0
12.5								12.5
15.0								15.0

**DRILLING CONTRACTOR:** Geologic Exploration  
**DRILL RIG/ METHOD:** 6620DT / Geoprobe  
**SAMPLING METHOD:** DPT Sleeves  
**LOGGED BY:** M. Falknor  
**DRAWN BY:**

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 7  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
Hand auger to 4 ft and sample collected from 0 to 2 ft for laboratory analysis.



# BORING NUMBER 50-2

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:** Parcel 50  
**JOB NUMBER:** ROW-148  
**LOCATION:** Boone, North Carolina

LOG OF BORING - HART HICKMAN.GDT - 5/25/08 09:43 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW-148 BOONE PS\BORING LOGS\ROW-148 (50).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Ashpalt surface cover		0.0
5.0	50		0.1	0.4		Yellow/dark brown, silty SAND, some partially weathered rock fragments		
2.5						Yellow/brown/black, SAND with partially weathered rock fragments, damp		2.5
5.0	30			0.5				5.0
7.5						Yellow/black, SAND with partially weathered rock fragments		7.5
5.0	50			0.3				5.0
9.0						Bottom of borehole at 9.0 feet.		9.0
10.0								10.0
12.5								12.5
15.0								15.0

**DRILLING CONTRACTOR:** Geologic Exploration  
**DRILL RIG/ METHOD:** 6620DT / Geoprobe  
**SAMPLING METHOD:** DPT Sleeves  
**LOGGED BY:** M. Falknor  
**DRAWN BY:**

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 9  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
Hand auger to 5 ft and sample collected from 2 to 5 ft for laboratory analysis.



# BORING NUMBER 50-3

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:** Parcel 50

**JOB NUMBER:** ROW-148

**LOCATION:** Boone, North Carolina

LOG OF BORING - HART HICKMAN.GDT - 5/25/08.09:43 - S:\AAA-MASTER PROJECTS\INC.DOT RIGHT-OF-WAY - ROW\ROW-148 BOONE PS\ASBORING LOGS\ROW-148 (50).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0			0.5	0.5		Orange/grey, sandy CLAY, damp		0.0
2.5	90			0.6		Orange/brown, silty SAND, damp		2.5
5.0			0.5			Orange/yellow, silty SAND with some partially weathered rock fragments, grey clay at 7 ft, damp		5.0
7.5	90		0.5			Brown/grey, CLAY with some partially weathered rock fragments and fine sands, damp		7.5
10.0			0.6			Brown/grey, CLAY with some partially weathered rock fragments and fine sands, saturated at 12 ft		10.0
12.5						Bottom of borehole at 12.0 feet.		12.5
15.0								15.0

**DRILLING CONTRACTOR:** Geologic Exploration  
**DRILL RIG/ METHOD:** 6620DT / Geoprobe  
**SAMPLING METHOD:** DPT Sleeves  
**LOGGED BY:** M. Falknor  
**DRAWN BY:**

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 12  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
Hand auger to 5 ft and sample collected from 2 to 5 ft for laboratory analysis.





# BORING NUMBER 50-4

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:** Parcel 50  
**JOB NUMBER:** ROW-148  
**LOCATION:** Boone, North Carolina

LOG OF BORING - HART HICKMAN.GDT - 5/25/08 09:43 - S:\AAA-MASTER PROJECTS\INC.DOT RIGHT-OF-WAY-ROW\ROW-148-BOONE PS\SIBORING LOGS\ROW-148 (50).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Light grey, silty SAND		0.0
2.5	125		0.1	0.3		Orange/brown, silty SAND, damp at 3 ft		2.5
						Brown/orange, silty SAND, saturated		
5.0				0.5		Brown/orange, silty SAND, saturated. REFUSAL @ 9' ROCK.		5.0
7.5	104			0.4				7.5
10.0						Bottom of borehole at 9.0 feet.		10.0
12.5								12.5
15.0								15.0

**DRILLING CONTRACTOR:** Geologic Exploration  
**DRILL RIG/ METHOD:** 6620DT / Geoprobe  
**SAMPLING METHOD:** DPT Sleeves  
**LOGGED BY:** M. Falknor  
**DRAWN BY:**

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 9  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
Hand auger to 5 ft and sample collected from 3 to 5 ft for laboratory analysis.



# BORING NUMBER 50-5

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:** Parcel 50

**JOB NUMBER:** ROW-148

**LOCATION:** Boone, North Carolina

LOG OF BORING - HART HICKMAN GDT - 5/25/08 09:43 - S:\AAA-MASTER PROJECTS\NC DOT RIGHT-OF-WAY - ROW\ROW-148 BOONE PSASBORING LOGS\ROW-148 (50).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Light brown/orange, sandy SILT, some partially weathered rock fragments, slightly damp		0.0
0.1			0.1	0.9				
0.3	45		0.3			Large PARTIALLY WEATHERED ROCK fragments, saturated at 4 ft		
0.5			0.5					
4.0						Bottom of borehole at 4.0 feet.		
5.0								5.0
7.5								7.5
10.0								10.0
12.5								12.5
15.0								15.0

**DRILLING CONTRACTOR:** Geologic Exploration  
**DRILL RIG/ METHOD:** 6620DT / Geoprobe  
**SAMPLING METHOD:** DPT Sleeves  
**LOGGED BY:** M. Falknor  
**DRAWN BY:**

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 4  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
 Hand auger refusal at 4 ft and sample collected from 0 to 2 ft for laboratory analysis.



# BORING NUMBER 50-6

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:** Parcel 50

**JOB NUMBER:** ROW-148

**LOCATION:** Boone, North Carolina

LOG OF BORING - HART HICKMAN GDT - 5/25/08 09:43 - S:\AAA-MASTER PROJECTS\NC DOT RIGHT-OF-WAY - ROW\ROW-148 BOONE PSAS\BORING LOGS\ROW-148 (50).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Light brown/orange, silty SAND, slightly damp		0.0
2.5	50		0.3	0.5				2.5
5.0				0.5		Dark brown/silty SAND, saturated at 7 ft		5.0
7.5	75			0.4		Light brown/orange silty SAND with partially weathered rock fragments		7.5
10.0				0.4		Partially weathered rock		10.0
12.5	50					Bottom of borehole at 11.0 feet.		12.5
15.0								15.0

**DRILLING CONTRACTOR:** Geologic Exploration  
**DRILL RIG/ METHOD:** 6620DT / Geoprobe  
**SAMPLING METHOD:** DPT Sleeves  
**LOGGED BY:** M. Falknor  
**DRAWN BY:**

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 11  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
 Hand auger to 5 ft and sample collected from 5 to 7 ft for laboratory analysis.



# BORING NUMBER 50-7

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:** Parcel 50  
**JOB NUMBER:** ROW-148  
**LOCATION:** Boone, North Carolina

LOG OF BORING - HART HICKMAN.GDT - 5/25/08 09:43 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW-148 BOONE PS\AS\BORING LOGS\ROW-148 (50).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Dark brown, silty SAND with some partially weathered rock fragments, damp		0.0
0.1			0.1	0.4				
0.3			0.3			Dark brown/red, silty SAND with partially weathered rock fragments, damp		2.5
0.6			0.6					
0.4			0.4			Orange/brown, sandy SILT, some large partially weathered rock fragments, slightly damp		5.0
0.5			0.5			Orange, sandy SILT, saturated at 11 ft		10.0
12.0						Bottom of borehole at 12.0 feet.		12.5
15.0								15.0

**DRILLING CONTRACTOR:** Geologic Exploration  
**DRILL RIG/ METHOD:** 6620DT / Geoprobe  
**SAMPLING METHOD:** DPT Sleeves  
**LOGGED BY:** M. Falknor  
**DRAWN BY:**

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 12  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
Hand auger to 5 ft and sample collected from 2 to 5 ft for laboratory analysis.



# BORING NUMBER 50-8

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:** Parcel 50  
**JOB NUMBER:** ROW-148  
**LOCATION:** Boone, North Carolina

LOG OF BORING - HART HICKMAN GDT - 5/25/08 09:43 - S:\AAA-MASTER PROJECTS\NC DOT RIGHT-OF-WAY -ROW\ROW-148 BOONE PS\BORING LOGS\ROW-148 (50).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Light brown, sandy SILT		0.0
2.5	50		0.2	0.3		Light brown, sandy SILT		2.5
5.0				0.5		Bottom of borehole at 5.0 feet.		5.0
7.5								7.5
10.0								10.0
12.5								12.5
15.0								15.0

**DRILLING CONTRACTOR:** Geologic Exploration  
**DRILL RIG/ METHOD:** 6620DT / Geoprobe  
**SAMPLING METHOD:** DPT Sleeves  
**LOGGED BY:** M. Falknor  
**DRAWN BY:**

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 5  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
Hand auger to 5 ft and sample collected from 2 to 5 ft for laboratory analysis.



**BORING NUMBER 50-9**

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:** Parcel 50  
**JOB NUMBER:** ROW-148  
**LOCATION:** Boone, North Carolina

LOG OF BORING - HART HICKMAN GDT - 5/25/08 09:43 - S:\AAA-MASTER PROJECTS\NC DOT RIGHT-OF-WAY - ROW\ROW-148 BOONE PSASIBORING LOGS\ROW-148 (50).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Reddish brown, silty SAND with partially weathered rock		0.0
2.5	25		0.3	0.5				2.5
5.0				0.6				5.0
7.5	50			0.6		Reddish brown, silty SAND with partially weathered rock fragments, damps at 8 ft		7.5
10.0	50			0.5				10.0
				0.8		Reddish brown, silty SAND with partially weathered rock fragments, saturated at 11 ft		10.0
						Bottom of borehole at 11.0 feet.		
12.5								12.5
15.0								15.0

**DRILLING CONTRACTOR:** Geologic Exploration  
**DRILL RIG/ METHOD:** 6620DT / Geoprobe  
**SAMPLING METHOD:** DPT Sleeves  
**LOGGED BY:** M. Falknor  
**DRAWN BY:**

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 11  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
Hand auger to 5 ft and sample collected from 5 to 7 ft for laboratory analysis.



# BORING NUMBER 50-10

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:** Parcel 50  
**JOB NUMBER:** ROW-148  
**LOCATION:** Boone, North Carolina

LOG OF BORING - HART HICKMAN GDT - 5/28/08 17:27 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW-148 BOONE PSAS\BORING LOGS\ROW-148 (50).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0								0.0
100			0	0.5		Light orange/brown, silty SAND with partially weathered rock fragments		
2.5						Bottom of borehole at 2.0 feet.		2.5
5.0								5.0
7.5								7.5
10.0								10.0
12.5								12.5
15.0								15.0

**DRILLING CONTRACTOR:** Geologic Exploration  
**DRILL RIG/ METHOD:** 6620DT / Geoprobe  
**SAMPLING METHOD:** Hand Auger  
**LOGGED BY:** M. Falknor  
**DRAWN BY:**

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 2  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
Hand auger refusal at 2 ft and sample collected from 0 to 2 ft for laboratory analysis.



# BORING NUMBER 50-11

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:** Parcel 50  
**JOB NUMBER:** ROW-148  
**LOCATION:** Boone, North Carolina

LOG OF BORING - HART HICKMAN.GDT - 5/28/08 17:27 - S:\AA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW\ROW-148 BOONE PS\BORING LOGS\ROW-148 (50).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Backfill material		0.0
0.2			0.2	0.4				
0.7			0.7			Backfill material grading to light brown/orange, sandy SILT, damp		
2.5	50							2.5
3.0				0.3				
5.0			0.2			Light brown/orange, sandy SILT, damp. REFUSAL @ 6' ROCK		5.0
5.5	10			0.7				
6.0						Bottom of borehole at 6.0 feet.		6.0
7.5								7.5
10.0								10.0
12.5								12.5
15.0								15.0

**DRILLING CONTRACTOR:** Geologic Exploration  
**DRILL RIG/ METHOD:** 6620DT / Geoprobe  
**SAMPLING METHOD:** DPT Sleeves  
**LOGGED BY:** M. Falknor  
**DRAWN BY:**

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 6  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
Hand auger to 5 ft and sample collected from 4 to 6 ft for laboratory analysis.





# BORING NUMBER 50-12

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:** Parcel 50

**JOB NUMBER:** ROW-148

**LOCATION:** Boone, North Carolina

LOG OF BORING - HART HICKMAN.GDT - 5/25/08 09:43 - S:\AAA-MASTER PROJECTS\NC DOT RIGHT-OF-WAY - ROW\ROW-148 -BOONE PS\BORING LOGS\ROW-148 (50).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Gravel backfill material		0.0
0.2			0.2	0.5		Grey/green, fine sandy SILT, moist		
2.5	50					Orange/tan, fine sandy SILT		2.5
5.0				0.6		Gray/brown, silty SAND with partially weathered rock		5.0
7.5	25			0.8				7.5
8.0						Bottom of borehole at 8.0 feet.		8.0
10.0								10.0
12.5								12.5
15.0								15.0

**DRILLING CONTRACTOR:** Geologic Exploration  
**DRILL RIG/ METHOD:** 6620DT / Geoprobe  
**SAMPLING METHOD:** DPT Sleeves  
**LOGGED BY:** M. Falknor  
**DRAWN BY:**

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 8  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
Hand auger to 5 ft and sample collected from 5 to 8 ft for laboratory analysis.



**BORING NUMBER 52-1**

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:** Parcel 52  
**JOB NUMBER:** ROW-148  
**LOCATION:** Boone, North Carolina

LOG OF BORING - HART HICKMAN.GDT - 5/25/08 09:45 - S:\AAA-MASTER PROJECTS\INC.DOT RIGHT-OF-WAY -ROW\ROW-148 BOONE PSAS\BORING LOGS\ROW-148 (52).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Gravel Backfill material		0.0
0.3				0.7		Dark brown, SILT, damp		0.3
0.7	50					Light orange/dark brown, fine sandy SILT, damp		0.7
0.7								2.5
0.7								5.0
0.3						Dark brown, sandy SILT with partially weathered rock, some rock fragments		5.0
0.4	50							7.5
7.5						Refusal at 7.0 feet. Bottom of borehole at 7.0 feet.		7.5
10.0								10.0
12.5								12.5
15.0								15.0

**DRILLING CONTRACTOR:** Geologic Exploration  
**DRILL RIG/ METHOD:** 6620DT / Geoprobe  
**SAMPLING METHOD:** DPT Sleeves  
**LOGGED BY:** M. Falknor  
**DRAWN BY:**

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 7  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
 Hand auger to 5 ft and sample collected from 2 to 5 ft for laboratory analysis.



# BORING NUMBER 52-2

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:** Parcel 52  
**JOB NUMBER:** ROW-148  
**LOCATION:** Boone, North Carolina

LOG OF BORING - HART HICKMAN.GDT - 5/25/08 09:45 - S:\AAA-MASTER PROJECTS\NC DOT RIGHT-OF-WAY - ROW\ROW-148 BOONE PSASIBORING LOGS\ROW-148 (52).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0			0.3	0.5		Gravel backfill material		0.0
2.5	50					Orange/tan, sandy SILT		2.5
5.0		25		0.6		Orange/tan, sandy SILT, large partially weathered rock fragments		5.0
7.5						Refusal at 7.0 feet. Bottom of borehole at 7.0 feet.		7.5
10.0								10.0
12.5								12.5
15.0								15.0

**DRILLING CONTRACTOR:** Geologic Exploration  
**DRILL RIG/ METHOD:** 6620DT / Geoprobe  
**SAMPLING METHOD:** DPT Sleeves  
**LOGGED BY:** M. Falknor  
**DRAWN BY:**

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 7  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
Hand auger to 5 ft and sample collected from 5 to 7 ft for laboratory analysis.



# BORING NUMBER 52-3

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:** Parcel 52  
**JOB NUMBER:** ROW-148  
**LOCATION:** Boone, North Carolina

LOG OF BORING - HART HICKMAN.GDT - 5/25/08 09:45 - S:\AAA-MASTER PROJECTS\INC.DOT RIGHT-OF-WAY -ROW-148 BOONE PS\ASIBORING LOGS\ROW-148 (52).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Concrete surface cover		0.0
2.5	25		0.3	0.6		Orange/brown, silty SAND, damp		
3.0	30			0.7		Orange/brown, medium grained SAND with silt and partially weathered rock		2.5
5.0						Refusal at 4.0 feet. Bottom of borehole at 4.0 feet.		5.0
7.5								7.5
10.0								10.0
12.5								12.5
15.0								15.0

**DRILLING CONTRACTOR:** Geologic Exploration  
**DRILL RIG/ METHOD:** 6620DT / Geoprobe  
**SAMPLING METHOD:** DPT Sleeves  
**LOGGED BY:** M. Falknor  
**DRAWN BY:**

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 4  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
Hand auger refusal at 4 ft and sample collected from 2 to 4 ft for laboratory analysis.



# BORING NUMBER 52-4

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:** Parcel 52  
**JOB NUMBER:** ROW-148  
**LOCATION:** Boone, North Carolina

LOG OF BORING - HART HICKMAN.GDT - 5/25/08 09:45 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW-148 BOONE PS\ASIBORING LOGS\ROW-148 (52).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Tan, silty SAND, dry		0.0
2.5	80		0.3	0.6		Tan, fine silty SAND, dry		2.5
5.0				0.6		Tan, fine silty SAND		5.0
7.5	50			0.9		Orange/tan, silty SAND with rock fragments, dry		7.5
8.0				0.7		Refusal at 8.0 feet. Bottom of borehole at 8.0 feet.		8.0
10.0								10.0
12.5								12.5
15.0								15.0

**DRILLING CONTRACTOR:** Geologic Exploration  
**DRILL RIG/ METHOD:** 6620DT / Geoprobe  
**SAMPLING METHOD:** DPT Sleeves  
**LOGGED BY:** M. Falknor  
**DRAWN BY:**

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 8  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
Hand auger to 5 ft and sample collected from 5 to 7 ft for laboratory analysis.



# BORING NUMBER 54-13J

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 07:54 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW\ROW-148 BOONE PSAS\BORING LOGS\ROW-148 (54-B&J).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Dark brown, tan, sandy, SILT, damp		0.0
1.0	100		0.2	0.7				
2.5						Grey, tan, marbled, sandy, SILT with PWR, damp		2.5
4.0	100			0.9				
5.0						Orange, brown, silty, SAND, damp		5.0
6.5	100					Orange brown, silty, SAND, saturated at 7'		6.5
7.0			0.8			Bottom of borehole at 7.0 feet.		7.5
10.0								10.0

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

**BORING STARTED:** 4/7/08  
**BORING COMPLETED:** 4/7/08  
**TOTAL DEPTH:** 7  
**SURFACE ELEV:**  
**DEPTH TO WATER:**

**Remarks:**  
Hand augered to 7'. Sample collected at 4-6'

**Appendix D**

**Laboratory Analytical Report**



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

# Laboratory Report

04/28/08

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: 50-1 (0-2)  
 Prism Sample ID: 211211  
 COC Group: G0408351  
 Time Collected: 04/07/08 10:20  
 Time Submitted: 04/11/08 9:20

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

Percent Solids	79.5	%			1	SM2540 G	04/14/08 14:15	mbarber	
----------------	------	---	--	--	---	----------	----------------	---------	--

**Diesel Range Organics (DRO) by GC-FID**

Diesel Range Organics (DRO)	BRL	mg/kg	8.8	1.4	1	8015B	04/16/08 12:01	jvogel	Q31788
-----------------------------	-----	-------	-----	-----	---	-------	----------------	--------	--------

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

Sample Preparation: 25.11 g / 1 mL 3545 04/14/08 13:15 wconder P21355

Surrogate	% Recovery	Control Limits
o-Terphenyl	133 #	49 - 124

**Sample Weight Determination**

Weight 1	5.18	g			1	GRO	04/17/08 0:00	athao	
Weight 2	5.98	g			1	GRO	04/17/08 0:00	athao	

**Gasoline Range Organics (GRO) by GC-FID**

Gasoline Range Organics (GRO)	BRL	mg/kg	6.3	3.9	50	8015B	04/17/08 1:20	wbradley	Q31785
-------------------------------	-----	-------	-----	-----	----	-------	---------------	----------	--------

Surrogate	% Recovery	Control Limits
aaa-TFT	126	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

04/28/08

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: 50-2 (2-5)  
 Prism Sample ID: 211212  
 COC Group: G0408351  
 Time Collected: 04/07/08 10:45  
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>Percent Solids Determination</b>									
Percent Solids	80.0	%			1	SM2540 G	04/14/08 14:15	mbarber	
<b>Diesel Range Organics (DRO) by GC-FID</b>									
Diesel Range Organics (DRO)	BRL	mg/kg	8.8	1.4	1	8015B	04/15/08 16:44	javogel	Q31788
Sample Preparation:			25.74 g	/	1 mL	3545	04/14/08 13:15	wconder	P21355
					<b>Surrogate</b>		<b>% Recovery</b>	<b>Control Limits</b>	
					o-Terphenyl		102	49 - 124	
<b>Sample Weight Determination</b>									
Weight 1	6.50	g			1	GRO	04/17/08 0:00	athao	
Weight 2	5.98	g			1	GRO	04/17/08 0:00	athao	
<b>Gasoline Range Organics (GRO) by GC-FID</b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.3	3.9	50	8015B	04/17/08 1:52	wbradley	Q31785
					<b>Surrogate</b>		<b>% Recovery</b>	<b>Control Limits</b>	
					aaa-TFT		75	55 - 129	

**Sample Comment(s):**

BRL = Below Reporting Limit

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

# Laboratory Report

04/28/08

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: 50-3 (2-5)  
 Prism Sample ID: 211213  
 COC Group: G0408351  
 Time Collected: 04/07/08 11:10  
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>Percent Solids Determination</b>									
Percent Solids	84.8	%			1	SM2540 G	04/14/08 14:15	mbarber	
<b>Diesel Range Organics (DRO) by GC-FID</b>									
Diesel Range Organics (DRO)	BRL	mg/kg	8.3	1.3	1	8015B	04/15/08 17:21	javogel	Q31788
Sample Preparation:				25 g	/	1 mL	3545	04/14/08 13:15	wconder P21355
		<b>Surrogate</b>		<b>% Recovery</b>		<b>Control Limits</b>			
		o-Terphenyl		97		49 - 124			
<b>Sample Weight Determination</b>									
Weight 1	6.39	g			1	GRO	04/17/08 0:00	athao	
Weight 2	6.39	g			1	GRO	04/17/08 0:00	athao	
<b>Gasoline Range Organics (GRO) by GC-FID</b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	5.9	3.7	50	8015B	04/17/08 2:23	wbradley	Q31785
		<b>Surrogate</b>		<b>% Recovery</b>		<b>Control Limits</b>			
		aaa-TFT		115		55 - 129			

**Sample Comment(s):**

BRL = Below Reporting Limit  
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Angela D. Overcash, V.P. Laboratory Services



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# Laboratory Report

04/28/08

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: 50-4 (3-5)  
 Prism Sample ID: 211214  
 COC Group: G0408351  
 Time Collected: 04/07/08 11:30  
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>Percent Solids Determination</b>									
Percent Solids	84.4	%			1	SM2540 G	04/14/08 14:15	mbarber	
<b>Diesel Range Organics (DRO) by GC-FID</b>									
Diesel Range Organics (DRO)	20	mg/kg	8.3	1.3	1	8015B	04/16/08 12:39	javogel	Q31788
Sample Preparation:			25.16 g	/	1 mL	3545	04/14/08 13:15	wconder	P21355
					<b>Surrogate</b>	<b>% Recovery</b>		<b>Control Limits</b>	
					o-Terphenyl	120		49 - 124	
<b>Sample Weight Determination</b>									
Weight 1	7.57	g			1	GRO	04/17/08 0:00	athao	
Weight 2	6.18	g			1	GRO	04/17/08 0:00	athao	
<b>Gasoline Range Organics (GRO) by GC-FID</b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	5.9	3.7	50	8015B	04/17/08 2:55	wbradley	Q31785
					<b>Surrogate</b>	<b>% Recovery</b>		<b>Control Limits</b>	
					aaa-TFT	81		55 - 129	

**Sample Comment(s):**

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Angela D. Overcash, V.P. Laboratory Services



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# Laboratory Report

04/28/08

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: 50-5 (0-2)  
 Prism Sample ID: 211215  
 COC Group: G0408351  
 Time Collected: 04/07/08 11:45  
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>Percent Solids Determination</b>									
Percent Solids	81.3	%			1	SM2540 G	04/14/08 14:15	mbarber	
<b>Diesel Range Organics (DRO) by GC-FID</b>									
Diesel Range Organics (DRO)	BRL	mg/kg	8.6	1.4	1	8015B	04/16/08 0:11	jvogel	Q31788
Sample Preparation:			25.28 g	/	1 mL	3545	04/14/08 13:15	wconder	P21355
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						o-Terphenyl	106	49 - 124	
<b>Sample Weight Determination</b>									
Weight 1	5.50	g			1	GRO	04/17/08 0:00	athao	
Weight 2	5.29	g			1	GRO	04/17/08 0:00	athao	
<b>Gasoline Range Organics (GRO) by GC-FID</b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.2	3.8	50	8015B	04/17/08 3:26	wbradley	Q31785
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						aaa-TFT	114	55 - 129	

**Sample Comment(s):**

BRL = Below Reporting Limit  
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Angela D. Overcash, V.P. Laboratory Services



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# Laboratory Report

04/28/08

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: 50-6 (5-7)  
 Prism Sample ID: 211216  
 COC Group: G0408351  
 Time Collected: 04/07/08 11:55  
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b><u>Percent Solids Determination</u></b>									
Percent Solids	76.3	%			1	SM2540 G	04/14/08 14:15	mbarber	
<b><u>Diesel Range Organics (DRO) by GC-FID</u></b>									
Diesel Range Organics (DRO)	15	mg/kg	9.1	1.5	1	8015B	04/18/08 16:02	jvogel	Q31787
Sample Preparation:			25.3 g	/	1 mL	3545	04/15/08 16:45	wconder	P21349
			<b>Surrogate</b>				<b>% Recovery</b>	<b>Control Limits</b>	
			o-Terphenyl				123	49 - 124	
<b><u>Sample Weight Determination</u></b>									
Weight 1	6.87	g			1	GRO	04/17/08 0:00	athao	
Weight 2	6.53	g			1	GRO	04/17/08 0:00	athao	
<b><u>Gasoline Range Organics (GRO) by GC-FID</u></b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.6	4.1	50	8015B	04/17/08 3:58	wbradley	Q31785
			<b>Surrogate</b>				<b>% Recovery</b>	<b>Control Limits</b>	
			aaa-TFT				64	55 - 129	

**Sample Comment(s):**

BRL = Below Reporting Limit

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# Laboratory Report

04/28/08

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: 50-9 (5-7)  
 Prism Sample ID: 211217  
 COC Group: G0408351  
 Time Collected: 04/07/08 13:00  
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>Percent Solids Determination</b>									
Percent Solids	80.7	%			1	SM2540 G	04/14/08 14:15	mbarber	
<b>Diesel Range Organics (DRO) by GC-FID</b>									
Diesel Range Organics (DRO)	BRL	mg/kg	8.5	1.4	1	8015B	04/17/08 12:02	javogel	Q31787
Sample Preparation:			25.39 g	/	1 mL	3545	04/15/08 16:45	wconder	P21349
					<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>		
					o-Terphenyl	106	49 - 124		
<b>Sample Weight Determination</b>									
Weight 1	5.95	g			1	GRO	04/17/08 0:00	athao	
Weight 2	6.36	g			1	GRO	04/17/08 0:00	athao	
<b>Gasoline Range Organics (GRO) by GC-FID</b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.2	3.9	50	8015B	04/17/08 4:29	wbradley	Q31785
					<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>		
					aaa-TFT	80	55 - 129		

**Sample Comment(s):**

BRL = Below Reporting Limit

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# Laboratory Report

04/28/08

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: 50-10 (0-2)  
 Prism Sample ID: 211218  
 COC Group: G0408351  
 Time Collected: 04/07/08 13:25  
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>Percent Solids Determination</b>									
Percent Solids	91.1	%			1	SM2540 G	04/14/08 14:15	mbarber	
<b>Diesel Range Organics (DRO) by GC-FID</b>									
Diesel Range Organics (DRO)	49	mg/kg	7.6	1.2	1	8015B	04/18/08 12:15	jvogel	Q31787
Sample Preparation:			25.31 g	/	1 mL	3545	04/15/08 16:45	wconder	P21349
		<b>Surrogate</b>		<b>% Recovery</b>		<b>Control Limits</b>			
		o-Terphenyl		123		49 - 124			
<b>Sample Weight Determination</b>									
Weight 1	6.09	g			1	GRO	04/17/08 0:00	athao	
Weight 2	6.00	g			1	GRO	04/17/08 0:00	athao	
<b>Gasoline Range Organics (GRO) by GC-FID</b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	5.5	3.4	50	8015B	04/17/08 5:01	wbradley	Q31785
		<b>Surrogate</b>		<b>% Recovery</b>		<b>Control Limits</b>			
		aaa-TFT		97		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

04/28/08

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: 50-7 (2-5)  
 Prism Sample ID: 211219  
 COC Group: G0408351  
 Time Collected: 04/07/08 13:40  
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>Percent Solids Determination</b>									
Percent Solids	83.2	%			1	SM2540 G	04/14/08 14:15	mbarber	
<b>Diesel Range Organics (DRO) by GC-FID</b>									
Diesel Range Organics (DRO)	12	mg/kg	8.3	1.3	1	8015B	04/18/08 16:40	jvogel	Q31787
Sample Preparation:			25.23 g	/	1 mL	3545	04/15/08 16:45	wconder	P21349
					<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>		
					o-Terphenyl	123	49 - 124		
<b>Sample Weight Determination</b>									
Weight 1	5.91	g			1	GRO	04/17/08 0:00	athao	
Weight 2	6.74	g			1	GRO	04/17/08 0:00	athao	
<b>Gasoline Range Organics (GRO) by GC-FID</b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.0	3.8	50	8015B	04/17/08 5:32	wbradley	Q31785
					<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>		
					aaa-TFT	72	55 - 129		

**Sample Comment(s):**

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# Laboratory Report

04/28/08

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: 50-8 (2-5)  
 Prism Sample ID: 211220  
 COC Group: G0408351  
 Time Collected: 04/07/08 14:08  
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b><u>Percent Solids Determination</u></b>									
Percent Solids	78.5	%			1	SM2540 G	04/14/08 14:15	mbarber	
<b><u>Diesel Range Organics (DRO) by GC-FID</u></b>									
Diesel Range Organics (DRO)	BRL	mg/kg	8.8	1.4	1	8015B	04/17/08 12:39	javogel	Q31787
Sample Preparation:			25.31 g	/	1 mL	3545	04/15/08 16:45	wconder	P21349
					<b>Surrogate</b>		<b>% Recovery</b>	<b>Control Limits</b>	
					o-Terphenyl		88	49 - 124	
<b><u>Sample Weight Determination</u></b>									
Weight 1	5.54	g			1	GRO	04/17/08 0:00	athao	
Weight 2	5.53	g			1	GRO	04/17/08 0:00	athao	
<b><u>Gasoline Range Organics (GRO) by GC-FID</u></b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.4	4.0	50	8015B	04/17/08 6:04	wbradley	Q31785
					<b>Surrogate</b>		<b>% Recovery</b>	<b>Control Limits</b>	
					aaa-TFT		70	55 - 129	

Sample Comment(s):

BRL = Below Reporting Limit  
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Full Service Analytical & Environmental Solutions

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Client Company Name: HART & HICKMAN  
 Report To/Contact Name: D. Graham  
 Reporting Address: 2423 S. Tryon St.

Phone: 704-586-0007 Fax (Yes) (No):  
 Email (Yes) (No) Email Address: dgraham@hartandhickman.com  
 EDD Type: PDF Excel Other  
 Site Location Name: Boone - DOT  
 Site Location Physical Address: Boone, NC

# CHAIN OF CUSTODY RECORD

PAGE 1 OF 10 QUOTE # TO ENSURE PROPER BILLING:

Project Name: Row-148  
 Short Hold Analysis: (Yes) (No) UST Project: (Yes) (No)  
 \*Please ATTACH any project specific reporting (QC LEVEL I II III IV) provisions and/or QC Requirements  
 Invoice To:  
 Address:

Purchase Order No./Billing Reference  
 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)

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				
50-1 (0-2)	4/7/08	1020	Soil	VOA	3	None/meth	TRIPLE		211211
50-2 (2-5)		1045		CG					211212
50-3 (2-5)		1110							211213
50-4 (3-5)		1130							211214
50-5 (0-2)		1145							211215
50-6 (5-7)		1155							211216
50-9 (5-7)		1300							211217
50-10 (0-2)		1325							211218
50-7 (2-5)		1340							211219
50-8 (2-5)		1408							211220

Samplers Signature: M. Falkner Sampled By (Print Name): M. Falkner Affiliation: H&H

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) [Signature] Received By: (Signature) [Signature] Date: 4/11/08 Military/Hours: 920

Relinquished By: (Signature) [Signature] Received By: (Signature) [Signature] Date: 4/11/08 Military/Hours: 920

Relinquished By: (Signature) [Signature] Received By: (Signature) [Signature] Date: 4/11/08 Military/Hours: 920

Method of Shipment:  Fed Ex  UPS  Hand-delivered  Prism Field Service  Other  
 NOTE: ALL SAMPLE COOLERS SHOULD BE TAPED SHUT WITH CUSTOMER SEALS FOR TRANSPORTATION TO THE LABORATORY. SAMPLES ARE NOT ACCEPTED AND VERIFIED AGAINST COC UNTIL RECEIVED AT THE LABORATORY.  
 Received For Prism Laboratories By: [Signature] COC Group No. 60403351

NPDES:  NC  SC  NC  SC  NC  SC  NC  SC  NC  SC  
 GROUNDWATER:  NC  SC  NC  SC  NC  SC  NC  SC  
 DRINKING WATER:  NC  SC  NC  SC  NC  SC  NC  SC  
 SOLID WASTE:  NC  SC  NC  SC  NC  SC  NC  SC  
 CERCLA:  NC  SC  NC  SC  NC  SC  NC  SC  
 LANDFILL:  NC  SC  NC  SC  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)

## LAB USE ONLY

Samples INTACT upon arrival? YES  NO  N/A  
 Received ON WET ICE? Temp 1.3  
 PROPER PRESERVATIVES indicated?  
 Received WITHIN HOLDING TIMES?  
 CUSTODY SEALS INTACT?  
 VOLATILES rec'd W/OUT HEADSPACE?  
 PROPER CONTAINERS used?

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

PRESS DOWN FIRMLY - 3 COPIES

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

SEE REVERSE FOR TERMS & CONDITIONS

ORIGINAL



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

# Laboratory Report

04/28/08

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: 50-11 (4-6)  
 Prism Sample ID: 211221  
 COC Group: G0408351  
 Time Collected: 04/07/08 14:20  
 Time Submitted: 04/11/08 9:20

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

Percent Solids	80.2	%			1	SM2540 G	04/14/08 14:15	mbarber	
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**Diesel Range Organics (DRO) by GC-FID**

Diesel Range Organics (DRO)	BRL	mg/kg	8.7	1.4	1	8015B	04/17/08 13:17	jvogel	Q31787
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Sample Preparation: 25.22 g / 1 mL 3545 04/15/08 16:45 wcondor P21349

Surrogate	% Recovery	Control Limits
o-Terphenyl	74	49 - 124

**Sample Weight Determination**

Weight 1	6.25	g			1	GRO	04/17/08 0:00	athao	
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Weight 2	6.10	g			1	GRO	04/17/08 0:00	athao	
----------	------	---	--	--	---	-----	---------------	-------	--

**Gasoline Range Organics (GRO) by GC-FID**

Gasoline Range Organics (GRO)	BRL	mg/kg	6.2	3.9	50	8015B	04/17/08 6:35	wbradley	Q31785
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Surrogate	% Recovery	Control Limits
aaa-TFT	74	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



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

# Laboratory Report

04/28/08

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: 50-12 (5-8)  
 Prism Sample ID: 211222  
 COC Group: G0408351  
 Time Collected: 04/07/08 14:30  
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b><u>Percent Solids Determination</u></b>									
Percent Solids	75.1	%			1	SM2540 G	04/14/08 14:15	mbarber	
<b><u>Diesel Range Organics (DRO) by GC-FID</u></b>									
Diesel Range Organics (DRO)	BRL	mg/kg	9.2	1.5	1	8015B	04/17/08 13:54	jvogel	Q31787
Sample Preparation:			25.2 g	/	1 mL	3545	04/15/08 16:45	wconder	P21349
			<b>Surrogate</b>				<b>% Recovery</b>	<b>Control Limits</b>	
			o-Terphenyl				91	49 - 124	
<b><u>Sample Weight Determination</u></b>									
Weight 1	6.33	g			1	GRO	04/17/08 0:00	athao	
Weight 2	6.27	g			1	GRO	04/17/08 0:00	athao	
<b><u>Gasoline Range Organics (GRO) by GC-FID</u></b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.7	4.2	50	8015B	04/17/08 12:27	wbradley	Q31785
			<b>Surrogate</b>				<b>% Recovery</b>	<b>Control Limits</b>	
			aaa-TFT				91	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

04/28/08

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: 52-1 (2-5)  
 Prism Sample ID: 211223  
 COC Group: G0408351  
 Time Collected: 04/07/08 14:45  
 Time Submitted: 04/11/08 9:20

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

Percent Solids	70.7	%			1	SM2540 G	04/14/08 14:15	mbarber	
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**Diesel Range Organics (DRO) by GC-FID**

Diesel Range Organics (DRO)	BRL	mg/kg	9.8	1.6	1	8015B	04/17/08 14:32	jvogel	Q31787
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Sample Preparation: 25.38 g / 1 mL 3545 04/15/08 16:45 wcondor P21349

Surrogate	% Recovery	Control Limits
o-Terphenyl	94	49 - 124

**Sample Weight Determination**

Weight 1	6.21	g			1	GRO	04/17/08 0:00	athao	
Weight 2	6.56	g			1	GRO	04/17/08 0:00	athao	

**Gasoline Range Organics (GRO) by GC-FID**

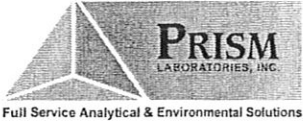
Gasoline Range Organics (GRO)	BRL	mg/kg	7.1	4.4	50	8015B	04/17/08 7:39	wbradley	Q31785
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Surrogate	% Recovery	Control Limits
aaa-TFT	62	55 - 129

**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



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

# Laboratory Report

04/28/08

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: 52-2 (5-7)  
 Prism Sample ID: 211224  
 COC Group: G0408351  
 Time Collected: 04/07/08 14:52  
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b><u>Percent Solids Determination</u></b>									
Percent Solids	75.3	%			1	SM2540 G	04/14/08 14:15	mbarber	
<b><u>Diesel Range Organics (DRO) by GC-FID</u></b>									
Diesel Range Organics (DRO)	BRL	mg/kg	9.2	1.5	1	8015B	04/17/08 15:09	jvogel	Q31787
Sample Preparation:			25.24 g	/	1 mL	3545	04/15/08 16:45	wconder	P21349
			<b>Surrogate</b>				<b>% Recovery</b>	<b>Control Limits</b>	
			o-Terphenyl				97	49 - 124	
<b><u>Sample Weight Determination</u></b>									
Weight 1	5.84	g			1	GRO	04/17/08 0:00	athao	
Weight 2	6.68	g			1	GRO	04/17/08 0:00	athao	
<b><u>Gasoline Range Organics (GRO) by GC-FID</u></b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.6	4.2	50	8015B	04/17/08 8:10	wbradley	Q31785
			<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.  
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 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

04/28/08

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: 52-3 (2-4)  
 Prism Sample ID: 211225  
 COC Group: G0408351  
 Time Collected: 04/07/08 15:00  
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b><u>Percent Solids Determination</u></b>									
Percent Solids	74.3	%			1	SM2540 G	04/14/08 14:15	mbarber	
<b><u>Diesel Range Organics (DRO) by GC-FID</u></b>									
Diesel Range Organics (DRO)	340	mg/kg	230	7.5	5	8015B	04/18/08 17:55	jvogel	Q31787
Sample Preparation:			25.47 g	/	1 mL	3545	04/15/08 16:45	wconder	P21349
			<b>Surrogate</b>				<b>% Recovery</b>	<b>Control Limits</b>	
			o-Terphenyl				113	49 - 124	
<b><u>Sample Weight Determination</u></b>									
Weight 1	5.59	g			1	GRO	04/17/08 0:00	athao	
Weight 2	5.47	g			1	GRO	04/17/08 0:00	athao	
<b><u>Gasoline Range Organics (GRO) by GC-FID</u></b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.7	4.2	50	8015B	04/17/08 9:50	wbradley	Q31785
			<b>Surrogate</b>				<b>% Recovery</b>	<b>Control Limits</b>	
			aaa-TFT				58	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



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

# Laboratory Report

04/28/08

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: 52-4 (5-7)  
 Prism Sample ID: 211226  
 COC Group: G0408351  
 Time Collected: 04/07/08 15:10  
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>Percent Solids Determination</b>									
Percent Solids	78.4	%			1	SM2540 G	04/14/08 14:15	mbarber	
<b>Diesel Range Organics (DRO) by GC-FID</b>									
Diesel Range Organics (DRO)	BRL	mg/kg	8.9	1.4	1	8015B	04/18/08 19:48	jvogel	Q31877
Sample Preparation:			25.12 g	/	1 mL	3545	04/16/08 16:00	wconder	P21362
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						o-Terphenyl	74	49 - 124	
<b>Sample Weight Determination</b>									
Weight 1	5.47	g			1	GRO	04/17/08 0:00	athao	
Weight 2	6.04	g			1	GRO	04/17/08 0:00	athao	
<b>Gasoline Range Organics (GRO) by GC-FID</b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.4	4.0	50	8015B	04/17/08 10:21	wbradley	Q31785
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						aaa-TFT	95	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





Full Service Analytical & Environmental Solutions

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

# Laboratory Report

04/28/08

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: 54 13J (4-6)  
 Prism Sample ID: 211227  
 COC Group: G0408351  
 Time Collected: 04/07/08 15:40  
 Time Submitted: 04/11/08 9:20

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

Percent Solids	83.1	%			1	SM2540 G	04/14/08 14:15	mbarber	
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**Diesel Range Organics (DRO) by GC-FID**

Diesel Range Organics (DRO)	BRL	mg/kg	8.3	1.3	1	8015B	04/18/08 20:24	jvogel	Q31877
-----------------------------	-----	-------	-----	-----	---	-------	----------------	--------	--------

Sample Preparation: 25.23 g / 1 mL 3545 04/16/08 16:00 wconder P21362

Surrogate	% Recovery	Control Limits
o-Terphenyl	65	49 - 124

**Sample Weight Determination**

Weight 1	5.93	g			1	GRO	04/17/08 0:00	athao	
Weight 2	6.49	g			1	GRO	04/17/08 0:00	athao	

**Gasoline Range Organics (GRO) by GC-FID**

Gasoline Range Organics (GRO)	BRL	mg/kg	6.0	3.8	50	8015B	04/17/08 10:52	wbradley	Q31785
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Surrogate	% Recovery	Control Limits
aaa-TFT	85	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

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: D. Graham  
Reporting Address: 2403 S. Tryon St.

Phone: 704-586-0007 Fax (Yes) (No):  
Email (Yes) (No) Email Address: dgraham@hartandhickman.com  
EED Type: PDF  Excel  Other   
Site Location Name: Boone - DOT  
Site Location Physical Address: Boone, NC

# CHAIN OF CUSTODY RECORD

PAGE 2 OF 10 QUOTE # TO ENSURE PROPER BILLING:

Project Name: Row-148  
Short Hold Analysis: (Yes) (Not) UST Project: (Yes) (No)  
\*Please ATTACH any project specific reporting (QC LEVEL I III IV) provisions and/or QC Requirements  
Invoice To:  
Address:

Purchase Order No./Billing Reference

Requested Due Date  1 Day  2 Days  3 Days  4 Days  5 Days  
"Working Days"  6-9 Days  Standard 10 days  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 1.3  
PROPER PRESERVATIVES indicated?  
Received WITHIN HOLDING TIMES?  
CUSTODY SEALS INTACT?  
VOLATILES rec'd W/OUT HEADSPACE?  
PROPER CONTAINERS used?

TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL

Certification: NELAC  USACE  FL  NC   
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				
50-11(46)	4/7/08	1420	soil	VOA CB	3	40ml 6oz	none/meth	HPLC for PAHs, PCBs, VOCs		211221
50-12(58)		1430								211222
52-1(25)		1445								211223
52-2(57)		1452								211224
52-3(2-4)		1500								211225
52-4(57)		1510								211226
541BS(4-6)		1540		VOA CB	4	40ml 6oz	none/meth	X	HOLD VOCs	211227
53-3(4-6)		1620		VOA CB	3					211228
53-1(2-5)		1645								211229
53-2(5-7)		1700								211230

**PRESS DOWN FIRMLY - 3 COPIES**

Sampler's Signature: [Signature] Sampled By (Print Name): M. Falkner Affiliation: H&H

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) [Signature] Received By: (Signature) \_\_\_\_\_ Date: \_\_\_\_\_ Military/Hours: \_\_\_\_\_

Relinquished By: (Signature) [Signature] Received By: (Signature) \_\_\_\_\_ Date: \_\_\_\_\_ Military/Hours: \_\_\_\_\_

Relinquished By: (Signature) \_\_\_\_\_ Received By: (Signature) [Signature] Date: 4/16/08 Military/Hours: 920

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  NC  SC  NC  SC

LANDFILL:  NC  SC  NC  SC  NC  SC  NC  SC

OTHER:  NC  SC  NC  SC

PRISM USE ONLY  
Site Arrival Time: \_\_\_\_\_  
Site Departure Time: \_\_\_\_\_  
Field Tech Fee: \_\_\_\_\_  
Mileage: \_\_\_\_\_

Additional Comments:

SEE REVERSE FOR TERMS & CONDITIONS

ORIGINAL